

International Vegetation Classification Alliances and Associations Occurring in Nevada with Proposed Additions

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INTRODUCTION

This document is assembled from two bodies of work: development of the International Vegetation Classification (IVC), done primarily by NatureServe, and application the IVC to vegetation sampling performed by the Nevada Natural Heritage Program.

The initial development of the IVC has been done primarily through literature searches by NatureServe. These searches have been quite extensive, uncovering numerous 'gray-literature' documents that describe vegetation, and applying IVC concepts to those documents to elucidate vegetation types. In general, this has been a descriptive pursuit, rather than empirical. It has relied almost entirely on how well the vegetation types were described by the authors of the original documents and the experience of the ecologists translating the original descriptions into IVC types. Many types remain poorly described, or even lacking descriptions, and type descriptions are often overlapping. Thus a great deal of work remains to be done in order to perfect the IVC, particularly in Nevada where relatively few vegetation mapping projects have been performed.

The Nevada Natural Heritage Program (NNHP) began work on vegetation in late 2000 with the goal of improving the IVC, conducting some mapping projects, and perhaps identifying particularly rare vegetation types. However, it quickly became clear that the greatest needs for vegetation conservation in the state resides in our most abundant vegetation types: the sagebrush sea is becoming a cheatgrass ocean. This focused the NNHP vegetation work on developing maps of annual grasses for the sake of understanding landscape condition (primarily cheatgrass in the Great Basin; red brome and Mediterranean grass in the Mojave). This focus on condition rather than classification distracted from work on the IVC. However, in collecting field data for annual grass analyses, all above-ground perennial vegetation was assessed at all plots. This provided a database with over 800 plots within the state of Nevada (and additional plots extending primarily into Oregon and Idaho for a project encompassing the Owyhee Uplands). Recently, NNHP has begun to apply the existing IVC to this dataset, with 427 plots classified thus far. Of the remaining plots, many are of transitional types that are difficult to classify, though some have simply not been examined in sufficient detail as yet. Greater focus has also been given to the Great Basin over the Mojave due to the current NNHP ecologist's greater experience with the Great Basin. Within the Great Basin, focus has been more toward the lower elevation salt desert environments rather than the sagebrush types, due to previously weaker knowledge of salt deserts, discussed shortly below.

Classification of plots into IVC types has been an entirely manual process to-date. Ideally, plot data would be statistically analyzed, probably using "cluster analysis" methods, to determine a classification structure. That structure could then be applied to the IVC (along with the context of ecological knowledge about the clusters), providing empirical evidence for grouping, splitting, and revising the current IVC. However, this first-cut is less analytical.

Thus far, no real attempt has been made to revise the existing IVC types, though some recommendations are made both in a section within the text of this document before the type listing, and a few recommendations are made using a comments field within the type listing that comprises the bulk of the pages. However, a large portion of the NNHP field data clearly does not match existing IVC types.

A large number of new type proposals are included in the list, both for associations and alliances. These are simply proposals, and have not been formally accepted into the IVC. Some of the need for new vegetation types is due to historical taxonomic issues, others are due to neglect of vegetation across large portions of our state. Of primary note on historical issues, the shrub *Sarcobatus baileyi* has often been regarded as a subspecies, or even only an ecotype, of *S. vermiculatus* (a call-out box is provided below on this subject). The vegetation types most neglected in Nevada appear to be those of the salt desert scrub environments. These are extensive and widespread in the lower elevation portions of the Great Basin, particularly within the Lahontan Trough. This is somewhat surprising, since several population centers lie within the Lahontan Trough, including Hawthorn, Yerington, Fallon, Lovelock,

Winnemucca, and Battle Mountain. However, much of the use of the natural landscape in Nevada has focused on higher elevation areas where greater forage exists for grazing. As a result, these salt desert types have sometimes been left undisturbed, providing refugia for fragile biological soil crusts. Unfortunately, the population centers within the Lahontan Trough now have many people who wish to recreate in nearby desert and who regard it as effectively 'wasteland'.

Another current project at the NNHP, a synthesis of vegetation maps for the state, provides a number of vegetation mapping classes that could imply further new reports for the state. For example, the *Quercus vaccinifolia* Shrubland Alliance. These are not included here as many are the result of modeling exercises with inherent error and should be verified for their presence within the state.

It is our hope, that future vegetation work at the NNHP will be able to greatly refine the IVC for the state. This work should include clarifying the existing classification, solidifying of new vegetation types, and continued gathering of empirical data to support the classification. Installation of permanent plots could also be useful to better understand vegetation changes with time, disturbance, and climate change, including transitions between vegetation types.

ORIGIN AND STRUCTURE OF THE IVC

The IVC (Grossman et al. 1998) is a hierarchical classification for vegetation built by a large community of ecologists, botanists, and land managers. The project was initiated by the Ecological Society of America, NatureServe (then the Association for Biological Information), a number of Natural Heritage Programs around the U.S., and The Nature Conservancy. The cooperative nature of this project attracted attention from a number of land management agencies, and the Federal Geographic Data Committee (FGDC) adopted the (then) NVC as the standard for use by all federal agencies. The classification also gained attention internationally – primarily from Canada – leading it to become an international system. Use within the U.S. continued to increase and it was readily adopted by Gap Analysis Program (GAP) landcover mapping and the recent LANDFIRE program. A discussion of the IVC that includes major references is available at <http://www.natureserve.org/explorer/classeco.htm>.

IVC or NVC or ICEC???

The classification has gone through several names including the “National Vegetation Classification” (NVC) and the “International Classification of Ecological Communities” (ICEC). Currently, the preferred name is the “International Vegetation Classification” (IVC).

While acceptance of the IVC has grown, some portions of the classification remain in flux. The current hierarchy has upper levels based on physiognomy while the lower levels (Alliance and Association) are almost entirely floristically based. However, the upper levels are undergoing revision with one goal being the elimination of disparate classification methods of physiognomy for some and floristics for others.

A parallel high-level grouping has come into use in recent years: Ecological Systems ([Comer et al. 2003](#)). Ecological Systems were constructed to solve problems related to algorithmic vegetation mapping from satellite imagery. While these methods make regional vegetation mapping possible at low cost, they generally cannot resolve Associations or Alliances with acceptable accuracy. Thus there is need for a classification with greater thematic resolution (and greater meaning) than would be provided by the Formation level of the current IVC hierarchy. Ecological Systems are a solution of convenience that groups Associations into mappable units that have ecological meaning. Some systems have been questioned as to the value of their meaning (e.g. “Sierra Nevada Cliff and Canyon Complex” which partly means something like 'too steep and rocky to distinguish pine from grass'). But the systems have proven both useful and better for information conveyance than previous attempts to define vegetation mapping units at similar thematic levels. The systems are not included in this document, but are well covered by other readily available documents from [Southwest Regional Gap Analysis Project](#) and [NatureServe](#).

IVC Hierarchy Example (Current, but Undergoing Revision for Higher Levels)

Class:	Shrubland
Subclass:	Evergreen shrubland
Group:	Microphyllous evergreen shrubland
Subgroup:	Natural/Semi-natural microphyllous evergreen shrubland
Formation:	Lowland microphyllous evergreen shrubland
Alliance:	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> Shrubland Alliance
Association:	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> / <i>Poa secunda</i> Shrubland

The levels of formation and above are currently under revision. The focus of these higher levels on physiognomy has been somewhat awkward to mesh with the floristics of the lower levels. The future hierarchy will hopefully provide a more smooth classification from top to bottom, but little solid information can be provided at this time.

ECOLOGICAL OBSERVATIONS THAT GUIDED CLASSIFICATION OF NNHP FIELD DATA

Knowledge of vegetation ecology within Nevada was utilized in classifying NNHP field plots into the IVC and in proposing new types for the IVC. Of greatest note:

- *Chrysothamnus viscidiflorus* and *Ericameria nauseosa* were generally ignored when making classification decisions. These species are generally indicators of intermediate levels of disturbance, either in the recent past, or as a continuous factor in vegetation development. Thus their abundance is more relevant to determining the condition of vegetation rather than classification. This is particularly relevant to sagebrush communities. Exceptions do exist and one of the proposed new types is the association *Ericameria nauseosa* / *Leymus cinereus* Bottomland Vegetation, which is believed to be maintained by occasional flooding, preventing succession to an *Artemisia tridentata* ssp. *tridentata* type.
- *Ephedra* species, particularly *Ephedra viridis*, are probably of weak value to vegetation classification as well. *E. viridis* sprouts readily after wildfire, growing vigorously, and thus may better indicate recent fire history rather than other ecological conditions or habitat types.
- Priority is given to native species over invasive species. This is to retain knowledge of the natural vegetation prior to invasion. Invasive species are utilized in classification only when insufficient data is available for classifying a site within a native type. Thus a site with 20 % cover of *Artemisia tridentata* ssp. *wyomingensis*, 3 % cover of *Elymus elymoides*, and 25% cover of *Bromus tectorum* would be classified as an *Artemisia tridentata* ssp. *wyomingensis* / *Elymus elymoides* Shrubland. If the *E. elymoides* is lost from the site, then it could be classified as an *Artemisia tridentata* ssp. *wyomingensis* / *Bromus tectorum* Semi-natural Shrubland. Also, it would remain in that classification even if ground cover for *B. tectorum* exceeded an order of magnitude greater than the cover of *A. t. wyomingensis*. Only when the shrub is effectively lost from the site would it be classified as *Bromus tectorum* Semi-natural Herbaceous Vegetation.
- Vegetation is classified first by the tallest 'dominant' layer (layer ordered: tree / shrub / graminoid / forb / non-vascular 'plant'). In general, the upper layer needs about 5 % or greater ground cover to be eligible for 'dominating' a site, but the amount is non-specific. In vegetation where a lower layer has very high cover, it might be justifiable to raise the cover requirement to consider the upper layer to be 'dominating'. Exceptions on the lower end exist as well, for example Joshua trees rarely exceed about 5 % cover though they can visually dominate the landscape and are of importance relative to habitat types. Thus cover values as low as 2-3 % are acceptable for placement within the *Yucca brevifolia* Wooded Shrubland Alliance.

Distinction of *Sarcobatus baileyi* from *Sarcobatus vermiculatus*.

These are two species with clear ecological differences and which form very different vegetation types. Yet in the past, these have often been distinguished only as subspecies, or even ecotypes, within a single species. If one only examines herbarium specimens, the distinction may seem minor as they are anatomically similar (though not identical). But to most who have much field experience with Nevada's vegetation the species-level distinction is clear.

In the field, their stature is quite different (the images below show *S. baileyi* on the left and *S. vermiculatus* on the right). *S. baileyi* is a short, compact, hemispherical shrub, while *S. vermiculatus* grows tall, with open branching, and variable over-all shape; these are spiny shrubs so it has been said that if you can reach in to the shrub up to your elbow without screaming, then it is the open-branched *S. vermiculatus*.

These species also occupy different portions of the landscape and the images are of rather rare cases where they were found growing side-by-side. *S. baileyi* is an upland species in dry soils, while *S. vermiculatus* is more-or-less phreatophytic, growing only where it can get its roots in, or at least near, the water table. Sites of *S. vermiculatus* die-offs may be found that appear to be caused by dropping water tables.

Oddly, *S. baileyi* is an endemic to the state of Nevada, although there is a high likelihood that it will be found over the border into California in the eastern foothills and alluvial fans of the southern White Mountains near Dyer. It is unusual for a species to be dominant over such large areas without having any occurrences in neighboring states. The species even dominates vegetation to within one kilometer of the California border to the southeast of Dyer.



RECOMMENDATIONS FOR CHANGES TO THE IVC

A number of changes are proposed in this document. It is important to know that these proposals may not be accepted into the IVC in their entirety – they are simply proposals at this point. Most of these are for new associations and alliances, which are inserted in the list below and noted with “* * * New Vegetation Type.” A number of existing classification types previously known only outside of Nevada are included and noted with “* New to Nevada.” For a few associations, State Ranks are proposed (listed after Global Ranks). A number of associations also include an 'NNHP Comments' field which is generally used to note minor refinements but occasionally discusses the possibility of splitting an Association or making other changes.

Several changes that the Nevada Natural Heritage Program proposes, both significant and minor, are better addressed outside of the list. These include:

- Synonymize “Shrubland” and “Dwarf-shrubland” classes. Shrub sizes in arid lands form a gradient such that it is difficult to define a line between smaller and larger shrubs. Furthermore, there are associations that are dominated by a small shrub but contain subdominant larger

shrubs. Thus they may belong to a dwarf-shrub Alliance despite a significant presence of tall shrubs. For example, the proposed *Menodora spinescens* - *Sarcobatus baileyi* - *Grayia spinosa* Shrubland fits within the existing *Menodora spinescens* Dwarf-shrubland Alliance.

- If 'Dwarf-shrubland' is to be retained, then it should be applied uniformly. For example: *Picrothamnus desertorum* is no larger than *Menodora spinescens* so they should be on the same side of the shrub-size divide.
- Move most, or all, 'sparse vegetation' types into their proper physiognomic categories for their dominating species. A great deal of vegetation within Nevada straddles the current distinction between 'sparse' vegetation types and more abundant shrublands. The lichen-based vegetation types proposed in the list may appropriately remain in a 'sparse vegetation' category or be placed into a non-vascular vegetation class (more appropriate to the physiognomic delineations).
- Many of the associations within the *Sarcobatus vermiculatus* Intermittently Flooded Shrubland Alliance occur in Nevada in upland situations where high water tables allow *S. vermiculatus* to grow without ever being flooded. A review of the entire alliance is recommended as many associations may best be simply transferred to an upland version of the alliance rather than splitting into two alliances. In this list, I have often used the wetland associations to classify NNHP vegetation plots that are in these upland situations rather than to start creating numerous splits. The same issue exists for *Suaeda moquinii*.
- Some common names seem odd and should be revised. Common names should be common; that is, they should be chosen from among those already in common usage before inventing a new one. It is also acceptable for portions of scientific names to be used in common names. For example, *Menodora spinescens* is given under the common name 'greenfire', which is completely unknown to the local botanical community. Rather, it goes by the common name 'spiny menodora'. Another case is that the IVC uses 'basin big sagebrush' as the common name of the species in general, while local usage is simply 'big sagebrush' for the species and 'basin big sagebrush' when referring to just the subspecies *Artemisia tridentata* ssp. *tridentata*.
- In some cases, the common name used may be outright wrong. Local botanists know *Tetradymia tetrameres* as 'dune horsebrush' but it is given as 'cottonthorn' in the IVC. Locally, 'cottonthorn' is known as *T. axillaris*. Furthermore, it should be noted that *T. tetrameres* lacks thorns.
- Food for thought... if associations are considered to be the 'real entities' on the landscape (like species in organismal taxonomy), then alliances should be groups of associations. Classifying based either on grouping associations according to ecological concepts, or on statistical cluster analyses of field data, the alliances would be moved away from simply naming the single most-dominant species in the upper vegetation layer. The IVC is supposed to be designed to accommodate both top-down and bottom-up viewpoints. Emphasizing the bottom-up approach for these lower levels of the IVC may allow for smoother and more intuitive transitions to higher levels. A good example is the proposal for two associations of vegetation on highly acidified soils in western Nevada, one dominated by *Pinus ponderosa* and/or *P. jeffreyi* and the other dominated by *Juniperus osteosperma* and/or *Pinus monophylla*, which are then grouped into the single Geothermally Acidified Soil Coniferous Woodland Alliance. Note: these are proposed as an alternative to the current *Pinus (ponderosa, jeffreyi)* Sparsely Vegetated Alliance.

FORMAT AND ATTRIBUTION OF THE IVC LIST

This list was output from a database using a blend of data from NatureServe and the NNHP. NatureServe really deserves credit for the bulk of the information. Associations and Alliances, except for several proposed new ones, have been developed almost entirely by NatureServe. A database

Why no Black Oak (*Quercus kelloggii*)?

California black oak (*Quercus kelloggii*) has a curious distribution. It is abundant on the west slope of the Sierra-Nevada mountains where it rises in elevation nearly to Donner Summit. It also wraps around the southern end of the range and crosses the Sierra/Cascade juncture near Lassen, where it comes southward on the east slope to the Doyle area. The Doyle and Susanville area seem similar to much of the Carson Front Range foothills, at least superficially. Driving along the western edge of Washoe Valley, one can easily imagine stands of black oak growing along the flanks of the mountains. And canyon live oak (*Quercus chrysolepis*) does grow in Nevada, with at least one occurrence in the Tahoe basin and another in the small valley to the west of Washoe Lake. So why no California black oak here in Nevada?

One idea might be that it simply hasn't had time since the last glacial period to spread all the way around the Sierra. Glacial periods change the distributions of plants and many take a long time to migrate after climates warm. Strong evidence exists that *Pinus contorta* continues to move northward (Johnstone & Chapin 2003). So perhaps that is the case with California Black Oak?

Why hasn't *Q. kelloggii* migrated more quickly? Do appropriate conditions really exist in the eastern range gap?

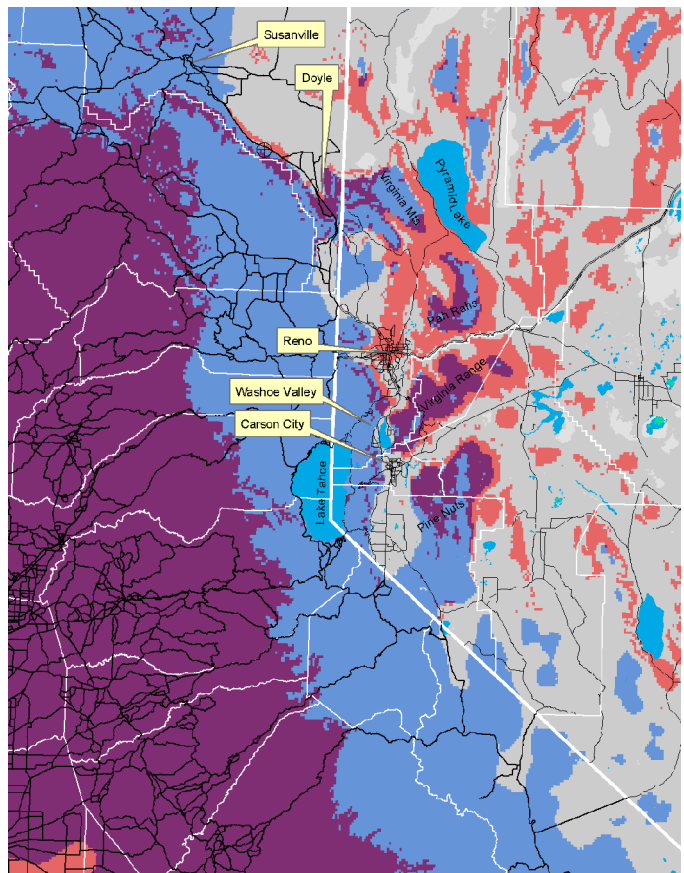
On the first question, the distances for migration are not terribly great, so one might not expect that migration and achieving equilibrium would take many thousands of years. Given the food value of acorns and their wide use by Native Americans around California, one might expect incentive for natives to plant trees and artificially speed a migration.

But we also must consider climatological history at a finer scale than simply glacial vs. interglacial. Even if appropriate conditions do currently exist for *Q. kelloggii* in Nevada, the 'little ice age' (roughly 1300 - 1900) could have blocked migration in recent centuries, or even pushed the species back from Nevada.

Toward the second question, are there really sites in Nevada that are appropriate for *Q. kelloggii*? The neighboring figure provides a rough geospatial model of potential habitat for *Q. kelloggii*. It is derived from annual averages of minimum temperature and of total precipitation. Areas mapped as potential habitat have values for these two climate variables equal to, or greater than, a site with abundant *Q. kelloggii* at a quarry between Doyle and Susanville. This suggests that appropriate habitat may be available in Nevada, not only in Washoe Valley, but with extensive swaths in the Pah Rah, Pine Nut, and Virginia Ranges - even some in the Virginia Mountains.

However, this is a very rough model. By using annual averages, extreme climate conditions are poorly represented. Anomalously low temperatures could restrict the oaks. Soils are not considered in the model, but may be involved in blocking the species. Perhaps multiple factors interact; the marginal precipitation totals combined with possibly less water holding capacity of soils could make the area effectively more arid to oak physiology than climate maps alone would suggest.

Various research possibilities exist for investigating these questions, utilizing stand age structures, population genetics. Hopefully someone will explore these in the future. One last question: given the current changes in climate, should *Q. kelloggii* be welcomed into Nevada's wildland vegetation as a native species?



distributed by NatureServe to Heritage ecologists (the 'lookups' database, dated October 2007) formed the core tables for providing this list including the previously reported presence of each in Nevada. NatureServe's detailed work is exemplified by the references listed from the lookups database (note: the full citations are not provided here but can be found on the NatureServe website). Summaries for alliances and associations were grabbed from the online NatureServe Explorer database. The NNHP contributed to this list by proposing several new vegetation types, listing known plots, providing a few comments and occasional state ranks, and contributing photographs, largely from plots.

A Note to Users of the NNHP Plots Database

Getting proper formatting in the output turned out to be somewhat complicated due to formatting limitations of software used. The procedure used here is (1) export the report from Microsoft Access (2000 or 2003) in RTF format; (2) open the RTF file in Microsoft Word (2000 or 2003) and save as a text-only file, but with the filename ending in “.htm” (using quotes around the filename allows non-“.txt” extensions); (3) Use the file for this text, or a blank document, in Open Office and Insert the HTML file; this can be converted cleanly into a PDF within Open Office. Attempts to make the final document within MS Word 2000 and 2003 failed due to improper formatting of images and the loss of HTML links when converting to PDF.

Details about the list:

1. Order:
 - A. Associations are grouped by their parent alliances. Otherwise the list is alphabetical by the scientific name of the type.
 - B. Alliances are grouped by class (Forest, Woodland, Shrubland, Dwarf-shrubland, Herbaceous Vegetation, and Sparse Vegetation). The class is the highest level in the IVC currently, though subject to change with current revisions to the upper-levels of the hierarchy.
2. Naming:
 - A. The full scientific name of the type is given in a large font.
 - B. The full name using common names for plants is given in a medium-large font.
 - C. If the type (alliance or association) is new to Nevada or a new proposal for the IVC, then a colored 'New ...' statement will appear prior to the type's name, either:
 - i. “* * * New Vegetation Type”
 - ii. “* New to Nevada”
 - D. Very little effort has been made to-date, to reject inappropriate types from the Nevada list.
 - E. A few types are included which NatureServe considers weak – the NatureServe confidence records are included in the 'confidence' field.
3. The existing alliances and associations codes are linked to a detailed description page in the on-line NatureServe Explorer database (if the type is already established in the IVC).
4. Summaries:
 - A. for all existing types, these have been grabbed from NatureServe Explorer (primarily by an automated web script) and is followed by the date that the information was captured. If no summary exists in NatureServe Explorer, then a date is given for the most recent search.
 - B. Summaries provided for proposed new types are generally brief compared to the summaries written by NatureServe due to the lack of a multi-state perspective. These are not intended as final summaries for direct acceptance into the IVC. Rather, they are intended to be simple and direct descriptions of the type as it has been observed thus far by the NNHP.

Non-vascular plants (Lichens, Mosses, etc.) and Vegetation Classification

At first it may be tempting for people with an interest in non-vasculars to incorporate them heavily into vegetation classification. They are photosynthetic, perennial components of vegetation. However, one must be aware that the biogeography of non-vasculars is quite different from vascular plants, often in ways that make them more suitable to assessing vegetation condition (or ecosystem 'health').

First, their overall ranges (the extent of the landscape they inhabit) tends to be quite large – often multicontinental – presumably due to a combination of medium-long distance dispersal capabilities and exceptionally slow evolution (glacial cycling is almost too fast to warrant attention from their DNA). Second, their local distribution (the pattern of their occurrence) tends to be narrowly focused on microhabitats. In the Pacific Northwest many species have been studied as indicators of old-growth forest conditions. A number of species have been identified with varying degrees of restriction to old growth and for various reasons. For some, it is simply a matter of how long the habitat has remained without a stand-replacing disturbance; it just takes them a long time to colonize and amass a significant population. For others, particularly the pin-lichens, some particular character of old-growth trunks seems to define their microhabitat (perhaps a combination of bark texture and trunk size to block direct rain interception). In either case, a single remnant old-growth tree may retain the species, so use of their presence for defining some sort of old-growth vegetation type would require cautious measurements, probably of abundance or dispersion throughout a stand. Haphazard use of lichens in vegetation classification could result in misclassification due to scarce microhabitats within otherwise unsuitable types.

Their distribution can also be tightly linked to air quality. Many species are quite sensitive to air pollution, especially sulfuric and nitric compounds. Other species are more tolerant and able to proliferate in polluted areas. Thus lichen communities may shift due to pollution concentrations.

In the intermountain west, epiphytic lichen diversity is limited. Abundance on shrubs such as sagebrush is variable and poorly understood. Cases can be found where communities appear to be shifted toward the orange Teloschistaceae species, presumably due to nitrogen deposition or perhaps simply from dust deposition. A great deal more study would be required to utilize lichen communities in defining vegetation types, and even then the microhabitat issue would be quite relevant.



Assessing vegetation condition, however, is another topic. The intermountain west once had biological soil crusts abundant and widespread throughout the landscape (Belnap et al. 2001). These formed a keystone component of our ecosystems, reducing erosion, enhancing soil nutrients, altering water infiltration, and simply occupying the soil surface niche to slow cheatgrass invasion. These organisms are unfortunately quite sensitive to soil disturbances including hoof-action, and even if they are compatible with current levels of grazing, the historic levels surely removed them from vast areas. Substantial presence of biological soil crusts is an excellent indicator of less-trodden land and an important consideration in evaluating condition of many of

our vegetation types. Similarly, the patterns in communities due to pollution may be useful for assessing condition, though this requires further study before it can be properly applied.

Arid regions also have sufficiently large areas dominated by non-vascular plants to justify classification into non-vascular types, such as rock outcrops and talus slopes. Although the NNHP has not sampled these as vegetation types, several tentative associations are described from field observation within the 'Sparse Vegetation' class in the IVC list.

Biological soil crust communities are also quite diverse and variable over the landscape. There could be utility in classifying their communities separately from the vascular plant vegetation, both for understanding condition and disturbance gradients, and for understanding how other ecological gradients (soils, humidity, snow-drifting, etc.) manifest on the landscape.



LITERATURE CITED (THUS-FAR)

This list is for literature cited thus far in this document. For citations in the 'References' field within the IVC list below, please consult the NatureServe web page for the relevant vegetation type.

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LISTING OF THE INTERNATIONAL VEGETATION CLASSIFICATION FOR NEVADA:

Alliances: 206

 New Alliances Proposed: 13

Associations: 468

 Associations New to Nevada: 35

 Associations Proposed New to IVC: 74

Short List (full list with descriptions follows):

I.Forest

- [Abies concolor - Populus tremuloides Forest Alliance](#)
- [Populus tremuloides - Abies concolor / Arctostaphylos patula Forest](#)
- [Populus tremuloides - Abies concolor / Poa pratensis Semi-natural Forest](#)
- [Abies concolor Forest Alliance](#)
- [Abies concolor - Pinus ponderosa / Cercocarpus ledifolius Forest](#)
- [Abies concolor - Pseudotsuga menziesii / Acer glabrum Forest](#)
- [Abies concolor / Mahonia repens Forest](#)
- [Abies lasiocarpa - Picea engelmannii Forest Alliance](#)
- [Abies lasiocarpa - Picea engelmannii / Arnica cordifolia Forest](#)
- [Abies lasiocarpa Seasonally Flooded Forest Alliance](#)
- [Abies lasiocarpa - Picea engelmannii / Alnus incana Forest](#)
- [Abies magnifica - Abies concolor Forest Alliance](#)
- [Abies magnifica - Abies concolor - Pinus jeffreyi Sierran Montane Chaparral Forest](#)
- [Abies magnifica Forest Alliance](#)
- [Abies magnifica - Pinus monticola - Pinus contorta var. murrayana Forest](#)
- [Abies magnifica / Ribes viscosissimum Forest](#)
- [Abies magnifica / Wyethia mollis Forest](#)
- [Pinus contorta Forest Alliance](#)
- [Pinus contorta var. murrayana / Sparse Understory Forest](#)
- [Pinus flexilis - Populus tremuloides Forest Alliance](#)
- [Populus tremuloides - Pinus flexilis Forest](#)
- [Populus angustifolia Temporarily Flooded Forest Alliance](#)
- [Populus angustifolia / Rosa woodsii Forest](#)

Populus balsamifera ssp. *trichocarpa* Temporarily Flooded Forest Alliance
Populus balsamifera ssp. *trichocarpa* - *Pinus jeffreyi* Forest
Populus balsamifera ssp. *trichocarpa* / Mixed Herbs Forest
Populus balsamifera ssp. *trichocarpa* / *Salix exigua* Forest
Populus fremontii Temporarily Flooded Forest Alliance
Populus fremontii / *Acer negundo* Forest
Populus tremuloides - *Pseudotsuga menziesii* Forest Alliance
Populus tremuloides - *Pseudotsuga menziesii* / *Juniperus communis* Forest
Populus tremuloides - *Pseudotsuga menziesii* / *Symphoricarpos oreophilus* Forest
Populus tremuloides Forest Alliance
Populus tremuloides / *Amelanchier alnifolia* - *Symphoricarpos oreophilus* / Tall Forbs Forest
Populus tremuloides / *Amelanchier alnifolia* - *Symphoricarpos oreophilus* / *Thalictrum fendleri* Forest
Populus tremuloides / *Amelanchier alnifolia* / Tall Forbs Forest
Populus tremuloides / *Amelanchier alnifolia* / *Thalictrum fendleri* Forest
Populus tremuloides / *Artemisia tridentata* Forest
Populus tremuloides / *Bromus carinatus* Forest
Populus tremuloides / *Calamagrostis rubescens* Forest
Populus tremuloides / *Carex rossii* Forest
Populus tremuloides / Invasive Perennial Grasses Forest
Populus tremuloides / *Salix scouleriana* Forest
Populus tremuloides / *Symphoricarpos oreophilus* / *Bromus carinatus* Forest
Populus tremuloides / *Symphoricarpos oreophilus* / *Carex rossii* Forest
Populus tremuloides / *Symphoricarpos oreophilus* / Tall Forbs Forest
Populus tremuloides / *Symphoricarpos oreophilus* / *Thalictrum fendleri* Forest
Populus tremuloides / *Symphoricarpos oreophilus* / *Wyethia amplexicaulis* Forest
Populus tremuloides / *Symphoricarpos oreophilus* Forest
Populus tremuloides / Tall Forbs Forest
Populus tremuloides / *Wyethia amplexicaulis* Forest
Populus tremuloides Temporarily Flooded Forest Alliance
Populus tremuloides / *Alnus incana* - *Salix* spp. Forest
Populus tremuloides / *Betula occidentalis* Forest
Populus tremuloides / *Carex pellita* Forest
Populus tremuloides / *Veratrum californicum* Forest
Tsuga mertensiana Forest Alliance
Tsuga mertensiana Forest [placeholder]

II. Woodland

Abies lasiocarpa Woodland Alliance
Abies lasiocarpa - *Picea engelmannii* / *Juniperus communis* Woodland
Cercocarpus ledifolius Woodland Alliance
Cercocarpus ledifolius / *Artemisia tridentata* ssp. *vaseyana* Woodland
Cercocarpus ledifolius / *Artemisia tridentata* Woodland
Cercocarpus ledifolius / *Symphoricarpos oreophilus* Woodland
Geothermally Acidified Soil Coniferous Woodland Alliance
Pinus monophylla - *Juniperus osteosperma* / *Eriogonum (robustum)* Acidified-Soil Woodland
Pinus ponderosa / *Eriogonum (robustum)* Acidified-Soil Sparse Vegetation
Juniperus occidentalis Woodland Alliance
Juniperus occidentalis / *Achnatherum thurberianum* Woodland
Juniperus occidentalis / *Cercocarpus ledifolius* - *Symphoricarpos oreophilus* Woodland
Juniperus occidentalis / *Cercocarpus ledifolius* / *Pseudoroegneria spicata* Woodland
Juniperus osteosperma Woodland Alliance
Juniperus osteosperma - (*Pinus monophylla*) / *Elymus elymoides* Woodland
Juniperus osteosperma - (*Pinus monophylla*) / *Poa secunda* Woodland
Juniperus osteosperma / *Artemisia arbuscula* Woodland
Juniperus osteosperma / *Artemisia nova* / Rock Woodland
Juniperus osteosperma / *Artemisia nova* Woodland
Juniperus osteosperma / *Artemisia tridentata* / *Achnatherum hymenoides* Woodland
Juniperus osteosperma / *Artemisia tridentata* ssp. *wyomingensis* Woodland

Juniperus osteosperma / *Cercocarpus intricatus* Woodland
Juniperus osteosperma / *Ephedra nevadensis* Woodland
Juniperus osteosperma / *Pseudoroegneria spicata* Woodland
Juniperus osteosperma / Sparse Understory Woodland
Juniperus osteosperma Woodland
Juniperus scopulorum Seasonally Saturated Woodland Alliance
Juniperus scopulorum / *Distichlis spicata* Seasonally Saturated Woodland Alliance
Juniperus scopulorum Temporarily Flooded Woodland Alliance
Juniperus scopulorum / *Cornus sericea* Woodland
Juniperus scopulorum Temporarily Flooded Woodland [Placeholder]
Pinus albicaulis Woodland Alliance
Pinus albicaulis / *Ligusticum grayi* Woodland
Pinus contorta Woodland Alliance
Pinus contorta / *Juniperus communis* Woodland
Pinus edulis - (*Juniperus* spp.) Woodland Alliance
Pinus edulis - *Juniperus osteosperma* / *Artemisia pygmaea* Woodland
Pinus edulis - *Juniperus osteosperma* / *Coleogyne ramosissima* Woodland
Pinus edulis - *Juniperus* spp. / *Artemisia tridentata* (ssp. *wyomingensis*, ssp. *vaseyana*) Woodland
Pinus flexilis Woodland Alliance
Pinus flexilis / *Cercocarpus ledifolius* Woodland
Pinus flexilis / *Juniperus communis* Woodland
Pinus jeffreyi Woodland Alliance
Pinus jeffreyi - *Abies concolor* Woodland
Pinus jeffreyi / *Purshia tridentata* Woodland
Pinus jeffreyi Woodland [Placeholder]
Pinus longaeva Woodland Alliance
Pinus longaeva - *Pinus flexilis* Woodland [Placeholder]
Pinus monophylla - (*Juniperus osteosperma*) Woodland Alliance
Pinus monophylla - *Juniperus osteosperma* - *Quercus gambelii* / *Artemisia tridentata* Woodland
Pinus monophylla - *Juniperus osteosperma* / *Artemisia arbuscula* Woodland
Pinus monophylla - *Juniperus osteosperma* / *Artemisia nova* Woodland
Pinus monophylla - *Juniperus osteosperma* / *Artemisia tridentata* ssp. *vaseyana* / *Pseudoroegneria spicata* Woodland
Pinus monophylla - *Juniperus osteosperma* / *Artemisia tridentata* Woodland
Pinus monophylla - *Juniperus osteosperma* / Sparse Understory Woodland
Pinus monophylla - *Quercus gambelii* / *Artemisia tridentata* Woodland
Pinus monophylla / *Amelanchier alnifolia* / *Arctostaphylos patula* Woodland
Pinus monophylla / *Artemisia tridentata* Woodland
Pinus monophylla / *Cercocarpus ledifolius* Woodland
Pinus monophylla / *Symphoricarpos oreophilus* - *Artemisia tridentata* Woodland
Pinus monophylla Woodland
Pinus ponderosa Temporarily Flooded Woodland Alliance
Pinus ponderosa Temporarily Flooded Woodland [Provisional]
Pinus ponderosa Woodland Alliance
Pinus ponderosa / *Quercus gambelii* Woodland
Pinus washoensis Woodland Alliance
Pinus washoensis Woodland [Placeholder]
Populus angustifolia Temporarily Flooded Woodland Alliance
Populus angustifolia - *Pseudotsuga menziesii* Woodland
Populus angustifolia / *Betula occidentalis* Woodland
Populus angustifolia / *Cornus sericea* Woodland
Populus angustifolia / Invasive Perennial Grasses Semi-natural Woodland
Populus angustifolia / *Rhus trilobata* Woodland
Populus angustifolia / *Salix* (*monticola*, *drummondiana*, *lucida*) Woodland
Populus fremontii Seasonally Flooded Woodland Alliance
Populus fremontii / *Leymus triticoides* Woodland
Populus fremontii / *Salix geyeriana* Woodland
Pseudotsuga menziesii Temporarily Flooded Woodland Alliance
Pseudotsuga menziesii / *Betula occidentalis* Woodland

Salix gooddingii Temporarily Flooded Woodland Alliance
Salix gooddingii Woodland

III. Shrubland

Acacia greggii Shrubland Alliance

Acacia greggii - Parkinsonia microphylla Shrubland

Allenrolfea occidentalis Shrubland Alliance

Allenrolfea occidentalis Shrubland

Alnus incana Temporarily Flooded Shrubland Alliance

Alnus incana / Cornus sericea Shrubland

Alnus incana / Mesic Forbs Shrubland

Alnus incana / Mesic Graminoids Shrubland

Amelanchier alnifolia Shrubland Alliance

Amelanchier alnifolia / Artemisia tridentata / Festuca idahoensis Shrubland

Amelanchier alnifolia / Pseudoroegneria spicata - Bunchgrass Shrubland

Amelanchier utahensis Shrubland Alliance

Amelanchier (utahensis, alnifolia) - Cercocarpus montanus Shrubland

Amelanchier utahensis Shrubland

Arctostaphylos patula Shrubland Alliance

Arctostaphylos patula - Purshia tridentata Shrubland

Arctostaphylos patula / Ceanothus velutinus - Ceanothus prostratus Shrubland

Arctostaphylos pungens Shrubland Alliance

Arctostaphylos pungens Shrubland

Artemisia arbuscula ssp. arbuscula Shrubland Alliance

Artemisia arbuscula ssp. arbuscula / Poa secunda Shrubland

Artemisia arbuscula ssp. longicaulis Shrubland Alliance

Artemisia arbuscula ssp. longicaulis - Atriplex confertifolia Shrubland

Artemisia arbuscula ssp. longicaulis - Grayia spinosa Shrubland

Artemisia arbuscula ssp. longicaulis - Sarcobatus baileyi Shrubland

Artemisia arbuscula ssp. longicaulis / Bromus tectorum Semi-natural Shrubland

Artemisia arbuscula ssp. longicaulis / Elymus elymoides Shrubland

Artemisia arbuscula ssp. longicaulis / Poa secunda Shrubland

Artemisia arbuscula ssp. longiloba Shrubland Alliance

Artemisia arbuscula ssp. longiloba Shrubland

Artemisia cana (ssp. bolanderi, ssp. viscidula) Shrubland Alliance

Artemisia cana (ssp. bolanderi, ssp. viscidula) / Leymus cinereus Shrubland

Artemisia cana (ssp. bolanderi, ssp. viscidula) / Poa secunda Shrubland

Artemisia cana ssp. bolanderi / Eleocharis palustris Shrubland

Artemisia nova Shrubland Alliance

Artemisia nova - Artemisia tridentata ssp. wyomingensis / Vulpia (octoflora, microstachys) Shrubland

Artemisia nova - Ericameria nana Shrubland

Artemisia nova / Achnatherum hymenoides Shrubland

Artemisia nova / Elymus elymoides Shrubland

Artemisia nova / Hesperostipa comata Shrubland

Artemisia nova / Pleuraphis jamesii Shrubland

Artemisia nova / Poa secunda Shrubland

Artemisia nova / Pseudoroegneria spicata Shrubland

Artemisia nova Shrubland

Artemisia pygmaea Shrubland Alliance

Artemisia pygmaea / Elymus elymoides - Achnatherum hymenoides Shrubland

Artemisia tridentata (ssp. tridentata, ssp. xericensis) Shrubland Alliance

Artemisia tridentata ssp. tridentata - Grayia spinosa Shrubland

Artemisia tridentata ssp. tridentata / Agropyron cristatum Semi-natural Shrubland

Artemisia tridentata ssp. tridentata / Distichlis spicata Shrubland

Artemisia tridentata ssp. tridentata / Festuca idahoensis Shrubland

Artemisia tridentata ssp. tridentata / Hesperostipa comata Shrubland

Artemisia tridentata ssp. tridentata / Leymus cinereus Shrubland

Artemisia tridentata ssp. tridentata / Pascopyrum smithii - (Elymus lanceolatus) Shrubland

Artemisia tridentata ssp. *tridentata* / *Poa secunda* Shrubland

Artemisia tridentata Shrubland Alliance

Artemisia tridentata / *Achnatherum hymenoides* Shrubland

Artemisia tridentata / *Achnatherum lettermanii* Shrubland

Artemisia tridentata / *Chrysothamnus viscidiflorus* / *Poa secunda* Shrubland

Artemisia tridentata / *Elymus elymoides* Shrubland

Artemisia tridentata / *Ericameria nauseosa* Shrubland

Artemisia tridentata / *Pleuraphis jamesii* Shrubland

Artemisia tridentata / *Symphoricarpos longiflorus* Shrubland

Artemisia tridentata Shrubland

Artemisia tridentata Upperzone Community Shrubland

Artemisia tridentata ssp. *vaseyana* Shrubland Alliance

Artemisia tridentata ssp. *vaseyana* - *Purshia tridentata* / *Poa secunda* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Purshia tridentata* / *Pseudoroegneria spicata* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Bromus carinatus* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Elymus trachycaulus* ssp. *trachycaulus* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Festuca idahoensis* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Hesperostipa comata* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Poa secunda* Shrubland

Artemisia tridentata ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Pseudoroegneria spicata* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Achnatherum occidentale* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Bromus carinatus* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Festuca idahoensis* - *Bromus carinatus* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Hesperostipa comata* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Leucopoa kingii* - *Koeleria macrantha* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Leucopoa kingii* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Leymus cinereus* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Poa secunda* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Pseudoroegneria spicata* - *Poa fendleriana* Shrubland

Artemisia tridentata ssp. *vaseyana* / *Pseudoroegneria spicata* Shrubland

Artemisia tridentata ssp. *wyomingensis* Shrubland Alliance

Artemisia tridentata ssp. *wyomingensis* - *Grayia spinosa* / *Achnatherum hymenoides* Shrubland

Artemisia tridentata ssp. *wyomingensis* - *Grayia spinosa* / *Elymus elymoides* Shrubland

Artemisia tridentata ssp. *wyomingensis* / (*Agropyron cristatum*, *Psathyrostachys juncea*) Seeded Grasses Semi-natural Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Achnatherum hymenoides* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Achnatherum thurberianum* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Balsamorhiza sagittata* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Distichlis spicata* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Elymus elymoides* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Hesperostipa comata* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Leymus cinereus* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Pleuraphis jamesii* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Poa secunda* Shrubland

Artemisia tridentata ssp. *wyomingensis* / *Pseudoroegneria spicata* Shrubland

Artemisia tridentata ssp. *wyomingensis* / Sparse Understory Shrubland

Atriplex (lentiformis, polycarpa) Shrubland Alliance

Atriplex (lentiformis, polycarpa) Shrubland [Placeholder]

Atriplex canescens Shrubland Alliance

Artemisia tridentata - *Atriplex canescens* - *Sarcobatus vermiculatus* / (*Achnatherum hymenoides*) Shrubland

Atriplex canescens - *Artemisia tridentata* Shrubland

Atriplex canescens - *Krascheninnikovia lanata* Shrubland

Atriplex canescens / *Calycoseris parryi* Shrubland

Atriplex canescens / *Sporobolus airoides* Shrubland

Atriplex canescens Shrubland

Atriplex confertifolia Shrubland Alliance

Atriplex confertifolia - *Ambrosia dumosa* Shrubland

Atriplex confertifolia - *Atriplex polycarpa* Shrubland

[*Atriplex confertifolia* - *Ephedra nevadensis* Shrubland](#)
[*Atriplex confertifolia* - *Krascheninnikovia lanata* Shrubland](#)
[*Atriplex confertifolia* - *Lycium pallidum* / *Mirabilis pudica* Shrubland](#)
[*Atriplex confertifolia* - *Lycium shockleyi* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* - *Sarcobatus baileyi* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* / *Achnatherum hymenoides* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* / *Elymus elymoides* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* / *Krascheninnikovia lanata* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* / *Pleuraphis jamesii* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* / *Sarcobatus vermiculatus* Shrubland](#)
[*Atriplex confertifolia* - *Picrothamnus desertorum* Shrubland](#)
[*Atriplex confertifolia* - *Sarcobatus vermiculatus* Shrubland](#)
[*Atriplex confertifolia* / *Achnatherum hymenoides* Shrubland](#)
[*Atriplex confertifolia* / *Elymus elymoides* Shrubland](#)
[*Atriplex confertifolia* / *Pleuraphis jamesii* Shrubland](#)
[*Atriplex confertifolia* / *Pseudoroegneria spicata* Shrubland](#)
[*Atriplex confertifolia* Great Basin Shrubland](#)
[*Atriplex confertifolia* Sparse Shrubland](#)
[*Atriplex hymenelytra* Shrubland Alliance](#)
[*Atriplex hymenelytra* Shrubland](#)
[*Atriplex parryi* Shrubland Alliance](#)
[*Atriplex parryi* Shrubland \[Placeholder\]](#)
[*Atriplex polycarpa* Shrubland Alliance](#)
[*Atriplex polycarpa* Shrubland](#)
[*Baccharis sergiloides* Intermittently Flooded Shrubland Alliance](#)
[*Baccharis sergiloides* Shrubland \[Placeholder\]](#)
[*Betula occidentalis* Seasonally Flooded Shrubland Alliance](#)
[*Betula occidentalis* / Mesic Graminoids Shrubland](#)
[*Betula occidentalis* Shrubland](#)
[*Betula occidentalis* Temporarily Flooded Shrubland Alliance](#)
[*Betula occidentalis* / *Cornus sericea* Shrubland](#)
[*Betula occidentalis* / *Maianthemum stellatum* Shrubland](#)
[*Cercocarpus ledifolius* Shrubland Alliance](#)
[*Cercocarpus ledifolius* / *Mahonia repens* Shrubland](#)
[*Cercocarpus ledifolius* / *Prunus virginiana* Shrubland](#)
[*Cercocarpus ledifolius* / *Pseudoroegneria spicata* Shrubland](#)
[*Cercocarpus ledifolius* / *Symphoricarpos longiflorus* Shrubland](#)
[*Chilopsis linearis* Intermittently Flooded Shrubland Alliance](#)
[*Chilopsis linearis* Shrubland](#)
[*Chrysothamnus albidus* Shrubland Alliance](#)
[*Chrysothamnus albidus* / *Puccinellia nuttalliana* Shrubland](#)
[*Coleogyne ramosissima* Shrubland Alliance](#)
[*Coleogyne ramosissima* - *Eriogonum fasciculatum* Shrubland](#)
[*Coleogyne ramosissima* - *Purshia stansburiana* Shrubland](#)
[*Coleogyne ramosissima* - *Thamnosma montana* Shrubland](#)
[*Coleogyne ramosissima* / *Pleuraphis jamesii* Shrubland](#)
[*Coleogyne ramosissima* Shrubland](#)
[*Cornus sericea* Temporarily Flooded Shrubland Alliance](#)
[*Cornus sericea* Shrubland](#)
[*Dasiphora fruticosa* Temporarily Flooded Shrubland Alliance](#)
[*Dasiphora fruticosa* ssp. *floribunda* Shrubland \[Provisional\]](#)
[*Encelia farinosa* Shrubland Alliance](#)
[*Encelia farinosa* Shrubland](#)
[*Encelia virginensis* Shrubland Alliance](#)
[*Encelia virginensis* Shrubland](#)
[*Ephedra nevadensis* Shrubland Alliance](#)
[*Artemisia tridentata* - *Ephedra nevadensis* Shrubland](#)
[*Ephedra nevadensis* - *Ericameria cooperi* Shrubland](#)

Ephedra nevadensis - *Eriogonum fasciculatum* Shrubland
Ephedra nevadensis - *Grayia spinosa* shrubland
Ephedra nevadensis / *Achnatherum hymenoides* Shrubland
Ephedra viridis Shrubland Alliance
Artemisia tridentata - *Ephedra viridis* Shrubland
Ericameria nauseosa Shrubland Alliance
Ericameria nauseosa / *Leymus cinereus* Bottomland Vegetation
Ericameria nauseosa Shrubland
Ericameria paniculata Intermittently Flooded Shrubland Alliance
Ericameria paniculata Shrubland [Placeholder]
Ericameria parryi Shrubland Alliance
Ericameria parryi Shrubland [Provisional]
Eriogonum fasciculatum Shrubland Alliance
Eriogonum fasciculatum - *Purshia glandulosa* Shrubland
Eriogonum fasciculatum Rock Outcrop Shrubland
Eriogonum fasciculatum Shrubland
Glossopetalon spinescens Shrubland Alliance
Glossopetalon spinescens - *Psoralea polydenius* Shrubland
Glossopetalon spinescens / *Poa secunda* Shrubland
Grayia spinosa - *Ephedra viridis* Shrubland Alliance
Grayia spinosa - *Ephedra viridis* Shrubland
Grayia spinosa Intermittently Flooded Shrubland Alliance
Grayia spinosa - *Lycium andersonii* Shrubland
Grayia spinosa - *Lycium pallidum* Shrubland
Grayia spinosa Shrubland Alliance
Grayia spinosa - *Krascheninnikovia lanata* / *Achnatherum hymenoides* Shrubland
Grayia spinosa - *Menodora spinescens* Shrubland
Grayia spinosa - *Prunus andersonii* Shrubland
Grayia spinosa - *Sarcobatus vermiculatus* Shrubland
Grayia spinosa / *Achnatherum hymenoides* Shrubland
Grayia spinosa / *Achnatherum thurberianum* Shrubland
Grayia spinosa / *Artemisia nova* / *Achnatherum speciosum* Shrubland
Grayia spinosa / *Picrothamnus desertorum* Shrubland
Grayia spinosa Shrubland
Larrea tridentata - *Ambrosia dumosa* Shrubland Alliance
Larrea tridentata - *Ambrosia dumosa* Shrubland [Placeholder]
Larrea tridentata Shrubland Alliance
Larrea tridentata - *Ambrosia dumosa* Shrubland
Larrea tridentata - *Atriplex confertifolia* Shrubland
Larrea tridentata - *Atriplex hymenelytra* Shrubland
Larrea tridentata - *Coleogyne ramosissima* Shrubland
Larrea tridentata - *Ephedra nevadensis* Shrubland
Larrea tridentata / *Lycium andersonii* - *Grayia spinosa* Shrubland
Larrea tridentata / *Schismus barbatus* Semi-natural Shrubland
Larrea tridentata / *Yucca* spp. Shrubland
Larrea tridentata Monotype Shrubland
Ledum glandulosum Saturated Shrubland Alliance
Ledum glandulosum Shrubland [Provisional]
Nolina bigelovii Shrubland Alliance
Nolina bigelovii Shrubland [Placeholder]
Nolina parryi Shrubland Alliance
Nolina parryi Shrubland [Placeholder]
Peucephyllum schottii Shrubland Alliance
Peucephyllum schottii Shrubland [Placeholder]
Picrothamnus desertorum Shrubland Alliance
Picrothamnus desertorum / *Elymus elymoides* Shrubland [Provisional]
Picrothamnus desertorum Shrubland
Prosopis glandulosa Shrubland Alliance

Prosopis glandulosa var. *torreyana* Shrubland
Prunus fasciculata Intermittently Flooded Shrubland Alliance
Prunus fasciculata Shrubland [Placeholder]
Prunus virginiana Shrubland Alliance
Prunus virginiana - (*Prunus americana*) Shrubland
Psoralea polydenius Shrubland Alliance
Psoralea polydenius var. *polydenius* / *Achnatherum hymenoides* Shrubland
Psoralea spinosa Intermittently Flooded Shrubland Alliance
Psoralea spinosa Shrubland [Placeholder]
Purshia (stansburiana, mexicana) Shrubland Alliance
Purshia stansburiana / *Artemisia (tridentata ssp. wyomingensis)* Shrubland
Purshia tridentata Shrubland Alliance
Purshia tridentata - *Amelanchier alnifolia* / *Leymus cinereus* Shrubland
Quercus turbinella Shrubland Alliance
Quercus turbinella - *Ephedra viridis* Shrubland
Quercus turbinella - *Juniperus osteosperma* Shrubland
Rosa woodsii Temporarily Flooded Shrubland Alliance
Rosa woodsii Shrubland
Salazaria mexicana Shrubland Alliance
Salazaria mexicana Shrubland [Placeholder]
Salix (exigua, interior) Temporarily Flooded Shrubland Alliance
Salix exigua / Barren Shrubland
Salix exigua / Mesic Forbs Shrubland
Salix exigua / Mesic Graminoids Shrubland
Salix bebbiana Temporarily Flooded Shrubland Alliance
Salix bebbiana / Mesic Graminoids Shrubland
Salix boothii Seasonally Flooded Shrubland Alliance
Salix boothii / *Calamagrostis canadensis* Shrubland
Salix boothii Temporarily Flooded Shrubland Alliance
Salix boothii - *Salix eastwoodiae* / *Carex nigricans* Shrubland
Salix boothii - *Salix lemmonii* Shrubland
Salix boothii / Mesic Forbs Shrubland
Salix eriocephala Temporarily Flooded Shrubland Alliance
Salix eriocephala / *Ribes aureum* - *Rosa woodsii* Shrubland
Salix geeyeriana Seasonally Flooded Shrubland Alliance
Salix geeyeriana / *Carex utriculata* Shrubland
Salix geeyeriana Temporarily Flooded Shrubland Alliance
Salix geeyeriana - *Salix eriocephala* Shrubland
Salix geeyeriana - *Salix lemmonii* / *Carex aquatilis* var. *dives* Shrubland
Salix geeyeriana / Mesic Graminoids Shrubland
Salix lasiolepis Temporarily Flooded Shrubland Alliance
Salix lasiolepis / Barren Ground Shrubland
Salix lasiolepis / *Rosa woodsii* / Mixed Herbs Shrubland
Salix lemmonii Seasonally Flooded Shrubland Alliance
Salix lemmonii / Mesic Graminoids Shrubland
Salix lemmonii / Mesic-Tall Forbs Shrubland
Salix lemmonii / *Rosa woodsii* Shrubland
Salix lucida Temporarily Flooded Shrubland Alliance
Salix lucida ssp. *caudata* / *Rosa woodsii* Shrubland
Salix lutea Seasonally Flooded Shrubland Alliance
Salix lutea / *Carex utriculata* Shrubland
Salix lutea Temporarily Flooded Shrubland Alliance
Salix lutea / Mesic Graminoids Shrubland
Salix lutea / *Rosa woodsii* Shrubland
Sarcobatus bailei Shrubland Alliance
Sarcobatus bailei - *Artemisia arbuscula* ssp. *longicaulis* / *Elymus elymoides* Shrubland
Sarcobatus bailei - *Ephedra nevadensis* Shrublands
Sarcobatus bailei - *Menodora spinescens* Shrubland

Sarcobatus baileyi - *Picrothamnus desertorum* - (*Atriplex confertifolia*) / (*Achnatherum hymenoides*) Shrubland
Sarcobatus baileyi - *Picrothamnus desertorum* - (*Atriplex confertifolia*) / (*Elymus elymoides*, *Poa secunda*) Shrubland
Sarcobatus baileyi - *Picrothamnus desertorum* - (*Atriplex confertifolia*) / (*Pleuraphis jamesii*) Shrubland
Sarcobatus baileyi Near-monoculture Shrubland
Sarcobatus vermiculatus Intermittently Flooded Shrubland Alliance
Sarcobatus vermiculatus - *Atriplex parryi* / *Distichlis spicata* Shrubland
Sarcobatus vermiculatus - *Psorothamnus polydenius* Shrubland
Sarcobatus vermiculatus / *Achnatherum hymenoides* Shrubland
Sarcobatus vermiculatus / *Artemisia tridentata* Shrubland
Sarcobatus vermiculatus / *Atriplex confertifolia* - (*Picrothamnus desertorum*, *Suaeda moquinii*) Shrubland
Sarcobatus vermiculatus / *Distichlis spicata* Shrubland
Sarcobatus vermiculatus / *Elymus elymoides* Shrubland
Sarcobatus vermiculatus / *Ericameria nauseosa* Shrubland
Sarcobatus vermiculatus / *Leymus cinereus* Shrubland
Sarcobatus vermiculatus / *Nitrophila occidentalis* - *Suaeda moquinii* Shrubland
Sarcobatus vermiculatus / *Suaeda moquinii* Shrubland
Sarcobatus vermiculatus Disturbed Shrubland
Sarcobatus vermiculatus Mud Flat Vegetation
Sarcobatus vermiculatus Shrubland Alliance
Sarcobatus vermiculatus - *Artemisia tridentata* ssp. *tridentata* / *Poa secunda* Shrubland
Sarcobatus vermiculatus - *Atriplex lentiformis* Shrubland
Sarcobatus vermiculatus / *Lepidium perfoliatum* Semi-natural Shrubland
Sarcobatus vermiculatus Dune Shrubland
Suaeda moquinii Intermittently Flooded Shrubland Alliance
Suaeda moquinii Shrubland
Tamarix spp. Semi-natural Temporarily Flooded Shrubland Alliance
Tamarix spp. Temporarily Flooded Semi-natural Shrubland
Viguiera parishii Shrubland Alliance
Viguiera parishii Shrubland [Placeholder]
Yucca brevifolia Wooded Shrubland Alliance
Yucca brevifolia - *Juniperus osteosperma* / *Artemisia tridentata* Wooded Shrubland
Yucca brevifolia / *Artemisia tridentata* ssp. *wyomingensis* / (*Achnatherum hymenoides* - *Pleuraphis jamesii*) Wooded Shrubland
Yucca brevifolia / *Menodora spinescens* / *Pleuraphis jamesii* Wooded Shrubland
Yucca brevifolia Wooded Shrubland [Placeholder]
Yucca schidigera Shrubland Alliance
Yucca schidigera - *Larrea tridentata* - *Ambrosia dumosa* Shrubland
Yucca schidigera - *Menodora spinescens* Shrubland

IV. Dwarf-shrubland

Ambrosia dumosa Dwarf-shrubland Alliance
Ambrosia dumosa - *Larrea tridentata* var. *tridentata* Dwarf- shrubland
Krascheninnikovia lanata Dwarf-shrubland Alliance
Krascheninnikovia lanata / *Achnatherum hymenoides* Dwarf-shrubland
Krascheninnikovia lanata / *Halogeton glomeratus* Semi-natural Dwarf- shrubland
Krascheninnikovia lanata / *Poa secunda* Dwarf-shrubland
Krascheninnikovia lanata Dwarf-shrubland
Menodora spinescens Dwarf-shrubland Alliance
Menodora spinescens - *Grayia spinosa* - *Psorothamnus polydenius* Dwarf- shrubland
Menodora spinescens - *Sarcobatus baileyi* - *Grayia spinosa* Shrubland
Menodora spinescens / *Pleuraphis jamesii* Shrubland
Menodora spinescens Dwarf-shrubland [Placeholder]
Salix arctica Saturated Dwarf-shrubland Alliance
Salix arctica - *Salix petrophila* / *Caltha leptosepala* Dwarf-shrubland
Salvia dorrii Dwarf-shrubland Alliance
Salvia dorrii - *Grayia spinosa* / *Pleuraphis jamesii* Dwarf-shrubland
Vaccinium (*caespitosum*, *myrtilus*, *scoparium*) Dwarf-shrubland Alliance
Vaccinium (*caespitosum*, *scoparium*) Dwarf-shrubland

V. Herbaceous Vegetation

[\(Potamogeton diversifolius, Stuckenia filiformis\) Permanently Flooded Herbaceous Alliance](#)

[Stuckenia filiformis Herbaceous Vegetation](#)

[\(Sarcocornia utahensis\) - \(Arthrocnemum subterminale\) Semipermanently Flooded Herbaceous Alliance](#)

[\(Sarcocornia utahensis\) - \(Arthrocnemum subterminale\) Seasonally Flooded Herbaceous Vegetation \[Placeholder\]](#)

[Achnatherum lettermanii Herbaceous Alliance](#)

[Achnatherum lettermanii - Oxytropis oreophila Herbaceous Vegetation](#)

[Agropyron cristatum Semi-natural Herbaceous Alliance](#)

[Agropyron cristatum - \(Pascopyrum smithii, Hesperostipa comata\) Semi-natural Herbaceous Vegetation](#)

[Agrostis stolonifera Seasonally Flooded Herbaceous Alliance](#)

[Agrostis \(gigantea, stolonifera\) Semi-natural Herbaceous Vegetation](#)

[Aristida purpurea Herbaceous Alliance](#)

[Aristida purpurea Herbaceous Vegetation](#)

[Artemisia arbuscula ssp. arbuscula Shrub Herbaceous Alliance](#)

[Artemisia arbuscula ssp. arbuscula - Purshia tridentata / Pseudoroegneria spicata - Festuca idahoensis Shrub](#)

Herbaceous Vegetation

[Artemisia arbuscula ssp. arbuscula / Achnatherum thurberianum Shrub Herbaceous Vegetation](#)

[Artemisia arbuscula ssp. arbuscula / Festuca idahoensis Shrub Herbaceous Vegetation](#)

[Artemisia arbuscula ssp. arbuscula / Poa secunda Shrub Herbaceous Vegetation](#)

[Artemisia arbuscula ssp. arbuscula / Pseudoroegneria spicata Shrub Herbaceous Vegetation](#)

[Artemisia arbuscula ssp. longiloba Shrub Herbaceous Alliance](#)

[Artemisia arbuscula ssp. longiloba / Festuca idahoensis Shrub Herbaceous Vegetation](#)

[Artemisia arbuscula ssp. longiloba / Poa secunda Shrub Herbaceous Vegetation](#)

[Artemisia cana \(ssp. bolanderi, ssp. viscidula\) Shrub Herbaceous Alliance](#)

[Artemisia cana \(ssp. bolanderi, ssp. viscidula\) - Artemisia tridentata ssp. vaseyana / Poa cusickii Shrub Herbaceous](#)

Vegetation [Provisional]

[Artemisia cana \(ssp. bolanderi, ssp. viscidula\) / Poa fendleriana ssp. fendleriana Shrub Herbaceous Vegetation](#)

[Artemisia cana ssp. bolanderi / Muhlenbergia richardsonis Shrub Herbaceous Vegetation](#)

[Artemisia nova Shrub Herbaceous Alliance](#)

[Artemisia nova / Festuca idahoensis Shrub Herbaceous Vegetation](#)

[Artemisia tridentata \(ssp. tridentata, ssp. xericensis\) Shrub Herbaceous Alliance](#)

[Artemisia tridentata \(ssp. tridentata, ssp. xericensis\) / Pseudoroegneria spicata Shrub Herbaceous Vegetation](#)

[Artemisia tridentata Shrub Herbaceous Alliance](#)

[Artemisia tridentata / Festuca idahoensis Shrub Herbaceous Vegetation](#)

[Artemisia tridentata / Leymus cinereus Shrub Herbaceous Vegetation](#)

[Artemisia tridentata ssp. vaseyana Shrub Herbaceous Alliance](#)

[Artemisia tridentata ssp. vaseyana / Carex geyeri Shrub Herbaceous Vegetation](#)

[Artemisia tridentata ssp. vaseyana / Festuca idahoensis Shrub Herbaceous Vegetation](#)

[Artemisia tridentata ssp. vaseyana / Wyethia spp. Shrubland](#)

[Artemisia tridentata ssp. wyomingensis Shrub Herbaceous Alliance](#)

[Artemisia tridentata ssp. wyomingensis / Leymus triticoides Shrub Herbaceous Vegetation](#)

[Artemisia tridentata ssp. wyomingensis / Pseudoroegneria spicata Shrub Herbaceous Vegetation](#)

[Bacopa eisenii Permanently Flooded Herbaceous Alliance](#)

[Bacopa eisenii Herbaceous Vegetation](#)

[Bromus tectorum Semi-natural Herbaceous Alliance](#)

[Bromus tectorum - Lepidium perfoliatum Semi-natural Herbaceous Vegetation](#)

[Bromus tectorum Semi-natural Herbaceous Vegetation](#)

[Carex \(rostrata, utriculata\) Seasonally Flooded Herbaceous Alliance](#)

[Carex utriculata Herbaceous Vegetation](#)

[Carex aquatilis Seasonally Flooded Herbaceous Alliance](#)

[Carex aquatilis Herbaceous Vegetation](#)

[Carex douglasii Herbaceous Alliance](#)

[Carex douglasii Herbaceous Vegetation](#)

[Carex nebrascensis Seasonally Flooded Herbaceous Alliance](#)

[Carex nebrascensis - Carex microptera Herbaceous Vegetation](#)

[Carex nebrascensis Herbaceous Vegetation](#)

[Carex scopulorum Seasonally Flooded Herbaceous Alliance](#)

Carex scopulorum Herbaceous Vegetation
Carex simulata Saturated Herbaceous Alliance
Carex simulata Herbaceous Vegetation
Carex stramineiformis Herbaceous Alliance
Carex stramineiformis Herbaceous Vegetation
Carex vernacula Herbaceous Alliance
Carex vernacula - *Poa fendleriana* Herbaceous Vegetation
Carex vesicaria Seasonally Flooded Herbaceous Alliance
Carex vesicaria Herbaceous Vegetation
Centaurea solstitialis Semi-natural Herbaceous Alliance
Centaurea solstitialis / *Bromus tectorum* Semi-natural Herbaceous Vegetation
Ceratocephala testiculata Semi-natural Herbaceous Vegetation Alliance
Ceratocephala testiculata Semi-natural Herbaceous Vegetation
Deschampsia caespitosa Seasonally Flooded Herbaceous Alliance
Deschampsia caespitosa - *Carex nebrascensis* Herbaceous Vegetation
Deschampsia caespitosa Herbaceous Vegetation
Distichlis spicata Intermittently Flooded Herbaceous Alliance
Distichlis spicata - *Leymus triticoides* Herbaceous Vegetation
Distichlis spicata - (*Scirpus nevadensis*) Herbaceous Vegetation
Distichlis spicata - *Juncus balticus* Herbaceous Vegetation
Distichlis spicata - *Nitrophila occidentalis* Herbaceous Vegetation
Distichlis spicata Herbaceous Vegetation
Distichlis spicata Mixed Herb Herbaceous Vegetation
Dodecatheon redolens Saturated Herbaceous Alliance
Dodecatheon redolens - *Aquilegia formosa* Herbaceous Vegetation
Eleocharis (montevidensis, palustris, quinqueflora) Seasonally Flooded Herbaceous Alliance
Eleocharis (montevidensis, palustris, quinqueflora) Seasonally Flooded Herbaceous Vegetation [Placeholder]
Eleocharis (palustris, macrostachya) Seasonally Flooded Herbaceous Alliance
Eleocharis palustris Herbaceous Vegetation
Eleocharis (quinqueflora, rostellata) Saturated Herbaceous Alliance
Eleocharis quinqueflora - *Carex scopulorum* Herbaceous Vegetation
Eleocharis quinqueflora Herbaceous Vegetation
Eleocharis acicularis Seasonally Flooded Herbaceous Alliance
Eleocharis acicularis Herbaceous Vegetation
Festuca idahoensis Herbaceous Alliance
Festuca idahoensis - *Carex hoodii* Herbaceous Vegetation
Geum rossii Herbaceous Alliance
Geum rossii Herbaceous Vegetation
Halogeton glomeratus Semi-natural Herbaceous Vegetation Alliance
Halogeton glomeratus Semi-natural Herbaceous Vegetation
Hesperostipa comata Bunch Herbaceous Alliance
Hesperostipa comata - *Poa secunda* Herbaceous Vegetation
Hesperostipa comata Great Basin Herbaceous Vegetation
Hordeum brachyantherum Temporarily Flooded Herbaceous Alliance
Hordeum brachyantherum Herbaceous Vegetation
Juncus balticus Seasonally Flooded Herbaceous Alliance
Juncus balticus - *Anemopsis californica* Herbaceous Vegetation
Juncus balticus - *Leymus triticoides* Herbaceous Vegetation
Juncus balticus Herbaceous Vegetation
Juniperus occidentalis Wooded Herbaceous Alliance
Juniperus occidentalis / *Pseudoroegneria spicata* Wooded Herbaceous Vegetation
Lemna spp. Permanently Flooded Herbaceous Alliance
Lemna spp. Permanently Flooded Herbaceous Vegetation
Lepidium latifolium Semi-natural Herbaceous Alliance
Lepidium latifolium Semi-natural Herbaceous Vegetation
Leymus cinereus Herbaceous Alliance
Leymus cinereus Herbaceous Vegetation
Leymus cinereus Intermittently Flooded Herbaceous Alliance

Leymus cinereus - *Distichlis spicata* Herbaceous Vegetation
Leymus triticoides Temporarily Flooded Herbaceous Alliance
Leymus triticoides - *Poa secunda* Herbaceous Vegetation
Leymus triticoides Herbaceous Vegetation
Lomatium nudicaule Herbaceous Vegetation Alliance
Lomatium nudicaule Herbaceous Vegetation
Mimulus primuloides Temporarily Flooded Herbaceous Alliance
Mimulus primuloides - *Carex scopulorum* Herbaceous Vegetation
Muhlenbergia asperifolia Intermittently Flooded Herbaceous Alliance
Muhlenbergia asperifolia Herbaceous Vegetation
Phippsia algida Saturated Herbaceous Alliance
Phippsia algida Herbaceous Vegetation
Phleum alpinum Herbaceous Alliance
Phleum alpinum - *Achillea millefolium* Herbaceous Vegetation
Phlox pulvinata Herbaceous Alliance
Phlox pulvinata Herbaceous Vegetation [Provisional]
Phragmites australis Semipermanently Flooded Herbaceous Alliance
Phragmites australis Western North America Temperate Semi-natural Herbaceous Vegetation
Pleuraphis jamesii Herbaceous Alliance
Pleuraphis jamesii Herbaceous Vegetation
Pleuraphis rigida Herbaceous Alliance
Pleuraphis rigida Herbaceous Vegetation [Placeholder]
Poa cusickii Herbaceous Alliance
Poa cusickii Herbaceous Vegetation
Poa secunda Seasonally Flooded Herbaceous Alliance
Poa secunda - *Muhlenbergia richardsonis* Herbaceous Vegetation
Poa secunda Herbaceous Vegetation
Primula parryi Temporarily Flooded Herbaceous Alliance
Primula parryi Herbaceous Vegetation
Pseudoroegneria spicata Herbaceous Alliance
Pseudoroegneria spicata - *Poa secunda* Herbaceous Vegetation
Pseudoroegneria spicata Herbaceous Vegetation
Pteridium aquilinum Herbaceous Alliance
Pteridium aquilinum Herbaceous Vegetation [PLACEHOLDER]
Puccinellia nuttalliana Intermittently Flooded Herbaceous Alliance
Puccinellia nuttalliana Herbaceous Vegetation
Purshia tridentata Shrub Herbaceous Alliance
Purshia tridentata / *Festuca idahoensis* Shrub Herbaceous Vegetation
Ruppia (cirrhosa, maritima) Permanently Flooded Herbaceous Alliance
Ruppia (cirrhosa, maritima) Permanently Flooded Herbaceous Vegetation [Placeholder]
Salicornia rubra Seasonally Flooded Herbaceous Alliance
Salicornia rubra Herbaceous Vegetation
Salsola spp. Semi-natural Herbaceous Alliance [Provisional]
Salsola spp. Herbaceous Vegetation [Provisional]
Schoenoplectus acutus - (*Schoenoplectus tabernaemontani*) Semipermanently Flooded Herbaceous Alliance
Schoenoplectus acutus Herbaceous Vegetation
Schoenoplectus americanus Semipermanently Flooded Herbaceous Alliance
Schoenoplectus americanus - *Eleocharis palustris* Herbaceous Vegetation
Schoenoplectus maritimus Semipermanently Flooded Herbaceous Alliance
Schoenoplectus maritimus Herbaceous Vegetation
Schoenoplectus pungens Semipermanently Flooded Herbaceous Alliance
Schoenoplectus pungens Herbaceous Vegetation
Sisymbrium altissimum Semi-natural Herbaceous Vegetation Alliance
Sisymbrium altissimum Semi-natural Herbaceous Vegetation
Spartina gracilis Seasonally Flooded Herbaceous Alliance
Spartina gracilis Herbaceous Vegetation
Sporobolus airoides Intermittently Flooded Herbaceous Alliance
Sporobolus airoides (emergent *Sarcobatus vermiculatus*) Intermittently Flooded Herbaceous Vegetation

[Taeniatherum caput-medusae Semi-natural Herbaceous Alliance](#)
[Taeniatherum caput-medusae Semi-natural Herbaceous Vegetation](#)
[Typha \(angustifolia, latifolia\) - \(Schoenoplectus spp.\) Semipermanently Flooded Herbaceous Alliance](#)
[Typha \(latifolia, angustifolia\) Western Herbaceous Vegetation](#)
[Typha domingensis Seasonally Flooded Temperate Herbaceous Alliance](#)
[Typha domingensis Western Herbaceous Vegetation](#)
[Veratrum californicum Temporarily Flooded Herbaceous Alliance](#)
[Veratrum californicum - Juncus nevadensis Herbaceous Vegetation](#)
[Wyethia amplexicaulis Herbaceous Alliance](#)
[Wyethia amplexicaulis Herbaceous Vegetation](#)
[Yucca brevifolia Wooded Herbaceous Alliance](#)
[Yucca brevifolia / Pleuraphis rigida Wooded Herbaceous Vegetation](#)

VII. Sparse Vegetation

[Ivesia cryptocaulis Sparsely Vegetated Alliance](#)
[Ivesia cryptocaulis Alpine Sparse Vegetation](#)
[Lichen Dominated Rock Alliance](#)
[Caloplaca trachyphylla - Lecanora garovaglii \(group\) Sparse Vegetation](#)
[Pleopsidium flavum Sparse Vegetation](#)
[Rhizoplaca \(chrysoleuca - melanophthalma\) / Acarospora thamnina Sparse Vegetation](#)
[Microphytic Playa Alliance](#)
[Microphytic Playa Sparse Vegetation \[placeholder\]](#)
[Pinus \(ponderosa, jeffreyi\) Sparsely Vegetated Alliance](#)
[Pinus \(ponderosa, jeffreyi\) Sparse Vegetation](#)
[Tetradymia tetrameres Sparsely Vegetated Alliance](#)
[Tetradymia tetrameres - Atriplex canescens Dune Shrubland](#)
[Tetradymia tetrameres Dune Sparse Vegetation](#)

Full, Detailed List:

I . Forest

***Abies concolor* - *Populus tremuloides* Forest Alliance**

White Fir - Quaking Aspen Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.419

Summary: These mixed evergreen-deciduous forests have been reported from mountain and plateau environments of the Great Basin and Colorado Plateau, where they occur at montane elevations (2000-2900 m). Annual precipitation averages 50-80 cm, with abundant snowfall, but summer rainfall due to convective storms is also important. Soils are generally slightly acidic, well-drained loams or sandy loams with substantial organic matter. Past disturbance appears to be a key factor in distribution of these forests. At drier sites these forests may be somewhat stable, but in mesic areas they are seral communities which become established following fire. These forests are characterized by *Abies concolor* and *Populus tremuloides* as canopy codominants. Common tree associates include *Pseudotsuga menziesii* and *Picea pungens*. There is usually a subcanopy of saplings or pole-sized individuals of conifer species. An evergreen or cold-deciduous shrub layer is often present, including *Acer glabrum*, *Arctostaphylos patula*, *Rosa woodsii*, *Symphoricarpos oreophilus*, *Mahonia repens*, or *Juniperus communis*. The herbaceous ground layer is usually luxuriant and species rich in comparison to adjacent conifer forests. Common understory herbs include *Festuca arizonica*, *Poa fendleriana*, *Carex siccata* (= *Carex foenea*), *Carex rossii*, *Thalictrum fendleri*, *Achillea millefolium*, *Rudbeckia*

occidentalis, and *Pteridium aquilinum*. Adjacent vegetation is typically *Abies lasiocarpa* - *Picea engelmannii* or *Pseudotsuga menziesii* forests, *Artemisia* shrublands, or mesic herbaceous meadows. [Captured 2008-02-18]

***Populus tremuloides* - *Abies concolor* / *Arctostaphylos patula* Forest**

Quaking Aspen - White Fir / Greenleaf Manzanita Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000522

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* - *Abies concolor* / *Poa pratensis* Semi-natural Forest**

Quaking Aspen - White Fir / Kentucky Bluegrass Semi-natural Forest

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002947

Distribution (Nations/Subnations): US / CO?, NV, UT

Status: 1 Active Confidence: 3 (Weak) Global Rank: GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Cogan et al. 2004, Mueggler 1988, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Abies concolor* Forest Alliance**

White Fir Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.152

Summary: Forests included in this alliance occur in mountain or foothill environments from southwestern Oregon to the Colorado Plateau and southern Rocky Mountain regions. Pacific Coast stands occur at relatively low elevations (370-1500 m). In the Sierra Nevada, the Colorado Plateau regions and the southern Rocky Mountains, these forests occur at middle to high elevations (1200-3150 m). These forests occupy a variety of topo-edaphic positions, such as lower and middle slopes of ravines, upper slopes at higher elevations, along stream terraces, ridgetops, and north- and east-facing slopes that burn somewhat infrequently. Parent materials and soils are highly variable and nondefinitive for these forests. Temperature and moisture regimes appear to be the key factors in their distribution.

In general, these mixed conifer forests have a moderately dense to closed canopy (>60%), with *Abies concolor* successfully reproducing and typically codominant in the tree canopy. The composition of other species in the tree canopy varies across the range of the alliance with *Pinus ponderosa* or *Pseudotsuga menziesii* being most consistent. Other conifers may include *Calocedrus decurrens*, *Pinus lambertiana*, *Pinus jeffreyi*, *Pinus monophylla*, *Pinus contorta*, *Abies magnifica*, *Pinus flexilis*, *Pinus strobiformis*, *Abies lasiocarpa*, *Picea engelmannii*, and *Picea pungens*. Many stands, especially in southwestern Oregon and northwestern California, have a significant broad-leaved tree component and include species such as *Arbutus menziesii*, *Quercus* spp., *Cornus nuttallii*, and *Chrysolepis chrysophylla* (= *Castanopsis chrysophylla*). *Acer* spp. or *Quercus gambelii* may be present in Colorado

Plateau and southern Rocky Mountain stands. The density of the understory varies with the amount of tree canopy shading. Shrub and dwarf-shrub layers may be present and vary in structure and composition. Ericaceous or cold-deciduous shrubs are most common. The herbaceous layer may be dominated by either shade-tolerant forbs, ferns or graminoids. The diagnostic characters of this alliance are successful *Abies concolor* regeneration and codominance in the tree canopy. [Captured 2008-02-18]

***Abies concolor* - *Pinus ponderosa* / *Cercocarpus ledifolius* Forest**

White Fir - Ponderosa Pine - Curl-leaf Mountain-mahogany Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002732

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4?

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Nachlinger and Reese 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Abies concolor* - *Pseudotsuga menziesii* / *Acer glabrum* Forest**

White Fir - Douglas-fir / Rocky Mountain Maple Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000240

Distribution (Nations/Subnations): US / AZ, CA?, CO, NM, NV?, OR, UT

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4

Summary: This association ranges from southern Utah and southern Colorado down to New Mexico and Arizona between 2073 to 3140 m (6800-10,300 feet) elevation. This type shows great variety with respect to topographic characteristics. In southern Colorado and northern New Mexico, it is one of the most widespread in the mixed conifer forest. Though it frequently occurs on north- and northwest-facing slopes, other slope aspects are represented. When found on southern aspects, this type is at higher elevations or streamside settings. Predominantly found on lower slopes, it has also been located on mid- and upper slopes. The overstory is highly complex and has high variability. *Abies concolor* dominates this type, if not in the overstory, then as regeneration. *Pseudotsuga menziesii* is a successional dominant, and it remains a codominant in late-successional stands, becoming minor in very old stands. *Picea pungens* and *Pinus flexilis* may be important, as well as *Pinus strobiformis* at lower latitudes. *Abies concolor* and *Picea engelmannii* may occur in frost pockets as regeneration or occasional mature trees, but they are minor and almost always are under severe competition from dense regeneration and canopy dominance of *Abies concolor* and *Pseudotsuga menziesii* (Moir and Ludwig 1979). The tall-shrub layer dominates the undergrowth. Frequently occurring species with high cover values are *Acer glabrum*, *Amelanchier alnifolia*, and *Quercus gambelii*. Common low-growing shrubs are *Holodiscus dumosus*, *Jamesia americana* (occurs on cobbly substrates), *Mahonia repens* (= *Berberis repens*), *Paxistima myrsinites*, *Physocarpus monogynus*, and *Symphoricarpos oreophilus*. The herb layer species are typically low in cover value.

[Captured 2008-02-15]

References: Alexander et al. 1984a, Alexander et al. 1987, Atzet and McCrimmon 1990, Atzet and Wheeler 1984, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Crane 1982, DeVelice 1983, DeVelice and Ludwig 1983a, DeVelice et al. 1986, Dieterich 1980, Driscoll et al. 1984, Fitzhugh et al. 1987, Hoffman and Alexander 1980, Kagan et al. 2000, Larson and Moir 1987, Moir and Ludwig 1979, Muldavin et al. 1996, Peet 1981, Steele et al. 1981, Szaro 1989, Western Ecology Working Group n.d., Youngblood and Mauk 1985

NNHP Plots: (0 plots identified)

***Abies concolor* / *Mahonia repens* Forest**

White Fir / Creeping Oregon-grape Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000251

Distribution (Nations/Subnations): US / AZ, CO, NM, NV?, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Alexander et al. 1984a, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, DeVelice et al. 1986, Driscoll et al. 1984, Fitzhugh et al. 1987, Heinze et al. 1962, Johnston 1984, Larson and Moir 1987, Mauk and Henderson 1984, Moir and Ludwig 1979, Muldavin et al. 1996, Pfister 1972, Roberts et al. 1992, Western Ecology Working Group n.d., **NNHP Plots:** (0 plots identified)

***Abies lasiocarpa* - *Picea engelmannii* Forest Alliance**

Subalpine Fir - Engelmann Spruce Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.168

Summary: These upper montane or subalpine conifer forests occur in many of the mountainous areas of western North America, where they are often the matrix forests of the subalpine zone. They occur above the warmer and drier montane forests of the West, which are typically mixed-coniferous forests, but may extend down into the montane zone where there is cold-air drainage. Parent materials and soils are variable. Typically, soils are not deep, poorly developed and rocky. Tree canopy characteristics are remarkably similar across the wide distribution of the alliance. *Abies lasiocarpa* and *Picea engelmannii* generally are codominant, usually with higher density of *Abies lasiocarpa* in the smaller size classes, and with fewer, larger *Picea engelmannii*. In some stands, *Picea engelmannii* may be absent altogether, or *Abies lasiocarpa* may only occur as seedlings and saplings. *Picea engelmannii* will often be prominent on more moist sites or in more mature stands. *Pinus contorta* and *Populus tremuloides* are important seral species. Forest understories are highly variable across the range of this alliance and can be dominated by grasses, dry sedges, mesic forbs or shrubs (typically ericaceous). Important shrubs include *Vaccinium* spp., *Menziesia ferruginea*, *Oplopanax horridus*, *Physocarpus* spp., *Linnaea borealis*, *Rubus parviflorus*, *Symphoricarpos albus*, *Spiraea betulifolia*, *Mahonia repens*, *Shepherdia canadensis*, *Acer glabrum*, and *Juniperus communis*. Herbaceous layers are highly variable. Species that are important in individual associations include *Arnica* spp., *Actaea rubra*, *Calamagrostis rubescens*, *Carex* spp., *Clematis columbiana*, *Clintonia uniflora*, *Cornus canadensis*, *Erigeron eximius*, *Coptis occidentalis*, *Xerophyllum tenax*, *Valeriana sitchensis*, and *Thalictrum occidentale*. Diagnostic of forests in this alliance is that they are upland forests (non-flooded) with average tree canopy cover greater than 60%, and with *Abies lasiocarpa* being the predominant conifer in the tree-regeneration layer. [Captured 2008-02-18]

***Abies lasiocarpa* - *Picea engelmannii* / *Arnica cordifolia* Forest**

Subalpine Fir - Engelmann Spruce / Heartleaf Leopardbane Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000298

Distribution (Nations/Subnations): US / ID, MT, NV, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This cool and moist forest association is known from northern Nevada, eastern Idaho,

southwestern and central Montana, and western and north-central Wyoming. This is a cool and moist forest on gentle to moderate terrain, bench-like uplands, often on north-facing slopes but can occur on any aspect. It occurs between 2105 and 2900 m (6900-9500 feet) in elevation. The overstory canopy is thick with mostly *Abies lasiocarpa* and *Picea engelmannii* in the overstory canopy. *Pinus contorta* and *Pseudotsuga menziesii* are often present. Shrub cover is low and scattered, with the exception of *Shepherdia canadensis*, which can have as much as 10% cover, and was indicated as present in a least some plots by all authors. Other shrubs that may be present include *Ribes montigenum*, *Paxistima myrsinites*, and *Rosa* spp. The herbaceous layer is not abundant; *Arnica cordifolia* is the most consistently present forb with about 10-15% cover on average. A wide variety of other herbaceous species may be present, but none with any consistency. *Arnica latifolia* can be difficult to distinguish from *Arnica cordifolia*. The leaves on flowering stems of *Arnica latifolia* are largest toward the middle and are short-petioled to sessile, whereas those of *Arnica cordifolia* are largest near the base and are distinctly petiolate. *Arnica latifolia* is restricted to relatively moist sites; *Arnica cordifolia* occurs on many dry forest sites.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Hoffman and Alexander 1976, Jones and Fertig 1998a, Jones and Ogle 2000, Komarkova et al. 1988b, Loope 1969, MTNHP 2002b, Pfister et al. 1977, Reed 1969, Steele et al. 1981, Steele et al. 1983, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Abies lasiocarpa* Seasonally Flooded Forest Alliance**

Subalpine Fir Seasonally Flooded Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.190

Summary: This alliance includes subalpine riparian or seep slope conifer forests in the Rocky Mountains and portions of the Pacific Northwest. These forests occur in landscape positions where snowmelt moisture creates shallow water tables, seeps, or streamside flooding during much of the growing season. Sites include moist toeslopes, subirrigated stream terraces, alluvial benches, pond margins, wet meadows, or slopes and hillsides that are wet in spring and early summer. Soils often show evidence of podzolization processes and gleying due to seasonally saturated conditions, and tend to be acidic. They often have high organic matter content throughout the profile, but can vary from shallow to deep, and coarse to fine-textured. The moderately dense to dense tree canopy is characterized by the codominance of the conifers *Abies lasiocarpa* and *Picea engelmannii*, with *Pinus contorta* codominant in some stands. Other conifers may also be present in small amounts. The shrub layer is often well-developed occurring as a dense ribbon along streams or where there is a break in the forest canopy. Important shrubs include *Ledum glandulosum*, *Vaccinium* spp., *Ribes lacustre*, *Oplopanax horridus*, *Alnus incana*, *Salix* spp., and *Lonicera* spp. The herbaceous layer is typically lush and dominated by a mixture of mesophytic forbs and graminoids, including *Calamagrostis* spp., *Carex* spp., *Caltha leptosepala*, *Dodecatheon jeffreyi*, *Deschampsia caespitosa*, *Equisetum* spp., *Ligusticum* spp., *Linnaea borealis*, *Senecio triangularis*, and *Streptopus amplexifolius*. Diagnostic characteristics of these forests are that the average tree canopy is greater than 60% cover with *Abies lasiocarpa* as the predominant conifer in the tree-regeneration layer, and they occur on sites saturated until late summer by snowmelt, occurring below seeps on lower hill slopes or in riparian habitats. [Captured 2008-02-18]

***Abies lasiocarpa* - *Picea engelmannii* / *Alnus incana* Forest**

Subalpine Fir - Engelmann Spruce / Speckled Alder Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000296

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This spruce-fir riparian forest occurs in the southern Rocky Mountains in Colorado. It occurs on heavily forested reaches of first- and second-order streams above 2440 m (8000 feet) in elevation where *Abies lasiocarpa* - *Picea engelmannii* forests also occur on adjacent hillslopes. It is found on stream benches and banks in narrow, V-shaped valleys most commonly within 4.6-6.1 m (15-20 feet) of the channel edge and rarely more than 0.6 m (2 feet) above the streambank. Stream channels vary in their morphology; they can be narrow to wide and steep to flat and sinuous. Soils are shallow, dark-colored layers of loamy sands, silty loams, and sandy clay loams over cobbly alluvium with high organic matter content in the top 50.8 cm (20 inches) and mottles at 101.6 cm (40 inches). Stands have an evergreen needle-leaved tree canopy dominated by *Abies lasiocarpa* and *Picea engelmannii*. Occasional canopy associates can include *Picea pungens*, *Pinus contorta*, or *Populus tremuloides*. Tall *Alnus incana* and *Salix drummondiana* grow in a thick band along the edge of the stream. At lower elevations, *Alnus incana* is more abundant than *Salix drummondiana*. At mid elevations, the two shrubs can be codominant. At higher elevations, *Salix drummondiana* becomes dominant and *Alnus incana* drops out, forming *Abies lasiocarpa* - *Picea engelmannii* / *Salix drummondiana* Forest (CEGL000327). In stands where *Alnus incana* and *Salix drummondiana* codominate the shrub layer, the stand should be classified as *Abies lasiocarpa* - *Picea engelmannii* / *Salix drummondiana* Forest (CEGL000327). Additional tall shrubs that can occur in this association include *Cornus sericea*, *Salix geyeriana*, *Salix monticola*, *Lonicera involucrata*, and *Acer glabrum*. The herbaceous layer is usually rich in forb species, with total herb cover ranging from 20-70%. Species often include *Corydalis caseana* ssp. *brandegeei*, *Heracleum maximum*, *Oxypolis fendleri*, *Mertensia ciliata*, *Mertensia franciscana*, *Maianthemum racemosum* ssp. *amplexicaule*, *Streptopus amplexifolius*, *Pyrola asarifolia*, *Cardamine cordifolia*, *Hydrophyllum fendleri*, among many others. Graminoids commonly include *Calamagrostis canadensis*, *Carex aquatilis*, *Glyceria striata*, *Elymus glaucus*, *Carex disperma*, and *Bromus ciliatus*. Bryophyte cover is often moderate.

[Captured 2008-02-15]

References: Baker 1986, Baker 1989b, Bourgeron and Engelking 1994, CONHP unpubl. data 1997, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999a, Manning and Padgett 1995, Padgett et al. 1989, Richard et al. 1996, Uchytel 1989, Uchytel 1991, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

***Abies magnifica* - *Abies concolor* Forest Alliance**

California Red Fir - White Fir Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2561

Summary: [no summary available] [Captured 2008-02-27]

* New to Nevada - with plot data:

***Abies magnifica* - *Abies concolor* - *Pinus jeffreyi* Sierran Montane Chaparral Forest**

California Red Fir - White Fir - Jeffrey Pine Sierran Montane Chaparral Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL008682

Distribution (Nations/Subnations): US / CA

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This forest is widespread at middle to lower elevations in the central and southern Sierra Nevada, California, at elevations generally between 1983 and 2440 m (6500-8000 feet). Aspects are variable, but a significant portion lie on southern slopes where solar radiation levels are significantly higher than most other sites. Stands are usually on upper slopes and some ridgetops. Slope angles are moderate to somewhat steep. Stand size is usually small, often covering less than an acre on small rock outcrops, but sometimes covering more than 50 acres. Sites have significantly less surface gravel and a deeper litter layer than drier sites commonly encountered. Soils are typically well-drained sandy loams and usually formed in place on granitic bedrock, but often form on alluvium, colluvium or glacial tills and outwash. In general, soils are deeper than most other sites. The average water-holding capacity is one of the highest in the upper montane of the Sierra Nevada. These are moderately dense forested stands with light understory vegetation. Overstory layers are distinguished by the presence of *Abies concolor* and *Pinus jeffreyi*, in a mix with *Abies concolor*. Understories are somewhat sparse. Occasionally *Chrysolepis sempervirens* can become a major component in the shrub layer and dominate understories, but in most cases shrubs occur as scattered patches and individuals. The herb layer most often contains *Pedicularis semibarbata*, *Kelloggia galioides*, *Hieracium albiflorum*, *Viola purpurea*, and *Pyrola picta*, although none of these are frequent. An important element in these understories is the presence of several shrub and forb species that occur at low frequency but can dominate sites in early-successional sequences. In the shrub layer, these are *Ceanothus cordulatus*, *Prunus emarginata*, *Arctostaphylos patula*, and *Chrysolepis sempervirens*. In the herb layer, they include *Pteridium aquilinum*, *Lupinus adsurgens*, *Lupinus andersonii*, and *Achnatherum lemmonii*.

[Captured 2008-02-15]

References: Potter 1994, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Abies magnifica* Forest Alliance**

California Red Fir Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.161

Summary: Stands of this montane forest alliance are found on shallow soils on slopes and raised stream benches on all aspects. Stands occur from 1400-2700 m of elevation. Precipitation is very seasonal, with the bulk falling between November and May, as rain in the lower elevations and as snow above 2000 m. Summers are warm and dry. This alliance is dominated by *Abies magnifica*. Other trees in the canopy may include *Pinus contorta* var. *murrayana*, *Pinus jeffreyi*, *Tsuga mertensiana*, *Pinus lambertiana*, *Pinus monticola*, *Abies procera*, and *Abies concolor*. Shrubs and forbs may include *Leucothoe davisiae*, *Pteridium aquilinum*, *Chrysolepis sempervirens* (= *Castanopsis sempervirens*), *Symphoricarpos mollis*, *Arnica cordifolia*, *Quercus vaccinifolia*, *Quercus sadleriana*, *Calocedrus decurrens*, *Orthilia secunda*, *Arctostaphylos nevadensis*, *Chamaecyparis lawsoniana*, *Chimaphila umbellata*, *Rhododendron macrophyllum*, *Lupinus albifrons*, *Penstemon gracilentus*, *Penstemon gracilis*, *Vaccinium membranaceum*, *Linnaea borealis*, *Achlys triphylla*, *Rosa gymnocarpa*, and *Pyrola picta*. [Captured 2008-02-18]

***Abies magnifica* - *Pinus monticola* - *Pinus contorta* var. *murrayana* Forest**

California Red Fir - Western White Pine - Sierran Lodgepole Pine Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL008616

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: These forests are found in the upper-elevation eastside and westside of the central and southern Sierra Nevada, California, typically above 2590 m in elevation. This is the highest elevation association of the mixed *Abies magnifica* and *Pinus monticola* associations. Aspects are varied, but are predominantly northeast and northwest. Sites are mostly on ridges and upper and middle slope positions. Soils are predominantly derived from granite, and may form on bedrock or alluvium or glacial till. They are typically shallow sands or sandy loams, and well-drained or excessively drained. There is much exposed gravel at the surface. Stands are moderately dense forests with sparse understories. Total vegetation cover is generally lower than other forests in the *Abies magnifica* alliance. Overstory composition is characterized by a mix of *Pinus monticola*, *Pinus contorta* var. *murrayana*, and *Abies magnifica*. Tree cover averages about 63% (range 37-91%). Shrub cover is virtually nonexistent, averaging 1% (no characteristic species), although conifer regeneration is moderate to high. The herb layer averages about 12% cover and includes *Arabis platysperma*, *Carex rossii*, *Pedicularis semibarbata*, and *Achnatherum occidentale* as the principal species.

[Captured 2008-02-15]

References: NVNHP 2003, Potter 1994, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Abies magnifica* / *Ribes viscosissimum* Forest**

California Red Fir / Sticky Currant Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000347

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3?

Summary: These late-seral subalpine forests occur in the North Coast, Klamath, Cascade ranges, and Sierra Nevada of the Pacific Northwest. Elevations range from 1400-2700 m. They are adapted to deep winter snow and dry summer. Stands are found on shallow, well-drained soils on slopes and raised stream benches on all aspects. The open to closed canopy (40-100% cover) of coniferous trees is less than 60 m in height and dominated by *Abies magnifica* in both the canopy and subcanopy. Other trees in the canopy may include *Abies concolor*, *Pinus contorta* var. *murrayana*, *Pinus monticola*, and *Tsuga mertensiana*. A sparse to moderately dense (10-40% cover) short-shrub layer (2-5 m tall) is usually present and typically includes the broadleaf deciduous shrub *Ribes viscosissimum*, which is diagnostic for this association. Other shrubs may include *Symphoricarpos rotundifolius*, *Symphoricarpos mollis*, *Ribes montigenum*, *Ribes cereum*, *Spiraea splendens*, *Sambucus racemosa*, and *Arctostaphylos nevadensis*. The herbaceous layer is generally sparse, but may be diverse, commonly including *Eucephalus breweri* (= *Aster breweri*), *Monardella odoratissima*, *Gayophytum ramosissimum*, *Pedicularis semibarbata*, *Pyrola picta*, and *Poa bolanderi*. The lichen *Evernia vulpina* is a constant species in these stands and is uncommon elsewhere. These stands differ from other *Abies* species stands by the lack of *Picea* in the understory.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Oosting and Billings 1943, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Abies magnifica* / *Wyethia mollis* Forest**

California Red Fir / Woolly Mule's-ears Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL008610

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3?

Summary: This forest association is probably restricted to the volcanic mudflows of the northern and central Sierra Nevada, at mid to high elevations (6900-8300 feet) on gentle to somewhat steep slopes (5-38%). They are usually on southeast- and southwest-facing slopes, on ridges and upper slopes where microrelief is uniform. Soils are derived from volcanic parent material with surface textures of sandy loam to loam and subsurface texture of loams, sandy clay loams, and clay loams. This association represents typically intermittent woodlands dominated by *Abies magnifica* and *Pinus jeffreyi*. Tree distribution is characteristically patchy, and *Pinus contorta* and *Pinus monticola* occasionally contribute to the low cover. Shrub cover is low, with *Symphoricarpos mollis* appearing occasionally. The intermittent understory is dominated by *Wyethia mollis*, *Monardella odoratissima* ssp. *pallida*, and *Elymus elymoides* ssp. *elymoides*. Other herb species include *Collinsia torreyi* var. *wrightii*, *Erysimum capitatum* var. *perenne* (= *Erysimum perenne*), *Gayophytum eriospermum*, *Lupinus andersonii*, and *Sidalcea glaucescens*.

[Captured 2008-02-15]

References: NVNHP 2003, Potter 1994, Potter 1998, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus contorta* Forest Alliance**

Lodgepole Pine Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.118

Summary: This alliance is found in the upper montane and subalpine zone of most major mountain ranges of the western U.S., as well as forested dunes of the Oregon and northern California coast. *Pinus contorta* occupies the broadest array of habitats of any coniferous species in the western United States. Forests included in this alliance are characterized by a closed to moderately open tree canopy that is dominated by the conifer *Pinus contorta*. Stands may be even-aged or multi-aged depending on geographic location, edaphic characteristics, and how the stands were established following wildfire. Shrub and herbaceous layers may be present or absent depending on tree canopy. Other tree species, such as *Abies grandis*, *Abies lasiocarpa*, *Picea engelmannii*, *Tsuga heterophylla*, *Tsuga mertensiana*, or *Pseudotsuga menziesii*, may be present to abundant as seedlings and saplings. Associated shrub and herbaceous species vary across the range of this alliance. In the coastal dunes stands important species include *Gaultheria shallon*, *Vaccinium ovatum*, *Rhododendron macrophyllum*, and *Morella californica* (= *Myrica californica*). Herbaceous cover is very sparse. Common subalpine and montane shrub species include *Arctostaphylos uva-ursi*, *Arctostaphylos patula*, *Arctostaphylos nevadensis*, *Ceanothus velutinus*, *Linnaea borealis*, *Mahonia repens*, *Purshia tridentata*, *Spiraea betulifolia*, *Spiraea douglasii*, *Shepherdia canadensis*, *Vaccinium caespitosum*, *Vaccinium scoparium*, *Vaccinium membranaceum*, *Symphoricarpos albus*, and *Ribes* spp. The cover of the herbaceous stratum can be dominated by either graminoids or perennial forbs and tends to vary inversely with shrub cover. Important graminoids include *Carex pensylvanica*, *Carex geyeri*, *Carex rossii*, *Calamagrostis rubescens*, *Danthonia californica*, *Elymus glaucus*, or *Achnatherum occidentale* (= *Stipa occidentalis*). Important forbs are *Arnica cordifolia*, *Chimaphila umbellata*, *Orthilia secunda*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Pedicularis racemosa*, *Xerophyllum tenax*, and *Thalictrum* spp. Diagnostic of this upland forest alliance is the dominance of *Pinus contorta* in the tree canopy without significant

regeneration of *Abies lasiocarpa* or similar shade-tolerant species. [Captured 2008-02-18]

***Pinus contorta* var. *murrayana* / Sparse Understory Forest**

Sierran Lodgepole Pine / Sparse Understory Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003069

Distribution (Nations/Subnations): MX?, US / CA, MXBC?, NV, OR?

Status: 1 Active Confidence: 3 (Weak) Global Rank: G4?

Summary: Stands of this association are moderately dense forests with open understories. Tree cover is moderate, averaging 59% cover. Tree overstories are dominated by *Pinus contorta* var. *murrayana* with very scattered *Abies magnifica*. *Pinus monticola* is a rare member of the stand. The shrub layer is essentially absent, averaging less than 1%, although *Ribes montigenum* occurs in widely scattered locations, indicating moist conditions. Cover of herbaceous dicots is among the lowest in the upper montane associations, averaging 3%; the species represent a mix of moderate to dry conditions (e.g., *Arabis platysperma* indicating drier sites and *Pyrola picta* and *Thalictrum fendleri* indicating moister sites). Herbaceous monocots average 10% cover, with *Carex rossii* indicating moister conditions and *Achnatherum occidentale* indicating drier conditions. Conifer regeneration is moderate, dominated by *Pinus contorta* var. *murrayana*, with generally more than 250 seedlings per acre. [Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus flexilis* - *Populus tremuloides* Forest Alliance**

Limber Pine - Quaking Aspen Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.425

Summary: This mixed evergreen-deciduous forest alliance occurs locally on montane and subalpine slopes in the mountains and plateaus in western Wyoming, Utah, and eastern Nevada. Soils are derived from colluvium and residuum from a variety of parent materials. Forests included in this alliance are characterized by an open to moderately closed, mixed evergreen-deciduous tree canopy that is codominated by *Populus tremuloides* and *Pinus flexilis*. Several other species of conifers may be scattered within the stands including *Abies concolor*, *Picea engelmannii*, and *Pseudotsuga menziesii*. Younger stands typically have dense *Populus tremuloides* with *Pinus flexilis* mixed in. As the stands age, *Populus tremuloides* cover is slowly reduced, and *Pinus flexilis* becomes more dominant, but it is unlikely that it would completely suppress *Populus tremuloides* because of the relatively open tree canopy. The sparse to moderately dense understory may include short-shrub and herbaceous layers. Shrub associates may include *Arctostaphylos patula*, *Symphoricarpos oreophilus*, *Juniperus communis*, *Rosa woodsii*, or *Mahonia repens*. The herbaceous layer is composed of a mixture of graminoids and forbs. Associated species may include *Bromus anomalus*, *Carex rossii*, *Elymus glaucus*, *Elymus trachycaulus*, *Melica spectabilis*, *Poa fendleriana*, *Achillea millefolium*, *Arnica cordifolia*, *Astragalus miser*, *Geranium viscosissimum*, *Ligusticum filicinum*, *Pseudostellaria jamesiana* (= *Stellaria jamesiana*), *Thalictrum fendleri*, and *Trifolium gymnocarpon*. Annuals are typically uncommon. Diagnostic of this forest alliance is the tree canopy codominated by *Pinus flexilis* and *Populus tremuloides*. [Captured 2008-02-18]

***Populus tremuloides* - *Pinus flexilis* Forest**

Quaking Aspen - Limber Pine Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000540

Distribution (Nations/Subnations): US / NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2G3

Summary: This mixed deciduous-and-evergreen woodland occurs on mountain slopes from western Wyoming south to southern Utah and west to eastern Nevada. Stands generally grow on fairly steep, south-facing slopes with a variety of geologic substrates, at altitudes above 2650 m (8700 feet). *Populus tremuloides* dominates the tree overstory, and *Pinus flexilis* contributes substantial cover. Other conifers may be present, but *Pinus flexilis* clearly contributes more cover. The composition of the undergrowth varies widely among stands, and no species is present in all stands. The large amount of *Pinus flexilis* in the overstory, relative to other conifers, sets this association apart from other *Populus tremuloides* - conifer associations.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Eddleman and Jaindl 1994, Mueggler 1988, Peterson pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus angustifolia* Temporarily Flooded Forest Alliance**

Narrowleaf Cottonwood Temporarily Flooded Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.310

Summary: Vegetation types in this alliance occur on terraces and floodplains immediately adjacent to streams in the western United States. Elevations range from 1350 m in the Southwest to 2400 m in Colorado. Microtopography is often smooth to gently undulating with slopes between 2 and 5%. Stands generally occur within 1 m of the high water mark, but can also occur on higher terraces, up to 3 m above the channel. Water tables are rarely within 50 cm of the soil surface, and stands are as much as 3-4 m above the stream level. Soil pH levels range from slightly acid to moderately alkaline (pH 6.2-8.4). Soils are typically well-drained with large amounts of coarse fragments in the subsurface horizons. The soil textures are fine sandy loams, clay loams, silty clay loams, and silty clay. Floods and beavers frequently rework soils. Peat deposits, if present, are thin. Vegetation stands within this alliance are defined as cold-deciduous temporarily flooded forests. The tree canopy is dense and dominated by up to 70% cover of *Populus angustifolia*. Other trees include (0-30% cover each) *Populus deltoides*, *Acer grandidentatum*, *Salix amygdaloides*, and *Acer negundo*. The shrub layer is dominated by 10-70% cover of *Amelanchier alnifolia*, *Lonicera involucrata*, or *Rosa woodsii*. The herbaceous undergrowth is typically dominated by hay grasses and a sparse forb cover, with 0-20% cover of *Maianthemum stellatum* and *Thalictrum fendleri*. *Pinus edulis* - *Juniperus osteosperma* woodlands, *Pinus ponderosa* - *Quercus gambelii* forests, *Quercus gambelii* scrub, and *Artemisia tridentata* and *Chrysothamnus* spp. shrublands often occur on adjacent hillslopes in the Colorado stands. [Captured 2008-02-18]

***Populus angustifolia* / *Rosa woodsii* Forest**

Narrowleaf Cottonwood / Woods' Rose Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000653

Distribution (Nations/Subnations): US / CO, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2G3

Summary: This deciduous riparian forest occurs on stream terraces and adjacent floodplains in the LaSal and Abajo mountains in southeastern Utah, the west slope of the Wasatch Range in central Utah, in western Wyoming, and in various mountain ranges in Nevada. It may also occur in Colorado. Elevation ranges from 1780-2300 m. Substrates are moderately well-drained alluvial soils derived from sandstone or other sedimentary rock. The community is one of the drier *Populus*

angustifolia plant associations. This association has a closed upper tree canopy that is dominated by *Populus angustifolia*. Other tree species may include *Quercus gambelii*, *Populus tremuloides*, and an occasional *Juniperus osteosperma* or other upland tree species. *Prunus virginiana* and *Salix bebbiana* may form a tall-shrub layer, especially streamside. A dense short-shrub layer dominated by *Rosa woodsii* or *Rosa nutkana* is diagnostic of this type. *Symphoricarpos oreophilus* is often present and occasionally codominant. *Rhus trilobata*, *Mahonia repens*, or *Cornus sericea* are present in some stands. The vine *Clematis ligusticifolia* is abundant in some stands. The herbaceous layer is generally sparse but may be denser in openings where the introduced grasses *Poa pratensis* and *Agrostis stolonifera* and the native *Elymus glaucus* are dominant. Common native forbs include *Maianthemum stellatum*, *Thalictrum fendleri*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Geranium richardsonii*, and *Galium boreale*. The introduced forb *Taraxacum officinale* is often also present. The dense short-shrub layer dominated by *Rosa* spp. separates this association from other *Populus angustifolia* riparian forests. If present, *Cornus sericea* is always a minor component. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Jones 1992b, Jones and Ogle 2000, Manning and Padgett 1992, Manning and Padgett 1995, Nachlinger and Reese 1996, Padgett and Manning 1988, Padgett et al. 1988b, Padgett et al. 1989, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Populus balsamifera* ssp. *trichocarpa* Temporarily Flooded Forest Alliance**

Black Cottonwood Temporarily Flooded Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.311

Summary: This riparian forest alliance occurs on alluvial terraces along major streams and rivers throughout the western United States, west of the Continental Divide. Elevations range from sea level in California to 1800 m. They can occur on alluvial terraces of major streams and rivers, margins of lakes, meadows, deltas, river mouths, and terraces. Stands can occupy broad floodplains or form narrow stringers adjacent to streams with a much steeper slope. Soils typically overlay river gravel and/or cobbles and are coarse-textured. Water tables usually drop below 1 m of the soil surface in summer, but can remain moist due to capillary action. Vegetation within this alliance is characterized by an open to moderately dense tree layer that is dominated by *Populus balsamifera* ssp. *trichocarpa*. Tree associates include *Populus deltoides*, *Populus angustifolia*, *Pinus ponderosa*, *Picea* spp., and *Alnus rhombifolia*, *Alnus rubra*, and *Fraxinus latifolia* in stands along the west coast. A shrub layer is usually present and may be dominated by *Alnus incana*, *Betula papyrifera*, *Cornus sericea*, *Crataegus douglasii*, *Prunus virginiana*, *Ribes americanum*, *Salix exigua*, and *Symphoricarpos albus*. The herbaceous layer is usually relatively sparse and is dominated by either forbs or graminoids. Common species include *Actaea rubra*, *Cicuta douglasii*, *Equisetum sylvaticum*, *Mentha arvensis*, and *Symphotrichum spathulatum* (= *Aster occidentalis*). The graminoid cover is usually less than 10%, but can be up to 80% consisting mainly of introduced hay grasses on disturbed sites. Species information on the graminoid and forb layers is lacking for much of the range of this alliance. Diagnostic of this alliance is the dominance of *Populus balsamifera* ssp. *trichocarpa* in the tree canopy in forests that are briefly flooded during the growing season. [Captured 2008-02-18]

* New to Nevada - with plot data:

***Populus balsamifera* ssp. *trichocarpa* - *Pinus jeffreyi* Forest**

Black Cottonwood - Jeffrey Pine Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL008620

Distribution (Nations/Subnations): US / CA

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: [no summary available] [Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus balsamifera ssp. trichocarpa* / Mixed Herbs Forest**

Black Cottonwood / Mixed Herbs Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000675

Distribution (Nations/Subnations): US / MT, NV, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: This cold-deciduous riparian forest occurs in lower mountains and foothills at 610 to 2013 m (2000-6591 feet) elevation, on alluvial terraces and floodplains of major and minor rivers and streams. Soils are poorly developed, loamy to cobbly Entisols. It is thought to be a grazing-induced type; the trees are mature and the herbaceous layer predominantly dominated by non-native graminoid species. The canopy cover is *Populus balsamifera ssp. trichocarpa* (= *Populus trichocarpa*) with 30-60% cover. There are very few shrubs and, if present, do not form a stratum layer. The herbaceous layer is dominated by either non-native graminoids or increaser species such as *Phleum pratense*, *Poa pratensis*, *Bromus vulgaris*, and *Elymus glaucus*. Forbs are in low abundance and are also dominated by increaser species.

[Captured 2008-02-15]

References: Blackburn et al. 1968a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Hansen et al. 1995, Kovalchik 1987, Tuhy and Jensen 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus balsamifera ssp. trichocarpa* / *Salix exigua* Forest**

Black Cottonwood / Coyote Willow Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000676

Distribution (Nations/Subnations): US / CA?, ID?, NV?, OR, WA

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G1

Summary: This association occurs on alluvial deposits along rivers and perennial streams in habitats which are seasonally flooded and saturated. It generally occurs in wider river valleys or terraces, with patches of *Populus balsamifera ssp. trichocarpa* dominating forest or woodland patches while *Salix exigua* dominates a continuous shrub canopy, <7 m in height. Few examples of this type occur in pristine condition, so most commonly *Poa pratensis*, *Bromus tectorum*, and *Verbascum thapsus* are widespread in this community. In a few remnants, the open understory can have *Artemisia ludoviciana* and *Leymus cinereus* along with some native forbs.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, IDCDC 2005, Kagan et al. 2000, Manning and Padgett 1992, Manning and Padgett 1995, Poulton 1955, Sawyer and Keeler-Wolf 1995, Titus et al. 1998, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus fremontii* Temporarily Flooded Forest Alliance**

Fremont Cottonwood Temporarily Flooded Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.313

Summary: This forest alliance occurs in riparian areas in the southwestern United States. Stands have been described from floodplains along the valley floors of large rivers in southwestern New Mexico, Utah, and Arizona. Although periodic drought can result in the rivers becoming dry, water tables are generally high throughout the year, with surface flooding during the spring months. Soils are alluvial, deposited in stratified layers of clays, sands, silts and gravels. Forests included in this alliance are characterized in mature stands by a dense overstory canopy 20-25 m tall of *Populus fremontii*. Canopy cover is variable, depending upon the age of the stand, but averages well over 60%. In the subcanopy, *Salix gooddingii*, a small tree (to 15 m tall), is usually present with low cover. Scattered shrubs are found in the understory, but total cover of this layer is typically less than 10%. Shrub species may include *Amorpha fruticosa*, *Baccharis salicifolia*, and *Salix exigua*. The herbaceous layer is sparse. Associated species include *Anemopsis californica*, *Distichlis spicata*, and *Juncus balticus*. Tree litter covers much of the ground surface. Diagnostic of this alliance is the dominance of *Populus fremontii* in the relatively dense tree canopy of forests that are briefly flooded during the growing season and have relatively high water tables. [Captured 2008-02-18]

***Populus fremontii* / *Acer negundo* Forest**

Fremont Cottonwood / Box-elder Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000662

Distribution (Nations/Subnations): US / AZ?, CA?, NM, NV?, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2Q

Summary: This forested riparian association is known from canyon bottoms in southwestern New Mexico and southern Utah, but it is likely to occur in Arizona, Nevada and California. Stands occur on gently sloping, lower riparian terraces associated with perennial streams. These are sites that flood periodically but not annually. The principal species depend on the water table being within 1 meter of the surface throughout the growing season in order to become established. Once established, both *Populus fremontii* and *Acer negundo* are capable of persisting as terraces become isolated from the water table. Soils are coarse, sandy and generally are poorly developed. In this association, *Populus fremontii* and *Acer negundo* form moderate to dense canopies, usually accompanied by *Juglans major* as a codominant in the southern part of the range. There is no structural information for New Mexico occurrences, but other associated woody species in southern New Mexico include *Ptelea trifoliata* var. *angustifolia* (= *Ptelea angustifolia*) and *Amorpha fruticosa*. In the Colorado Plateau, total canopy cover ranges from 60% to more than 100%. Associated woody understory species include *Salix exigua*, *Rhus trilobata*, and *Brickellia longifolia*. The herbaceous component of the community is variable depending on the site, the depth to water table and the flood frequency.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Henry 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* - *Pseudotsuga menziesii* Forest Alliance**

Quaking Aspen - Douglas-fir Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.426

Summary: This mixed evergreen-deciduous forest alliance has been described on lower montane slopes and plateaus in western Wyoming, Colorado, Idaho, Utah, and eastern Nevada. Sites occur on gentle to steep slopes on any aspect. Soils are derived from alluvium, colluvium and residuum from a variety of parent materials. Forests included in this seral alliance are characterized by an open to moderately closed, mixed conifer and deciduous tree canopy that is codominated by *Pseudotsuga menziesii* and *Populus tremuloides*. Several other species of conifers may be scattered within the stands, including *Abies concolor*, *Abies lasiocarpa*, *Picea engelmannii*, *Picea pungens*, *Pinus contorta*, *Pinus flexilis*, and *Pinus ponderosa*. Younger stands typically have dense *Populus tremuloides* with *Pseudotsuga menziesii* mixed in. As stands age, *Populus tremuloides* cover is slowly reduced until the conifer species become dominant. The sparse to moderately dense understory may be structurally complex and includes tall-shrub, short-shrub and herbaceous layers, or simple with just an herbaceous layer. If present, the tall-shrub layer may be dominated by *Amelanchier alnifolia*, *Prunus virginiana*, or *Acer grandidentatum*, and short-shrub by *Symphoricarpos oreophilus*, *Juniperus communis*, or *Mahonia repens*. Where dense, the herbaceous layer is often dominated by graminoids such as *Bromus carinatus*, *Calamagrostis rubescens*, *Carex geyeri*, *Elymus glaucus*, *Poa* spp., and *Hesperostipa* and/or *Achnatherum* spp. (= *Stipa* spp). The sparser herbaceous layers are generally a more even mixture of forbs such as *Achillea millefolium*, *Arnica cordifolia*, *Eucephalus engelmannii* (= *Aster engelmannii*), *Erigeron speciosus*, *Fragaria vesca*, *Geranium viscosissimum*, *Lathyrus* spp., *Lupinus argenteus*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), and *Thalictrum fendleri*. Diagnostic of this forest alliance is the codominance of *Populus tremuloides* and *Pseudotsuga menziesii* in the tree canopy. [Captured 2008-02-18]

***Populus tremuloides* - *Pseudotsuga menziesii* / *Juniperus communis* Forest**

Quaking Aspen - Douglas-fir / Common Juniper Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000545

Distribution (Nations/Subnations): US / CO, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This minor, seral, mixed aspen-conifer forest association occurs in the Uinta Mountains and Paunsaugunt Plateau in Utah, Snake Range in eastern Nevada, and the Colorado Front Range between 2300 and 2985 m (7540-9785 feet) elevation. Stands occur on a variety of sites and substrates (sandstone, quartz and granite). Soils are often shallow and coarse-textured. The vegetation is characterized by a relatively open to dense, mixed conifer and deciduous tree canopy codominated by *Pseudotsuga menziesii* and *Populus tremuloides*. Other conifer trees may be present, such as *Abies lasiocarpa*, *Picea engelmannii*, *Pinus contorta*, *Pinus flexilis*, or *Pinus ponderosa*. The understory lacks a tall-shrub layer, although scattered *Amelanchier alnifolia*, *Prunus virginiana*, or *Salix scouleriana* may be present. *Juniperus communis* is the predominant species in the moderately dense to sparse short-shrub layer, with *Arctostaphylos uva-ursi*, *Mahonia repens*, and *Symphoricarpos oreophilus* as common associates. Other shrubs present may include *Artemisia tridentata*, *Jamesia americana*, *Rosa woodsii*, and *Shepherdia canadensis*. The relatively sparse herbaceous layer is a mixture of graminoids and low forbs. Common graminoids are *Achnatherum occidentale*, *Bromus* spp., *Carex geyeri*, *Carex rossii*, *Elymus glaucus*, and *Elymus trachycaulus*; forbs, such as *Arnica latifolia*, *Astragalus miser*, *Fragaria vesca*, *Lathyrus*

lanszwertii var. *leucanthus* (= *Lathyrus leucanthus*), *Lupinus argenteus*, *Potentilla* spp., *Thalictrum fendleri*, and *Thermopsis divaricarpa* may be present. The exotic species *Poa pratensis* and *Taraxacum officinale* are common in livestock-impacted stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* - *Pseudotsuga menziesii* / *Symphoricarpos oreophilus* Forest**

Quaking Aspen - Douglas-fir / Mountain Snowberry Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000546

Distribution (Nations/Subnations): US / ID, NV, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Eddleman and Jaindl 1994, Mueggler 1988, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* Forest Alliance**

Quaking Aspen Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.274

Summary: This alliance is widespread in the western United States, the northern Great Plains, and extends into the western Great Lakes area. Stands are found on a variety of landscape positions but are consistently in mesic habitats. In the Midwest, average precipitation is usually enough to support associations in this alliance across broad areas of the landscape where other conditions favor it. In the Great Plains and western U.S., forests in this alliance are typically restricted to areas with above-average available moisture (lower slopes, near watercourses, basins) or where moisture stress is lessened (shaded canyons, cooler higher elevation sites, north-facing slopes). Stands in this alliance often occur between grasslands and other forest types. The soils are usually deep, well-developed, and loamy. Stands in this alliance often originate following disturbance. The dominant species of the canopy is *Populus tremuloides*. In the midwestern United States, *Quercus macrocarpa* and *Betula papyrifera* are common associates and can even be codominant in some stands. The shrub layer can be made up of several shrubs common to the Great Plains, including *Corylus cornuta*, *Corylus americana*, *Prunus virginiana*, *Symphoricarpos occidentalis*, *Amelanchier alnifolia*, and *Rubus* spp. In wetter stands *Cornus* spp. and *Salix* spp. may also be present. The herbaceous layer may contain *Aralia nudicaulis*, *Carex pensylvanica*, *Maianthemum canadense*, *Maianthemum stellatum*, *Viola* spp., and *Thalictrum dioicum*. In the western United States common associates include *Acer glabrum*, *Amelanchier alnifolia*, *Symphoricarpos oreophilus*, *Bromus carinatus*, *Calamagrostis rubescens*, *Thalictrum fendleri*, *Carex siccata* (= *Carex foenea*), *Carex geyeri*, *Carex rossii*, and *Hesperostipa comata* (= *Stipa comata*). In the Dakotas and Wyoming, these stands may remain successional stable for many dozens of years, while in the more mesic, eastern portion of the range, *Populus tremuloides* forests succeed to other community types much more quickly. *Populus tremuloides* (the species) reaches Texas, Virginia, and West Virginia, but it is unclear whether *Populus tremuloides* communities occur in any of these states. Stands of *Populus tremuloides* in the Trans-Pecos of western Texas occur in ravines and on open talus slopes above 2134 m (7000 feet) elevation; they may best be treated as *Populus tremuloides* communities, or merely as other communities with a component of aspen. Texas

stands of *Populus tremuloides* are of limited extent and variable in structure. [Captured 2008-02-18]

***Populus tremuloides* / *Amelanchier alnifolia* - *Symphoricarpos oreophilus* / Tall Forbs Forest**

Quaking Aspen / Saskatoon Serviceberry - Mountain Snowberry / Tall Forbs Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000568

Distribution (Nations/Subnations): US / CO, ID, NV, UT

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: p020621d (1 plots identified)

Representative Images:



p020621d_1.JPG

***Populus tremuloides* / *Amelanchier alnifolia* - *Symphoricarpos oreophilus* / *Thalictrum fendleri* Forest**

Quaking Aspen / Saskatoon Serviceberry - Mountain Snowberry / Fendler's Meadowrue Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000569

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This is a low- to moderate-elevation aspen forest association that occurs in the central and southern Rocky Mountains west into northeastern Nevada. Elevation ranges from 1770 to 2678 m (5800-8780 feet). It occurs on gentle slopes (<25%) on lower and midslope positions and occasionally on valley bottoms to moderately steep to steep slopes (33-65%). Aspects are variable. The soils are well-drained sandy loams to sandy clay loams. This montane deciduous forest is multi-layered and is dominated by *Populus tremuloides* in the tree canopy (generally >70% relative cover of tree canopy). *Abies lasiocarpa* or *Pseudotsuga menziesii* are occasionally present in small amounts (<10% cover). The undergrowth has a multi-layered structure of tall shrubs, low shrubs, and a fairly low-growing layer of herbaceous species. The association is characterized by the presence of both a tall- and short-shrub layer, and the lack of significant quantities of both tall forbs and graminoids (<10% cover, total). The most common tall shrubs are *Amelanchier alnifolia* and *Prunus virginiana*. This stratum can be open and scattered but usually has at least 10% cover and is often greater than 50%. The low-shrub component, with *Symphoricarpos oreophilus* or

Symphoricarpos rotundifolius and *Rosa woodsii*, is always prominent (>10% cover). *Mahonia repens*, *Paxistima myrsinites*, *Ribes* spp., or *Spiraea betulifolia* are often present to abundant. Occasionally *Symphoricarpos albus* replaces *Symphoricarpos oreophilus*. The herbaceous layer is dominated by low-growing forb species such as *Thalictrum fendleri*, *Geranium viscosissimum*, *Osmorhiza* spp., and *Lupinus argenteus* (generally >10% cover). Occasional tall forbs, such as *Agastache urticifolia*, *Eucephalus engelmannii* (= *Aster engelmannii*, or *Senecio serra*), may be present, but they never form a prominent part of the undergrowth (>10% cover). Graminoids can be present with low cover (<10%).

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP Ecology Team 2001, Driscoll et al. 1984, Johnston and Hendzel 1985, Komarkova et al. 1988a, Komarkova et al. 1988b, Mueggler 1988, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Amelanchier alnifolia* / Tall Forbs Forest**

Quaking Aspen / Saskatoon Serviceberry / Tall Forbs Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000570

Distribution (Nations/Subnations): US / ID, NV, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Amelanchier alnifolia* / *Thalictrum fendleri* Forest**

Quaking Aspen / Saskatoon Serviceberry / Fendler's Meadowrue Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000571

Distribution (Nations/Subnations): US / CA?, ID, NV, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Artemisia tridentata* Forest**

Quaking Aspen / Basin Big Sagebrush Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000572

Distribution (Nations/Subnations): US / CA, ID, NV, OR, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G4

Summary: This association is characterized by *Populus tremuloides* as the dominant species in the tall-shrub or tree canopy, with an average cover of 30%. The canopy varies from 10-30 meters in height. Occasional emergent conifers such as *Pinus monticola* and/or *Pinus jeffreyi* may be present. *Artemisia tridentata* is the dominant shrub with an average cover of 4.5%. Other shrubs may

include *Symphoricarpos rotundifolius* (2.5% cover) and *Rosa woodsii* (0.5% cover). *Gayophytum diffusum* is the most common forb, though it is present in only half of the stands and at less than 1% cover. Several graminoid species may be present at low cover values including *Elymus elymoides*, *Bromus carinatus*, and/or *Bromus tectorum* [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Dealy 1971, Dealy et al. 1981, Driscoll et al. 1984, Johnston 1987, Jones and Ogle 2000, Kagan et al. 2004, Mueggler 1988, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Bromus carinatus* Forest**

Quaking Aspen / California Brome Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000573

Distribution (Nations/Subnations): US / CA?, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Calamagrostis rubescens* Forest**

Quaking Aspen / Pinegrass Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000575

Distribution (Nations/Subnations): CA?, US / AB?, ID, MT, NV?, OR?, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5?

Summary: This is a relatively common deciduous forest known from Washington, Idaho, Montana, Wyoming, and Utah. It is described from over 100 plots. It occurs on benches and slopes irrespective of slope steepness or aspect. It occurs primarily below 2440 m (8000 feet) in elevation, ranging from 1829 to 2440 m (6000-8000 feet). Soils are primarily derived from sandstone. The vegetation of this major association is comparatively simple both in structure and in composition. Most of the time, *Populus tremuloides* is the only tree in the overstory. Conifers, if present, are incidental and can include *Pinus contorta*, *Picea engelmannii*, and *Pseudotsuga menziesii*. Shrubs such as *Symphoricarpos oreophilus*, *Rosa woodsii*, *Amelanchier alnifolia*, and *Juniperus communis* may be present but never form a distinct layer. The herbaceous undergrowth is dominated by *Calamagrostis rubescens*. Other graminoids include *Elymus trachycaulus* (= *Agropyron trachycaulum*), *Bromus carinatus*, *Elymus glaucus*, and *Poa pratensis*. Commonly found forbs include *Geranium viscosissimum*, *Lupinus argenteus*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Fragaria vesca*, and *Achillea millefolium* var. *occidentalis* (= *Achillea lanulosa*).

[Captured 2008-02-15]

References: Alexander 1986, Bader 1932, Bourgeron and Engelking 1994, Cooper and Pfister 1981, Driscoll et al. 1984, Jones and Ogle 2000, MTNHP 2002b, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Western Ecology Working Group n.d., Williams and Lillybridge 1983, Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Carex rossii* Forest**

Quaking Aspen / Ross' Sedge Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000580

Distribution (Nations/Subnations): US / NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / Invasive Perennial Grasses Forest**

Quaking Aspen / Invasive Perennial Grasses Forest

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003748

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Girard et al. 1997, Hall and Hansen 1997, Hansen et al. 1995, Manning and Padgett 1995, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Padgett et al. 1989, Western Ecology Working Group n.d., Wexelman et al. 1999

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Salix scouleriana* Forest**

Quaking Aspen / Scouler's Willow Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000604

Distribution (Nations/Subnations): US / ID, NV, OR, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: This common deciduous forest occurs on midslopes on low to moderately steep north-, east- and south-facing aspects. Elevation ranges from 1770 to 2338 m (5800-7670 feet). Soils are variable. The primary distinguishing feature of this association is the abundance of *Salix scouleriana* comprising the tall-shrub layer under an exclusive canopy of *Populus tremuloides*. The shrub layer can be variable with high abundance of *Amelanchier alnifolia* or *Prunus virginiana* mixed in with the *Salix scouleriana*. Low shrubs are frequently present such as *Symphoricarpos oreophilus*, *Sorbus scopulina*, and *Rosa woodsii*. The herbaceous layer is also diverse with forbs dominating over graminoids. Common forbs include *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Thalictrum fendleri*, *Ligusticum filicinum*, *Fragaria virginiana*, *Geranium viscosissimum*, *Delphinium X occidentale*, and others. Graminoids can be numerous but not abundant, with such species as *Elymus glaucus*, *Bromus carinatus*, and *Poa pratensis*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Evenden 1990, Kagan et al. 2000, Manning and Padgett 1991, Mueggler 1988, Titus et al. 1998, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Symphoricarpos oreophilus* / *Bromus carinatus* Forest**

Quaking Aspen / Mountain Snowberry / California Brome Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000611

Distribution (Nations/Subnations): US / NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Symphoricarpos oreophilus* / *Carex rossii* Forest**

Quaking Aspen / Mountain Snowberry / Ross' Sedge Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000613

Distribution (Nations/Subnations): US / CO, ID?, NV, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3G4

Summary: This association is documented from high plateaus in Utah and Colorado and is reported to occur in the mountains of northwestern Wyoming and central Nevada. Elevations range from 1860 m to more than 2600 m (6100-8530 feet). Slopes are gentle to moderate and sites occur on all aspects. Soils vary in texture but are often rocky and may be derived from granite, sandstone, limestone or volcanics. The canopy consists of moderately closed to closed stands of *Populus tremuloides*, although stands will occasionally contain *Pseudotsuga menziesii*, *Abies concolor*, or *Abies lasiocarpa*, indicating that some stands may eventually convert to coniferous forests. The shrub layer consists primarily of *Symphoricarpos oreophilus*, although minor amounts of *Amelanchier utahensis*, *Prunus virginiana*, *Artemisia tridentata*, *Rosa woodsii*, *Juniperus communis*, *Mahonia repens*, and *Paxistima myrsinites* may be present. In addition to the generally dominant *Carex rossii*, the herbaceous understory may contain *Achnatherum occidentale*, *Bromus anomalus*, *Elymus trachycaulus*, *Poa pratensis*, *Thalictrum fendleri*, *Geranium viscosissimum*, *Arnica cordifolia*, and *Lupinus argenteus*. This association is generally a climax type, not usually subject to replacement by coniferous species. Overgrazing converts the understory to dominance by *Poa pratensis*, *Elymus elymoides*, *Astragalus miser*, *Taraxacum officinale*, and *Achillea millefolium*. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Symphoricarpos oreophilus* / Tall Forbs Forest**

Quaking Aspen / Mountain Snowberry / Tall Forbs Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000615

Distribution (Nations/Subnations): US / ID, NV, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3G5

Summary: This deciduous forest association is widespread in the Intermountain region on the western U.S. It is found at montane and subalpine elevations from 1890 to 2960 m (6200-9700 feet) across its latitudinal range. Sites include lower slopes and benches, draws, sheltered slopes, and high benches that range from flat to moderate slopes of any aspect. Northern to eastern aspects are common in the drier and warmer environments in the southern portions of its range. Soils are

variable but include loams or sandy loams that are often derived from sandstone parent material. The vegetation is characterized by a moderately dense to dense tree canopy of *Populus tremuloides* with a short-shrub layer with at least 10% cover that is dominated by *Symphoricarpos oreophilus*. The herbaceous layer present with at least 10% cover is dominated by tall forbs such as *Agastache urticifolia*, *Eucephalus engelmannii*, *Hackelia floribunda*, *Mertensia arizonica*, *Osmorhiza occidentalis*, *Senecio serra*, and *Valeriana occidentalis*. Occasional conifer trees are possible in a stand but do not make up more than 10% of the tree canopy.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Cogan et al. 2004, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Symphoricarpos oreophilus* / *Thalictrum fendleri* Forest**

Quaking Aspen / Mountain Snowberry / Fendler's Meadowrue Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000616

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This is a major aspen forest association common in the mountains of the Colorado Plateau, the eastern Great Basin, and the central and southern Rocky Mountains. Stands can occur from 1585-2848 m (5200-9340 feet) elevation but generally occur at moderate elevations. Stands grow on gentle slopes of less than 25% or mountains and mesas, rather than on benches or flats. The vegetation is characterized by a *Populus tremuloides*-dominated overstory canopy (40-100% cover), with an open, yet distinct low-shrub stratum comprised of *Symphoricarpos oreophilus* or *Symphoricarpos rotundifolius*. Other tree species present include *Abies lasiocarpa* and *Pseudotsuga menziesii* with low cover (generally <5% cover) and several other conifers in trace amounts. Other low shrubs present include *Artemisia tridentata* ssp. *vaseyana*, *Mahonia repens* (= *Berberis repens*), *Paxistima myrsinites*, and *Rosa woodsii*. Tall shrubs may be present but are never abundant enough to form a distinct stratum. The herbaceous layer is rich with many forbs. The most abundant forbs are *Thalictrum fendleri*, *Geranium viscosissimum*, *Helianthella uniflora*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Lathyrus lanszwertii*, *Galium boreale*, *Achillea millefolium*, and the introduced species *Taraxacum officinale*. Common graminoids include *Bromus carinatus*, *Poa secunda*, *Elymus trachycaulus*, and the introduced *Poa pratensis*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Hoffman and Alexander 1980, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Symphoricarpos oreophilus* / *Wyethia amplexicaulis* Forest**

Quaking Aspen / Mountain Snowberry / Northern Mule's-ears Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000617

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4Q

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Western Ecology

Working Group n.d.

NNHP Plots: p030714d (1 plots identified)

***Populus tremuloides* / *Symphoricarpos oreophilus* Forest**

Quaking Aspen / Mountain Snowberry Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000610

Distribution (Nations/Subnations): US / AZ?, CO, ID, MT, NM, NV, OR, TX?, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This deciduous forest association is widespread in the Rocky Mountains and found in mountains of the interior western U.S. Stands occur at montane and subalpine elevations of 2010 to 2960 m (6600-9700 feet) on a variety of intermediately mesic sites, including lower slopes and benches, draws, sheltered slopes, and high benches that range from flat to steep slopes of any aspect. Northern to eastern aspects are common in the drier and warmer environments such as the southern portions of its range. Soils are generally well-developed, well-drained loams or sandy loams. Vegetation is characterized by a moderately dense to dense tree canopy of *Populus tremuloides* with a short-shrub layer that is dominated by *Symphoricarpos oreophilus*. Occasional conifer trees are possible in the stand but do not make up more than 25% of the tree canopy.

[Captured 2008-02-15]

References: Baker 1982b, Bourgeron and Engelking 1994, Boyce 1977, CONHP Ecology Team 2001, Day and Wright 1985, Dorn 1969, Driscoll et al. 1984, Ferchau 1973, Hess and Wasser 1982, Hoffman and Alexander 1980, Hoffman and Alexander 1983, Johnston 1987, Johnston and Hendzel 1985, Jones and Ogle 2000, Kagan et al. 2000, Keammerer and Peterson 1981, Keammerer and Stoecker 1975, Keammerer and Stoecker 1980, Komarkova et al. 1988a, Kovalchik 1987, Lewis 1975a, MTNHP 2002b, Mueggler 1988, Reed 1971, Titus et al. 1998, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* / Tall Forbs Forest**

Quaking Aspen / Tall Forbs Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000618

Distribution (Nations/Subnations): US / CO, ID, MT, NV, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This *Populus tremuloides* forest is one of the most common and abundant aspen forest types in the Rocky Mountains. It occurs throughout mountainous areas and occurs on any aspect but tends to occur more often on north-facing slopes. It can be found on steep moist hillsides and often along narrow riparian areas. The broad-leaved deciduous tree canopy is dominated by *Populus tremuloides*. Low shrubs are virtually absent from this type. The undergrowth is characterized by a thick carpet of tall forbs (<1 m) with no one species dominant. Tall forbs include *Agastache urticifolia*, *Delphinium X occidentale*, *Eucephalus engelmannii* (= *Aster engelmannii*), *Hackelia floribunda*, *Heracleum maximum* (= *Heracleum lanatum*), *Mertensia arizonica*, *Osmorhiza occidentalis*, *Senecio serra*, and *Valeriana occidentalis*. Other herbaceous species are present, including graminoid species. Forb species in streambank stands can be different from hillside stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Boyce 1977, Bunin 1975a, Bunin 1975c, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Hess and Wasser 1982, Hoffman and

Alexander 1980, Hoffman and Alexander 1983, Johnston and Hendzel 1985, Keammerer and Stoecker 1980, Kittel et al. 1994, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Lewis 1975a, MTNHP 2002b, MTNHP unpubl. data, Marr et al. 1973a, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Powell 1988a, Richard et al. 1996, Western Ecology Working Group n.d., Youngblood and Mueggler 1981
NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Wyethia amplexicaulis* Forest**

Quaking Aspen / Northern Mule's-ears Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000622

Distribution (Nations/Subnations): US / CO?, ID, NV, UT, WY

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G3

Summary: These park-like deciduous forests occur in the mountains of Utah, Nevada, Idaho, Wyoming, and possibly Colorado. Elevations are mostly below 2100 m. Sites are generally flat to gently sloping (<25%), and soils are typically heavy clays. This association has two canopies, a moderately dense (70% cover) tree canopy that is dominated by *Populus tremuloides*, and a dense herbaceous layer dominated by *Wyethia amplexicaulis*. Scattered shrub such as *Symphoricarpos oreophilus* and *Amelanchier alnifolia* are often present, but do not form a canopy. Other herbaceous species may include *Senecio serra*, *Hackelia floribunda*, *Achillea millefolium*, *Osmorhiza* spp., *Bromus carinatus*, *Elymus trachycaulus*, *Elymus glaucus*, and *Carex* spp. The introduced species *Poa pratensis* and *Taraxacum officinale* are common. Because of the simple, open stand structure and the dominance of an unpalatable forb, this type may be the partly the result of historic overgrazing by livestock. Succession to a conifer vegetation type is unlikely in stands of this association because there is little conifer regeneration.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mueggler 1988, Mueggler and Campbell 1982, Western Ecology Working Group n.d., Youngblood and Mueggler 1981

NNHP Plots: (0 plots identified)

***Populus tremuloides* Temporarily Flooded Forest Alliance**

Quaking Aspen Temporarily Flooded Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.300

Summary: This alliance contains a number of communities found from the Great Lakes to the western and southwestern United States, with an outlier in the Central Appalachians. Most stands of this alliance are found in riparian zones. Some may be near lakes where the ground is flooded or saturated for a short time in the spring. The moderate to closed tree canopy is dominated by *Populus tremuloides*, sometimes with *Populus balsamifera* codominant. More open stands have a prominent shrub layer containing species such as *Alnus incana*, *Cornus sericea*, and *Salix* spp. The sole reference cited for *Populus tremuloides* Canyon Formation Forest (CEGL000576) does not mention *Populus tremuloides*.

[Captured 2008-02-18]

***Populus tremuloides* / *Alnus incana* - *Salix* spp. Forest**

Quaking Aspen / Speckled Alder - Willow species Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001082

Distribution (Nations/Subnations): US / NV, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Evans 1989a, Kagan et al. 2000, Manning and Padgett 1991, Manning and Padgett 1995, Smith 1994b, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Betula occidentalis* Forest**

Quaking Aspen / Water Birch Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002650

Distribution (Nations/Subnations): US / CO, NV, UT?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This plant association of Colorado and eastern Nevada is a lush, deciduous riparian woodland with a canopy of aspen and sometimes conifer or cottonwood trees. The understory has a high structural diversity of mesic shrubs and an herbaceous undergrowth ranging from a thick carpet of grasses and forbs to a very sparse ground cover in heavily shaded areas. The streamside location and the presence of obligate riparian shrub species, such as *Betula occidentalis*, *Salix exigua*, and *Cornus sericea*, distinguish this association from upland *Populus tremuloides* communities.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP Ecology Team 2001, Carsey et al. 2003a, Crowe et al. 2004, Hansen et al. 1988b, Hansen et al. 1995, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Manning and Padgett 1992, Manning and Padgett 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Carex pellita* Forest**

Quaking Aspen / Woolly Sedge Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000577

Distribution (Nations/Subnations): US / CA?, NV?, OR, WA

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: This association is a wide-ranging, linear or small-patch community type, found in eastern Washington and Oregon in the Columbia Basin, Okanogan Highlands, and the Blue Mountains. It is associated with ephemeral depressions, wetland sites, organic soils, shallow water tables, and with low-gradient headwater streams. Elevations range from 549 to 1647 m (1800-5400 feet). This is an open forest dominated by *Populus tremuloides* occasionally with *Pinus contorta* var. *latifolia* or *Betula papyrifera* in the northern portions of its range or with *Pinus ponderosa* in Oregon or *Betula occidentalis* in the Columbia Basin. The understory is graminoid-dominated. *Carex pellita* (= *Carex lanuginosa*) is indicative of this community type with high cover (well over 25% cover) in higher condition sites. *Carex microptera*, *Carex nebrascensis*, *Calamagrostis canadensis*, *Elymus glaucus*, and *Poa pratensis* are low cover sedge-grass associates. Forbs are frequent but rarely abundant. Shrub cover is typical low with *Salix boothii*, *Cornus sericea*, and *Rosa gymnocarpa* frequent in northern sites and *Cornus sericea* and *Symphoricarpos albus* on warmer sites.

[Captured 2008-02-15]

References: Bailey et al. 1994, Bourgeron and Engelking 1994, Crowe and Clausnitzer 1997,

Crowe et al. 2004, Driscoll et al. 1984, Kagan et al. 2000, Kovalchik 1987, Kovalchik 1993, Kovalchik 2001, Kovalchik pers. comm., MacKenzie pers. comm., Padgett 1982, WNHP unpubl. data, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Populus tremuloides* / *Veratrum californicum* Forest**

Quaking Aspen / California False Hellebore Forest

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000621

Distribution (Nations/Subnations): US / CA, CO, ID, NV, OR, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3?

Summary: Stands are usually mixed hardwood and conifer forests with aspen mixing with *Abies concolor* and *Abies magnifica*. Occasionally *Pinus contorta* is present. Shrubs are generally unimportant, but the herb layer is well-developed accounting for an average of about 50% cover (forbs and graminoids combined) (Potter 1998). [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Hoffman and Alexander 1980, Johnston and Hendzel 1985, Kagan et al. 2004, Mueggler 1988, Mueggler and Campbell 1986, Padgett et al. 1988b, Padgett et al. 1989, Potter 1998, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Tsuga mertensiana* Forest Alliance**

Mountain Hemlock Forest Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.146

Summary: The forests are characterized by a canopy of *Tsuga mertensiana*, a needle-leaved evergreen tree which can approach 35 m in height. Other conifers that may be present include *Abies amabilis*, *Abies lasiocarpa*, *Picea engelmannii*, *Pinus albicaulis*, and *Chamaecyparis nootkatensis*. The understory is often sparse due to dense canopy shading, but may be well-developed in northern coastal stands. Understory shrubs are largely ericaceous, including *Vaccinium membranaceum*, *Vaccinium ovalifolium*, *Vaccinium scoparium*, *Quercus sadleriana*, *Menziesia ferruginea*, and *Rhododendron albiflorum*. Herbaceous species include *Xerophyllum tenax* (which can be dominant), *Orthilia secunda*, *Carex* spp., *Luzula glabrata*, *Clintonia uniflora*, and *Chimaphila umbellata*. These forests are the typical subalpine forests of the maritime ranges of the Pacific Northwest. To the interior, where precipitation is lighter, these forests grade into *Abies lasiocarpa* and *Pinus albicaulis* subalpine forests. At their lower elevation margin, these communities grade into forests dominated by *Tsuga heterophylla*, *Abies amabilis*, or *Abies grandis*. Stands of *Tsuga mertensiana* often occur in mixed stands with species of these adjacent forest types. [Captured 2008-02-18]

***** New Vegetation Type - based on field observation:**

***Tsuga mertensiana* Forest [placeholder]**

Mountain Hemlock Forest [placeholder]

Association Code: NNHP036

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G?

Summary: The NNHP does not have any plot data for this alliance, so it is being reported for Nevada via a placeholder association. Stands of pure or near-pure *Tsuga mertensiana* occur at high elevations in the Carson Front (an off-shoot of the Sierra Nevada lining the east side of Lake Tahoe

and extending northward to the Truckee River. NNHP vegetation ecologist Eric Peterson has observed small to medium-sized stands on both Slide Mountain and Mount Rose. From recollection, these have little other perennial vegetation, though perhaps *Ceanothus prostratus*. Unlike most tall conifer occurrences in Nevada, these stands are recalled to be relatively dense, thus the 'Forest' alliance should be more appropriate than the 'Woodland' alliance.

References:

NNHP Plots: (0 plots identified)

II . Woodland

***Abies lasiocarpa* Woodland Alliance**

Subalpine Fir Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.559

Summary: These upper montane or subalpine conifer woodlands are found in many of the mountainous areas of the western United States within cool and relatively dry climate regimes. Stands may also occur at montane elevations where cold-air drainage modifies the environment. These woodlands are typically found where marginal growing conditions such as low precipitation, or droughty sites or substrates produce an open tree canopy. Parent materials and soils are variable across the distribution of the alliance. In mature stands, the association is characterized by *Abies lasiocarpa* as the dominant tree species, often with *Picea engelmannii*. In seral stands other conifers can be important or even dominant, but *Abies lasiocarpa* is always present in the regeneration layer. Other tree associates include *Pinus albicaulis*, *Pinus contorta*, *Picea glauca*, *Pseudotsuga menziesii*, *Tsuga* spp., *Larix* spp., and *Chamaecyparis nootkatensis*. Most woodlands in this alliance have well-developed shrub layers. Important to dominant species include *Phyllodoce empetrifomis*, *Vaccinium* spp., *Vaccinium myrtilloides*, *Juniperus communis*, *Shepherdia canadensis*, *Paxistima myrsinites*, and *Rhododendron albiflorum*. Stands with sparse shrub layers are typically a reflection of dry conditions, such as vegetated scree slopes or lava fields, and may include species such as *Salix brachycarpa*, *Salix glauca*, *Holodiscus dumosus*, *Juniperus communis*, *Acer circinatum*, and *Ribes* spp. The herbaceous layer is generally sparse. Important forbs include species of *Arnica*, *Thalictrum*, *Pedicularis*, *Lupinus*, and *Fragaria*. Graminoids are rarely important in these woodlands. Diagnostic of woodlands in this alliance is that they are upland (non-flooded) with average tree canopy of less than 60% cover that is either dominated by *Abies lasiocarpa* or has *Abies lasiocarpa* as the predominant conifer in the tree-regeneration layer. [Captured 2008-02-18]

***Abies lasiocarpa* - *Picea engelmannii* / *Juniperus communis* Woodland**

Subalpine Fir - Engelmann Spruce / Common Juniper Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000919

Distribution (Nations/Subnations): US / AZ, CO, ID, MT, NM?, NV?, OR?, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4G5

Summary: This spruce-fir woodland association occurs in localized areas within the subalpine to upper montane zones of the western United States. The primary elevation range for the association is between 2530 and 3200 m (8300-11,500 feet). It occurs on gentle to somewhat steep mid- to upper slopes of all aspects and on benches or at lower elevations on dry stream terraces with cold-air drainage. Soils are variable but generally rocky and well-drained with substantial areas of

lichen-covered bedrock or bare soil. This association is among the driest types of *Abies lasiocarpa* forests and woodlands. The canopy is relatively open and dominated by *Abies lasiocarpa* with *Picea engelmannii* often codominant. Seral species in the tree canopy can include *Pinus contorta*, *Pinus flexilis*, *Picea pungens*, and *Populus tremuloides*, with *Pseudotsuga menziesii* occurring on relatively warmer sites. The shrub layer is often sparse but characterized by large, widely spaced patches of *Juniperus communis*. Additional shrub species occur and can include *Shepherdia canadensis*, *Vaccinium scoparium*, *Ribes montigenum*, *Symphoricarpos oreophilus*, and occasionally *Mahonia repens*, *Vaccinium myrtillus*, or *Vaccinium caespitosum*. The herbaceous layer is likewise sparse. Species occurring most frequently include *Arnica cordifolia*, *Lupinus argenteus*, *Fragaria virginiana*, *Chamerion angustifolium* (= *Epilobium angustifolium*), and *Antennaria* spp. Diagnostic characteristics of this association include *Abies lasiocarpa* and *Picea engelmannii* in the tree canopy and *Juniperus communis* patches in the understory with greater cover than other shrub species.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Clagg 1975, Driscoll et al. 1984, Henderson et al. 1986, Henderson et al. 1989, Hoffman and Alexander 1976, Johnston 1984, Johnston 1987, Jones and Ogle 2000, Komarkova et al. 1988b, Larson and Moir 1987, MTNHP 2002b, Mauk and Henderson 1984, Moir and Ludwig 1979, Pfister et al. 1977, Roberts 1980, Steele et al. 1981, Steele et al. 1983, Tirmenstein 1999, Western Ecology Working Group n.d., Youngblood and Mauk 1985

NNHP Plots: (0 plots identified)

***Cercocarpus ledifolius* Woodland Alliance**

Curl-leaf Mountain-mahogany Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.586

Summary: Plant associations in this alliance occur in semi-arid, mountainous habitats of the interior western United States. Annual precipitation averages 25-45 cm, with a significant proportion falling as winter snow. These woodlands often form small patchy stands on rocky outcrops or escarpments in forested areas, or may form the only tree cover in steppe regions. Elevations where the alliance is found range from 600 m to over 2650 m. Soils are typically rocky and immature, and are always of coarser texture than soils of adjacent coniferous woodlands or forests. The vegetation in this alliance is characterized by an open canopy of *Cercocarpus ledifolius*. These woodlands may occur as scattered communities in arid steppe or on rocky outcrops or steep escarpments within forests. Steppe woodlands typically have only *Cercocarpus ledifolius* in the overstory canopy, but *Juniperus occidentalis*, *Juniperus osteosperma*, *Juniperus scopulorum*, *Pinus edulis*, or *Pinus monophylla* occur in local areas. Evergreen or cold-deciduous shrubs often grow in these woodlands and include *Artemisia tridentata* ssp. *vaseyana*, *Purshia tridentata*, *Artemisia tridentata*, *Amelanchier alnifolia*, *Holodiscus dumosus*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Ribes* spp., *Prunus virginiana*, and *Symphoricarpos* spp. The understory is typically dominated by bunch grasses, including *Festuca idahoensis*, *Leymus ambiguus*, *Pseudoroegneria spicata*, *Elymus elymoides*, *Calamagrostis rubescens*, and *Achnatherum* spp. Adjacent vegetation is usually *Pinus ponderosa* forest, *Artemisia* shrubland, or *Festuca* - *Achnatherum* grassland. [Captured 2008-02-18]

***Cercocarpus ledifolius* / *Artemisia tridentata* ssp. *vaseyana* Woodland**

Curl-leaf Mountain-mahogany / Mountain Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001022

Distribution (Nations/Subnations): US / CA?, CO, ID?, NV?, OR, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This association is documented in southeastern Oregon and southern Utah and possibly occurs in the Owyhee Uplands of Idaho, in scattered mountain ranges in the northern Great Basin region of Nevada and California, and the Colorado Plateau of western Colorado. Sites are well-drained loams or loamy sands over basalt, sandstone or rhyolite. Elevations range from 1600-1950 m (5250-6400 feet) in Oregon and around 2750 m (9025 feet) in Utah and Colorado. Aspects are variable, with slopes ranging from 0-60%. The vegetation is variable in its appearance. The canopy may be open to moderately closed, with a sparse to dense shrub understory. The canopy typically is dominated by *Cercocarpus ledifolius* var. *ledifolius*, which averages 50% cover but may have as much as 80% cover or as little as 20%. Common shrubs include *Artemisia tridentata* ssp. *vaseyana*, *Amelanchier alnifolia*, *Cercocarpus montanus*, *Paxistima myrsinites*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Symphoricarpos oreophilus*, and *Chrysothamnus viscidiflorus*. *Elymus elymoides* (= *Sitanion hystrix*) and *Achnatherum lemmonii* (= *Stipa lemmonii*) are the most common grasses, but *Festuca idahoensis*, *Poa fendleriana*, *Pseudoroegneria spicata*, and *Poa secunda* may also be present. Stands may have emergent trees of *Pseudotsuga menziesii* that range in height from 15-20 m tall and provide less than 5% cover.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1975, Dealy et al. 1981, Driscoll et al. 1984, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: p020516r (1 plots identified)

Representative Images:



p020516r_1.JPG

***Cercocarpus ledifolius* / *Artemisia tridentata* Woodland**

Curl-leaf Mountain-mahogany / Basin Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000960

Distribution (Nations/Subnations): US / ID, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Cercocarpus ledifolius* / *Symphoricarpos oreophilus* Woodland**

Curl-leaf Mountain-mahogany / Mountain Snowberry Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000970

Distribution (Nations/Subnations): US / ID, NV?, OR

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2

Summary: This association is described for the western portion of the Northwest Basin and Range, and the Owyhee Uplands ecoregional sections. It occurs on moderate, south- to northeast-facing slopes; on upper slope positions, ridgecrests, or mesa tops; often in association with shallow soil or talus of basalt or rhyolite parent materials. Elevation ranges from 1770 to 1890 m (5800-6200 feet). The overstory is dominated by *Cercocarpus ledifolius*. *Juniperus occidentalis* may be present. *Symphoricarpos oreophilus*, *Prunus virginiana*, *Chrysothamnus* spp., and *Artemisia tridentata* ssp. *vaseyana* are common understory shrub species which occur with varying abundance. *Poa secunda*, *Leymus cinereus* (= *Elymus cinereus*), *Festuca idahoensis*, *Senecio integerrimus*, and *Balsamorhiza sagittata* are characteristic understory grass and forb species.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1975, Driscoll et al. 1984, Gruell et al. 1985, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

Geothermally Acidified Soil Coniferous Woodland Alliance

Geothermally Acidified Soil Coniferous Woodland Alliance

Alliance Code: B.011

Summary: This is an unusual type based partly on arid-land soils which have been geothermally altered to be highly acidic. Occurring primarily in the western Great Basin and adjacent portions of the Sierra Nevada, these soils support vegetation very different from surrounding soils. Surrounding vegetation is often dominated by sagebrush but the acidity in these soils inhibits sagebrush and conifers take advantage of the low competition (along with somewhat better water holding capacity) to inhabit sites where they otherwise could not exist. The best known cases are of *Pinus ponderosa* growing on typically orange colored altered andesite around Reno. However, other species may dominate.

Particularly, *Pinus monophylla* and *Juniperus osteosperma* inhabit some of the drier sites in the Reno area. Additionally, other sites have been observed around western Nevada where *P. monophylla* and/or *J. osteosperma* inhabit altered soils in sites otherwise inhabited by sagebrush or even salt desert shrub species. This type is intended to cover all these situations where geothermally altered soils allow conifers to exist in abundance where they otherwise could not.

Shrubs are common, but sparse in this alliance, as are forbs. The genus *Eriogonum* is nearly ubiquitous and small *Mimulus* can be common in spring-time of wet years. *E. robustum* is endemic to the alliance. Graminoids, however, are rare.

Some might argue that this description may better fit an Ecological Systems type. However, the type as presented forms a tight floristic grouping, while an Ecological System may better be described for exceptionally poor soils in general. This alliance is proposed as an alternative to the existing *Pinus (ponderosa, jeffreyi)* Sparsely Vegetated Alliance.

*** * * New Vegetation Type - with plot data:**

***Pinus monophylla* - *Juniperus osteosperma* / *Eriogonum (robustum)* Acidified-Soil Woodland**

Pinyon Pine - Utah Juniper (/ Altered Andesite Buckwheat) Acidified-Soil Woodland

Association Code: NNHP033

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2?

Summary: This vegetation type occurs exclusively on geothermally acidified soils in western Nevada. Typical stands have both *P. monophylla* and *J. osteosperma* present, but the association concept includes sites where one or the other is absent. *E. robustum* is reliably present though can be sparse. Little, if any, graminoids are present. Even the highly invasive *B. tectorum* can only inhabit marginally altered soils. Other trees may be present as well, particularly *Pinus ponderosa*. However, if the abundance of *P. ponderosa* exceeds that of the smaller conifers then the site might better be classified as a *P. ponderosa* Acidified-Soil Woodland. Shrubs are sparse, but *Amelanchier alnifolia* and *Eriogonum nauseosa* are known to occur, as well as other *Eriogonum* species. Sagebrushes do not occur in this association in the strict sense. However, small patches of moderately altered soils with *Artemisia arbuscula* ssp. *arbuscula*, *A. a.* ssp. *longicaulis*, or *A. tridentata* ssp. *wyomingensis* often form inclusions within this type at a scale that is difficult to delineate at typical mapping scales.

References:

NNHP Plots: p040519a, p040519b, p040519c (3 plots identified)

Representative Images:



040519_p040519a_10.JPG



040519_DSCN0178.JPG



040505_DSCN0145.JPG



040505_DSCN0135.JPG

***** New Vegetation Type - with plot data:**

***Pinus ponderosa* / *Eriogonum (robustum)* Acidified-Soil Sparse Vegetation**

Ponderosa Pine (/ Altered Andesite Buckwheat) Acidified-Soil Sparse Vegetation

Association Code: NNHP034

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2?

Summary: This incredibly sparse vegetation type may exist only as a few scattered *P. ponderosa* (c. 2 % cover) and scattered ephemeral forbs, though tree cover may approach 15% and various shrubs may be present as well. Sites with higher cover should be considered for other associations within the alliance. One or more *Eriogonum* species typically exist in these sites, with *E. robustum* being particularly common. *E. robustum* is endemic to the parent alliance.

Although the name of this association specifies a 'sparse vegetation' type and this summary clearly describes a sparse vegetation type, it would make little sense to split this type from the parent association in order to place it properly in the Sparse Vegetation class.

References:

NNHP Plots: p040521a, p040521b, p040602a (3 plots identified)

Representative Images:



2004-05-21_10-43-29.JPG



2004-05-21_10-49-39.JPG



040623_15-19-59[0001].jpg



040623_13-46-56.jpg



040602_DSCN0221.JPG



040519_p040519a_08.JPG

***Juniperus occidentalis* Woodland Alliance**

Western Juniper Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.535

Summary: This woodland alliance is widely distributed along the northern and western margins of the Great Basin, from southwestern Idaho to southern California. Stands are found on all aspects and slope positions, but are restricted to rock outcrops or escarpments with excessively drained soils where it grades into relatively mesic forests or grassland habitats. Soils are variable, but generally medium-textured, with abundant coarse fragments, and derived from volcanic parent materials. An open tree canopy that is dominated by *Juniperus occidentalis* characterizes vegetation included in this woodland alliance. Scattered emergent individuals of *Pinus ponderosa* and/or *Pinus jeffreyi* may be present in areas transitional to conifer forests. At such sites, *Cercocarpus ledifolius*, a tall shrub or small tree, may codominate the canopy. *Quercus garryana* may also be present in the tree layer. The shrub layer is variable in density and species composition. The most common shrub is *Artemisia tridentata*. Other shrubs that commonly occur are *Purshia tridentata*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Chrysothamnus viscidiflorus*, *Ribes cereum*, and *Tetradymia* spp. Less common, but locally abundant shrubs include *Prunus emarginata*, *Grayia spinosa* (= *Atriplex spinosa*), and *Ribes velutinum*. The herbaceous layer is usually composed of annual and perennial grasses such as *Pseudoroegneria spicata*, *Festuca idahoensis*, *Koeleria macrantha*, *Poa* spp., and *Stipa* spp. Common forb species include *Achillea millefolium*, *Collinsia parviflora*, *Eriophyllum lanatum*, and *Gayophytum diffusum*. Diagnostic of this alliance is the *Juniperus occidentalis*-dominated tree layer with over 25% cover. [Captured 2008-02-18]

***Juniperus occidentalis* / *Achnatherum thurberianum* Woodland**

Western Juniper / Thurber's Needlegrass Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002635

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G2

Summary: These are open woodlands or juniper savannas which are restricted to barren, ashy soils in the central Oregon juniper zone. *Juniperus occidentalis* / *Achnatherum thurberianum* (= *Stipa thurberiana*) woodlands are found on all aspects and slopes, on elevations between 610 and 1370 m (2000-4500 feet). *Juniperus occidentalis* is the only tree, with the cover ranging from 5-20%.

Juniperus occidentalis trees can be very large and quite old, with individuals found to be over 1000 years old in similar habitats in central Oregon. *Artemisia tridentata* ssp. *wyomingensis* is common in some areas and absent from others, with cover from 0-40%. *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Salvia dorrii*, *Peraphyllum ramosissimum*, *Purshia tridentata*, and *Atriplex confertifolia* are shrubs that can occasionally be found in this type. The understory is dominated by *Achnatherum thurberianum*, which is always present, at 2-50% cover.

Pseudoroegneria spicata is often codominant, especially in stony microsites. In areas with more exposed ash, *Hesperostipa comata* (= *Stipa comata*) and *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) can also be important, and *Poa secunda* and *Leymus cinereus* (= *Elymus cinereus*) occur. Annual forbs (*Mimulus nanus*, *Eriogonum vimineum*, *Crocidium multicaule*, *Collinsia parviflora*, *Blepharipappus scaber*, *Cleome platycarpa*) and perennial forbs (*Balsamorhiza sagittata*, *Astragalus filipes*, *Astragalus purshii*, *Calochortus macrocarpus*, *Castilleja* spp., *Erigeron filifolius*, *Eriogonum umbellatum*, *Lomatium hendersonii*) occur and make the association species rich, but provide very little cover.

Juniperus occidentalis / *Achnatherum thurberianum* Woodland (CEGL002635) is similar to *Juniperus occidentalis* / *Pseudoroegneria spicata* Wooded Herbaceous Vegetation (CEGL001728), but is distinguished by its lower grass cover, its barren, exposed John Day and Clarno ash soils, and the predominance of *Achnatherum thurberianum*, *Achnatherum hymenoides* or *Hesperostipa comata* in the grass understory.

[Captured 2008-02-15]

References: Kagan et al. 2004, ORNHP unpubl. data, Western Ecology Working Group n.d., Youtie and Winward 1977

NNHP Plots: (0 plots identified)

***Juniperus occidentalis* / *Cercocarpus ledifolius* - *Symphoricarpos oreophilus* Woodland**

Western Juniper / Curl-leaf Mountain-mahogany - Mountain Snowberry Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000726

Distribution (Nations/Subnations): US / ID, NV?, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: This association is found on well-drained and moderately deep soils, of gravelly loam over basalt. This association is usually found at elevations around 1800 m on southern to southwestern aspects of 25-30% slope, in desert mountains. It is usually found in the toeslope position. In this association *Juniperus occidentalis* has low cover but 100% constancy. *Cercocarpus ledifolius* cover averages 80%. The physiognomy is intermediate between a woodland savanna and a tall shrubland. *Juniperus occidentalis* is generally just over 10 m tall, while *Cercocarpus ledifolius* and other tall shrubs average between 5-10 m in height. The common tall shrubs include *Cercocarpus ledifolius*, *Prunus virginiana*, *Prunus emarginata*, and occasionally *Amelanchier alnifolia*. Shorter common shrubs include *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Symphoricarpos oreophilus* and *Artemisia tridentata*. *Elymus elymoides* and *Poa secunda* are codominant graminoids; *Carex rossii* and *Bromus carinatus* are also common. No forbs dominate, although *Phacelia heterophylla*, *Senecio integerrimus*, *Geum triflorum*, and *Arabis holboellii* are usually found. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1975, Dealy et al. 1981, Driscoll et al. 1984, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

Juniperus occidentalis* / *Cercocarpus ledifolius* / *Pseudoroegneria spicata

Woodland

Western Juniper / Curl-leaf Mountain-mahogany / Bluebunch Wheatgrass Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000725

Distribution (Nations/Subnations): US / CA, NV?, OR

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1975, Driscoll et al. 1984, Johnson and Clausnitzer 1992, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* Woodland Alliance**

Utah Juniper Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.536

Summary: This woodland alliance is distributed across the Intermountain West from the eastern Sierra Nevada to the central and southern Rocky Mountains. Stands occur on middle mountain slopes of the many mountain ranges and plateaus of the region above areas of cold-air drainage in high intermountain basins. Vegetation included in this alliance is characterized by an open tree canopy of *Juniperus osteosperma*, quite often in association with *Pinus monophylla* or *Pinus edulis*. *Cercocarpus ledifolius* is a common associate in these interior stands. Scattered *Pinus ponderosa*, *Pinus flexilis*, *Pinus aristata*, or *Pseudotsuga menziesii* trees may be present where stands grade into montane coniferous forest. If present, the shrub layer may be composed of *Artemisia tridentata*, *Artemisia arbuscula*, *Artemisia nova*, *Symphoricarpos oreophilus*, *Amelanchier alnifolia*, *Cercocarpus intricatus*, *Cercocarpus montanus*, *Chrysothamnus* spp., *Quercus gambelii*, *Prunus virginiana*, or *Purshia tridentata*. The herbaceous layer, if present, is usually sparse and dominated by cespitose perennial grasses, including *Pseudoroegneria spicata*, *Festuca idahoensis*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Elymus elymoides*, and *Hesperostipa* spp. (= *Stipa* spp.). Diagnostic of this alliance is an open tree canopy, with at least 5% and sometimes greater than 25% cover that is dominated by *Juniperus osteosperma*. In some stands of more extreme environments, the tree canopy may have cover as low as 10%. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Juniperus osteosperma* - (*Pinus monophylla*) / *Elymus elymoides* Woodland**

Utah Juniper - (Single-leaf Pinyon Pine) / Squirreltail Woodland

Association Code: NNHP020

Distribution (Nations/Subnations): US / NV

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This community is dominated by *Juniperus osteosperma* or a combination of *J. osteosperma* and *Pinus monophylla*. Typically the overstory is dense and a shrub layer is lacking or exceptionally sparse. Graminoids are dominated by *Elymus elymoides* indicating a drier site than those dominated by *Poa secunda*.

References:

NNHP Plots: p020601i (1 plots identified)

Representative Images:



p020601i_2.JPG



p020601i_3.JPG

***** New Vegetation Type - with plot data:**

***Juniperus osteosperma* - (*Pinus monophylla*) / *Poa secunda* Woodland**

Utah Juniper - (Single-leaf Pinyon Pine) / Sandberg Bluegrass Woodland

Association Code: NNHP023

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This community is dominated by *Juniperus osteosperma* or a combination of *J. osteosperma* and *Pinus monophylla*. Typically the overstory is dense and a shrub layer is lacking or exceptionally sparse. Graminoids are dominated by *Poa secunda* indicating a more mesic site than those dominated by *Elymus elymoides*.

References:

NNHP Plots: p050628u, p030603j, p020602f, p020602l, p020603a, p030603b (6 plots identified)

Representative Images:



p020602f_1.JPG

***Juniperus osteosperma* / *Artemisia arbuscula* Woodland**

Utah Juniper / Dwarf Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002757

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Charlet pers. comm., Sawyer and Keeler-Wolf 1995, Tausch pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* / *Artemisia nova* / Rock Woodland**

Utah Juniper / Black Sagebrush / Rock Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000729

Distribution (Nations/Subnations): US / CA?, CO, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968c, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* / *Artemisia nova* Woodland**

Utah Juniper / Black Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000728

Distribution (Nations/Subnations): US / CA?, CO, ID, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5?

Summary: This association occurs on the slopes of ridges, saddles and benches below 2200 m elevation in the Colorado Plateau and Great Basin. Substrates and soils are variable but tend to be coarse and contain a calcareous element. *Juniperus osteosperma* forms an open canopy, with a sparse to moderate understory of *Artemisia nova*. The herbaceous layer tends to be sparse and dominated by graminoids, including *Poa secunda*.

[Captured 2008-02-15]

References: Blackburn et al. 1968c, Blackburn et al. 1971, Bourgeron and Engelking 1994, Caicco and Wellner 1983c, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP comments: This vegetation type should be considered for merging with *Pinus monophylla* - *Juniperus osteosperma* / *Artemisia nova* Woodland. The challenge is that either of the two dominant trees may be absent, but the general ecology remains similar.

Alternatively, there is some general elevational stratification between the trees. Possibly two associations are reasonable. In fact, such could go to an alliance level as follows: *Pinus monophylla* - (*Juniperus osteosperma*) Woodland Alliance and *Juniperus osteosperma* - (*Pinus monophylla*) Woodland Alliance.

NNHP Plots: p020602a, p020602e, p050628e, p050628p, p050602k (5 plots identified)

Representative Images:



p020602e_1.JPG



p050628p_15-01-26.JPG

***Juniperus osteosperma* / *Artemisia tridentata* / *Achnatherum hymenoides*
Woodland**

Utah Juniper / Basin Big Sagebrush / Indian Ricegrass Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000731

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* / *Artemisia tridentata* ssp. *wyomingensis* Woodland**

Utah Juniper / Wyoming Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000730

Distribution (Nations/Subnations): US / AZ, CA, CO, ID, MT, NM, NV, UT, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5?

Summary: This sparse woodland association has been reported from semi-arid foothills, plateaus and mountains throughout much of the western Rocky Mountains, Colorado Plateau, and Great Basin. Elevation ranges from 1220 to 2260 m (4000-7400 feet). This community generally occurs on a variety of slopes and aspects, often at the break between foothill and basin. Soils are generally coarse-textured, calcareous alluvial or eolian deposits derived from sandstone and shale. Evidence of erosion such as gullies and rills is not uncommon. There are generally significant amounts of bare ground, litter, and desert pavement at the soil surface. Rock cover is variable. The vegetation is characterized by an open tree canopy dominated by *Juniperus osteosperma* with *Artemisia tridentata* ssp. *wyomingensis* dominating the sparse to moderately dense short-shrub layer. Tree canopy cover values are over 5%, but typically less than 20%, and canopy height is usually 2-10 m. Other shrubs, such as *Atriplex canescens*, *Atriplex confertifolia*, *Artemisia nova*, *Chrysothamnus viscidiflorus*, *Ephedra nevadensis*, *Ericameria nauseosa*, *Gutierrezia sarothrae*, *Opuntia* spp., or *Purshia* spp., may be present but generally with low cover. The sparse to moderately dense herbaceous layer is dominated by graminoids such as *Achnatherum hymenoides*, *Aristida* spp.,

Bouteloua spp., *Carex filifolia*, *Elymus elymoides*, *Hesperostipa comata*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Pascopyrum smithii*, *Poa secunda*, *Pseudoroegneria spicata*, *Sporobolus* spp., and introduced annual *Bromus* spp. Associated forbs may include *Artemisia frigida*, *Eriogonum* spp., *Gayophytum racemosum*, *Leptodactylon pungens*, *Phlox hoodii*, and *Plantago patagonica*.

[Captured 2008-02-15]

References: Barney and Frischknecht 1974, Blackburn 1967, Blackburn et al. 1968a, Blackburn et al. 1968c, Blackburn et al. 1969a, Blackburn et al. 1969e, Blackburn et al. 1971, Bourgeron and Engelking 1994, Bradley 1964, Brotherson and Evenson 1983, Bunting 1987, CONHP unpubl. data 2003, Cogan et al. 2004, Dastrup 1963, DeVelice and Lesica 1993, Donart et al. 1978b, Driscoll et al. 1984, Everett 1987, Francis 1986, Isaacson 1967, Jameson et al. 1962, Johnson and Payne 1968, Johnston 1987, Jones 1992b, Larson and Moir 1987, MTNHP 2002b, Milton and Purdy 1983, Moir and Carleton 1987, Stuever and Hayden 1997a, USFS 1983a, West et al. 1998, Western Ecology Working Group n.d., Wright et al. 1979

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* / *Cercocarpus intricatus* Woodland**

Utah Juniper / Littleleaf Mountain-mahogany Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000733

Distribution (Nations/Subnations): US / CA?, CO, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GNR

Summary: This woodland association occurs on steep, rocky ridges in the Great Basin of Nevada, whereas in the Colorado Plateau of Utah and Colorado it occupies gentle to moderate slopes on mesas, benches and canyon floors where bedrock is partially covered by sandy soils. Stands are located between 1500 and 1980 m (4920-6500 feet) elevation. Aspect may influence the distribution of stands locally, but rangewide stands may occur on any aspect. At least half the unvegetated surface is bare ground or sandstone slickrock, with the remainder divided primarily between litter and biological soil crusts. Soils are shallow or skeletal and are rapidly drained sands or sandy loams. Total vegetation cover rarely exceeds 35% because the high exposure of rock limits where plants can grow. The canopy is open, with *Juniperus osteosperma* trees providing between 5 and 25% cover; the trees are often stunted. There is a well-developed shrub layer in which *Cercocarpus intricatus* is dominant or codominant. Total shrub cover ranges from 5 to 15%.

Associated shrubs include *Amelanchier utahensis*, *Fraxinus anomala*, *Artemisia bigelovii*, *Glossopetalon spinescens* var. *meionandrum*, *Atriplex confertifolia*, *Cercocarpus montanus*, *Chrysothamnus greenii*, *Philadelphus microphyllus*, *Symphoricarpos longiflorus*, and *Ephedra viridis*. The herbaceous layer is diverse in terms of species composition and provides sparse to low cover. Graminoids commonly include *Aristida purpurea*, *Achnatherum hymenoides*, *Hesperostipa* and/or *Achnatherum* spp. (= *Stipa* spp.), and *Muhlenbergia pungens*. Forbs are diverse but provide sparse cover; *Stenotus acaulis* (= *Haplopappus acaulis*) occurs throughout the range.

[Captured 2008-02-15]

References: Blackburn et al. 1968c, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Juniperus osteosperma* / *Ephedra nevadensis* Woodland**

Utah Juniper / Nevada Ephedra Woodland

Association Code: NNHP031

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G1G3?

Summary: This unusual vegetation is known from one site in the southern Great Basin of eastern Nevada. It remains unknown what combination of environmental gradients. The site is on an old, dissected alluvial fan at moderate elevation and with somewhat sandy soils. Several additional shrubs were present, including *Chrysothamnus viscidiflorus*, *Stanleya* sp., *Tetradymia glabrata*, and *Sarcobatus vermiculatus*. Grasses were sparse, represented by only *Elymus elymoides* and the invasive *Bromus tectorum*.

References:

NNHP Plots: p0506031 (1 plots identified)

Representative Images:



p0506031_09-01-34.JPG

***Juniperus osteosperma* / *Pseudoroegneria spicata* Woodland**

Utah Juniper / Bluebunch Wheatgrass Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000738

Distribution (Nations/Subnations): US / CO, ID, MT, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This juniper woodland association occurs on moderate to steep talus slopes, foothills, benches, plateaus, and canyons in Idaho, Montana, north-central and western Wyoming, Colorado, Utah and Nevada. Elevation ranges from 1520 to 2140 m (4985-7020 feet), and sites are typically oriented to the south or west. Soils are generally clay loam, sandy loam or sandy clay and are generally shallow and often gravelly or rocky. They are derived from limestone, sandstone or shale. The open tree canopy is dominated by *Juniperus osteosperma*; in Wyoming, *Cercocarpus ledifolius* or *Juniperus scopulorum* are sometimes also present. If *Pinus edulis* is present, it is as seedlings or scattered individuals with minimal cover. Tree canopy cover ranges between 10 and 40%. There is no developed shrub layer, but scattered individuals of *Artemisia nova*, *Artemisia tridentata* ssp. *wyomingensis*, *Chrysothamnus viscidiflorus*, *Ephedra viridis*, *Gutierrezia sarothrae*, and *Opuntia polyacantha* may be present, as may *Juniperus osteosperma* seedlings. *Pseudoroegneria spicata* dominates the herbaceous understory with 2 to 30% cover. Other herbaceous species commonly present with lesser cover include graminoids *Achnatherum hymenoides*, *Bouteloua gracilis*, *Hesperostipa comata*, *Pleuraphis jamesii*, *Poa fendleriana*, *Poa secunda*, and *Bromus tectorum*. Forbs are generally sparse; species likely to be present include *Arenaria hookeri*, *Leptodactylon pungens*, *Phlox hoodii*, *Sphaeralcea coccinea*, and *Stenotus acaulis*.
[Captured 2008-02-15]

References: Baker 1984a, Baker and Kennedy 1985, Bourgeron and Engelking 1994, Despain 1973a, Driscoll et al. 1984, Johnston 1987, Jones 1989b, Jones 1992b, Knight et al. 1987, Lesica and DeVelice 1992, MTNHP 2002b, Marriott and Jones 1989, Tausch and Tueller 1977, Western Ecology Working Group n.d., Wight 1965, Wight and Fisser 1968

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* / Sparse Understory Woodland**

Utah Juniper / Sparse Understory Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000732

Distribution (Nations/Subnations): US / CO, NV, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** GNRQ

Summary: This widespread woodland association occurs in the Great Basin, Colorado Plateau and western Rocky Mountain regions where it occupies sites in which junipers have become established but that are too dry to support a developed understory of shrubs, forbs and grasses. Lack of soil moisture-holding capacity, southern or western aspects, old-growth conditions, or high cover by rocks or bedrock may all contribute to the development of these stands. Elevations range between 1400 and 2200 m, and stands occur on many types of soils, geology, slope, aspect and landform. Total vegetation cover ranges from 10 to 70% and consists almost entirely of the *Juniperus osteosperma* canopy. Shrub cover and herbaceous cover each total less than 5%, and usually total 1% or less. Because of the sparseness of the understory vegetation, there are few species that can be expected throughout the range of this association. Common species include *Ephedra viridis*, *Gutierrezia sarothrae*, and *Elymus elymoides*. Cryptobiotic crust cover may be high.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Milton and Purdy 1983, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Juniperus osteosperma* Woodland**

Utah Juniper Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000727

Distribution (Nations/Subnations): US / CA?, CO, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968c, Blackburn et al. 1969e, Blackburn et al. 1971, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - with plot data:**

***Juniperus scopulorum* Seasonally Saturated Woodland Alliance**

Swamp Cedar Seasonally Saturated Woodland Alliance

Alliance Code: B.013

Summary: This alliance is to encompass the "swamp cedars" of eastern Nevada, occurring primarily in the _ valley of White Pine County. These famous stands of *Juniperus scopulorum* have often been

speculated to be taxonomically distinct from other stands due to both ecological differences as well as some purported minor morphological differences. Stands occur below the Snake Range where groundwater coming from that range surfaces, forming seasonal mud flats, or 'swamps'. Where NNHP has briefly investigated, the only other vascular plant present in significant quantity is *Distichlis spicata*. Margines of the mud flats have some blending of *J. scopulorum* with *Artemisia* and possibly with *Juniperus osteosperma*, but further investigation will be necessary to determine if associations form.

***** New Vegetation Type - with plot data:**

***Juniperus scopulorum* / *Distichlis spicata* Seasonally Saturated Woodland**

Alliance

Swamp Cedar / Salt Grass Seasonally Saturated Woodland Alliance

Association Code: NNHP042

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2?

Summary: See description of parent alliance.

References:

NNHP Plots: p050511n (1 plots identified)

Representative Images:



p050511n_1.JPG

***Juniperus scopulorum* Temporarily Flooded Woodland Alliance**

Rocky Mountain Juniper Temporarily Flooded Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.563

Summary: This riparian woodland alliance has been reported from low to mid-montane areas in Colorado and Montana. Stands occur on a wide range of landforms, from rocky V-shaped canyons to fertile alluvium. Stands are intolerant of frequent and prolonged flooding. However, this vegetation is tolerant of periodic flooding and high water tables. Typically, the soils are shallow, derived from coarse alluvial substrates. Vegetation included in this alliance is characterized by an open tree canopy that is dominated by *Juniperus scopulorum*. Scattered emergent deciduous trees may be present, such as *Populus angustifolia*, *Populus deltoides*, or *Populus balsamifera ssp. trichocarpa* (= *Populus trichocarpa*). Typically shrub cover ranges from 10-25%. Shrub composition can include any of the following: *Amelanchier alnifolia*, *Cornus sericea*, *Rhus aromatica*, *Rosa woodsii*, or *Solanum dulcamara*. Herbaceous undergrowth occurs beneath the tree canopy as well as on exposed point bars.

The understory consists of native graminoids, including *Piptatherum micranthum* (= *Oryzopsis micrantha*), *Panicum virgatum*, and the fern ally *Equisetum arvense*. Forb cover is sparse and can include *Glycyrrhiza lepidota*, *Apocynum androsaemifolium* or *Maianthemum stellatum* (= *Smilacina stellata*). Both the forb and graminoid strata can be dominated by adventive, weedy species. Diagnostic of this woodland alliance is the *Juniperus scopulorum*-dominated open tree canopy and the riparian habitats. [Captured 2008-02-18]

*** New to Nevada - with plot data:**

***Juniperus scopulorum* / *Cornus sericea* Woodland**

Rocky Mountain Juniper / Red-osier Dogwood Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000746

Distribution (Nations/Subnations): US / CO, ID, MT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: In Colorado, this riparian woodland is common along desert streams and arroyos, and can occur on upper terraces with *Populus angustifolia* - *Juniperus scopulorum* woodlands on the lower floodplain. Stands have an open tree canopy of *Juniperus scopulorum* with an occasional upland species, such as *Juniperus monosperma*. The understory contains a few shrubs, such as *Cornus sericea*, and little herbaceous growth. Information on stands that occur outside Colorado will be added later.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Kittel et al. 1994, Kittel et al. 1996, Kittel et al. 1999a, MTNHP 2002b, Western Ecology Working Group n.d.

NNHP Plots: p020621k (1 plots identified)

Representative Images:



p020621k_3.JPG

***Juniperus scopulorum* Temporarily Flooded Woodland [Placeholder]**

Rocky Mountain Juniper Temporarily Flooded Woodland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002777

Distribution (Nations/Subnations): US / NV

Status: 2 Depreciated **Confidence:** 3 (Weak) **Global Rank:** G1

Summary: [no summary available] [Captured 2008-02-15]

References: Barber pers. comm., Medlyn pers. comm., Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Pinus albicaulis* Woodland Alliance**

Whitebark Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.531

Summary: This subalpine woodland alliance occurs locally on warm, dry, rocky, exposed sites in the mountains of the interior northwestern U.S. and the central and northern Rocky Mountains. Stands typically occur intermittently between the closed-canopy subalpine forestline and upper treeline, but may occur at lower elevations on rocky wind-swept ridges or where disturbance has reduced the cover of shade-tolerant tree species. Above the continuous forestline, these woodlands form patches separated by subalpine meadow or rock outcrops. Landforms include ridgetops, mountain slopes, and cirque headwalls and basins. Sites occur on all aspects, but are more typically south-facing. Substrates are generally rocky, shallow, coarse-textured soils. Woodlands included in this alliance have a sparse to moderate conifer tree canopy dominated or codominated by *Pinus albicaulis*. High-elevation stands are often stunted and may be only a few meters tall, and *Pinus albicaulis* may be the only tree in the canopy. *Abies lasiocarpa* is the most common associated tree species. Other associated tree species may include *Pinus contorta*, *Pseudotsuga menziesii*, *Picea engelmannii*, *Tsuga mertensiana*, and *Pinus flexilis*. There may be a sparse to moderate shrub layer consisting of tree regeneration and other woody species such as *Arctostaphylos uva-ursi*, *Juniperus communis*, *Ribes* spp., *Shepherdia canadensis*, *Symphoricarpos oreophilus*, and *Vaccinium scoparium*. The herbaceous layer ranges from absent on rocky sites to moderately dense cover of graminoids or forbs on more mesic sites. Associated herbaceous species include *Achillea millefolium*, *Arnica* spp., *Calamagrostis rubescens*, *Carex geyeri*, *Cassiope mertensiana*, *Festuca idahoensis*, *Juncus parryi*, *Ligusticum grayi*, *Luzula glabrata* var. *hitchcockii*, *Phyllodoce empetriformis*, *Solidago multiradiata*, and *Xerophyllum tenax*. Diagnostic of this alliance is the dominance of *Pinus albicaulis* in the open tree canopy. [Captured 2008-02-18]

***Pinus albicaulis* / *Ligusticum grayi* Woodland**

Whitebark Pine / Sheep Wild Lovage Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000757

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Loope 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus contorta* Woodland Alliance**

Lodgepole Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.512

Summary: This woodland alliance includes upland plant associations found in the montane and subalpine zone of major mountain ranges of the western U.S., as well as one association occurring on wooded sand dunes of the Pacific coast. Sites include canyons, ridges, swales, plateaus, toeslopes, basins, flats, and benches. Slopes and aspects are not consistent. Soils are variable, but tend to be coarse-textured and well drained. Forests included in this alliance are characterized by the dominance

of *Pinus contorta* in an open tree canopy. Most associations are considered early to mid-successional. Following stand-replacing fires, *Pinus contorta* will rapidly colonize and dominate sites. The open tree canopy is related to unusually dry or cold topo-edaphic situations such as excessively well-drained pumice deposits, shallow rocky soils with little water-holding capacity often on warm aspects, and well-drained to xeric stabilized sand dunes. Trees may be stunted and twisted in coastal stands. *Pinus contorta* is usually the only mature tree in these woodlands, but occasionally other conifers will be present. A short-shrub layer is usually present, but is often patchy and rarely has substantial cover. Important shrubs and dwarf-shrubs include *Purshia tridentata*, *Juniperus communis*, *Artemisia tridentata*, *Arctostaphylos uva-ursi*, *Arctostaphylos patula*, *Amelanchier alnifolia*, *Mahonia repens*, *Paxistima myrsinites*, and *Ribes cereum*. The herbaceous layer is typically sparse and has low species richness. Cespitose graminoids or forbs tolerant of dry conditions are dominant. Lichens and mosses may be present, and are an important component in coastal stands. Diagnostic of this widespread woodland alliance is the dominance of *Pinus contorta* in a relatively open tree canopy (<60% cover), and the lack of significant *Abies lasiocarpa* regeneration. [Captured 2008-02-18]

***Pinus contorta* / *Juniperus communis* Woodland**

Lodgepole Pine / Common Juniper Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000764

Distribution (Nations/Subnations): US / CO, ID, MT, NV?, UT, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: This woodland association occurs in the upper montane and subalpine zone throughout much of the Rocky Mountains, although it is more common from along the Continental Divide east where climates are often drier. Sites are warm and dry and occur on nearly level benches, and gentle to very steep slopes. Aspects vary from south at high elevations to north aspect at lower elevations in canyons. Substrates are typically rocky, shallow to moderately deep, well- to excessively well-drained, gravelly or coarse-sandy loam or clay loam. Parent materials are variable, but are more often igneous or metamorphic rocks. The vegetation is characterized by an open to moderately dense (30-70% cover) tree canopy that is often solely dominated by *Pinus contorta*. However, scattered *Abies lasiocarpa*, *Picea engelmannii*, *Pinus albicaulis*, *Pinus flexilis*, *Pseudotsuga menziesii*, or *Populus tremuloides* trees may be present in some stands, especially in the subcanopy. The understory is typically depauperate and dominated by the conspicuous dwarf-shrub *Juniperus communis* with 5-15% cover. *Arctostaphylos uva-ursi* is often present with low cover. Other shrubs may be present in low cover. The herbaceous layer is usually sparse with a few scattered species. Diagnostic of this association is the dominance of *Pinus contorta* in the tree canopy with *Juniperus communis* dominating the understory.

[Captured 2008-02-15]

References: Alexander 1981, Alexander 1985, Alexander 1986, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cooper 1975, Cooper et al. 1987, Driscoll et al. 1984, Hess 1981, Hess and Alexander 1986, Hess and Wasser 1982, Johnston 1987, Jones and Ogle 2000, Komarkova et al. 1988b, MTNHP 2002b, Marr et al. 1973b, Mauk and Henderson 1984, Moir 1969a, Oswald 1966, Peet 1980, Peet 1981, Pfister et al. 1977, Roberts 1980, Steele et al. 1981, Steele et al. 1983, Wasser and Hess 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus edulis* - (*Juniperus* spp.) Woodland Alliance**

Two-needle Pinyon - (Juniper species) Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.516

Summary: *Pinus edulis*-dominated woodlands occur in the mountains, plateaus and canyons of Colorado, Utah, Arizona and New Mexico, in the westernmost tip of the Oklahoma panhandle, and possibly in western Texas. The climate of the region is semi-arid with drought not uncommon. Stands typically occur on nearly level to steep (to 80%), rocky slopes on hillsides and ridgetops. Aspect does not seem important except in elevational extremes for a given latitude where low-elevation stands are restricted to the more mesic north slopes; canyons and high-elevation stands occur on south aspects. Sites are typically dry with shallow, rocky, calcareous and alkaline soils. Other sites include eroded "badlands," lava flows, scree slopes, and deep sands. The understory ranges from a relatively rich mixture of evergreen and/or deciduous shrubs, to a sparse to moderately dense herbaceous layer dominated by perennial grasses (with or without shrubs), to no vegetation at all. Most commonly the understory is sparse and has a patchy distribution in the openings between tree crowns. Associated species can include *Juniperus monosperma*, *Juniperus osteosperma*, *Juniperus deppeana*, *Juniperus coahuilensis* (= *Juniperus erythrocarpa*), *Quercus arizonica*, *Cercocarpus montanus*, *Cercocarpus ledifolius*, *Arctostaphylos pungens*, *Artemisia tridentata*, *Rhus trilobata*, *Bouteloua gracilis*, *Andropogon hallii*, *Festuca arizonica*, *Muhlenbergia dubia*, and others. [Captured 2008-02-18]

***Pinus edulis* - *Juniperus osteosperma* / *Artemisia pygmaea* Woodland**

Two-needle Pinyon - Utah Juniper / Pygmy Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002365

Distribution (Nations/Subnations): US / AZ?, CO?, NM?, NV?, UT

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GNR

Summary: This woodland association has only been described from Capitol Reef National Park. This summary is derived from plot data collected in the park in 1986, 2003 and 2004. It occurs on benches and on canyon rims. Sites slope gently (less than 7%) to the north or east between 1749 and 2134 m elevation. Gravel covers most of the unvegetated surface. Parent materials are variable and include Carmel and Moenkopi shales and pediment deposits. Soils are rapidly drained silty clays and loams. Total vegetation cover ranges widely, from 17 to 110%. The vegetation is characterized by an open canopy, typically 2-10 m tall, of *Pinus edulis* and *Juniperus osteosperma* that contribute up to 35% cover, and the dwarf-shrub *Artemisia pygmaea* with 5 to 15% cover. Sapling *Pinus edulis* and *Juniperus osteosperma* are generally present. The shrub layer also includes *Eriogonum corymbosum* and *Shepherdia rotundifolia*. The herbaceous layer is moderately diverse in terms of species composition and provides sparse to low cover. Common perennial grasses include *Achnatherum hymenoides*, *Aristida purpurea*, *Bouteloua gracilis*, and *Pleuraphis jamesii*. Forbs typically provide less than 1% total cover with no consistent species.

[Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus edulis* - *Juniperus osteosperma* / *Coleogyne ramosissima* Woodland**

Two-needle Pinyon - Utah Juniper / Blackbrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000781

Distribution (Nations/Subnations): US / AZ, CA?, CO, NV?, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This woodland association has been described from valley bottoms, terraces, benches, slopes, mesa rims, elevated plains and rolling terrain sometimes interrupted by bedrock. It occurs

extensively across the Colorado Plateau from southwestern Colorado through southern Utah into Arizona and probably also Nevada. Sites are on flat to moderate slopes (0-20%) between 1070 and 1890 m (3500-6200 feet) elevation on all aspects. Bare soil covers most of the unvegetated surface, although cryptogam cover can be as high as 45%. Soils are typically shallow, rocky sandy loams derived from sandstone, eolian sands, alluvium or limestone. A few stands occur on deep or clay-textured soils derived from shale. Stands of this association can vary greatly in appearance, ranging from sparsely vegetated (<10% total cover) to relatively dense (80% cover). Sparsely vegetated stands also tend to have dwarfed trees not exceeding 2 m in height. Typically, stands have an open (5-25% cover) tree canopy 3-6 m tall that contains both *Pinus edulis* and *Juniperus osteosperma*, although one or the other tree may dominate. The shrub layer has 5 to 55% cover and is dominated by *Coleogyne ramosissima*. In Arizona, *Mortonia sempervirens* may be codominant. Other common shrub species may include *Agave utahensis*, *Cercocarpus montanus*, *Ephedra viridis*, *Glossopetalon spinescens* var. *aridum* (= *Glossopetalon nevadense*), *Glossopetalon spinescens*, *Gutierrezia sarothrae*, *Opuntia polyacantha*, *Purshia stansburiana*, *Quercus turbinella*, *Yucca baccata*, *Yucca harrimaniae*, and *Yucca elata* var. *utahensis* (= *Yucca utahensis*). The sparse herbaceous layer is composed of graminoids such as *Achnatherum hymenoides*, *Achnatherum speciosum* (= *Stipa speciosa*), *Elymus elymoides*, *Poa fendleriana*, *Bouteloua curtipendula*, and *Aristida* species. *Bromus rubens*, *Bromus tectorum*, and *Vulpia octoflora* may be present to abundant in disturbed sites. Forbs are typically variable and scattered, contributing little cover. *Lappula occidentalis*, *Lepidium montanum*, *Chaenactis stevioides*, *Psilostrophe sparsiflora*, and *Streptanthella longirostris* are among the many species that have been recorded. Scattered cacti are often present, including *Opuntia erinacea*, *Opuntia phaeacantha*, *Opuntia polyacantha*, *Echinocereus triglochidiatus*, and *Echinocereus engelmannii*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, FEIS 1996, Larson and Moir 1987, Stuever and Hayden 1997a, Warren et al. 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus edulis* - *Juniperus* spp. / *Artemisia tridentata* (ssp. *wyomingensis*, ssp. *vaseyana*) Woodland**

Two-needle Pinyon - Juniper species / (Wyoming Big Sagebrush, Mountain Big Sagebrush) Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000776

Distribution (Nations/Subnations): US / AZ, CA?, CO, NM, NV, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This broadly defined woodland association is common in the Colorado Plateau but also occurs on dry foothills and mesas from north-central New Mexico and southern Colorado west to the eastern Mojave Desert, in extreme northwestern Colorado and adjacent Utah. Elevations range from 1465 to 2500 m (4800-8200 feet). Stands occur most often on flat to gentle slopes on all aspects. The soils are generally poorly developed, moderately deep to deep, well-drained to rapidly drained loams and sands. Ground cover is variable; bare soil is common, but bedrock, litter, and large or small rocks can also be abundant on some sites. Parent material includes sandstone and shale. The vegetation is characterized by a typically open tree canopy (10-30% cover but ranges up to 50% cover) that is codominated by *Pinus edulis* and *Juniperus* spp. The species of *Juniperus* varies with geography and elevation. *Juniperus monosperma* is common in north-central New Mexico and southern Colorado. *Juniperus osteosperma* is common from northwestern New Mexico

west and north into Arizona and Utah. *Juniperus scopulorum* is more common in higher elevation stands. *Artemisia tridentata* (either *ssp. vaseyana* or *ssp. wyomingensis* depending on location) strongly dominates the sparse to moderately dense short-shrub layer (10-35% cover). *Purshia stansburiana* is typically absent or scarce. Other shrubs present may include *Amelanchier utahensis*, *Arctostaphylos patula*, *Cercocarpus montanus*, *Ephedra viridis*, *Gutierrezia sarothrae*, *Quercus gambelii* (typically <5% cover), or species of *Yucca* and *Opuntia*. Herbaceous cover is variable but generally sparse and dominated by graminoids (<5% cover) with scattered forbs. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bunting 1987, CONHP unpubl. data 2003, Cogan et al. 2004, Dick-Peddie 1993, Driscoll et al. 1984, Erdman 1970, Everett 1987, Heinze et al. 1962, Isaacson 1967, Jameson et al. 1962, Johnston 1987, Larson and Moir 1987, Mason et al. 1967, Moir and Carleton 1987, Stuever and Hayden 1997a, Tiedemann 1978, USFS 1983a, USFS 1985a, USFS 1985e, Warren et al. 1982, Western Ecology Working Group n.d., Wright et al. 1979
NNHP Plots: (0 plots identified)

***Pinus flexilis* Woodland Alliance**

Limber Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.540

Summary: Woodlands included in this alliance occur intermittently from timberline to lower montane and foothill zones throughout much of the Rocky Mountains, on escarpments and other geographic breaks in the northwestern Great Plains, and in mountains in the Great Basin and southern California. Elevations range from 850-3500 m. Sites are typically xeric on exposed, wind-swept rocky slopes and ridges from subalpine to foothills and prairie breaks. Some stands are on eroded substrates and resemble 'badlands' while others may occur on lava flows. These open woodlands occur on all aspects, but are most common on dry south- and west-facing slopes. Soils are typically shallow, skeletal and coarse-textured, such as gravelly, sandy loams or loams, but may include alkaline clays. Exposed bedrock is common and many stands have over 50% bare soil. The vegetation is characterized by an open canopy typically 3-10 m tall, but individuals may reach 15 m. Stands are solely dominated or codominated by the evergreen needle-leaved tree *Pinus flexilis*. Other trees species that may be present to codominant vary by geography and elevation zones throughout the woodland's range and include *Pinus albicaulis*, *Picea engelmannii*, or *Pseudotsuga menziesii* in the subalpine; *Pinus contorta*, *Pinus ponderosa*, or *Pseudotsuga menziesii* in the montane zone; and *Juniperus osteosperma* or *Juniperus scopulorum* in the lower montane transition zone from woodlands to grasslands or shrublands. In California, other associates may include *Abies concolor*, *Pinus albicaulis*, *Pinus balfouriana*, *Pinus contorta*, *Pinus jeffreyi*, and *Pinus longaeva*.

The understory vegetation is typically sparse because sites are dry and have a large cover of rock. A sparse shrub layer may be present that includes tall shrubs such as *Artemisia tridentata*, *Cercocarpus ledifolius*, *Jamesia americana*, *Rhus trilobata*, *Shepherdia canadensis*, and *Symphoricarpos oreophilus*. *Arctostaphylos uva-ursi*, *Artemisia arbuscula*, *Artemisia nova*, *Juniperus communis*, *Mahonia repens*, *Purshia tridentata*, and *Yucca glauca* are the most frequent low shrubs. The herbaceous layer often dominates the understory and is composed primarily of graminoids such as *Bouteloua gracilis*, *Calamagrostis purpurascens*, *Carex rossii*, *Festuca idahoensis*, *Festuca campestris*, *Leucopoa kingii* (= *Festuca kingii*), *Koeleria macrantha*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), and *Pseudoroegneria spicata*. Scattered forbs may include species of *Achillea*, *Antennaria*, *Arenaria*, *Arnica*, *Astragalus*, *Erigeron*, *Eriogonum*, *Hymenopappus*, *Hymenoxys*, *Liatris*, *Sedum*, *Solidago*, and *Thermopsis*. [Captured 2008-02-18]

***Pinus flexilis* / *Cercocarpus ledifolius* Woodland**

Limber Pine / Curl-leaf Mountain-mahogany Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000804

Distribution (Nations/Subnations): US / CA, ID, MT, NV, UT, WY?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, DeVelice 1992, Driscoll et al. 1984, Eddleman and Jaindl 1994, Jones and Ogle 2000, MTNHP 2002b, Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus flexilis* / *Juniperus communis* Woodland**

Limber Pine / Common Juniper Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000807

Distribution (Nations/Subnations): CA?, US / AB?, CA?, CO, ID, MT, NV?, OR, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This limber pine woodland is found in the montane and subalpine zones of the western United States. It occurs on dry, exposed, rocky sites such as rock outcrops, ridges, slope crests, and high flat benches from 2530 to 3390 m (8300-11,100 feet) in elevation in the southern Rocky Mountains and 1400 to 2530 m (4600-8300 feet) in the northern Rocky Mountains. It also occurs on gentle to moderately steep slopes with variable aspect. Soils are predominantly shallow, coarse-textured, and rapidly drained with high soil-surface temperatures. The tree canopy is generally open in character and comprised predominantly of *Pinus flexilis*. Tree canopy associates include *Pinus contorta* and *Picea engelmannii* at higher elevations and *Pinus ponderosa* at lower elevations, with *Pseudotsuga menziesii* and occasionally *Pinus albicaulis* in the northern portion of the range. A sparse low-shrub layer is present and characterized by *Juniperus communis*. *Arctostaphylos uva-ursi* also has high constancy in this type, although less total cover than *Juniperus communis*. Additional shrubs can include *Jamesia americana*, *Paxistima myrsinites*, *Ribes cereum*, *Symphoricarpos oreophilus*, *Vaccinium* spp., and *Juniperus horizontalis*. The herbaceous layer is likewise sparse. Species commonly occurring include *Achnatherum hymenoides*, *Carex geyeri*, *Carex rossii*, *Festuca brachyphylla*, *Leucopoa kingii*, *Poa fendleriana*, *Antennaria rosea*, *Erigeron flagellaris*, *Lupinus argenteus*, *Arenaria fendleri*, *Frasera speciosa*, *Geranium caespitosum* var. *fremontii* (= *Geranium fremontii*), *Penstemon virens*, *Potentilla fissa*, and *Sedum lanceolatum*. On calcareous substrates in the northern portion of the range, forbs often include *Clematis columbiana* (= *Clematis pseudoalpina*), *Arnica cordifolia*, *Eurybia conspicua* (= *Aster conspicuus*), *Campanula rotundifolia*, *Galium boreale*, and *Astragalus miser*. The ground layer has a high proportion of unvegetated surface that is often composed of gravel and rock.

[Captured 2008-02-15]

References: Achuff et al. 1997, Achuff et al. 2002a, Alexander 1986, Baker 1984a, Bourgeron and Engelking 1994, Burns and Honkala 1990a, CONHP unpubl. data 2003, Cole 1982, Driscoll et al. 1984, Hess 1981, Hess and Alexander 1986, Hoffman and Alexander 1980, Johnston 1987, Johnston and Hendzel 1985, Johnston et al. 2001, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, MTNHP 2002b, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Wasser and Hess 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

***Pinus jeffreyi* Woodland Alliance**

Jeffrey Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.541

Summary: This alliance occurs on well-drained, productive or infertile soils regardless of parent material. Some self-replicating stands are found on strongly serpentinized peridotite. Most commonly, stands are found on ultramafic-derived soils. The alliance is dominated by *Pinus jeffreyi*. Other trees present may include *Quercus kelloggii*, *Quercus chrysolepis*, *Quercus wislizeni*, *Pseudotsuga menziesii*, *Pinus balfouriana*, *Pinus attenuata*, *Pinus contorta* var. *murrayana*, *Pinus ponderosa*, *Pinus monticola*, *Chamaecyparis lawsoniana*, *Abies magnifica*, and *Abies concolor*. Shrubs and forbs present may include *Purshia tridentata*, *Rhus trilobata*, *Xerophyllum tenax*, *Chrysolepis sempervirens*, *Festuca californica*, *Cercocarpus ledifolius*, *Festuca idahoensis*, *Iris innominata*, *Symphoricarpos longiflorus*, *Quercus vacciniifolia*, *Artemisia tridentata* ssp. *vaseyana*, *Ceanothus cordulatus*, *Wyethia mollis*, *Poa secunda*, *Arctostaphylos nevadensis*, *Ericameria ophitidis*, *Lupinus caudatus*, *Calamagrostis koelerioides*, *Achnatherum occidentale* (= *Stipa occidentalis*), and *Poa wheeleri*. [Captured 2008-02-27]

* New to Nevada - with plot data:

***Pinus jeffreyi* - *Abies concolor* Woodland**

Jeffrey Pine - White Fir Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL008630

Distribution (Nations/Subnations): US / CA

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: p020524e (1 plots identified)

Representative Images:



p020524e.JPG

* New to Nevada - with plot data:

***Pinus jeffreyi* / *Purshia tridentata* Woodland**

Jeffrey Pine / Bitterbrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL008624

Distribution (Nations/Subnations): US / CA

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: Taylor (1980) reports this association from the volcanic ash flows and welded volcanic tufa south of the Mono Craters. Soils are orthic humic Entisols. Most precipitation falls as snow which reaches 1 m deep and may persist on the ground for three months. Precipitation is estimated at being 12-16 inches per year. Several similar associations exist on the Modoc Plateau (Smith 1994b). [Captured 2008-02-15]

References: Smith 1994b, Taylor 1990, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* **New to Nevada - with plot data:**

Pinus jeffreyi Woodland [Placeholder]

Jeffrey Pine Woodland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL002769

Distribution (Nations/Subnations): US / CA

Status: 2 Depreciated **Confidence:** 3 (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf pers. comm., Western Ecology Working Group n.d.

NNHP Plots: p020524b (1 plots identified)

Representative Images:



p020524b.JPG

Pinus longaeva Woodland Alliance

Intermountain Bristlecone Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.518

Summary: This widely scattered subalpine woodland alliance grows on all slopes, especially ridges and upper slopes below timberline. It grows on dolomitic, limestone- or granite-derived soils. This woodland may occur under the driest conditions of the California subalpine woodlands. The growing season is limited by drought in the summer and cold in the winter. Precipitation, mostly as snow, falls in the winter. Stands are found between 2600 and 3600 m elevation. This alliance is dominated by *Pinus longaeva* as the sole or dominant tree in the canopy. *Pinus flexilis* may also be present. The shrub *Cercocarpus intricatus* is often present. [Captured 2008-02-18]

***Pinus longaeva* - *Pinus flexilis* Woodland [Placeholder]**

Intermountain Bristlecone Pine - Limber Pine Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL003073

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* - (*Juniperus osteosperma*) Woodland Alliance**

Singleleaf Pinyon - (Utah Juniper) Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.543

Summary: This woodland alliance occurs in dry mountain ranges of the Great Basin and southern California, usually on erosional terrain or upper alluvial slopes. Soils are variable, but generally coarse-textured and well-drained. Vegetation included in this alliance is characterized by an open tree canopy dominated by *Pinus monophylla*, quite often in association with *Juniperus osteosperma*. *Pinus monophylla* may be the sole tree in some cases, or *Juniperus osteosperma* may be codominant. In stands that occur in dry ranges of central and southern Nevada, *Cercocarpus ledifolius* is a common associate. Less common tree associates include *Pinus ponderosa*, *Pinus flexilis*, *Pinus aristata*, and *Abies concolor*. In eastern California, *Pinus jeffreyi* and *Juniperus californica* may also be common. The shrub layer is present to moderately dense. Shrub associates may include *Artemisia tridentata*, *Artemisia arbuscula*, *Artemisia nova*, *Amelanchier alnifolia*, *Arctostaphylos patula*, *Quercus gambelii*, *Prunus virginiana*, and *Purshia tridentata*. Other shrubs include chaparral species such as *Quercus chrysolepis* and *Ceanothus cuneatus*; and *Quercus turbinella*, *Arctostaphylos glauca*, *Eriogonum fasciculatum*, *Yucca schidigera*, and *Coleogyne ramosissima* in southern California. The typically sparse herbaceous layer is usually composed of cespitose perennial grasses, including *Pseudoroegneria spicata*, *Festuca idahoensis*, *Elymus elymoides*, and *Stipa* spp. Diagnostic of this woodland alliance is the tree canopy dominated by *Pinus monophylla* often with *Juniperus osteosperma* as a codominant. [Captured 2008-02-18]

***Pinus monophylla* - *Juniperus osteosperma* - *Quercus gambelii* / *Artemisia tridentata* Woodland**

Singleleaf Pinyon - Utah Juniper - Gambel Oak / Basin Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000837

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* - *Juniperus osteosperma* / *Artemisia arbuscula* Woodland**

Singleleaf Pinyon - Utah Juniper / Dwarf Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000830

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969c, Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* - *Juniperus osteosperma* / *Artemisia nova* Woodland**

Singleleaf Pinyon - Utah Juniper / Black Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000831

Distribution (Nations/Subnations): US / CA, ID, NV, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5?

Summary: This woodland association occurs in the Great Basin. Elevations range from 1830-2030 m (6000-6650 feet). Stands occur on mesas, hills and rocky ridges. Aspects are variable with southeast and northeast reported. Slopes are gentle to moderate. The soils are variable but typically shallow, fine-textured and lithic. Clay loams are common, but soil texture ranges to clay. Litter from trees may cover up to half the ground surface. Pavement is often high with 30-40% cover. Cover of rock or bare ground may also be significant (to 25%). The vegetation is characterized by an open to dense tree canopy (10-80% cover) typically codominated by *Pinus monophylla* and *Juniperus osteosperma*. The short-shrub layer is sparse to moderately dense (10-25% cover) and is dominated by *Artemisia nova*. *Chrysothamnus viscidiflorus* and *Gutierrezia sarothrae* are frequent associates. Other associated shrubs may include low cover of *Ephedra nevadensis*, *Ericameria nauseosa*, *Grayia spinosa*, and trace *Quercus gambelii*. The sparse to moderately dense herbaceous layer is dominated by graminoids with scattered forbs. Associated graminoids include *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Elymus elymoides*, *Hesperostipa comata*, *Achnatherum thurberianum*, *Poa secunda*, and *Pseudoroegneria spicata* ssp. *inermis*. Although forb cover is generally sparse, it may be very diverse. Common forbs include *Cryptantha cinerea* var. *jamesii* (= *Cryptantha jamesii*), *Eriogonum caespitosum*, *Gilia ochroleuca*, *Lomatium foeniculaceum* ssp. *macdougalii* (= *Lomatium macdougalii*), and *Sphaeralcea coccinea*. Disturbed stands may have high cover of the introduced annual grass *Bromus tectorum* or *Halogeton glomeratus*, an introduced forb.

[Captured 2008-02-15]

References: Blackburn et al. 1968c, Blackburn et al. 1969c, Blackburn et al. 1969d, Bourgeron and Engelking 1994, Bradley et al. 1992, Cogan et al. 2004, Driscoll et al. 1984, Ostler et al. 2000, Western Ecology Working Group n.d., Wright et al. 1979

NNHP Plots: p020602b (1 plots identified)

Representative Images:



p020602b_1.JPG

***Pinus monophylla* - *Juniperus osteosperma* / *Artemisia tridentata* ssp. *vaseyana* / *Pseudoroegneria spicata* Woodland**

Singleleaf Pinyon - Utah Juniper / Mountain Big Sagebrush / Bluebunch Wheatgrass Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000833

Distribution (Nations/Subnations): US / ID, NV?, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: G1

Summary: This woodland plant association is described from stands located in the Jim Sage Mountains and west-central Albion Mountains of Idaho, within the Northwest Basin and Range ecoregional section. Additional stands are expected to occur in northern Utah or Nevada. The plant association occurs on a range of different parent materials. Occurrences are described from moderately steep slopes in ridgetop and upper slope positions, on north- to northeast- and east- to southeast-facing slopes. *Pinus monophylla* and *Juniperus osteosperma* are codominant often with nearly equal cover. Stands are open, with a mix of medium to large sized mature trees and seedling, sapling and pole sized regeneration. *Artemisia tridentata* ssp. *vaseyana* is well represented in the relatively sparse shrub layer. *Pseudoroegneria spicata* is consistently well represented; *Poa secunda* is present.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983a, Caicco and Wellner 1983b, Driscoll et al. 1984, Rust 1997a, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* - *Juniperus osteosperma* / *Artemisia tridentata* Woodland**

Singleleaf Pinyon - Utah Juniper / Basin Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000832

Distribution (Nations/Subnations): US / NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5?

Summary: This woodland association occurs in the Great Basin. Elevations range from 1220-2300 m (4000-7550 feet). Stands occur on mesas, hills and rocky ridges on gentle to steep slopes on all aspects. The soils are shallow to moderately deep, calcareous, lithic loams or clays. The vegetation is characterized by an open to moderately dense tree canopy (10-40% cover) typically codominated by *Pinus monophylla* and *Juniperus osteosperma*. *Juniperus osteosperma* is often more abundant at

lower elevation. The short-shrub layer is typically sparse (10-15% cover) and is dominated by *Artemisia tridentata*. *Chrysothamnus viscidiflorus* or *Purshia tridentata* are frequent associates. Other associated shrubs may include low cover of *Amelanchier* spp., *Ephedra nevadensis*, *Ephedra viridis*, *Ericameria nauseosa*, *Grayia spinosa*, and species of *Gutierrezia*, *Opuntia*, *Tetradymia*, and *Yucca*. The sparse to moderately dense herbaceous layer is dominated by graminoids with scattered forbs. Frequent graminoids are *Elymus elymoides* and *Poa secunda*. Although forb cover is generally sparse, it may be very diverse. Frequent forbs include species of *Astragalus*, *Balsamorhiza*, *Machaeranthera*, *Eriogonum*, and *Phlox*. Disturbed stands may have high cover of the introduced annual grass *Bromus tectorum*.

[Captured 2008-02-15]

References: Barney and Frischknecht 1974, Blackburn 1967, Blackburn et al. 1968a, Blackburn et al. 1969b, Blackburn et al. 1969c, Bourgeron and Engelking 1994, Bradley et al. 1992, Bunting 1987, Cogan et al. 2004, Driscoll et al. 1984, Everett 1987, Johnson and Payne 1968, Koniak 1985, Ostler et al. 2000, Western Ecology Working Group n.d., Wright et al. **NNHP Plots:** p050511a, p050511g, p050603za (3 plots identified)

Representative Images:



p050511a.JPG



p050511g.JPG

***Pinus monophylla* - *Juniperus osteosperma* / Sparse Understory Woodland**

Singleleaf Pinyon - Utah Juniper / Sparse Understory Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000829

Distribution (Nations/Subnations): US / CA, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This widespread woodland association is known from the Great Basin and northern Mojave Desert. Elevations normally range from 1370-2135 m (4500-7000 feet). Stands occur on flat to moderately sloping sites on all aspects. The soils are variable, but typically shallow and lithic. Litter from trees often covers about half the ground surface. Cover of rock, pavement or bare ground may also be significant depending on the site. The vegetation is characterized by an open to moderately dense tree canopy (10-40% cover) dominated by *Pinus monophylla* without a significant understory. *Juniperus osteosperma* may be present to codominant. Shrub cover, if present, is sparse (<10% cover). *Artemisia tridentata*, *Purshia tridentata*, and *Chrysothamnus viscidiflorus* are most consistent. Other shrubs include *Amelanchier* spp., *Eriogonum microthecum*, *Cercocarpus montanus*, *Gutierrezia sarothrae*, *Purshia tridentata*, *Quercus gambelii*, *Quercus turbinella*, and species of *Opuntia*. Herbaceous cover is typically sparse and dominated by

perennial graminoids with scattered forbs.

[Captured 2008-02-15]

References: Armstrong 1969, Blackburn 1967, Blackburn et al. 1968a, Blackburn et al. 1968c, Blackburn et al. 1969c, Blackburn et al. 1969d, Blackburn et al. 1969e, Bourgeron and Engelking 1994, Bradley et al. 1992, Cogan et al. 2004, Driscoll et al. 1984, Heinze et al. 1962, Peterson 1984, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d., **NNHP Plots:** p020602k (1 plots identified)

Representative Images:



p020602k_1.JPG

***Pinus monophylla* - *Quercus gambelii* / *Artemisia tridentata* Woodland**

Singleleaf Pinyon - Gambel Oak / Basin Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000838

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* / *Amelanchier alnifolia* / *Arctostaphylos patula* Woodland**

Singleleaf Pinyon / Saskatoon Serviceberry / Greenleaf Manzanita Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000826

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969e, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* / *Artemisia tridentata* Woodland**

Singleleaf Pinyon / Basin Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000827

Distribution (Nations/Subnations): US / CA, NV, UT?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Blackburn et al. 1968a, Blackburn et al. 1969a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Kurzius 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* / *Cercocarpus ledifolius* Woodland**

Singleleaf Pinyon / Curl-leaf Mountain-mahogany Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000828

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* / *Symphoricarpos oreophilus* - *Artemisia tridentata* Woodland**

Singleleaf Pinyon / Mountain Snowberry - Basin Big Sagebrush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000839

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus monophylla* Woodland**

Singleleaf Pinyon Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000825

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968c, Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Peterson 1984, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pinus ponderosa* Temporarily Flooded Woodland Alliance**

Ponderosa Pine Temporarily Flooded Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.565

Summary: This alliance occurs on low-elevation, semi-riparian localities scattered throughout most of

the Rocky Mountains, and west into the Columbia Basin of Washington and Oregon. Valleys vary from V-shaped to trough-shaped or broad and flat, and stream gradients are typically moderate. These woodlands can occur as broad, extensive stands on wider floodplain terraces or as narrow, long ribbons. Sites include mountain valleys, foothill ravines, terraces and alluvial benches of major streams and rivers. In southern Arizona, stands occur along smaller perennial streams and washes. Soils are cobbly, coarse-textured and derived from alluvium. Vegetation included in this semi-riparian alliance is characterized by an open canopy of the conifers *Pinus ponderosa* and often *Pseudotsuga menziesii*. Other trees occasionally present include *Populus balsamifera ssp. trichocarpa*, *Populus angustifolia*, *Acer negundo*, *Quercus* spp., *Juniperus deppeana*, *Juniperus scopulorum*, *Pinus edulis*, and *Pinus discolor* in southern stands. Composition and structure of understory vegetation vary greatly by geographic region. Typically a tall-shrub layer is present, with species such as *Alnus* spp., *Betula occidentalis*, *Cornus sericea*, *Crataegus douglasii*, *Juglans major*, *Prunus virginiana*, *Quercus garryana*, or *Salix* spp. Some stands have a short-shrub layer that includes species such as *Frangula betulifolia* (= *Rhamnus betulifolia*), *Holodiscus discolor*, *Rhus aromatica*, *Ribes* spp., *Physocarpus malvaceus*, *Rosa woodsii*, or *Symphoricarpos* spp. Woody vines are important in some stands, including *Toxicodendron rydbergii* or *Vitis arizonica*. The herbaceous layer can be dominated by either graminoids or forbs. Graminoids can include *Panicum bulbosum*, *Bromus ciliatus var. richardsonii* (= *Bromus richardsonii*), and *Pascopyrum smithii*. Forbs can include *Geranium caespitosum*, *Galium* spp., *Pteridium aquilinum*, *Thalictrum fendleri*, *Potentilla* spp., *Achillea millefolium*, and *Maianthemum stellatum*. Diagnostic of this semi-riparian alliance is *Pinus ponderosa*-dominated woodland stands with brief seasonal flooding during the growing season. [Captured 2008-02-18]

Pinus ponderosa Temporarily Flooded Woodland [Provisional]

Ponderosa Pine Temporarily Flooded Woodland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002766

Distribution (Nations/Subnations): US / CA, NV, UT

Status: 3 Depreciated **Confidence:** 3 (Weak) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

Pinus ponderosa Woodland Alliance

Ponderosa Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.530

Summary: This alliance is one of the most widespread wooded alliances in the western United States; there are currently over 50 plant associations in this alliance. The alliance is found throughout the western half of the U.S. and southwestern Canada, as well as the Trans-Pecos of Texas and the western portions of the Great Plains, such as in western Oklahoma and the Dakotas. Sites are dry/dry-mesic to xeric, and soils are generally well-drained and coarse-textured. *Pinus ponderosa* often dominates these woodlands, but codominant species may include *Pseudotsuga menziesii*, other *Pinus* species, and species of *Juniperus*, *Abies*, or *Picea*. The understory ranges from dense shrub or graminoid layers to barren rock. The associated plant species vary with changes in geography and environmental conditions. Associated trees include species of *Pinus*, *Quercus*, *Juniperus*, *Abies*, *Pseudotsuga*, *Populus*, and *Picea*. Shrubs can include species of *Arctostaphylos*, *Artemisia*, *Cercocarpus*, *Ceanothus*,

Symphoricarpos, *Physocarpus*, *Rosa*, *Purshia*, and others. Important graminoids include species of *Carex*, *Elymus*, *Poa*, *Festuca*, *Muhlenbergia*, *Piptochaetium*, and many others. [Captured 2008-02-18]

***Pinus ponderosa* / *Quercus gambelii* Woodland**

Ponderosa Pine / Gambel Oak Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000870

Distribution (Nations/Subnations): US / AZ, CO, NM, NV, TX, UT

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This major woodland association is widespread and has been reported from foothills, mountains and plateaus from Colorado to Texas, west to Arizona and Nevada. Elevation ranges from 1830-2800 m (6000-9200 feet). Stands often occur along drainages, on lower and middle slopes and benches on all aspects. Soils are typically shallow and rocky ranging from sandy loams to clay loams. *Pinus ponderosa* dominates or sometimes codominates the sparse to moderately dense tree canopy with *Pinus edulis* and *Juniperus* spp. *Pseudotsuga menziesii* is accidental and *Abies concolor* is not present. *Quercus gambelii* dominates both the subcanopy (tree form, if present) and the typically moderately dense tall-shrub layer consisting of dense clumps of oak. *Quercus gambelii* must have at least 5% cover, but there is frequently over 25%. At higher elevations, the *Quercus gambelii* are more tree-like and *Symphoricarpos oreophilus* will be present with significant cover in the short-shrub layer. At lower elevations, scattered *Artemisia tridentata* ssp. *vaseyana*, *Pinus edulis*, and *Juniperus osteosperma* are often present. Other common shrub species may include *Amelanchier* spp., *Mahonia repens*, and *Rosa woodsii*. The herbaceous layer is generally sparse and composed of mostly graminoids and scattered forbs.

[Captured 2008-02-15]

References: Alexander et al. 1984a, Alexander et al. 1987, Bader 1932, Blackburn et al. 1969d, Blackburn et al. 1969e, Bourgeron and Engelking 1994, Bradley et al. 1992, Bunin 1975c, CONHP unpubl. data 2003, Clary 1992, Cogan et al. 2004, DeVelice et al. 1986, Diamond 1993, Dixon 1935, Donart et al. 1978a, Driscoll et al. 1984, Fitzhugh et al. 1987, Hanks et al. 1983, Hansen et al. 2004c, Hanson and Ball 1928, Harmon 1980, Helm 1977, Hess and Wasser 1982, Johnston 1987, Johnston and Hendzel 1985, Larson and Moir 1987, Madany and West 1980b, Marr et al. 1973a, Muldavin et al. 1996, Nixon 1967b, Peet 1975, Peet 1981, Roberts et al. 1992, Savage and Swetnam 1990, Schmoll 1935, Somers et al. 1980, Steinhoff 1978, Stuever and Hayden 1997b, Terwilliger et al. 1979a, USFS 1983b, Wasser and Hess 1982, Western Ecology Working Group n.d., Wright et al. 1973, Youngblood and Mauk 1985

NNHP Plots: (0 plots identified)

***Pinus washoensis* Woodland Alliance**

Washoe Pine Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.529

Summary: This montane and subalpine woodland alliance occurs between 2100 and 2850 m elevation on a few widely scattered areas in the mountains of northern California. It can occur on all slopes, but is most extensive on upper slopes. This alliance requires moderately high annual precipitation, of which a significant portion must fall as snow. The summers are distinctly dry. Substrates in the northern portion of the range are volcanic, grading to granitic in the southern portion. *Pinus washoensis* is the sole or dominant tree in the canopy of this montane and subalpine California woodland. *Pinus contorta* var. *murrayana*, *Pinus jeffreyi*, *Pinus ponderosa*, *Abies magnifica*, *Pinus monticola*, and *Abies concolor* may also be present. Shrubs are very sparse, but may include *Pseudostellaria jamesiana* and/or

Lupinus caudatus. The herbaceous layer is dominated by graminoids. [Captured 2008-02-18]

***Pinus washoensis* Woodland [Placeholder]**

Washoe Pine Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003078

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G1?

Summary: *Pinus washoensis* is the sole or dominant tree in the canopy. *Pinus contorta* var. *murrayana*, *Pinus jeffreyi*, *Pinus ponderosa*, *Abies magnifica*, *Pinus monticola*, and/or *Abies concolor* may be present. Trees <25 m; the canopy is intermittent or open. Shrubs are sparse, but may include *Arctostaphylos nevadensis*, *Arctostaphylos patula*, *Ceanothus velutinus*, *Cercocarpus ledifolius*, and *Artemisia tridentata*. The ground layer is grassy. This association can occur on all slopes, but is most extensive on upper slopes. Soils are granitic or volcanic derived.

[Captured 2008-02-15]

References: Cheatham and Haller 1975, Griffin and Critchfield 1972, Grossman et al. 1994, Keeler-Wolf 1990, Rundel et al. 1988, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus angustifolia* Temporarily Flooded Woodland Alliance**

Narrowleaf Cottonwood Temporarily Flooded Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.641

Summary: This riparian alliance occurs in lower to mid-montane floodplains and streams throughout much of the western U.S., north into Alberta, Canada. Sites include narrow benches along narrow stream channels and on large floodplains along broad, meandering rivers. Stands are usually found between 0.5-2 m above the stream channel. The alluvial soils are highly permeable with large amounts of coarse fragments in the subsurface horizons. Vegetation within this alliance is characterized by a typically open-tree canopy and is dominated by *Populus angustifolia* with 20-70% cover. Other trees can include *Acer negundo*, *Juniperus scopulorum*, *Picea pungens*, *Pinus ponderosa*, and *Picea engelmannii* in the Rocky Mountains and *Populus balsamifera* or *Populus deltoides* in the northern areas. The shrub layer can be very dense and diverse with 10-80% cover of *Cornus sericea*, *Alnus incana*, *Amelanchier utahensis*, *Rosa woodsii*, *Acer glabrum*, *Quercus gambelii*, *Salix* spp., *Crataegus rivularis*, or *Lonicera involucrata*. *Juniperus deppeana*, *Brickellia californica*, and *Alnus oblongifolia* have been reported from stands in New Mexico and Arizona, as has significant cover of woody vines such as *Vitis arizonica*, *Parthenocissus quinquefolia* (= *Parthenocissus inserta*), *Clematis ligusticifolia*, and *Humulus lupulus* var. *lupuloides* (= *Humulus americanus*). *Symphoricarpos occidentalis* and *Salix exigua* have been reported with significant cover in stands from Alberta. The forb layer is moderately dense to absent and includes species such as *Maianthemum stellatum*, *Heracleum maximum* (= *Heracleum lanatum*), *Achillea millefolium*, and *Osmorhiza depauperata*. Graminoid cover is insignificant in New Mexico and Arizona. Diagnostic of this alliance is the dominance of *Populus angustifolia* in the tree canopy in woodlands that are briefly flooded during the growing season.

[Captured 2008-02-18]

***Populus angustifolia* - *Pseudotsuga menziesii* Woodland**

Narrowleaf Cottonwood - Douglas-fir Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002641

Distribution (Nations/Subnations): US / CO, NV?, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3

Summary: The riparian woodland association is found along small active streams in rocky, cool canyons and valleys between 2000-2700 m in Colorado, Utah, and Nevada. It occurs naturally in small stands on wash bottoms, streambanks, cobble bars and terraces where a northern or protected aspect creates cool micro-environments. A mix of *Pseudotsuga menziesii* (10-40% cover) and *Populus angustifolia* (10-60% cover) in the upper canopy is diagnostic, though they may be joined by other conifer species. Shrub cover is typically low, but highly variable and diverse, and may include *Acer glabrum*, *Salix exigua*, *Alnus incana*, *Betula occidentalis*, *Salix lucida* ssp. *caudata*, *Clematis ligusticifolia*, *Ribes cereum*, and *Quercus gambelii*. Herbaceous cover can be sparse and usually limited by heavy shade. This association represents a transition from lower montane to upper montane habitats. Nearly all stands observed have an adjacent north-facing slope with *Pseudotsuga menziesii* forests. These woodlands are dependent upon flooding disturbance for regeneration of *Populus angustifolia*.

[Captured 2008-02-15]

References: CONHP unpubl. data 2003, Carsey et al. 2003a, Hansen et al. 1995, Johnston 1987, Kittel et al. 1996, Kittel et al. 1999a, Kovalchik 1987, Manning and Padgett 1995, Padgett et al. 1989, Richard et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus angustifolia* / *Betula occidentalis* Woodland**

Narrowleaf Cottonwood / Water Birch Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG000648

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3

Summary: This lush, deciduous, riparian woodland occurs in mountains and canyons of Nevada, Utah, Idaho, Wyoming, and Colorado on stream terraces or floodplains bordering streams. Elevation ranges from 1450-2600 m. This community is one of the wetter *Populus angustifolia* plant associations, which indicates a perennial source of water. Some stands occur on hillside seeps. Substrate is well-drained, rocky and coarse-textured alluvial soil. Water tables are generally between 0.5-4 m below the surface. The upper tree canopy is open (typically less than 60% cover) and is dominated by *Populus angustifolia*, with *Acer negundo* occasionally codominating in late-seral stands. *Pseudotsuga menziesii* and *Juniperus scopulorum* are scattered in some stands. *Betula occidentalis* forms a moderate to dense short-tree/tall-shrub canopy, often forming a thicket along the stream. Other species, such as *Alnus incana*, *Acer grandidentatum*, *Acer glabrum*, *Amelanchier alnifolia*, and several species of *Salix*, including *Salix lutea*, *Salix lucida* ssp. *lasiandra* (= *Salix lasiandra*), and *Salix bebbiana*, may be present. The moderately dense short-shrub layer may include *Cornus sericea*, *Paxistima myrsinites*, *Rosa* spp., *Mahonia repens*, *Ribes aureum*, *Symphoricarpos* spp., and *Rhus trilobata* on drier sites. The herbaceous layer may be sparse to dense, depending on the density of the shrub and tree layers. Common species include *Equisetum arvense*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Carex pellita* (= *Carex lanuginosa*), *Maianthemum stellatum*, *Achillea millefolium*, and the introduced species *Bromus inermis*, *Poa pratensis*, and *Taraxacum officinale*. The dominance of *Betula occidentalis* separates this

association from other *Populus angustifolia* riparian woodlands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Cooper and Cottrell 1990, Driscoll et al. 1984, IDCDC 2005, Jones 1992b, Jones and Ogle 2000, Kittel et al. 1994, Kittel et al. 1996, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Komarkova 1986, Olson and Gerhart 1982, Padgett et al. 1988b, Padgett et al. 1989, Smith 1994b, Walford 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus angustifolia* / *Cornus sericea* Woodland**

Narrowleaf Cottonwood / Red-osier Dogwood Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002664

Distribution (Nations/Subnations): CA, US / AB, CO, ID, MT, NM, NV, OR, SD, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: This narrowleaf cottonwood forest type is found in the western Great Plains and western mountain regions of the United States, north into Alberta, Canada. Elevations range from 2360 to 2720 m (7750-8900 feet) in northern New Mexico to 945 to 2044 m (3100-6700 feet) in Montana (east of the Continental Divide). Stands occur along major streams and small to moderate-sized rivers in the foothill-montane zone and northern plains and in the grassland zone of Alberta. Sites include narrow valleys (10 m) with swift, steep streams (4% gradient) where it occurs on narrow benches, and on wide valleys (150 m) on broad floodplains along, moderately steep, meandering rivers (2% gradients). Soils are highly variable and stratified. The vegetation is characterized by a closed to open canopy of deciduous trees dominated by *Populus angustifolia* and a thick understory of *Cornus sericea*. The tree canopy composition is highly variable but typically has less than 10% cover of other tree species, including conifers *Picea pungens*, *Pseudotsuga menziesii*, *Pinus ponderosa*, *Abies concolor*, *Abies lasiocarpa*, and deciduous trees such as *Populus tremuloides* in mountains and *Populus deltoides* in lower foothills and on plains. *Populus X acuminata* may codominate stands in the Great Basin and in Alberta. In northern plains, stands may have *Populus deltoides* and/or *Populus balsamifera ssp. trichocarpa* (= *Populus trichocarpa*) present. The introduced tree *Elaeagnus angustifolia* may be common on disturbed stands. The moderately dense to dense shrub layer consists mostly of *Cornus sericea* (10-80%) but may be diverse. Other shrub species can be abundant, but rarely more than *Cornus sericea*, and may include *Acer glabrum*, *Alnus incana*, *Amelanchier* spp., *Crataegus rivularis*, *Betula occidentalis*, *Lonicera involucrata*, *Prunus virginiana*, *Quercus gambelii*, *Ribes* spp., *Rosa woodsii*, *Rubus* spp., many species of *Salix*, and *Symphoricarpos* spp. The herbaceous cover can be abundant (>50% cover) and diverse. Forb species may include *Equisetum arvense*, *Heracleum maximum*, *Maianthemum stellatum*, *Rudbeckia laciniata*, *Osmorhiza* spp., *Solidago canadensis*, and *Symphotrichum foliaceum* (= *Aster foliaceus*). Graminoid cover can also be abundant and includes *Bromus anomalus*, *Carex pellita* (= *Carex lanuginosa*), *Elymus glaucus*, *Glyceria striata*, and *Phalaris arundinacea*. Introduced species, such as *Agrostis gigantea*, *Agrostis stolonifera*, *Alopecurus pratensis*, *Bromus inermis*, *Cirsium arvense*, *Dactylis glomerata*, *Medicago sativa*, *Phleum pratense*, *Poa compressa*, *Poa palustris*, and *Poa pratensis*, are often abundant.

[Captured 2008-02-15]

References: Allen 2005, Baker 1989b, Bourgeron and Engelking 1994, CONHP pers. comm., CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Crowe et al. 2004, DeLeuw, Cather & Company 1977, Driscoll et al. 1984, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Johnston 1987, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, Kittel

and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1999a, Kittel et al. 1999b, Komarkova et al. 1988b, MTNHP 2002b, Manning and Padgett 1995, Marriott and Faber-Langendoen 2000, Muldavin et al. 1993b, Muldavin et al. 2000a, Padgett et al. 1988b, Padgett et al. 1989, Richard et al. 1996, Thompson and Hansen 2002, Western Ecology Working Group n.d., Youngblood et al. 1985a, Youngblood et al. 1985b
NNHP Plots: (0 plots identified)

***Populus angustifolia* / Invasive Perennial Grasses Semi-natural Woodland**

Narrowleaf Cottonwood / Invasive Perennial Grasses Semi-natural Woodland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGl003749

Distribution (Nations/Subnations): US / CO, ID, MT, NM, NV, WY

Status: 1 Active **Confidence:** (Weak) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Carsey et al. 2003a, Fitzhugh et al. 1987, Hall and Hansen 1997, Hansen et al. 1995, Jones and Walford 1995, Manning and Padgett 1995, Muldavin 1991, Muldavin et al. 2000a, Padgett et al. 1989, Western Ecology Working Group n.d., Youngblood et al. 1985a, Youngblood et al. 1985b

NNHP Plots: (0 plots identified)

***Populus angustifolia* / *Rhus trilobata* Woodland**

Narrowleaf Cottonwood / Skunkbush Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGl000652

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This deciduous riparian woodland occurs on dry upper stream terraces of perennial streams and on lower terraces or banks of intermittent stream courses in the mountains, canyons and plateaus of Utah, Colorado, Wyoming and Idaho. This community is one of the drier *Populus angustifolia* plant associations and rarely floods. Elevations range from 1360 to 2400 m (4265-7875 feet), with lower stands occurring in Idaho and higher stands at the southern end of the range. Slopes are gentle, and the lack of flooding is indicated by the fact that downed wood and litter cover most of the unvegetated ground surface. Substrates are well-drained, rocky alluvium. The association has an open upper tree canopy that is dominated by *Populus angustifolia* or *Populus X acuminata*. Other tree species in the canopy and subcanopy may include *Acer negundo*, *Populus deltoides*, *Pinus ponderosa*, *Pinus edulis*, and *Juniperus* spp. Tall shrubs, such as *Betula occidentalis*, *Prunus virginiana*, *Amelanchier utahensis*, *Salix monticola*, *Crataegus rivularis*, and *Quercus gambelii*, form an open layer. A moderately dense to dense short-shrub layer dominated by *Rhus trilobata* is diagnostic of this type. *Cornus sericea*, *Rosa woodsii*, *Symphoricarpos oreophilus*, *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Ericameria parryi*, *Ribes montigenum*, *Forestiera pubescens*, *Berberis fendleri*, *Crataegus rivularis*, and *Symphoricarpos* spp. may also be present. The herbaceous layer is generally sparse but may be dense in openings where introduced grasses such as *Poa pratensis*, *Phragmites australis*, *Dactylis glomerata*, *Bromus inermis*, or *Bromus tectorum* may dominate. Introduced forbs may include *Cynoglossum officinale*, *Carduus nutans*, *Cirsium arvense*, *Melilotus officinalis*, or *Taraxacum officinale*. Common native forbs include *Maianthemum stellatum* and *Glycyrrhiza lepidota*, and the vine *Clematis ligusticifolia*

is abundant in some stands. The mix of riparian and upland species indicates that this association occurs on riparian terraces that are in the process of becoming isolated from the water table. Over time as the stand continues to dry out, the more mesic species, such as *Betula occidentalis*, *Salix monticola*, and *Cornus sericea*, will be replaced by additional upland species.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, IDCDC 2005, Jones 1992b, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999a, Kittel et al. 1999b, Manning and Padgett 1995, Padgett et al. 1988b, Padgett et al. 1989, Richard et al. 1996, Walford 1996, Western Ecology

NNHP Plots: (0 plots identified)

***Populus angustifolia* / *Salix* (*monticola*, *drummondiana*, *lucida*) Woodland**

Narrowleaf Cottonwood / (Mountain Willow, Drummond's Willow, Whiplash Willow) Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002645

Distribution (Nations/Subnations): US / CO, NV, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This riparian woodland association occurs at moderate elevations (2400-2700 m) on all types of active floodplains throughout the Colorado Plateau, Great Basin and San Juan Mountains of Colorado, Utah and Nevada. Stands generally occur within 0.3-1.4 m (1-4.5 feet) of the active channel elevation. All sites show signs of active flooding; soils are somewhat deep (1 m) loamy to clay soils over very coarse alluvial layers. This is an early- to mid-seral stage of more mature *Populus angustifolia*-dominated plant associations, with an upper canopy dominated by young (12-53 cm dbh) *Populus angustifolia* (25-80% cover) and a diverse understory of willows and other shrubs. The shrub understory (15-85% cover) consistently includes two or more willow species of the following: *Salix exigua*, *Salix ligulifolia* (= *Salix eriocephala* var. *ligulifolia*), *Salix monticola*, *Salix lucida* ssp. *caudata*, *Salix drummondiana*, and *Salix geyeriana*, although none individually exceeds 10% cover. Other shrubs present may include *Rosa woodsii*, *Ribes* spp., *Alnus incana*, *Crataegus rivularis*, *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides floribunda*), and/or *Symphoricarpos* spp., with none exceeding 5% cover. The herb layer is generally low in total cover (10-30% cover forbs, 10-15% cover graminoids). Common herbaceous species include *Maianthemum stellatum*, *Erigeron* spp., and the introduced species *Trifolium* spp., *Poa pratensis*, and *Bromus inermis*.

[Captured 2008-02-15]

References: CONHP unpubl. data 2003, Carsey et al. 2003a, Dorn 1995, Kittel et al. 1999a, Kittel et al. 1999b, Richard et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus fremontii* Seasonally Flooded Woodland Alliance**

Fremont Cottonwood Seasonally Flooded Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.654

Summary: Vegetation types within this alliance occur primarily on relatively flat floodplains (3-5% slope) along low-gradient rivers. Stands are found as gallery forests along perennial or seasonally intermittent streams and springs. They typically occupy the more mesic or hydric areas of the floodplain. Elevations range from 400-2000 m. Soils are derived from alluvial materials, deposited in stratified layers of clays, sands, silts, and gravels. Soil textures are variable but mainly sandy. Surface water is present for extended periods during the growing season, but is absent by the end of the

growing season. The water table after flooding ceases is variable, extending from saturated to well below the ground surface. Adjacent upland communities are typically pinyon-juniper or oak shrublands. Communities within this alliance are classified as seasonally flooded woodlands. The canopy is dominated by open stands of *Populus fremontii* generally forming 30-70% cover. *Salix geyeriana* commonly occurs in the shrub layer in the Nevada stands. In New Mexico, the herbaceous layer is dominated by *Muhlenbergia rigens* with 30% cover. No other information on species composition is available. [Captured 2008-02-18]

***Populus fremontii* / *Leymus triticoides* Woodland**

Fremont Cottonwood / Beardless Lyme Grass Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002756

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Bundy et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Populus fremontii* / *Salix geyeriana* Woodland**

Fremont Cottonwood / Geyer's Willow Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000943

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: This Great Basin riparian cottonwood woodland association is reported in west-central Nevada. Sites are generally above 1665 m (5460 feet) elevation and typically on northeast aspects. Stands occur as inclusions in other riparian vegetation mostly on small streams. Substrate is coarse-textured loam. Ground cover is a mixture of litter (41%), bare ground (13%), vegetation (11%), pavement (11%), and rock (24%). The vegetation is characterized an open tree canopy dominated by *Populus fremontii* with *Pinus monophylla* and *Juniperus osteosperma* trees often present. The moderately dense to dense shrub layer is dominated by *Salix geyeriana*. Occasional *Artemisia tridentata* may be present. The herbaceous layer of sampled stands was dominated by the exotic annual grass *Bromus tectorum*. Diagnostic of this Fremont cottonwood association is a shrub layer dominated by Geyer's willow.

[Captured 2008-02-15]

References: Blackburn et al. 1969c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pseudotsuga menziesii* Temporarily Flooded Woodland Alliance**

Douglas-fir Temporarily Flooded Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.568

Summary: This riparian woodland alliance has been described from drainages in narrow valleys and canyons in the Rocky Mountains. Stands are often narrow, occurring in floodplains on alluvial terraces of rivers, and along stream channels where there is cold-air drainage. Sites are flat to gently sloping and

are temporarily flooded in the spring. Substrates are moderately deep, alluvial soils with textures ranging from sand to loam. They are saturated in the spring, and then dry out by late summer, when the water table drops below 1 m. Vegetation included in this riparian woodland alliance is characterized by a relatively sparse to moderately dense tree canopy that is dominated by the conifer *Pseudotsuga menziesii* with occasional *Pinus ponderosa* or *Pinus contorta* trees. Scattered individuals of *Populus tremuloides*, *Populus balsamifera ssp. trichocarpa* or *Populus angustifolia* may be present in the tree canopy. A moderately dense to dense short-shrub layer is typically present that is dominated by *Cornus sericea* or *Betula occidentalis* with *Rosa woodsii*, *Rhus trilobata*, *Alnus incana*, *Acer glabrum*, *Prunus virginiana*, and several species of *Salix*. The herbaceous layer is generally sparse because of the dense shade from the tree and shrub canopies. Common herbaceous species may include *Carex geyeri*, *Actaea rubra*, *Clematis ligusticifolia*, *Equisetum* spp., *Heterotheca villosa*, and *Maianthemum* spp. Diagnostic of this riparian alliance is the dominance of *Pseudotsuga menziesii* in the open tree layer of woodlands that are flooded for brief periods during the growing season and have a shallow water table. [Captured 2008-02-18]

***Pseudotsuga menziesii* / *Betula occidentalis* Woodland**

Douglas-fir / Water Birch Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002639

Distribution (Nations/Subnations): US / CO, NV?, OR, UT

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3?

Summary: This woodland association occurs in cool, narrow foothill canyons of the Colorado Front Range between 2015 and 2500 m (6600-8080 feet) elevation in the upper Arkansas and South Platte river basins and in Rio Grande National Forest. It has also been documented from box canyons in southeastern Utah at 1883 m (6175 feet) and may also occur in Nevada. Vegetation is limited to a narrow band along small, steep perennial streams in fairly shallow (165-343 cm [65-135 inches]), loamy alluvial soils, often with a high cover of surface rock. *Pseudotsuga menziesii* (15-50% cover) trees up to 35 m tall and *Betula occidentalis* (20-40% cover) are key indicators even if other tree and shrub species are present. Other tree species may include *Acer negundo*, *Salix amygdaloides*, *Populus angustifolia*, *Populus tremuloides*, *Juniperus scopulorum*, *Pinus ponderosa*, *Abies concolor*, *Abies lasiocarpa*, or *Picea pungens*. The shrub canopy may be thick and diverse and include *Alnus incana*, *Acer glabrum*, *Ericameria nauseosa*, *Quercus gambelii*, *Rhus trilobata*, *Salix bebbiana*, *Salix ligulifolia* (= *Salix eriocephala* var. *ligulifolia*), *Salix monticola*, *Salix irrorata*, *Rosa woodsii*, *Jamesia americana*, and *Cornus sericea*. The herbaceous layer is generally sparse due to heavy shade; more abundant species include *Maianthemum stellatum*, *Eurybia glauca* (= *Aster glaucodes*), *Equisetum arvense*, *Equisetum hyemale*, *Carex disperma*, and *Melilotus officinalis*.

[Captured 2008-02-15]

References: CONHP unpubl. data 2003, Carsey et al. 2003a, Crowe et al. 2004, Kittel et al. 1996, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Manning and Padgett 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix gooddingii* Temporarily Flooded Woodland Alliance**

Goodding's Willow Temporarily Flooded Woodland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.640

Summary: Woodlands in this alliance are dominated by *Salix gooddingii*, often with *Fraxinus velutina*,

and occur in mesic canyons and along floodplains in the Trans-Pecos of western Texas, southern New Mexico, southern Arizona and into Mexico. Composition varies with soil moisture and flooding regime. *Populus fremontii* is generally uncommon or absent. Among the canopy species that may be present are *Sapindus saponaria* var. *drummondii*, *Juglans microcarpa*, *Celtis laevigata* var. *reticulata*, *Ungnadia speciosa*, *Prosopis glandulosa*, and *Quercus pungens*. Woodlands in this alliance occur as isolated pockets in mesic desert canyons and along rocky floodplains of small, intermittent streams and is often associated with seeps and springs. [Captured 2008-02-18]

***Salix gooddingii* Woodland**

Goodding's Willow Woodland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002743

Distribution (Nations/Subnations): MX, US / AZ, MXCH, MXCO, MXSO?, NM, NV, TX

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3

Summary: This riparian woodland is found from Trans-Pecos Texas, southern New Mexico and Arizona, and northern Mexico. Elevation range is wide, from 239-2210 m (780-7245 feet), but stands generally occur below 1300 m (4260 feet). Sites are flat to gently sloping and occur along streams in mesic desert canyons and floodplains on basin floors. Stands also occur in isolated pockets in canyons and rocky floodplains of small, intermittent streams associated with seeps and springs. Alluvial substrates are variable but are often fine-textured loams or clays. The vegetation is characterized by abundant *Salix gooddingii* that dominates or codominates the open to moderately dense (20-50% cover) tree canopy. *Prosopis velutina*, *Prosopis glandulosa*, or *Fraxinus velutina* may codominate the 5- to 15-m tall tree canopy. *Populus fremontii* is generally absent or uncommon (<1%). Shrubs may be present but seldom form a stratum. Other tree and shrub species present may include *Baccharis salicifolia*, *Celtis laevigata* var. *reticulata*, *Juglans microcarpa*, *Mahonia haematocarpa* (= *Berberis haematocarpa*), *Quercus* spp., *Sapindus saponaria* var. *drummondii*, *Ungnadia speciosa*, and *Ziziphus obtusifolia*, depending on location and hydrology. The herbaceous layer is typically moderately dense to dense, often diverse and composed of mesic forbs and graminoids. Common species include *Ambrosia confertiflora*, *Berula erecta*, *Eleocharis palustris*, *Ipomoea* spp., *Juncus balticus*, *Muhlenbergia asperifolia*, *Physalis longifolia*, *Polygonum* spp., *Schoenoplectus* spp., *Veronica anagallis-aquatica*, and *Xanthium strumarium*. Disturbance is common in this woodland, and introduced species such as *Echinochloa crus-galli*, *Lactuca serriola*, *Rumex crispus*, *Sorghum halepense*, and *Tamarix* spp. are present in many stands. Diagnostic of the woodland is the dominance or codominance of *Salix gooddingii* in the tree canopy with *Populus fremontii* absent or uncommon.

[Captured 2008-02-15]

References: Barber pers. comm., Muldavin et al. 2000a, Szaro 1989, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

III . Shrubland

***Acacia greggii* Shrubland Alliance**

Catclaw Acacia Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1036

Summary: Shrublands included in this Sonoran Desert alliance occur on upland flats above bajada and arroyo shrublands. Elevation ranges from 480-760 m. Climate is arid and hot with half to two-thirds of the 18-32 cm of annual precipitation falling during the summer monsoon season. Substrates are alluvium derived from granite and schist. Soils are shallow, gravelly clay and clay loams. The dominant shrub is *Acacia greggii*. Other characteristic species are *Parkinsonia microphylla*, *Opuntia acanthocarpa*, *Larrea tridentata*, *Ericameria laricifolia*, *Krameria grayi*, *Acacia constricta*, and *Prosopis velutina*. The dominance of *Acacia greggii* and the lack of *Lycium exsertum* and *Ambrosia deltoidea* are key characteristics that separate these shrublands from the more common *Ambrosia deltoidea*-dominated bajada shrublands. The herbaceous layer is typically sparse and includes seasonally present annual forbs such as *Lasthenia californica*. Adjacent vegetation is composed of shrublands usually dominated by *Ambrosia deltoidea*. [Captured 2008-02-18]

***Acacia greggii* - *Parkinsonia microphylla* Shrubland**

Catclaw Acacia - Yellow Paloverde Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001340

Distribution (Nations/Subnations): MX?, US / AZ, CA?, NV?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Lane 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Allenrolfea occidentalis* Shrubland Alliance**

Iodinebush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.866

Summary: This alliance is known from saline habitats throughout the arid western United States, as far north as Oregon, and south into Mexico. It includes vegetation dominated by *Allenrolfea occidentalis* occurring in alkaline flats along the margins of salt lakes, in depressions among gypsum ridges, and along washes in saline overflow areas. It is associated with topographic depressions usually without surface drainage (playas) and stream terraces from sea level to 1800 m (5900 feet) elevation. In all cases, it occurs at sites which are seasonally moist or flooded and where evaporation concentrates transported salts, leaving visible mineral crusts at the soil surface. The nominal species can cover large acreages, with little else except barren soil. Associated species in western Texas occurrences include *Suaeda suffrutescens* var. *detonsa*, *Sporobolus airoides*, *Sporobolus wrightii*, *Tamarix ramosissima*, *Atriplex canescens*, and *Distichlis spicata*. In Utah, *Allenrolfea occidentalis* may occur with *Atriplex gardneri* or scattered *Sarcobatus vermiculatus*. [Captured 2008-02-18]

***Allenrolfea occidentalis* Shrubland**

Iodinebush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000988

Distribution (Nations/Subnations): US / AZ, CA, NM, NV?, OR, TX, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This is a sparsely vegetated shrubland found on seasonally wet, alkaline playas, intermittent floodplains or along washes in saline overflow areas below 1680 m (5500 feet) elevation. The dominant species, and playa communities in general, are widely distributed throughout the Intermountain West, ranging from southeastern Oregon south to Texas. These

shrublands or barrens are flat to extremely low-gradient, almost always in desert ecosystems with less than 18 cm (7 inches) of rain per year, and usually in areas with very poor drainage that flood during rare rainstorms. Playas and washes dominated by *Allenrolfea occidentalis* generally appear to be small, rare, and poorly understood throughout their range. *Allenrolfea occidentalis* dominates the shrub layer, but cover is often quite low, ranging from 20% to less than 1%. Most stands have barren playa forb understories, but grasses, including *Leymus cinereus*, *Distichlis spicata* (= *ssp. stricta*), *Sporobolus airoides*, and *Sporobolus wrightii*, and succulent forbs, such as *Suaeda suffrutescens* var. *detonsa*, *Salicornia* spp., and *Nitrophila* spp., are occasionally found. Most stands occur in a matrix of *Sarcobatus vermiculatus*- or *Atriplex canescens*-dominated shrublands, and in small stands, either *Sarcobatus vermiculatus* or *Atriplex canescens* can occur throughout the community.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Griffiths 1902, Kagan et al. 2000, Muldavin et al. 2000b, ORNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: p050615c, p050408i (2 plots identified)

Representative Images:



p050408i.JPG

***Alnus incana* Temporarily Flooded Shrubland Alliance**

Speckled Alder Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.950

Summary: Vegetation types within this riparian shrubland alliance typically occur adjacent to streams and in mountain meadows. Landforms associated with this alliance are streambanks, alluvial bars, and floodplains. Sites are young, active channel shelves that lie between active and flood-stage streambanks along second-order and larger streams in moderately graded (3-5%) valleys. Elevations range from near sea level in Alaska to 3000 m in Colorado. Soils are shallow, skeletal alluvium over water-worked cobbles and gravels. Active channel shelves have surface soil textures that are loamy sands, while older sites are silts and loam. Available water-holding capacity is low; surface water is present briefly during the growing season. The water table usually lies well below the ground surface. *Alnus incana* forms a dense canopy with at least 90% cover. The diverse understory shrub layer may include *Cornus sericea*, *Betula occidentalis*, *Ribes hudsonianum*, *Symphoricarpos albus*, *Salix drummondiana*, and *Oplopanax horridus*. The forb layer is sparse and may include *Canadanthus modestus* (= *Aster modestus*), *Symphytotrichum spathulatum* (= *Aster occidentalis*), *Galium triflorum*, *Senecio triangularis*, and *Thalictrum occidentale*. The graminoid layer is usually dominated by 1 or 2 species that include *Agrostis stolonifera* and *Calamagrostis canadensis*. The fern and fern allies layer is generally dense

with at least 40% cover. The dominant species typically are *Gymnocarpium dryopteris* and *Athyrium filix-femina*. [Captured 2008-02-18]

***Alnus incana* / *Cornus sericea* Shrubland**

Speckled Alder / Red-osier Dogwood Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001145

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This riparian, tall-shrub association is present throughout Idaho and Montana, eastern Oregon and Washington, and the mountains of Colorado. It is considered a minor type throughout Utah and north-northeastern Nevada and is largely restricted to the higher, more northerly mountains of California. This type is predominantly present in narrow V-shaped canyons between 1219 and 2438 m (4000-8000 feet) elevation on gentle undulating, low to moderate-height terraces of various aspects. Stands primarily occupy streambanks but may also be found on floodplains and alluvial bars. Soils are of a sandy loam formed by fluvial deposits. *Alnus incana* dominates the low tree overstory with a dense shrub layer of *Cornus sericea*. Common shrubs usually intermixed within this layer include *Amelanchier alnifolia*, *Lonicera involucrata*, *Ribes hudsonianum*, *Rosa* spp., *Salix* spp., and *Symphoricarpos oreophilus*. The density of the shrub layer determines the presence of the herbaceous understory. When present, common species include *Agrostis stolonifera*, *Angelica arguta*, *Calamagrostis canadensis*, *Equisetum arvense*, *Galium* spp. and *Maianthemum stellatum* (= *Smilacina stellata*).

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Driscoll et al. 1984, Durkin et al. 1994b, Hansen et al. 1990, Hansen et al. 1995, IDCDC 2005, Johnston 1987, Jones 1992b, Kagan et al. 2000, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999a, Kittel et al. 1999b, Komarkova 1986, Kovalchik 1993, MTNHP 2002b, Manning and Padgett 1995, Muldavin et al. 1993a, Muldavin et al. 2000a, Padgett et al. 1988b, Padgett et al. 1989, Richard et al. 1996, Tuhy and Jensen 1982, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

***Alnus incana* / Mesic Forbs Shrubland**

Speckled Alder / Mesic Forbs Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001147

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV, OR?, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This shrubland association has a widespread distribution that includes the western states of Montana, Idaho, Wyoming, Utah, Nevada, California and Colorado. Stands occur on streambanks and terraces immediately adjacent to streams with a bedload of boulders, cobble or gravel. Channel type is variable, ranging from high-gradient reaches that support the association as stringers, to more extensive stands on sites with a developed floodplain. Soils typically have a seasonally high water table with mottling in the top 25 cm of the surface. These riparian shrublands are characterized by stands of medium-tall and tall deciduous shrubs and a thick herbaceous undergrowth of forbs and wetland-indicator grasses. *Alnus incana* clearly dominates the tall-shrub overstory with over 25% cover. Conifers, including *Abies lasiocarpa*, *Picea engelmannii*, and *Pinus*

contorta, are sometimes present. A low-shrub layer is often present and may include *Lonicera involucrata*, *Cornus sericea*, and species of *Ribes*, *Rosa*, and *Salix*. Undisturbed stands have abundant forbs and native grasses. The undergrowth is characterized by a mixed forb cover of *Angelica arguta*, *Heracleum maximum* (= *Heracleum lanatum*), *Equisetum arvense*, *Mertensia* spp., *Aconitum columbianum*, *Senecio triangularis*, and/or *Maianthemum stellatum* with over 100% cover in combination. Native graminoids include *Cinna latifolia*, *Carex simulata*, *Glyceria striata*, and *Elymus glaucus*. Stands disturbed by season-long livestock grazing have reduced forb cover and increased non-native grasses, including *Poa pratensis* and *Agrostis stolonifera*. Large stands (>100 square meters), with the native herbaceous undergrowth intact are uncommon.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Driscoll et al. 1984, Hansen et al. 1995, IDCDC 2005, Johnston 1987, Jones 1992b, Kagan et al. 2000, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1993, MTNHP 2002b, Manning and Padgett 1995, Padgett et al. 1988b, Padgett et al. 1989, Western Ecology Working Group n.d., Young 1982, Youngblood et al.

Plots: (0 plots identified)

***Alnus incana* / Mesic Graminoids Shrubland**

Speckled Alder / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001148

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This shrubland association is a widespread community of limited extent in the western states of Idaho, Colorado, Utah, Wyoming, and Nevada. Stands occur in narrow to moderately wide floodplains on stream benches, in association with abandoned meanders, on islands and pointbars, and on hillside seeps. These shrublands are characterized by stands of medium-tall and tall, deciduous shrubs and a thick herbaceous undergrowth of wetland-indicator grasses, and little to no overstory tree canopy. Total shrub cover is usually over 50% and is dominated by *Alnus incana*, the diagnostic shrub. Other shrubs include *Salix* spp., *Betula occidentalis*, and *Cornus sericea*. The understory of undisturbed stands has a dense herbaceous cover including *Glyceria* spp., *Calamagrostis canadensis*, *Elymus glaucus*, *Carex* spp., and *Equisetum* spp. Heavily disturbed stands have abundant non-native grasses. In Nevada, Utah, southeastern Idaho, and Wyoming, this type is considered a grazing-induced community derived from *Alnus incana* / Mesic Forbs Shrubland (CEGL001147). However, several stands in Colorado are undisturbed and the undergrowth is dominated by native graminoid cover.

[Captured 2008-02-15]

References: Binkley 1986, Bourgeron and Engelking 1994, Bowman and Steltzer 1998, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Chapin et al. 1994, Crowe et al. 2004, Driscoll et al. 1984, Hansen et al. 1988b, Hansen et al. 1989, IDCDC 2005, Jones 1992b, Jones and Ogle 2000, Kettler and McMullen 1996, Kittel et al. 1996, Kittel et al. 1999a, Kittel et al. 1999b, Manning and Padgett 1995, Padgett et al. 1989, Richard et al. 1996, Rosgen 1996, Van Cleve et al. 1971, Viereck 1970, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Amelanchier alnifolia* Shrubland Alliance**

Saskatoon Serviceberry Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.913

Summary: This alliance is found in the western United States and south-central Canada. It occurs predominantly in the West and requires rangewide review for a complete description. In the Midwest, it is characterized by moderate cover (>25%) of shrubs, most of which are approximately 1 m tall. Mixedgrass prairie species occupy the spaces between the shrubs. Dominant shrubs include *Amelanchier alnifolia*, *Prunus virginiana*, and *Symphoricarpos occidentalis*. Typical herbaceous species include *Pascopyrum smithii*, *Hesperostipa comata* (= *Stipa comata*), and other species characteristic of mixedgrass prairie. [Captured 2008-02-18]

***Amelanchier alnifolia* / *Artemisia tridentata* / *Festuca idahoensis* Shrubland**

Saskatoon Serviceberry / Basin Big Sagebrush / Idaho Fescue Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001064

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4Q

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* **New to Nevada - with plot data:**

***Amelanchier alnifolia* / *Pseudoroegneria spicata* - Bunchgrass Shrubland**

Saskatoon Serviceberry / Bluebunch Wheatgrass - Bunchgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001065

Distribution (Nations/Subnations): CA, US / AB, MT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4Q

Summary: This community is found in the mountains of northwestern Montana and in the northwestern Great Plains on moderately deep to deep fine loam soils which often have a high percentage of rock fragments. It is dominated by short shrubs and mid grasses. *Amelanchier alnifolia* is the most common shrub. Others include *Artemisia tridentata*, *Purshia tridentata*, *Spiraea betulifolia*, *Symphoricarpos* spp., *Rhus trilobata*, *Cercocarpus montanus*, and *Prunus virginiana*. In the higher elevation stands, occasionally *Pseudotsuga menziesii*, *Pinus ponderosa*, *Picea engelmannii*, and *Betula papyrifera* are present within a young tree canopy, but these have insignificant cover. Typical grasses (mostly bunch grasses) are *Festuca idahoensis*, *Pseudoroegneria spicata*, *Leucopoa kingii* (= *Festuca kingii*), *Achnatherum nelsonii* ssp. *dorei* (= *Stipa columbiana*), *Carex rossii*, and *Carex geyeri*. Forbs include *Achillea millefolium*, *Penstemon confertus*, and *Eriogonum flavum*. [Captured 2008-02-15]

References: Achuff et al. 2002a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Harvey 1980, Jones 1992b, MTNHP 2002b, Western Ecology Working Group n.d.

NNHP Plots: p020621g (1 plots identified)

Representative Images:



p020621g_1.JPG

***Amelanchier utahensis* Shrubland Alliance**

Utah Serviceberry Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.916

Summary: This alliance occurs at middle elevations (1480-2595 m [4855-8500 feet]) of mountains in the Intermountain West. These shrublands occur on all aspects of mesic sites but are generally best developed on north-facing slopes in xeric areas. Soils are variable, from shallow and skeletal near rock outcroppings, to moderately deep with abundant organic matter. These shrublands are typically dense and tall with multiple vegetation layers. The upper shrub layer is typically strongly dominated by *Amelanchier utahensis*, often with *Quercus gambelii* and *Prunus virginiana* as tall-shrub associates. *Quercus gambelii* typically has <5% cover. Other shrubs, such as *Symphoricarpos oreophilus*, *Purshia tridentata*, *Chrysothamnus viscidiflorus*, *Artemisia tridentata*, *Rosa woodsii*, or *Cercocarpus montanus*, often form a second, lower shrub layer. The herbaceous layer is typically species-rich and well-developed. Common herbaceous associates include *Elymus glaucus*, *Balsamorhiza sagittata*, *Achnatherum nelsonii* ssp. *dorei* (= *Stipa columbiana*), *Lathyrus pauciflorus*, *Carex geyeri*, and *Collinsia parviflora*. Adjacent communities are typically *Quercus gambelii* shrublands, *Pinus ponderosa* forests, *Pinus edulis* - *Juniperus osteosperma* woodlands, or *Artemisia* shrublands. [Captured 2008-02-18]

***Amelanchier (utahensis, alnifolia) - Cercocarpus montanus* Shrubland**

(Utah Serviceberry, Saskatoon Serviceberry) - Mountain-mahogany Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001070

Distribution (Nations/Subnations): US / CO, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2?

Summary: The description for this association is based on information from Colorado and Utah; its characteristics in Nevada are unknown and will be described when more information becomes available. This plant association is found on moderate to steeply sloping colluvial slopes, canyons, ridges and in alcoves. Sites may be oriented to any aspect. Elevation ranges between 1586 and 2595 m (5200-8500 feet). Relative to other mixed mountain shrub types, it is found on the driest sites with the least soil development and relatively low diversity. Soils range from shallow to deep but are generally always rocky with a high cover of surface rock. The vegetation is characterized by a more open shrub layer and a sparse understory relative to other mixed mountain shrub types. Total vegetation cover often does not exceed 50%. *Amelanchier utahensis* and *Cercocarpus montanus* are

the dominants of as many as 16 shrub species in this association. Typical associated shrub species include *Artemisia bigelovii*, *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Ephedra viridis*, *Ericameria nauseosa*, *Eriogonum corymbosum*, *Purshia tridentata*, *Rhus trilobata*, *Fraxinus anomala*, and *Tetradymia canescens*. *Symphoricarpos oreophilus* can dominate the lower shrub layer, which may also include *Brickellia microphylla*, *Eriogonum microthecum*, *Gutierrezia sarothrae*, *Mahonia repens*, and *Paxistima myrsinites*. Succulents such as *Opuntia* spp. or *Yucca* spp. may also have minor cover. If *Quercus gambelii* is present, cover is low (<5%). Scattered trees of *Juniperus osteosperma*, *Juniperus scopulorum*, or *Pinus edulis* may be present in some stands. *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) is the most common species in the diverse herbaceous layer. Other graminoid species may include *Poa fendleriana*, *Koeleria macrantha*, *Achnatherum lettermanii*, *Pseudoroegneria spicata*, *Elymus lanceolatus*, *Hesperostipa comata*, and *Leymus salinus*. Forb species may include *Arenaria fendleri*, *Chaenactis douglasii*, *Cryptantha flava*, *Balsamorhiza sagittata*, *Eriogonum umbellatum*, *Galium coloradoense*, *Heterotheca villosa*, *Lepidium montanum*, *Lithospermum ruderales*, *Petradoria pumila*, *Phlox longifolia*, *Physaria acutifolia*, *Senecio integerrimus*, *Sphaeralcea coccinea*, *Stanleya pinnata*, *Stenotus acaulis*, and *Streptanthella longirostris*. Disturbed sites may have high cover of *Bromus tectorum*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data, CONHP unpubl. data 2003, Driscoll et al. 1984, Tiedemann 1978, Vories 1974, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Amelanchier utahensis* Shrubland**

Utah Serviceberry Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001067

Distribution (Nations/Subnations): US / AZ, CO, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This mountain shrubland association occurs at middle elevations in the foothills, mountains and mesas in north-central Utah, the Colorado Plateau and Great Basin of the western U.S. Stands occur on moderate to steep slopes characterized by talus or rockfall from further upslope. It is found on relatively warm southern aspects in the Wasatch Mountains but also occurs on northern aspects or in cold-air drainages at lower elevations and more southern latitudes. Substrates are moderately deep, rocky loams and clays. The sparse to moderately dense tall-shrub layer (10-60% cover) is dominated by the cold-deciduous shrub *Amelanchier utahensis*.

Symphoricarpos oreophilus often dominates in the short-shrub layer. Other shrub associates may include low cover of *Acer grandidentatum*, *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Ephedra viridis*, *Mahonia repens*, *Purshia tridentata*, *Rhus trilobata*, and *Rosa woodsii*. *Quercus gambelii* may also be present, but it is always poorly represented (<5%). Tree species are sometimes present with the tall shrubs or as a very sparse emergent layer. The sparse to moderately dense herbaceous layer is a mixture of perennial graminoids and forbs. Introduced species such as *Agropyron cristatum* and *Bromus tectorum* are common in disturbed stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Carmichael et al. 1978, Cogan et al. 2004, Crane 1982, Driscoll et al. 1984, Eddleman and Jaindl 1994, Western Ecology Working Group n.d., Yake and Brotherson 1979

NNHP Plots: (0 plots identified)

***Arctostaphylos patula* Shrubland Alliance**

Greenleaf Manzanita Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.788

Summary: These are montane shrublands found on the eastern slope of the Sierra Nevada and into the western Great Basin and Colorado Plateau in summer-dry habitats from 800 to 3000 m elevation. Much of the precipitation comes as winter snow, but summer drought stress is characteristic. These shrublands are mostly found on steep, usually south-facing slopes, where soils are rocky and well-drained. These are typically zonal disclimax or, occasionally, edaphic climax brushfields which occur in association with dry needle-leaved evergreen forests or woodlands. These shrublands are typically established after stand-replacing fires or clearcut logging in *Pinus ponderosa* or *Pseudotsuga menziesii* forest, and are seral to forest after several decades. Excessively rocky or droughty, fire-prone sites in the forest may support relatively persistent stands of this alliance. These shrublands are strongly dominated by *Arctostaphylos patula* and may be almost monotypic. They are an important component of the Sierra Nevada/southern Cascade montane chaparral and may form large inclusions in dry pine forests following disturbance. Common shrub associates include *Ceanothus velutinus*, *Ceanothus cordulatus*, *Arctostaphylos nevadensis*, *Chrysolepis sempervirens* (= *Castanopsis sempervirens*), *Cercocarpus montanus*, and *Ribes* spp. Eastward, steppe species, such as *Artemisia tridentata*, *Purshia tridentata*, and *Cercocarpus ledifolius*, become common associates. Herbaceous vegetation is typically sparse and poorly described across the range of this alliance. Reported associates in northern California include *Elymus elymoides*, *Pyrola picta*, and *Stephanomeria lactucina*. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Arctostaphylos patula* - *Purshia tridentata* Shrubland**

Greenleaf Manzanita - Antelope Bitterbrush Shrubland

Association Code: NNHP017

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G?

Summary: This eastern Sierran shrubland is co-dominated by *Arctostaphylos patula* and *Purshia tridentata*. Occasional emergent *P. jefferyii* may be present, though an understory beneath the shrubs is sparse to non-existent. This type often occurs in dry, exposed sites on decomposed granitic soils.

References:

NNHP Plots: p020524a (1 plots identified)

Representative Images:



p020524a.JPG

***Arctostaphylos patula* / *Ceanothus velutinus* - *Ceanothus prostratus* Shrubland**

Greenleaf Manzanita / Tobacco-brush - Prostrate Ceanothus Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000957

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Townsend 1966, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Arctostaphylos pungens* Shrubland Alliance**

Mexican Manzanita Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.789

Summary: Shrublands included in this alliance occur on dry mountain slopes in southeastern Nevada, southwestern Utah, Arizona, and southwestern New Mexico. Elevations range from 980-2470 m depending on aspect. The climate is arid to semi-arid with temperatures rarely falling below freezing. Annual precipitation has a bimodal distribution with about half to a third of the highly variable mean annual precipitation occurring in July through September during the late summer monsoon, and most of the rest falling during the winter months. Soils are gravelly with rocks. Parent material includes rhyolite, granite and quartzite. Stands have a moderately dense canopy dominated by the sclerophyllous evergreen shrub *Arctostaphylos pungens*. Other characteristic shrubs include *Cercocarpus ledifolius*, *Robinia neomexicana*, *Garrya flavescens*, *Ephedra viridis*, *Quercus arizonica*, *Quercus turbinella*, *Amelanchier utahensis*, *Mahonia fremontii* (= *Berberis fremontii*), and *Ceanothus greggii*. Understory species include *Mahonia repens*, *Castilleja* sp., *Calochortus flexuosus*, *Delphinium parishii*, *Eriogonum wrightii*, and *Lomatium foeniculaceum* ssp. *macdougali* (= *Lomatium macdougali*). A stand described from southwestern New Mexico had a canopy cover of *Arctostaphylos pungens*, *Nolina microcarpa*, *Garrya wrightii*, *Pinus discolor*, *Quercus hypoleucoides*, and *Quercus rugosa* at 70%, 3%, 1%, 1%, 3% and 1%, respectively. Herbaceous cover of *Muhlenbergia emersleyi* and *Macropodium gibbosifolium* (= *Phaseolus heterophyllus*) totaled only 2%. [Captured 2008-02-18]

***Arctostaphylos pungens* Shrubland**

Mexican Manzanita Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000958

Distribution (Nations/Subnations): US / NM, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This chaparral association has been described from the Virgin Mountains in southern Nevada, Markagunt Plateau in southwestern Utah, the Mogollon Rim in Arizona south to the Animas Mountains in southwestern New Mexico. Sites include dry, gentle to moderate slopes of mountains and plateaus. Substrates are variable and range from rocky, coarse-textured soil to clay loam. The vegetation is characterized by a typically dense, tall-shrub layer dominated by *Arctostaphylos pungens* (50-70% cover) with sparse short-shrub or herbaceous layers. Associated shrubs vary geographically with *Arctostaphylos patula*, *Amelanchier utahensis*, *Ceanothus* spp., *Cercocarpus ledifolius*, *Ephedra viridis*, *Garrya flavescens*, *Mahonia fremontii*, *Quercus gambelii*,

Quercus turbinella, or *Robinia neomexicana* present in the northern extent and *Arctostaphylos pringlei*, *Ceanothus* spp., *Garrya wrightii*, *Nolina microcarpa*, *Quercus hypoleucooides*, *Quercus turbinella*, or scattered *Quercus rugosa* or *Pinus discolor* trees present in the southern extent. The herbaceous layer, if present, consists of sparse cover of grasses or forbs.

[Captured 2008-02-15]

References: Armstrong 1969, Bourgeron and Engelking 1994, Bourgeron et al. 1993b, Carmichael et al. 1978, Cogan et al. 2004, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia arbuscula* ssp. *arbuscula* Shrubland Alliance**

Dwarf Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2547

Summary: This low shrubland alliance is known from southwestern Idaho, but likely occurs throughout much of the Intermountain West. *Artemisia arbuscula* ssp. *arbuscula* is the dominant low shrub in shallow, rocky soils. Stands typically occur on poorly drained soils on a variety of landforms; from flats and depressions to slopes and ridges. Soils are usually shallow, rocky clays, often with an impenetrable layer at less than 60 cm depth. Little information is available on vegetation included in this alliance except that a low-shrub layer of *Artemisia arbuscula* ssp. *arbuscula* dominates or codominates it. *Artemisia tridentata* ssp. *wyomingensis* or *Artemisia tridentata* ssp. *vaseyana* codominate some stands in this alliance. Other shrub associates include *Artemisia nova*, *Chrysothamnus* spp., *Ephedra viridis*, *Gutierrezia sarothrae*, *Juniperus occidentalis*, *Juniperus osteosperma*, *Tetradymia canescens*, and *Purshia tridentata*. The herbaceous layer is generally sparse. Various perennial graminoids may be present, but with low cover (<20% cover). Important grasses include *Festuca idahoensis*, *Pseudoroegneria spicata*, *Elymus elymoides*, and *Poa secunda*. Forb cover is likely sparse. Diagnostic of this alliance is the *Artemisia arbuscula* ssp. *arbuscula*-dominated low-shrub layer (or codominated with >40% relative shrub cover) that lacks a significant graminoid layer (<20% cover perennial graminoids) or has over 40% total shrub cover. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Artemisia arbuscula* ssp. *arbuscula* / *Poa secunda* Shrubland**

Low Sagebrush / Sandberg Bluegrass Shrubland

Association Code: NNHP044

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This type is dominated by shrubs with an understory of perennial grasses with lower total cover than the shrubs (thus not fitting the 'shrub herbaceous' alliance/association. Annual grasses may have high cover in wet years. Other shrubs that may be present include: *Tetradymia* spp., *Chrysothamnus viscidiflorus*, *Ericameria nauseosa*, *Grayia spinosa*, *Artemisia tridentata*, and *Atriplex confertifolia*.

References:

NNHP Plots: p020516b, p020516o, p020516q, p050607j, p050609j, p060815.1204, p050524j, p050524l, p020620e (9 plots identified)

Representative Images:



p050607j_15-57-52.JPG



p050524j_13-27-56.JPG



p020516q_1.JPG



p020516b_1.JPG

***Artemisia arbuscula* ssp. *longicaulis* Shrubland Alliance**

Lahontan Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2548

Summary: This shrubland alliance is known from cold, dry areas of the Intermountain West, in and around the Lahontan Basin of northwestern Nevada, southeastern Oregon, and northeastern California. Stands occur on alluvial fans, upland slopes and ridges. Soils are generally shallow and rocky. The vegetation included in this alliance is dominated by a low-shrub layer that averages more than 5% cover of *Artemisia arbuscula* ssp. *longicaulis*. Little is known about this alliance, but shrub associates could presumably include *Artemisia tridentata* ssp. *wyomingensis*, *Artemisia arbuscula* ssp. *arbuscula*, *Atriplex confertifolia*, *Chrysothamnus* spp., *Ephedra* spp., *Ericameria* spp., *Grayia spinosa*, *Lycium shockleyi*, *Picrothamnus desertorum*, *Sarcobatus vermiculatus* (= var. *baileyi*), and *Tetradymia* spp. The herbaceous layer is typically sparse, and perennial bunch grasses may include *Achnatherum hymenoides*, *Achnatherum speciosum* (= *Stipa speciosa*), *Achnatherum thurberianum* (= *Stipa thurberiana*), *Elymus elymoides*, and *Poa secunda*. Forb cover is likely sparse. Diagnostic of this alliance is the *Artemisia arbuscula* ssp. *longicaulis*-dominated shrub layer that has over 5% cover of the nominal species that contributes at least 40% of the total shrub cover. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Artemisia arbuscula* ssp. *longicaulis* - *Atriplex confertifolia* Shrubland**

Lahontan Low Sagebrush - Shadscale Shrubland

Association Code: NNHP081

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This lower elevation Great Basin vegetation type is dominated by a combination of *Artemisia arbuscula* ssp. *longicaulis*, *Atriplex confertifolia*, and *Tetradymia glabrata*. In fact, *T. glabrata* had significantly higher ground cover than the other two dominating shrubs. The vegetation is not placed into a *T. glabrata* type though, because *T. glabrata* can be an indicator of disturbance levels - thus vegetation condition - more than of vegetation classification. Similarly, *Chrysothamnus viscidiflorus* and/or *Gutierrezia sarothrae* may be present in large amounts. Other shrubs occurring in typically lower amounts include *Picrothamnus desertorum*, *Grayia spinosa*, *Krascheninnikovia lanata*, and (presumably, but not in sampled sites) *Sarcobatus baileyi*. Native perennial graminoids are sparse and may include *Elymus elymoides*, *Poa secunda*, and (presumably) *Achnatherum hymenoides*. The invasive annual grass, *Bromus tectorum* is typically present with variable cover, both between sites and between years depending on rainfall.

References:

NNHP Plots: p020617m, p050711d (2 plots identified)

Representative Images:



p020617m_2.JPG

***Artemisia arbuscula* ssp. *longicaulis* - *Grayia spinosa* Shrubland**

Lahontan Sagebrush - Spiny Hop-sage Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002984

Distribution (Nations/Subnations): US / CA?, NV, OR?

Status: 1 Active **Confidence:** (Weak) **Global Rank:** G4

Summary: This shrubland association is characterized by codominance of *Artemisia arbuscula* ssp. *longicaulis* and *Grayia spinosa*. It has been observed on upper alluvial fans coming out of the Virginia Range on the east side of Reno, Nevada. The vegetation included abundant *Bromus tectorum*, which may be included in the association name to distinguish this from a similar, likely association with *Elymus elymoides* dominating a graminoid layer. Even in the degraded shrubland where this has been observed, mosses had substantial ground cover under and immediately surrounding many of the shrubs.

[Captured 2008-02-15]

References: NVNHP 2003, Peterson pers. comm., Western Ecology Working Group n.d.

NNHP Plots: p020613e, p050719a (2 plots identified)

Representative Images:



p050719a_09-18-52.JPG



p050711d_12-56-37.JPG

***** New Vegetation Type - with plot data:**

***Artemisia arbuscula* ssp. *longicaulis* - *Sarcobatus baileyi* Shrubland**

Lahontan Sagebrush - Bailey Greasewood Shrubland

Association Code: NNHP052

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: Although the NNHP has only one plot in this vegetation type, we expect that it is quite widespread in western Nevada at relatively low elevation for *Artemisia* shrub species. *A. arbuscula* ssp. *longicaulis* may be our driest-site shrub member of the genus, while *S. baileyi* occurs abundantly at the upper-end of salt desert environments in the Great Basin, so their blending and community formation should be common. Other shrubs present at the sampled site include *A. tridentata* ssp. *wyomingensis*, *Chrysothamnus viscidiflorus*, and *Tetradymia glabrata*. Perennial graminoids were sparse, composed entirely of *Elymus elymoides*, and the invasive annual grass *Bromus tectorum* was abundant.

References:

NNHP Plots: p020617k (1 plots identified)

Representative Images:



p020617k_1.JPG

Artemisia arbuscula ssp. longicaulis / Bromus tectorum Semi-natural Shrubland

Lahontan Sagebrush / Cheatgrass Semi-natural Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002985

Distribution (Nations/Subnations): US / CA?, NV, OR?

Status: 1 Active **Confidence:** (Weak) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Peterson pers. comm., Western Ecology Working Group n.d., Winward and McArthur 1995

NNHP Plots: p020613u, p021024d, p020507e (3 plots identified)

Representative Images:



p021024d_2.JPG



p020507e_1.JPG

Artemisia arbuscula ssp. longicaulis / Elymus elymoides Shrubland

Lahontan Sagebrush / Bottlebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002986

Distribution (Nations/Subnations): US / CA?, NV, OR?

Status: 1 Active **Confidence:** (Weak) **Global Rank:** G3

Summary: This association is characterized by a shrub layer dominated by *Artemisia arbuscula ssp. longicaulis* and a grass layer in which the dominant perennial grass is clearly *Elymus elymoides*. This association has been observed on steep hillsides just above alluvial fans coming out of the Virginia Range on the east side of Reno, Nevada.

[Captured 2008-02-15]

References: NVNHP 2003, Peterson pers. comm., Western Ecology Working Group n.d., Winward and McArthur 1995

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Artemisia arbuscula* ssp. *longicaulis* / *Poa secunda* Shrubland**

Lahontan Low Sagebrush / Sandberg's Bluegrass Shrubland

Association Code: NNHP082

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This vegetation type is common in the western Great Basin at elevations that are transitional between sagebrush vegetation types and salt deserts, although it can occur at higher elevations. *A. arbuscula* ssp. *longicaulis* (frequently misidentified as *A. tridentata* ssp. *wyomingensis*) dominates the shrub layer while *P. secunda* dominates the graminoid layer. At higher elevation sites, occasional trees may be present including *Juniperus ostosperma*, *Pinus monophylla*, and (presumably, but not in NNHP field data) *Cercocarpus ledifolius*. Other shrubs present include *Chrysothamnus viscidiflorus*, *Ericameria nauseosa*, *Ephedra viridis*, *E. nevadensis*, *Atriplex confertifolia*, *Grayia spinosa*, and *Tetradymia spinosa*. The grass layer is dominated by *Poa secunda* suggesting relatively mesic spring-time conditions compared to other *A. arbuscula* ssp. *longicaulis* sites. Other grasses that may be present include *Elymus elymoides*, *Leymus cinereus*, and the invasive annual *Bromus tectorum*.

References:

NNHP Plots: p020613p, p020613r, p020612n, p020612o (4 plots identified)

***Artemisia arbuscula* ssp. *longiloba* Shrubland Alliance**

Alkali Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2549

Summary: The *Artemisia arbuscula* ssp. *longiloba* Shrubland Alliance (A.2549) occurs in Nevada, but is likely fairly widespread in the Intermountain West, the southern Rocky Mountains and in the western Great Plains. Stands are found on a variety of landforms; from flats and depressions to alluvial fans and hillslopes and ridges. Soils are generally characterized by a heavy clay subsoil occurring within 25 cm of the soil surface, which restricts rooting depth. Soils are also alkali and calcareous. Little information is available on vegetation included in this alliance except that it is dominated by a low-shrub layer of *Artemisia arbuscula* ssp. *longiloba*. Shrub associates are not specified, but presumably include *Artemisia tridentata*, *Artemisia tripartita*, *Chrysothamnus viscidiflorus*, *Gutierrezia sarothrae*, and *Purshia tridentata*. The herbaceous layer is generally sparse. Various perennial graminoids may be present, but with low cover (<20% cover). Important grasses include *Festuca idahoensis*, *Pseudoroegneria spicata*, *Elymus elymoides*, and *Poa secunda*. Forb cover is likely sparse. Diagnostic of this alliance is the *Artemisia arbuscula* ssp. *longiloba*-dominated low-shrub layer (or codominated with >40% relative shrub cover of the nominal species) and lacks a significant graminoid layer (<20% cover perennial graminoids) or has over 40% total shrub cover. [Captured 2008-02-18]

***Artemisia arbuscula* ssp. *longiloba* Shrubland**

Alkali Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001414

Distribution (Nations/Subnations): US / NV, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Lewis 1975a, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia cana* (ssp. *bolanderi*, ssp. *viscidula*) Shrubland Alliance**

(Bolander's Silver Sagebrush, Mountain Silver Sagebrush) Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2557

Summary: This alliance occurs throughout the northern half of the Intermountain West in relatively moist environments, including alkaline or saline playa lakes. Stands are characterized by an open to closed, medium-tall shrub canopy of *Artemisia cana* ssp. *viscidula* or *Artemisia cana* ssp. *bolanderi*. The shrub layer ranges from 0.5-1.5 m tall, and shrub canopy cover ranges from 10-60%. In most stands, *Artemisia cana* ssp. *viscidula* or *Artemisia cana* ssp. *bolanderi* is the only dominant shrub, although other shrubs can be present. Herbaceous cover can be abundant to very sparse, but perennial graminoids generally total less than 20% cover. Species include *Festuca idahoensis*, *Festuca thurberi*, *Festuca ovina*, *Elymus elymoides*, *Deschampsia caespitosa*, *Poa secunda* (= *Poa nevadensis*), *Poa cusickii*, *Muhlenbergia richardsonis*, *Leymus cinereus*, *Eleocharis palustris*, and *Danthonia intermedia*. [Captured 2008-02-18]

***Artemisia cana* (ssp. *bolanderi*, ssp. *viscidula*) / *Leymus cinereus* Shrubland**

(Bolander Silver Sagebrush, Mountain Silver Sagebrush) / Great Basin Lyme Grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001460

Distribution (Nations/Subnations): US / CA, MT?, NV?, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G1

Summary: This association occurs in a semi-arid region of varied topography. Average annual precipitation is between 20-40 cm, with somewhat more at the higher elevations. Occurs in perennially moist, semi-alkaline, pluvial lakebeds above 1070 m (3500 feet) or montane meadows to 1980 m (6500 feet). Only a few forb species occur, typically in moist microsites. These include species of *Astragalus*, *Orthocarpus* and *Rorippa*. Bare ground is extensive. *Artemisia cana* and *Leymus cinereus* are diagnostic species. The 1- to 2-m tall *Artemisia cana* is moderately to widely spaced in the canopy. The herbaceous layer is dominated by the widely spaced 2-m tall bunchgrass *Leymus cinereus*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Cooper et al. 1999, Driscoll et al. 1984, Grossman et al. 1994, Kagan et al. 2000, MTNHP 2002b, ORNHP unpubl. data, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia cana* (ssp. *bolanderi*, ssp. *viscidula*) / *Poa secunda* Shrubland**

(Bolander Silver Sagebrush, Mountain Silver Sagebrush) / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001548

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: *Artemisia cana* is usually the only shrub, but *Ericameria nauseosa* (= *Chrysothamnus nauseosus*) occasionally occurs. *Poa secunda* (usually in the formerly recognized, large, *Poa secunda* ssp. *nevadensis* form) is the most common herbaceous species. Other common understory

species include *Lupinus argenteus*, *Elymus elymoides*, *Trifolium gymnocarpon*, *Astragalus lentiginosus*, *Eleocharis macrostachya*, *Distichlis spicata* (= *Distichlis stricta*), *Polyctenium fremontii*, and *Camissonia tanacetifolia* (= *Oenothera tanacetifolia*). This association is found in northern Great Basin playas in sites that are flooded for several months during the winter and early spring but which rapidly dry up as the weather warms. Soils are saline. In more saline soils at slightly lower elevations on the playa, *Artemisia cana* / *Eleocharis macrostachya* and *Eleocharis macrostachya* associations occur. These sites remain flooded for a longer period of time than the *Artemisia cana* / *Poa secunda* sites. Playa centers are often the monotypic *Camissonia tanacetifolia* association, which remains flooded for longer than the other associations and have more saline soils. At higher elevations, *Artemisia cana* playas usually find *Poa fendleriana* replacing *Poa secunda* as the dominant grass.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Manning and Padgett 1991, Manning and Padgett 1995, ORNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia cana* ssp. *bolanderi* / *Eleocharis palustris* Shrubland**

Bolander's Silver Sagebrush / Marsh Spikerush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002987

Distribution (Nations/Subnations): US / NV?, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GU

Summary: [no summary available] [Captured 2008-02-15]

References: Christy and Cornelius 1980, Kagan et al. 2004, Kovalchik 1987, Padgett 1982, Titus et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia nova* Shrubland Alliance**

Black Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1105

Summary: Associations within this alliance occur at intermediate elevations (1400-2500 m) in the Intermountain and Rocky Mountain West, a region of semi-arid, continental climate regime. Soils are typically young, shallow, coarse-textured, and often derived from calcareous parent materials. *Artemisia nova* associations occur on well-drained slopes and ridges and often grow with other *Artemisia* associations on deeper soils. In the Columbia River Basin, the vegetation in this alliance occupies the driest habitats of all the *Artemisia*-dominated alliances. This alliance is characterized by the dominance of the dwarf-shrub *Artemisia nova*, which must contribute at least 40% of the total shrub cover in any stand, and by cover of perennial graminoids that is typically less than 20%. Associated shrub species that occur in stands of this alliance include *Chrysothamnus viscidiflorus*, *Atriplex confertifolia*, *Artemisia tridentata*, *Artemisia arbuscula*, *Artemisia cana*, *Symphoricarpos oreophilus*, *Grayia spinosa*, *Purshia tridentata*, and *Gutierrezia sarothrae*. The ground layer is dominated by perennial bunch grasses which may exceed the height of the shrubs but typically have <20% total cover. Recurrent species include *Pseudoroegneria spicata*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Achnatherum speciosum* (= *Stipa speciosa*), *Achnatherum thurberianum* (= *Stipa thurberiana*), *Hesperostipa comata* (= *Stipa comata*), *Elymus elymoides*, *Poa secunda*, and *Koeleria macrantha*. In southern stands, *Bouteloua gracilis* and *Pleuraphis jamesii* (= *Hilaria jamesii*) may also

be important. Common forbs include *Balsamorhiza sagittata*, *Senecio integerrimus*, *Packera multilobata* (= *Senecio multilobatus*), *Stenotus armerioides*, *Heterotheca villosa*, *Phlox hoodii*, *Sphaeralcea coccinea*, and *Castilleja angustifolia*. At the edges of intermountain basins, this alliance is usually contiguous with *Atriplex confertifolia* shrublands. [Captured 2008-02-18]

***** New Vegetation Type - with plot data:**

***Artemisia nova* - *Artemisia tridentata* ssp. *wyomingensis* / *Vulpia* (*octoflora*, *microstachys*) Shrubland**

Black Sagebrush - Wyoming Big Sagebrush / Annual Fescue Shrubland

Association Code: NNHP025

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G2G3

Summary: Occuring on moderately shallow soils with a calcareous influence, this is a somewhat unusual type in that a native annual grass has been retained at rather high abundance levels. Either *Artemisia nova* or *A. tridentata* ssp. *wyomingensis* may be more abundant, however, the latter is typically stunted due to the poor soils and thus not much taller than the *A. nova*. A number of other species common on poor soils may also be present, including *Ephedra nevadensis* and *Sarcobatus vermiculatus*. *Poa secunda* may be present, which typically occurs on more moist soils but may be sustained here by water perching above a calichi layer.

References:

NNHP Plots: p050603zd, p050627h (2 plots identified)

Representative Images:



p050627h_13-26-57.JPG



p050603zd_16-39-35.JPG



p050603zd_16-39-42.JPG



p050603zd_16-40-43.JPG

***Artemisia nova - Ericameria nana* Shrubland**

Black Sagebrush - Dwarf Heath-goldenrod Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002773

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G3

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Pritchett pers. comm., Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia nova / Achnatherum hymenoides* Shrubland**

Black Sagebrush / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001422

Distribution (Nations/Subnations): US / ID, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Jensen et al. 1988a, Western Ecology Working Group n.d.

NNHP comments: NatureServe Explorer does not provide a summary for this type and lists a moderate confidence level. In the NNHP plot p050628b, there is no more *Achnatherum hymenoides* than there is of several other grasses - all are listed at just 1 percent cover. However, the plot was classified here because of the greater presence of *Grayia spinosa* than of other shrubs except for *Artemisia nova*. *G. spinosa* occupies somewhat similar habitats to *A. hymenoides* particularly in being in relatively dry sites. So an association involving some of these for rather dry *A. nova* sites is valid. Perhaps it could better be named either *Artemisia nova / Grayia spinosa* Shrubland or *Artemisia nova / (Grayia spinosa, Achnatherum hymenoides)* Shrubland (if the later is possible in IVC nomenclature).

NNHP Plots: p020602p, p050511c, p050627b, p050628b (4 plots identified)

Representative Images:



p020602p_1.JPG



p050628b_05-37-28.JPG

***Artemisia nova* / *Elymus elymoides* Shrubland**

Black Sagebrush / Bottlebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001418

Distribution (Nations/Subnations): US / NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4G5

Summary: This association is found in the foothills, plateaus and mountains of Nevada and Utah. Stands occur on well-drained slopes, knolls and ridges. Substrates are typically shallow, gravelly or stony soils derived from calcareous parent materials such as limestone. These soils are frequently coarse-textured, but subsoil argillic horizons are common. There is often an impenetrable subsurface layer from a duripan, caliche, or bedrock. *Artemisia nova* plants often grow in adjacent *Artemisia tridentata* shrublands that are found on deeper soils in basins. Combined ground cover of bare ground, rock and gravel is often high (about 70% cover). Litter is concentrated under the shrub canopies. The vegetation is characterized by an open dwarf-shrub canopy (10-30% cover) that is dominated by *Artemisia nova* and a sparse herbaceous layer dominated by the perennial graminoid *Elymus elymoides* with scattered forbs. *Atriplex confertifolia*, *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Ephedra nevadensis*, *Ephedra viridis*, and *Grayia spinosa* are common shrub associates that may be present in smaller amounts. The herbaceous layer includes low cover of species of *Comandra*, *Cryptantha*, *Erigeron*, *Eriogonum*, *Machaeranthera*, *Phlox*, *Penstemon*, and *Poa secunda*. Introduced annual graminoids such as *Bromus rubens* and *Bromus tectorum* are common in disturbed stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Cogan et al. 2004, Driscoll et al. 1984, Jensen et al. 1988a, Lewis 1975a, Ostler et al. 2000, Rickard and Beatley 1965, Tisdale and Hironaka 1981, Western Ecology Working Group n.d., Wright et al. 1979

NNHP Plots: p050511l, p050627m, p050628r, p050602j (4 plots identified)

Representative Images:



p050628r_15-36-42.JPG



p050511l.JPG

***Artemisia nova* / *Hesperostipa comata* Shrubland**

Black Sagebrush / Needle-and-Thread Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001425

Distribution (Nations/Subnations): US / CO, ID, NV, UT

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3?

Summary: This association is found in the foothills, plateaus and mountains of Nevada, Idaho, northwestern Colorado and Utah. Stands occur on flat mesatops, benches and plains or on steep pediment slopes, knolls and ridges, and elevations range from 1890 to 2530 m. Aspects are often southern. Substrates are typically shallow, stony soils often derived from calcareous parent materials such as limestone. Soil textures are variable and range from sandy, loamy, fine-textured or skeletal; argillic subsoil horizons are common. There is often an impenetrable subsurface layer from a duripan, caliche, or bedrock. Combined ground cover of bare ground, rock and gravel is often high (about 70% cover). Litter is concentrated under the shrub canopies. The vegetation is characterized by an open dwarf-shrub canopy (10-30% cover) that is dominated by *Artemisia nova* and a sparse herbaceous layer dominated by the perennial graminoid *Hesperostipa comata* with scattered forbs. Scattered *Chrysothamnus viscidiflorus*, *Ericameria parryi*, *Grayia spinosa*, *Krascheninnikovia lanata*, and *Tetradymia canescens* are common shrub associates that may be present in smaller amounts. *Achnatherum hymenoides*, *Elymus elymoides*, *Koeleria macrantha*, *Pleuraphis jamesii*, *Poa fendleriana*, or *Poa secunda* may be present in the herbaceous layer but have sparse cover. Forbs include species of *Astragalus*, *Erigeron*, *Eriogonum*, *Packera*, *Phlox*, and *Penstemon*. Introduced annual graminoids such as *Bromus rubens* and *Bromus tectorum* are common in disturbed stands.

[Captured 2008-02-15]

References: Baker and Kennedy 1985, Blackburn et al. 1968c, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cogan et al. 2004, Driscoll et al. 1984, Hironaka et al. 1983, Roberts et al. 1992, Tisdale and Hironaka 1981, Western Ecology Working Group n.d., Wright et al. 1979, Zamora and Tueller 1973

NNHP Plots: p050622f (1 plots identified)

Representative Images:



p050622f_10-46-51.JPG

* **New to Nevada - with plot data:**

***Artemisia nova* / *Pleuraphis jamesii* Shrubland**

Black Sagebrush / James' Galleta Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001420

Distribution (Nations/Subnations): US / UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Fautin 1946, Western Ecology Working Group n.d.

NNHP Plots: p050421k (1 plots identified)

Representative Images:



p050421k.JPG

***Artemisia nova* / *Poa secunda* Shrubland**

Black Sagebrush / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001423

Distribution (Nations/Subnations): US / CA?, CO, ID, NV?, OR, UT?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This plant association is discontinuously distributed from southeastern Oregon to southeastern and central Idaho, with a disjunct occurrence in western Colorado. It is purported to occur in California and expected to occur in northern Nevada and Utah. The association has been reported from a wide variety of habitats at elevations ranging from about 1525 to 2745 m (5000-9000 feet). Stands are on shallow, rocky and gravelly calcareous soils that may be of volcanic origin or derived from limestone. Although it is often in mosaic with *Artemisia tridentata* or *Juniperus* spp. stands, this association does not support significant cover or reproduction of these species, nor perennial grasses other than *Poa secunda*. Some (but not all) stands may represent overgrazed stands of *Artemisia nova* / *Pseudoroegneria spicata* Shrubland (CEGL001424). *Artemisia nova* / *Poa secunda* stands are expected to have low amounts of other shrubs, such as *Artemisia arbuscula*, *Artemisia tridentata* ssp. *vaseyana*, *Chrysothamnus viscidiflorus*, *Eriogonum microthecum*, and *Tetradymia canescens*. Other herbs to be expected in these stands include perennial grasses, such as *Achnatherum* spp., *Koeleria macrantha*, and *Elymus elymoides*, and forbs common on shallow soils, such as *Balsamorhiza hookeri*, *Castilleja* spp., *Eriogonum* spp., *Petrorhiza pumila*, *Phlox* spp., and *Penstemon* spp. Its presence in Colorado may represent another *Artemisia nova* association that has been degraded by grazing until only *Poa secunda* and *Koeleria macrantha* remain.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983f, Driscoll et al. 1984, Hironaka et al. 1983, IDCDC unpubl. data, Kagan et al. 2000, ORNHP unpubl. data, Rust 1999, Western Ecology Working Group n.d.

NNHP Plots: p020602c, p020602d, p020602n, p020602o, p050622a, p050622b, p050622k, p060711.1633, p060711.1701, p060724.1557, p050602d (11 plots identified)

Representative Images:



p020602d_1.JPG



p060724-1557-2.jpg



p050622a_07-05-26.JPG



p050602d_13-50-59.JPG

***Artemisia nova* / *Pseudoroegneria spicata* Shrubland**

Black Sagebrush / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001424

Distribution (Nations/Subnations): US / CO, ID, MT, NV, OR, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4G5

Summary: This common black sagebrush association occurs from northern Nevada to Colorado and north to Idaho and Montana. Sites are located on gently to moderately sloping, dry, often windswept hills and ridges that may be oriented to any aspect. Elevation ranges from 1400 to 2610 m (4600-8560 feet). Soils are shallow, gravelly and are often high in calcium carbonate. Rock and gravel cover much of the unvegetated ground surface. The vegetation is characterized by a low-shrub canopy dominated by *Artemisia nova* with 5 to 30% cover. Other shrubs are generally present, although with very low cover, including *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Grayia spinosa*, *Symphoricarpos longiflorus*, and *Gutierrezia sarothrae*. Graminoids usually dominate the diverse herbaceous layer, with *Pseudoroegneria spicata* being the most conspicuous of as many as 10 species, including *Poa secunda*, *Achnatherum hymenoides*, *Pascopyrum smithii*, *Koeleria macrantha* (= *Koeleria cristata*), *Carex filifolia*, *Elymus trachycaulus*, *Pleuraphis jamesii*, and *Hesperostipa comata*. Sparse forbs are usually present and may include *Phlox hoodii*, *Crepis acuminata*, *Astragalus miser*, *Stenotus acaulis*, *Phlox diffusa*, *Artemisia frigida*, and *Calochortus* spp. Some sites have scattered *Juniperus osteosperma* trees.

[Captured 2008-02-15]

References: Baker 1983c, Baker and Kennedy 1985, Blackburn et al. 1968c, Blackburn et al. 1971, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Fisser 1962, Fisser 1970, Hughes 1977, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, Lucky McMine Application n.d., MTNHP 2002b, Soil Conservation Service 1978, Tweit and Houston 1980, Western Ecology Working Group n.d., Zamora and Tueller 1973

NNHP Plots: p060626.0909, p020621m (2 plots identified)

Representative Images:



p020621m_1.JPG



p020621m_2.JPG

***Artemisia nova* Shrubland**

Black Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001417

Distribution (Nations/Subnations): US / CA, CO, NV, UT, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3G5

Summary: This broadly defined association is reported from eastern Wyoming and western Colorado to eastern California but may be found elsewhere in the interior western U.S. Stands occur at middle to upper elevations of 1400 to 2730 m (4590-8960 feet) on mountain and hillslopes, ridges, mesatops, alluvial fans and river bluffs. Sites are nearly level to steeply sloping; aspects are variable. Soils are shallow (often <30 cm deep), well-drained, and coarse-textured with high cover of gravel and cobble (desert pavement). Soil texture ranges from gravelly loam to sandy clay loam. The vegetation is characterized by an open to moderately dense (12-40% cover) dwarf-shrub layer (<0.5 m tall) that is dominated by *Artemisia nova*. Other woody species present include *Picrothamnus desertorum* (= *Artemisia spinescens*), *Atriplex confertifolia*, *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Ericameria nauseosa*, *Ephedra* spp., *Grayia spinosa*, *Krascheninnikovia lanata*, and *Opuntia erinacea*. Diagnostic of this community is a sparse herbaceous understory with only scattered grasses and forbs. Common grasses may include *Achnatherum hymenoides*, *Aristida purpurea*, *Hesperostipa comata*, *Pleuraphis jamesii*, *Pseudoroegneria spicata*, and *Poa secunda*. Forbs such as *Erysimum capitatum* (= *Erysimum asperum*), *Erigeron aphanactis*, *Stenotus acaulis*, and *Phlox* spp. may also be present. Scattered trees may be present, such as *Juniperus osteosperma*, *Pinus edulis*, *Pinus monophylla*, or *Yucca brevifolia*, depending on location. Introduced species are important in some stands and may include *Bromus tectorum*, *Salsola kali*, and *Halogeton glomeratus*.

[Captured 2008-02-15]

References: Beatley 1976, Blackburn et al. 1968c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Leary and Peterson 1984, Milton and Purdy 1983, Peterson 1984, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Artemisia pygmaea* Shrubland Alliance**

Pygmy Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1106

Summary: These communities occur in relatively dry areas of the sagebrush desert of Nevada (and probably Utah), from 1200-1800 m in elevation. Precipitation averages 15-20 cm annually, with a significant proportion arriving as snow. Growing-season drought is characteristic. Soils are usually shallow and often unique, including Green River Shale, heavy clays, or calcareous outcrops or gravels. These communities often harbor regionally rare plant species. This alliance is characterized by a sparse dwarf-shrub layer of *Artemisia pygmaea*, with other shrubs scattered through the stands. Only one association is presently described for this alliance, from central Nevada. In addition to *Artemisia pygmaea*, that association included *Chrysothamnus viscidiflorus*, *Atriplex confertifolia*, *Ephedra nevadensis*, and *Artemisia nova* in the shrub layer. According to the authors, none of these associated shrubs are constant or characteristic of these communities. A sparse graminoid layer was usually present, including *Elymus elymoides* and *Achnatherum hymenoides* (= *Oryzopsis hymenoides*). Forbs include *Sphaeralcea coccinea*, *Eriogonum caespitosum*, and *Astragalus* spp. Adjacent vegetation types are most often dominated by *Artemisia nova*, which often forms the vegetation matrix surrounding these unique communities. Other contiguous vegetation types include *Chrysothamnus viscidiflorus* or *Atriplex confertifolia* shrublands. [Captured 2008-02-18]

***Artemisia pygmaea* / *Elymus elymoides* - *Achnatherum hymenoides* Shrubland**

Pygmy Sagebrush / Bottlebrush - Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001436

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* (ssp. *tridentata*, ssp. *xericensis*) Shrubland Alliance**

(Basin Big Sagebrush, Foothill Big Sagebrush) Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.830

Summary: These shrublands occur throughout the Intermountain West from the western Great Basin to the northern Rocky Mountains and Colorado Plateau. Sites supporting this alliance include sloping fans, footslopes, rolling hills, and deep, well-drained alluvial bottomlands. Soils are deep, fine- to medium-textured alluvial soils with some source of subirrigation during the summer season, but moderately deep upland soils with ample moisture storage also support these shrublands. Some stands occur on deep, sandy soils, or soils that are highly calcareous. The vegetation included in this alliance

is characterized by a somewhat sparse to moderately dense (10-70% cover) shrub layer of *Artemisia tridentata* ssp. *tridentata* or *Artemisia tridentata* ssp. *xericensis*. Shrub associates include *Ericameria nauseosa* (= *Chrysothamnus nauseosus*) or *Chrysothamnus viscidiflorus* which increase with disturbance. Other shrubs occasionally present include *Purshia tridentata*, *Ephedra viridis*, *Gutierrezia sarothrae*, *Tetradymia canescens*, *Sarcobatus vermiculatus*, and *Atriplex* spp. Occasionally individual trees are present in some stands. The relatively sparse herbaceous layer is dominated by bunch grasses (<20% cover) that occupy patches in the shrub matrix. The most widespread species is *Pseudoroegneria spicata*, which occurs from the Columbia Basin to the northern Rockies. Other locally dominant or important species include *Leymus cinereus*, *Festuca idahoensis*, *Pascopyrum smithii*, *Elymus lanceolatus*, *Elymus elymoides*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Koeleria macrantha*, *Muhlenbergia richardsonis*, *Hesperostipa comata* (= *Stipa comata*), and *Poa secunda*. Forbs are generally of low importance and are highly variable across the range. Mosses and lichens are important ground cover in some stands. Diagnostic of this alliance is the *Artemisia tridentata* ssp. *tridentata*- or *Artemisia tridentata* ssp. *xericensis*-dominated shrub layer that lacks a significant graminoid layer (<20% cover perennial graminoids) or has over 40% total cover of shrubs. [Captured 2008-02-18]

***Artemisia tridentata* ssp. *tridentata* - *Grayia spinosa* Shrubland**

Basin Big Sagebrush - Spiny Hop-sage Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001004

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968a, Blackburn et al. 1969b, Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Ralston 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *tridentata* / *Agropyron cristatum* Semi-natural Shrubland**

Basin Big Sagebrush / Crested Wheat Semi-natural Shrubland

Association Code: NNHP057

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This type has an overstory dominated by the native *Artemisia tridentata* ssp. *tridentata* and an understory dominated by the exotic *Agropyron cristatum*. There are three possible origins for such sites. (1) An old sagebrush replacement project that utilized *Agropyron cristatum* as the replacement (the typical method); such projects are now almost unheard of. (2) Wildfire removal of some or all native vegetation, followed by a mechanized seeding of *A. cristatum* (still widely used in revegetation work); in this case the sagebrush may be present either due to light burning (retained through wildfire) or as recovery since wildfire (in some cases, sagebrush is also seeded). (3) *A. cristatum* has succeeded in invading some sites without mechanized seeding, particularly when native perennial grasses are heavily grazed.

References:

NNHP Plots: p030724i (1 plots identified)

Representative Images:



p030724i.JPG

***Artemisia tridentata* ssp. *tridentata* / *Distichlis spicata* Shrubland**

Basin Big Sagebrush / Saltgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001000

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Ralston 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *tridentata* / *Festuca idahoensis* Shrubland**

Basin Big Sagebrush / Idaho Fescue Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001014

Distribution (Nations/Subnations): US / ID, MT, NV, OR

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Cooper et al. 1999, Driscoll et al. 1984, Hironaka et al. 1983, Jensen et al. 1988a, Kagan et al. 2000, MTNHP 2002b, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *tridentata* / *Hesperostipa comata* Shrubland**

Basin Big Sagebrush / Needle-and-Thread Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002966

Distribution (Nations/Subnations): CA?, US / BC?, CA?, CO, ID, MT, NV, OR?, UT, WA

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4?

Summary: This shrubland association occurs in small to large patches on point bars, stream terraces, valley floors and alluvial fans in the interior western U.S. and possibly British Columbia, Canada. Slopes are generally gentle but can range up to 20% in steeper tributary drainages. Elevations range from 1220 to 2000 m at any aspect. Soils are sandy loams or loamy sands derived

from alluvium. Although associated with drainages and floodplains, this community occurs in sites that rarely flood. Total vegetation cover tends to be somewhat sparse, as many examples have had their herbaceous cover reduced by grazing; undisturbed examples have total vegetation cover up to 90%. The dominant shrub is *Artemisia tridentata ssp. tridentata*. Others occurring as scattered individuals include *Ericameria nauseosa*, *Chrysothamnus viscidiflorus*, *Ephedra viridis*, *Krascheninnikovia lanata*, *Opuntia polyacantha*, and *Atriplex canescens*. The understory is dominated or codominated by the native bunchgrass *Hesperostipa comata*. Common herbaceous associates include *Achnatherum hymenoides*, *Bouteloua gracilis*, *Poa secunda*, *Sporobolus cryptandrus*, and *Sphaeralcea coccinea*. Moss and cryptogamic crusts may have significant cover in sites that have not experienced recent grazing.

[Captured 2008-02-15]

References: Blackburn 1967, Blackburn et al. 1968c, Blackburn et al. 1971, CONHP unpubl. data 2003, Caicco and Wellner 1983f, Caicco and Wellner 1983k, Daubenmire 1970, DeVelice and Lesica 1993, Hironaka et al. 1983, Kagan et al. 2004, MTNHP 2002b, McLean 1970, Poulton 1955, Tueller and Blackburn 1974, Tueller et al. 1966, Western Ecology Working **NNHP Plots:** (0 plots identified)

***Artemisia tridentata ssp. tridentata* / *Leymus cinereus* Shrubland**

Basin Big Sagebrush / Great Basin Lyme Grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001016

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV?, OR, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: This widely distributed plant association is a transitional community found on floodplains, terraces of perennial streams and along the edges of seasonally flooded washes and gullies of the high desert steppe of the western United States. Elevations range from 1600 to 1900 m (5250-6235 feet). Slopes are level to gentle, and the substrate is alluvium or loess. Soils generally have silty or clay loam textures and are moderately well-drained. Stands of this association are characterized by a shrub layer dominated by *Artemisia tridentata ssp. tridentata* standing 1-3 m tall and an herbaceous layer dominated by *Leymus cinereus* 0.5 to 1.5 m tall. Some stands may take the form of a *Leymus cinereus* grassland with *Artemisia tridentata ssp. tridentata* on the margins, but more often the stands are shrublands with grass growing in openings between shrub canopies. Total vegetation cover ranges from 20 to 90%. *Sarcobatus vermiculatus* and *Ericameria nauseosa* (= *Chrysothamnus nauseosus*) may also be present in the shrub stratum. *Leymus cinereus* dominates the understory with 15 to 90% cover. Various other grasses are likely to be present, including *Bromus tectorum*, *Distichlis spicata*, and other grasses associated with more mesic or riparian environments. Forbs species vary among sites.

[Captured 2008-02-15]

References: Baker 1982b, Baker 1983b, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Hess 1981, IDCDC 2005, Jones and Fertig 1996, Jones and Ogle 2000, Kagan et al. 2000, Kittel et al. 1994, Kittel et al. 1999a, MTNHP 2002b, Walford 1996, Western Ecology Working Group n.d.

NNHP Plots: p020602j, p020618g (2 plots identified)

Representative Images:



p020602j_1.JPG



p020618g_1.JPG

***Artemisia tridentata* ssp. *tridentata* / *Pascopyrum smithii* - (*Elymus lanceolatus*)
Shrubland**

Basin Big Sagebrush / Western Wheatgrass - (Streamside Wild Rye) Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001017

Distribution (Nations/Subnations): US / CO, ID?, MT, NV, OR?, UT, WA?, WY?

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3?

Summary: This widespread sagebrush shrubland occurs on valley bottoms, stream terraces and other relatively mesic sites west of the Great Plains throughout much of the intermountain western U.S. Stands occur over an elevational range of 1800-2410 m (5900-7900 feet). Most stands grow on alluvial terraces in stream alluvium, although a few occur on upland swales. Soils generally are loamy or sandy. Water tables may be within 2 m of the soil surface. The stream channel often is dry and may be incised. Soils are moderately well-drained sandy loam to sandy clay loam derived from alluvium. This association is characterized by a sparse to moderately dense short-shrub layer (up to about 40% canopy cover and to 1.5 m tall) that is dominated by *Artemisia tridentata* ssp. *tridentata*, with an herbaceous layer that is usually dominated by *Pascopyrum smithii* or *Elymus lanceolatus*. Other shrubs may be present in small amounts, especially *Artemisia tridentata* ssp. *wyomingensis*, *Chrysothamnus viscidiflorus*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Ericameria parryi*, *Krascheninnikovia lanata*, or *Quercus gambelii*. The sparse to dense herbaceous layer is dominated by graminoids and is poor in species richness relative to other sagebrush types. Other species that may be present in substantial amounts are *Achnatherum hymenoides*, *Achnatherum pinetorum*, *Bromus inermis*, *Elymus elymoides*, *Leymus cinereus*, *Muhlenbergia richardsonis*, *Poa fendleriana*, *Poa secunda* (= *Poa nevadensis*), and introduced species *Bromus inermis* and *Poa pratensis*. Forbs contribute much less cover than do grasses. Species that often occur are *Achillea millefolium*, *Astragalus* spp., *Erigeron compositus*, *Packera cana* (= *Senecio canus*), *Penstemon* spp., *Symphyotrichum ascendens* (= *Aster ascendens*), and introduced species *Taraxacum officinale* and *Melilotus officinalis*. [Captured 2008-02-15]

References: Beetle and Johnson 1982, Blackburn et al. 1971, Bourgeron and Engelking 1994, Bunting 1987, CONHP Ecology Team 2001, Cogan et al. 2004, Cooper et al. 1995, Driscoll et al. 1984, Everett 1987, Francis 1983, Johnston 1987, Jones and Fertig 1996, Keammerer 1977, MTNHP 2002b, Strong 1980, Tiedemann et al. 1987, Western Ecology Working Group n.d., Wright et al. 1979

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *tridentata* / *Poa secunda* Shrubland**

Basin Big Sagebrush / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001008

Distribution (Nations/Subnations): US / NV, UT, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Daubenmire 1970, Driscoll et al. 1984, Moretti 1979, Moretti and Brotherson 1982, Robertson 1971, Western Ecology Working Group n.d.

NNHP Plots: p020515j, p020516p, p020516u, p020601m, p050510a, p050609g, p050621f, p050621n, p060726.1406 (9 plots identified)

Representative Images:



p020601m_1.JPG



p050621n_14-57-54.JPG



p050621f_08-43-32.JPG



p020516p_1.JPG

***Artemisia tridentata* Shrubland Alliance**

Basin Big Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.829

Summary: This broadly distributed alliance is found in the western United States on dry steppes. It occurs primarily in the West; however, this description is based on the vegetation in western North Dakota and eastern Montana. Shrubs are conspicuous in this alliance, but herbaceous species usually have equal or greater coverage. The shrub stratum is typically 0.3-0.7 m tall. *Artemisia tridentata* is the

most abundant shrub. Stands of *Artemisia tridentata* in the Little Missouri National Grassland have been identified as *Artemisia tridentata ssp. wyomingensis*. Further review of the taxonomy in North and South Dakota is needed to determine the distribution of this alliance. [Captured 2008-02-18]

***Artemisia tridentata* / *Achnatherum hymenoides* Shrubland**

Basin Big Sagebrush / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001006

Distribution (Nations/Subnations): US / NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G5

Summary: This broadly defined sagebrush association is reported from the Great Basin to the western slope of the southern Rocky Mountains, but it likely occurs throughout the Intermountain western U.S. Stands occur in broad valleys in the Great Basin, on midslopes below rimrock on mesatops, on hillslopes, and along drainages and in washes in valley bottoms in the Colorado Plateau and southern Rocky Mountains. Sites are nearly level to moderately steep ranging from 1525-1677 m elevation in the Great Basin and Colorado Plateau to 2317-2546 m elevation in the southern Rocky Mountains. Substrates tend to be coarse-textured and likely have low salinity and high sand content, gravel or rocks. The vegetation is characterized by an open to moderately dense (10-50% cover) shrub layer dominated by sagebrush, usually *Artemisia tridentata ssp. vaseyana*, *Artemisia tridentata ssp. tridentata*, or with subspecies unspecified. A typically open herbaceous layer is characterized by the large bunchgrass *Achnatherum hymenoides*. Other shrubs present may include low cover of *Artemisia frigida*, *Chrysothamnus viscidiflorus*, *Grayia spinosa*, *Gutierrezia sarothrae*, *Opuntia* spp., *Quercus gambelii*, and *Rhus trilobata*. Scattered trees may also be present. The herbaceous layer provides sparse to moderate cover. Other graminoids present on more diverse sites include *Bouteloua gracilis*, *Elymus elymoides*, *Hesperostipa comata*, *Pleuraphis jamesii*, and *Poa secunda*. Forb cover is variable and generally low.

[Captured 2008-02-15]

References: Blackburn et al. 1968c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Harper and Jaynes 1986, Rickard and Beatley 1965, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Achnatherum lettermanii* Shrubland**

Basin Big Sagebrush / Letterman's Needlegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001011

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Chrysothamnus viscidiflorus* / *Poa secunda* Shrubland**

Basin Big Sagebrush / Green Rabbitbrush / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000999

Distribution (Nations/Subnations): US / CA, NV, WY?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968c, Blackburn et al. 1969a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Elymus elymoides* Shrubland**

Basin Big Sagebrush / Bottlebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001001

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Eddleman and Jaindl 1994, Savage 1968, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Ericameria nauseosa* Shrubland**

Basin Big Sagebrush / Rubber Rabbitbrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000998

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This is a broadly defined, semi-arid shrubland association described from western and northern Nevada and eastern California, but it is likely widespread in the intermountain western U.S. within the range of sagebrush. Elevations range from 1220-1430 m (4000-4680 feet) in Nevada. Stands occur on valley floors and adjacent lower slopes. Sites are flat to gently sloping. Substrates are deep, moderately well- to well-drained silty clay loam to sandy loam soils derived from stratified alluvium. The ground surface has moderate to high cover of bare soil and litter. Disturbance appears to be important for this type. The vegetation is characterized by a relatively open (25% cover) shrub canopy codominated by *Ericameria nauseosa* and *Artemisia tridentata* shrubs 0.5-2 m tall with a sparse herbaceous layer. Either *Artemisia tridentata* ssp. *wyomingensis* or *Artemisia tridentata* ssp. *tridentata* may codominate these shrublands. Other shrubs and dwarf-shrubs may be present with low cover, including *Artemisia frigida*, *Chrysothamnus viscidiflorus*, *Ericameria parryi*, *Grayia spinosa*, and *Sarcobatus vermiculatus*. Herbaceous vegetation is typically sparse. *Carex filifolia*, *Elymus elymoides*, and *Leymus cinereus* (= *Elymus cinereus*) may be present with low cover. The introduced annual grass *Bromus tectorum* may be present but does not form an herbaceous layer.

[Captured 2008-02-15]

References: Blackburn et al. 1968b, Bourgeron and Engelking 1994, Driscoll et al. 1984, FEIS 2006, Fenimore 1970, McArthur et al. 1997, Peterson pers. comm., USFS 1937, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Pleuraphis jamesii* Shrubland**

Basin Big Sagebrush / James' Galleta Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001005

Distribution (Nations/Subnations): US / CO, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5

Summary: This shrubland association occurs on warm sites with relatively deep soils at around 2000 m (6560 feet) elevation in the Colorado Plateau and Great Basin. Slopes are gentle to moderate, aspects tend to be southerly, and the sandy soils may have a high percentage of bare soil, rock and gravel. This shrubland association is characterized by low to moderate cover of *Artemisia tridentata* and an understory dominated by grasses, chief among them *Pleuraphis jamesii*. *Chrysothamnus depressus* and various species of cactus are common in the shrub layer but with very low cover. Many other grasses may grow with the *Pleuraphis*, including *Achnatherum hymenoides*, *Elymus elymoides*, *Hesperostipa comata*, and *Pascopyrum smithii*. Forbs are sparse and include no diagnostic species. Most stands have been impacted by domestic livestock grazing. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Tueller et al. 1966, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Symphoricarpos longiflorus* Shrubland**

Basin Big Sagebrush / Desert Snowberry Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001012

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1971, Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* Shrubland**

Basin Big Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000991

Distribution (Nations/Subnations): US / CA, NV, UT

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: This broadly defined sagebrush shrubland is described from eastern California, Nevada, and Utah, but likely occurs throughout much of the western U.S. Elevations range from 1340-2225 m. Landforms include dunes, basins and slopes. Substrates are variable; soil texture ranges from sand to clay. This association is used to describe *Artemisia tridentata*-dominated shrublands where the subspecies is not known and the herbaceous layer is generally sparse. The herbaceous layer may be limited by substrate or disturbance. Stands in Utah and California had moderate cover (25-50%) of *Artemisia tridentata* often with scattered individuals of *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Sarcobatus vermiculatus*, *Grayia spinosa*, *Gutierrezia sarothrae*, or *Opuntia polyacantha*. If present, the herbaceous layer typically consists of low cover of graminoids such as *Distichlis spicata* and *Elymus elymoides*. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Leary and Peterson 1984, Ralston 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* Upperzone Community Shrubland**

Basin Big Sagebrush Upperzone Community Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001013

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kurzius 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance**

Mountain Big Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.831

Summary: This alliance is widespread in mountainous areas across the western U.S. The alliance forms large, continuous stands on mid-elevation mountain slopes and foothills, and can extend above the lower treeline as patches within montane or subalpine coniferous forests. Sites are variable and range from flats to steep slopes to ridgetops with deep to shallow rocky soil. The vegetation included in this alliance is characterized by a moderate to dense shrub layer in which *Artemisia tridentata* ssp. *vaseyana* is either dominant or contributes >40% to the total sagebrush shrub cover. Other shrub species present may include *Artemisia rigida*, *Artemisia arbuscula*, *Chrysothamnus* spp., *Symphoricarpos oreophilus*, *Purshia tridentata*, *Ribes cereum*, *Rosa woodsii*, *Ceanothus velutinus*, and *Amelanchier alnifolia*. Perennial graminoids typically dominate the herbaceous layer, but their total cover is generally <20%. Total herbaceous cover can be higher, depending on the density of the shrub layer and environmental factors. The most widespread species are *Pseudoroegneria spicata* and *Festuca idahoensis*, which occur from the Columbia Basin to the northern Rockies, although they may not be the most abundant species in individual stands. Other locally important species may include *Leymus cinereus*, *Leucopoa kingii* (= *Festuca kingii*), *Festuca thurberi*, *Festuca viridula*, *Pascopyrum smithii*, *Bromus carinatus*, *Elymus trachycaulus*, *Koeleria macrantha*, *Achnatherum occidentale* (= *Stipa occidentalis*), *Poa fendleriana*, *Poa secunda*, and *Bouteloua gracilis*. The forb layer is variable and can be very diverse. Species of *Castilleja*, *Potentilla*, *Erigeron*, *Phlox*, *Astragalus*, *Geum*, *Lupinus*, and *Eriogonum* are characteristic. Other common forbs include *Balsamorhiza sagittata*, *Achillea millefolium*, *Antennaria rosea*, and *Eriogonum umbellatum*. Diagnostic of this shrubland alliance is the *Artemisia tridentata* ssp. *vaseyana* dominating the shrub layer or with >40% relative cover, and total perennial graminoid cover typically less than 20%. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *vaseyana* - *Purshia tridentata* / *Poa secunda* Shrubland**

Mountain Big Sagebrush - Bitterbrush / Sandberg's Bluegrass Shrubland

Association Code: NNHP026

Distribution (Nations/Subnations): US / NV, CA?, ID?, OR?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G?

Summary: This relatively mesic mountain sagebrush type occurs in lower montane situations. Stands are often diverse both in montane shrubs as well as perennial grasses. Invasive grasses may include either *Bromus tectorum* or *Poa bulbosa* in abundance.

References:

NNHP Plots: p050609o, p050623a (2 plots identified)

Representative Images:



p050623a_07-22-10.JPG



p050609o_14-26-56.JPG

***Artemisia tridentata* ssp. *vaseyana* - *Purshia tridentata* / *Pseudoroegneria spicata*
Shrubland**

Mountain Big Sagebrush - Bitterbrush / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGLO01032

Distribution (Nations/Subnations): US / ID, NV, WY

Status: 1 Active Confidence: 3 (Weak) Global Rank: G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Jones 1992b, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: p020516e, p020516i, p020516j, p020516s, p020621o1 (5 plots identified)

Representative Images:



p020621o1_1.JPG



p020516j_1.JPG

***Artemisia tridentata* ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Bromus carinatus* Shrubland**

Mountain Big Sagebrush - Mountain Snowberry / California Brome Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001035

Distribution (Nations/Subnations): US / ID, NV, OR, UT?, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4Q

Summary: This sagebrush shrubland is described from the mountains of northeastern Nevada and eastern Idaho. It occurs on moderate to steep slopes (15-45%), on deep soils (110-162 cm), at elevations ranging from 1768 to 2499 m (5800-8200 feet). It is one of the most productive sagebrush types in northeastern Nevada, occupying higher elevations than those of other sagebrush types in the area. *Artemisia tridentata ssp. vaseyana* is the dominant sagebrush. *Symphoricarpos oreophilus* is conspicuously present, usually with a canopy cover greater than 3%. *Amelanchier alnifolia* may also be present (0-5%) and can replace *Symphoricarpos oreophilus* on some sites. Other shrubs include *Prunus virginiana*, *Purshia tridentata*, *Ribes* spp., and *Rosa woodsii*. *Bromus carinatus* is the dominant grass. *Festuca idahoensis*, *Elymus trachycaulus* (= *Agropyron trachycaulum*), and *Leymus cinereus* (= *Elymus cinereus*) are conspicuously present and may replace *Bromus carinatus* in dominance on some sites. Forb species occur with the same abundance as grasses on most sites. Common forb species include *Balsamorhiza sagittata*, *Helianthella uniflora* (= *Helianthus uniflorus*), *Lupinus caudatus*, and *Eurybia conspicua*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Jensen et al. 1988a, Jensen et al. 1988b, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* - *Symphoricarpos oreophilus* / *Elymus trachycaulus ssp. trachycaulus* Shrubland**

Mountain Big Sagebrush - Mountain Snowberry / Slender Wild Rye Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001034

Distribution (Nations/Subnations): US / CO, ID, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* - *Symphoricarpos oreophilus* / *Festuca idahoensis* Shrubland**

Mountain Big Sagebrush - Mountain Snowberry / Idaho Fescue Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001036

Distribution (Nations/Subnations): US / ID, MT, NV, OR, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This sagebrush shrubland occurs on all exposures except southerly sites. It appears to be limited to above 1830 m (6000 feet) elevation, ranging from 1935 to 2290 m (6350-7500 feet). Slopes range from 0-30%. Soils are derived from acidic igneous and basaltic parent materials. Textures range from gravelly loam to gravelly clay loam to finer silt loams with fewer fragments. *Artemisia tridentata ssp. vaseyana* is the dominant shrub species, ranging from 3 to 40% canopy cover. *Symphoricarpos oreophilus* is often present and occasionally replaced by *Prunus virginiana* or *Ribes cereum*. Other shrubs that may be present include *Purshia tridentata* and *Amelanchier*

alnifolia. Herbaceous cover ranges from 20 to 70% and is dominated by *Festuca idahoensis*. Other common or high-constancy species include *Poa pratensis*, *Melica bulbosa*, *Koeleria macrantha*, *Lupinus sericeus*, *Geranium viscosissimum*, *Eriogonum umbellatum*, *Balsamorhiza sagittata*, and *Helianthella uniflora*. Presence of *Achnatherum nelsonii* ssp. *dorei* (= *Stipa columbiana*) or *Achnatherum lettermanii* (= *Stipa lettermanii*) are indications of past disturbance.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983a, Cooper et al. 1999, Driscoll et al. 1984, Hironaka et al. 1983, Jones 1992b, MTNHP 2002b, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Hesperostipa comata* Shrubland**

Mountain Big Sagebrush - Mountain Snowberry / Needle-and-Thread Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001039

Distribution (Nations/Subnations): US / NV, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: This sagebrush shrubland is known only from Grand Teton National Park but is expected to occur in the surrounding area in southeastern Idaho and elsewhere in Wyoming. One stand occurs on the valley floor, with a 4% slope at an elevation of 2060 m (6749 feet), on a dry southeastern aspect. The soil is a loam with gravel and cobble. The shrub layer is dominated by *Artemisia tridentata* ssp. *vaseyana* and *Symphoricarpos oreophilus*. Graminoids include *Hesperostipa comata* and *Poa pratensis*. The most abundant forb is *Balsamorhiza sagittata*. Other forbs present include *Eriogonum umbellatum*, *Lupinus sericeus*, *Geranium viscosissimum*, *Lithospermum ruderale*, and *Helianthella uniflora*. Similar vegetation types have been described in the literature with an *Artemisia tridentata* canopy and an undergrowth of *Hesperostipa comata* (= *Stipa comata*). However, these do not refer to *Artemisia tridentata* ssp. *vaseyana*, nor do they mention any *Symphoricarpos* spp. as present.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Hironaka et al. 1983, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Poa secunda* Shrubland**

Mountain Big Sagebrush - Mountain Snowberry / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001037

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* - *Symphoricarpos oreophilus* / *Pseudoroegneria spicata* Shrubland**

Mountain Big Sagebrush - Mountain Snowberry / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001038

Distribution (Nations/Subnations): US / ID, NV, UT?, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5?

Summary: This low sagebrush association occurs from 1830 to 2750 m (6000-9000 feet) elevation, on slopes from 10-42%, often on northern aspects, in concave snowpockets in northern Nevada, and generally on southern exposures in eastern Idaho. Soils are deep Mollisols (average 117 cm), of fine loam texture with gravel fragment up to 30%. This low-stature shrubland is dominated by a combination of *Artemisia tridentata* ssp. *vaseyana* and *Symphoricarpos oreophilus*, sometimes one more dominant than the other, but both always present with at least 10% cover. Other shrubs that may be present include *Chrysothamnus viscidiflorus*, *Ribes* spp., and *Purshia tridentata*. The understory is sparsely to occasionally thickly dominated by grasses. *Pseudoroegneria spicata* is always present and usually the most abundant grass with 2-10% cover. Other grasses commonly present include *Festuca idahoensis*, *Poa fendleriana*, *Achnatherum nelsonii* ssp. *dorei* (= *Stipa columbiana*), *Achnatherum lettermanii* (= *Stipa lettermanii*), *Bromus tectorum*, and *Melica bulbosa*. Common forbs include *Lupinus caudatus*, *Achillea millefolium*, *Balsamorhiza sagittata*, *Collinsia parviflora*, and *Helianthella uniflora*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Hironaka et al. 1983, Jensen et al. 1988a, Jones 1992b, Jones and Ogle 2000, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* / *Achnatherum occidentale* Shrubland**

Mountain Big Sagebrush / Western Needlegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001033

Distribution (Nations/Subnations): US / CA?, ID?, NV?, OR

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2

Summary: This is a sagebrush opening in *Pinus contorta* or *Pinus ponderosa* forests in the East Cascades and Modoc Plateau of south-central Oregon and northeastern California. It is found between 1465 and 1495 m (4800-4900 feet) in elevation on very deep Mazama ash deposits under 5-7 inches of loamy sand. *Artemisia tridentata* ssp. *vaseyana* is the dominant shrub, with up to 10-30% cover in the Deschutes National Forest and 55% in the one plot from central Oregon. *Achnatherum occidentale* (= *Stipa occidentalis*) is the only grass reported from this community in central Oregon, while *Carex rossii* and *Elymus elymoides* were occasional in the East Cascades. Prominent forbs are *Eriogonum flavum*, *Eriogonum umbellatum*, *Eriogonum ovalifolium*, *Polygonum phytolaccifolium*, *Lupinus* spp., *Eriophyllum lanatum* and *Antennaria dimorpha*.

[Captured 2008-02-15]

References: Barbour and Major 1988, Bourgeron and Engelking 1994, Driscoll et al. 1984, Johnson and Clausnitzer 1992, Kagan et al. 2000, ORNHP unpubl. data, Volland 1976, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* / *Bromus carinatus* Shrubland**

Mountain Big Sagebrush / California Brome Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001021

Distribution (Nations/Subnations): US / CA?, ID, NV, UT?, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4?

Summary: This association is documented only from Grand Teton National Park, Wyoming. It occurs on an upland toeslope at an elevation of 2232 m (7319 feet) with a gradient of 22% on a southern aspect. The soil is a well-drained sandy loam. The low-shrub canopy is dominated by *Artemisia tridentata* ssp. *vaseyana*, and *Symphoricarpos oreophilus* occurs in small amounts. Graminoids are common and are dominated by *Elymus trachycaulus*, *Bromus carinatus*, and *Melica spectabilis*. Forbs are dominated by *Eriogonum umbellatum*, *Symphyotrichum ascendens*, and *Antennaria microphylla*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Hironaka et al. 1983, Jensen et al. 1988a, Jensen et al. 1988b, Lewis 1971, Mooney 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* / *Festuca idahoensis* - *Bromus carinatus* Shrubland**

Mountain Big Sagebrush / Idaho Fescue - California Brome Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001023

Distribution (Nations/Subnations): US / NV, OR, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: G4Q

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mooney 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* / *Hesperostipa comata* Shrubland**

Mountain Big Sagebrush / Needle-and-Thread Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002931

Distribution (Nations/Subnations): US / CO, ID, MT, NV, UT, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: GNR

Summary: This association is known from southern Utah to southern Idaho and western Wyoming and is likely to occur in northern Nevada. It occurs on moderate slopes between 1372 to 2850 m (4500-9350 feet) elevation. Soils are deep and range from clay loam to sandy loams. *Artemisia tridentata* ssp. *vaseyana* is the dominant shrub. *Purshia tridentata*, *Symphoricarpos oreophilus*, *Ericameria* sp., *Artemisia tripartita*, and *Amelanchier alnifolia* may be present at upper elevations, and at lower altitudes *Chrysothamnus viscidiflorus* and *Tetradymia canescens* can be common. *Hesperostipa comata* (= *Stipa comata*) is the principal understory species. *Festuca idahoensis*, *Pseudoroegneria spicata* (= *Agropyron spicatum*), and *Koeleria macrantha* may be present in small amounts. Other herbaceous species that may be present include *Carex rossii*, *Achnatherum lettermanii*, *Achnatherum nelsonii*, *Pseudoroegneria spicata*, *Poa pratensis*, *Antennaria microphylla*, and *Eriogonum umbellatum*.

[Captured 2008-02-15]

References: Blackburn 1967, Blackburn et al. 1968c, Blackburn et al. 1971, Bramble-Brodahl 1978, CONHP unpubl. data 2003, Cogan et al. 2004, DeVelice and Lesica 1993, Hironaka et al. 1983, McLean 1970, Poulton 1955, Tueller and Blackburn 1974, Tueller et al. 1966, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* / *Leucopoa kingii* - *Koeleria macrantha*
Shrubland**

Mountain Big Sagebrush / Spike Fescue - Prairie Junegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001026

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Mooney 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* / *Leucopoa kingii* Shrubland**

Mountain Big Sagebrush / Spike Fescue Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001025

Distribution (Nations/Subnations): US / CO, ID, NV?, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This shrubland association is found either in patches or is continuous on gentle to steep slopes of various aspects between 2529 to 2895 m (8300-9500 feet) elevation in southern Idaho, Wyoming, and north-central Colorado. Soils are of a sedimentary substrate. The moderately open shrub layer is dominated by *Artemisia tridentata ssp. vaseyana*. *Purshia tridentata* and *Chrysothamnus* may also be present. Occasionally, *Pinus flexilis* is sparsely scattered throughout stands. The herbaceous understory is dominated by *Leucopoa kingii*. Other grasses present are *Festuca idahoensis*, *Koeleria macrantha*, and *Poa secunda*. Common forbs include *Achillea millefolium*, *Balsamorhiza sagittata*, *Eriogonum heracleoides*, *Lupinus argenteus*, and *Phlox longifolia*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Hess 1981, Hironaka et al. 1983, Johnson and Simon 1987, Johnston 1987, Nelson and Jensen 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* / *Leymus cinereus* Shrubland**

Mountain Big Sagebrush / Great Basin Lyme Grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001027

Distribution (Nations/Subnations): US / CA?, CO, ID, MT, NV, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4?

Summary: This widely distributed association occupies shallow upland drainages associated with

springs or seepage areas as well as riparian terraces. Stands are small and isolated but occur throughout the sagebrush zone in the Great Basin, Wyoming Basins and Uinta Basin. Sites are located on gentle to moderate lee slopes (3-30%) that collect windblown snow and may be oriented to any aspect. Elevations range between 2100 and 2560 m (6890-8400 feet). Soils are deep, well-developed, moderately well-drained and variable in texture. The underlying substrate is either sandstone, marlstone or shale. Shrub cover is lower in this association than in most mountain sagebrush types. *Artemisia tridentata ssp. vaseyana* dominates the shrub layer with at least 10% cover. Other shrubs present are *Symphoricarpos oreophilus*, *Tetradymia canescens*, *Chrysothamnus viscidiflorus*, *Rosa woodsii*, and *Ericameria nauseosa*. *Leymus cinereus* is the dominant grass, usually with at least 10% cover, although cover may be lower in stands that have been heavily grazed. Associated grasses include *Elymus lanceolatus*, *Bromus carinatus*, *Festuca idahoensis*, *Poa pratensis*, *Poa fendleriana*, and *Poa secunda*. Forb species contribute sparse cover and vary among sites. Common species include *Achillea millefolium*, *Balsamorhiza sagittata*, and *Phlox* spp. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cooper et al. 1999, Driscoll et al. 1984, Hironaka et al. 1983, IDCDC 2005, Jensen et al. 1988a, MTNHP 2002b, Mooney 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* / *Poa secunda* Shrubland**

Mountain Big Sagebrush / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001029

Distribution (Nations/Subnations): US / CO, ID, NV?, OR, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: Stands of this plant association are known from Craters of the Moon National Monument in Idaho and scattered locations in south-central and southeastern Oregon and northwestern Colorado. It is noted in northern and central Nevada, but these may be early-seral stands of other *Artemisia tridentata ssp. vaseyana* plant associations. At Craters of the Moon, the plant association is the most widespread vegetation type and is found on xeric sites with shallow soil, usually on (but not limited to) lava flows and cinder buttes. In the Uinta Basin, stands occur on gentle to moderate slopes on high plateaus above 2200 m (7200 feet) elevation. Soils in these sites are deep and well-developed and include silt loams and sandy loams. *Artemisia tridentata ssp. vaseyana* dominates stands, though other shrubs, such as *Ericameria* spp. (= *Chrysothamnus* spp.), *Eriogonum microthecum*, *Leptodactylon pungens*, *Purshia tridentata*, *Amelanchier utahensis*, and *Symphoricarpos oreophilus*, are also common. *Poa secunda* dominates the relatively sparse herbaceous understory. Other perennial grasses, such as *Achnatherum thurberianum*, *Poa fendleriana*, *Hesperostipa comata*, and *Pseudoroegneria spicata*, are occasionally found on pockets of better soil. Common forbs include *Eriogonum heracleoides*, *Eriogonum ovalifolium*, *Trifolium gymnocarpon*, and *Eriogonum umbellatum*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Day and Wright 1985, Driscoll et al. 1984, Kagan et al. 2000, ORNHP unpubl. data, Tueller and Eckert 1987, Western Ecology Working Group n.d.

NNHP Plots: p020516c, p020516d, p020516g, p020603c, p020621p (5 plots identified)

Representative Images:



p020516d_1.JPG



p020516c_1.JPG

***Artemisia tridentata ssp. vaseyana* / *Pseudoroegneria spicata* - *Poa fendleriana*
Shrubland**

Mountain Big Sagebrush / Bluebunch Wheatgrass - Muttongrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001031

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Kovalchik 1987, Mooney 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata ssp. vaseyana* / *Pseudoroegneria spicata* Shrubland**

Mountain Big Sagebrush / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001030

Distribution (Nations/Subnations): US / CO, ID, MT, NV, OR, UT?, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This is a common, abundant and widespread sagebrush community in the western U.S. It occurs from 1829 to 3048 m (6000-10,000 feet) elevation, on 10-59% slopes, usually on the upper part of the slope, or on ridgetops, with northeast- to south-facing aspects. Soils are generally deep Mollisols (average depth from one study was 104 cm). This association is dominated by *Artemisia tridentata ssp. vaseyana*, with a conspicuous herbaceous undergrowth often dominated by *Pseudoroegneria spicata*. Other shrubs are usually present, but no one species consistently so, all generally with low cover (<10%). Shrub species include *Chrysothamnus* spp., *Tetradymia canescens*, *Purshia tridentata*, and *Amelanchier alnifolia*. Note that stands usually lack *Symphoricarpos oreophilus*. The herbaceous undergrowth is dominated by grasses, *Pseudoroegneria spicata* usually having the highest cover. In disturbed stands, *Bromus tectorum* can be more abundant. Other grass species include *Poa fendleriana*, *Poa secunda* (= *Poa sandbergii*), *Bouteloua gracilis*, *Elymus lanceolatus* (= *Agropyron dasystachyum*), *Koeleria macrantha*, *Hesperostipa comata* (= *Stipa comata*), and *Elymus elymoides* (= *Sitanion hystrix*). *Festuca idahoensis* is usually not present, but if so, then in very low amounts. Common forbs

include *Eriogonum umbellatum*, *Lupinus sericeus*, *Lupinus caudatus*, *Comandra umbellata*, *Balsamorhiza sagittata*, *Lithospermum ruderales*, and *Achillea millefolium*. *Bromus tectorum* may be present to dominant in stands that have been severely disturbed.

[Captured 2008-02-15]

References: Baker and Kennedy 1985, Bourgeron and Engelking 1994, Bramble-Brodahl 1978, CONHP unpubl. data 2003, Cooper et al. 1999, Current 1984, Driscoll et al. 1984, Eddleman and Jaindl 1994, Hironaka et al. 1983, Jensen et al. 1988a, Jensen et al. 1988b, Jones and Ogle 2000, Kagan et al. 2000, Lewis 1971, Lewis 1975a, MTNHP 2002b, Mooney 1985, Smith 1966, Terwilliger and Smith 1978, Western Ecology Working Group n.d.

NNHP Plots: p020516a, p020516f, p020621n (3 plots identified)

Representative Images:



p020516f_1.JPG



p020516a_1.JPG

***Artemisia tridentata* ssp. *wyomingensis* Shrubland Alliance**

Wyoming Big Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.832

Summary: This broadly distributed alliance is found in the western United States and southwestern Canada on dry steppes. It occurs primarily west of the Continental Divide; however, this description is also based on the vegetation in western North Dakota and eastern Montana. This alliance occurs on flat to steeply sloping sites with southerly aspects. Sites with little slope tend to have deep soils, while those with steeper slopes have shallow to moderately deep soils. Soil texture is loamy sand, loam, sandy loam, or clay loam. Shrubs are conspicuous in this alliance, but herbaceous species usually have equal or greater cover. The vegetation included in this alliance is characterized by a somewhat sparse to moderately dense (20-70% cover) shrub layer that is dominated (or codominated with at least 40% relative cover in mixed stands) by *Artemisia tridentata* ssp. *wyomingensis*. *Atriplex confertifolia*, *Artemisia frigida*, *Purshia tridentata*, and *Krascheninnikovia lanata* are common associates. The herbaceous stratum can be diverse and have sparse to moderate cover, but perennial graminoids typically total <20% cover. *Pseudoroegneria spicata* is one of the most common species. *Bouteloua curtipendula*, *Bouteloua gracilis*, *Bromus japonicus* (especially on disturbed areas), *Carex filifolia*, *Koeleria macrantha*, and *Hesperostipa comata* (= *Stipa comata*) are common but rarely dominant. Forbs include *Achillea millefolium*, *Camelina microcarpa*, *Gutierrezia sarothrae*, *Sphaeralcea coccinea*, *Opuntia* spp., and *Phlox* spp. Mosses and lichens, such as *Selaginella densa*, may occur on

bare ground. Diagnostic of this alliance is the *Artemisia tridentata* ssp. *wyomingensis*-dominated shrub layer that lacks a significant perennial graminoid layer (<20% cover) or has over 40% total cover of shrubs. [Captured 2008-02-18]

***** New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* - *Grayia spinosa* / *Achnatherum hymenoides* Shrubland**

Wyoming Big Sagebrush - Spiny Hopsage / Indian Rice Grass Shrubland

Association Code: NNHP050

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: Although this vegetation type may occur in sandy soils throughout the Great Basin and Columbia Plateaus toward the north, it is particularly well known from the south-western Great Basin in around the Lahontan Traugh. *A. hymenoides* appears to be sensitive to grazing pressures and this vegetation type appears to be best developed in areas that have had light, or no, grazing in recent history. Elsewhere, loss of *A. hymenoides* may allow *Elymus elymoides* to dominate the graminoid layer, shifting the vegetation into an *Artemisia tridentata* ssp. *wyomingensis* - *Grayia spinosa* / *Elymus elymoides* Shrubland.

References:

NNHP Plots: p030724b, p050614n (2 plots identified)

Representative Images:



p050614n_15-20-44.JPG



p030724b.JPG

***** New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* - *Grayia spinosa* / *Elymus elymoides* shrubland**

Wyoming Big Sagebrush - Spiny Hopsage / Squirreltail Shrubland

Association Code: NNHP028

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This is a very common association and it is surprising that no communities codominated by *Artemisia tridentata* ssp. *wyomingensis* and *Grayia spinosa* have been recognized to the extent of placing both species in the name! It is widespread in northern Nevada, often extending kilometers in every direction. The shrub layer is typically sparse, with few sites exceeding 25% ground cover for all shrubs totaled. *G. spinosa* may be subdominant to *A. tridentata*, but is

universally present with at least two percent cover and typically 5-10 percent cover. *Elymus elymoides* dominates the understory of this dryland vegetation type, while moister sites may be dominated by *Poa secunda* or even *Pseudorogneria spicata* which should be distinguished as distinct associations. It would not be unreasonable even to distinguish an alliance based on the codominance of these two shrubs.

References:

NNHP Plots: p050607g, p050622g, p020516x, p050607f, p050608o, p050609e, p050609f (7 plots identified)

Representative Images:



p050609f_09-31-57.JPG



p050609e_09-14-00.JPG



p050607g_13-57-34.JPG



p050607f_13-29-12.JPG

*** New to Nevada - with plot data:**

Artemisia tridentata ssp. wyomingensis / (Agropyron cristatum, Psathyrostachys juncea) Seeded Grasses Semi-natural Shrubland

Wyoming Big Sagebrush / (Crested Wheatgrass, Russian Wildrye) Seeded Grasses Semi-natural Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002185

Distribution (Nations/Subnations): US / CO, UT

Status: 1 Active **Confidence:** (Weak) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: p050621o, p030722e, p020602m, p020602x, p050511i (5 plots identified)

Representative Images:



p050621o_15-25-38.JPG



p050511i.JPG

* **New to Nevada - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / *Achnatherum hymenoides* Shrubland**

Wyoming Big Sagebrush / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001046

Distribution (Nations/Subnations): US / CA?, CO, ID, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5

Summary: This sagebrush shrubland association is known from the Gunnison River Valley and the Piceance Basin in western Colorado and the Columbia Basin in Oregon and Idaho, and possibly California. This shrubland association occurs on slopes and terraces above drainages and ridges. Sites are gentle to steep (4-100%) colluvial slopes and alluvial benches often on warmer southeast to southwest aspects between 1830 and 2710 m (6000-8900 feet) elevation. Substrates are variable but are typically moderately deep, well-drained soils with sandy clay loam, sandy loam and loam textures. The ground surface has high cover of large and small rocks, low to moderate cover of litter, and occasionally high cover of bare ground. The vegetation is characterized by an open to dense (10-75% cover) short-shrub canopy (to 1 m tall) dominated by *Artemisia tridentata* ssp. *wyomingensis*, with the bunchgrass *Achnatherum hymenoides* dominant in a patchy open herbaceous layer. Other shrub species present include *Artemisia frigida*, *Chrysothamnus viscidiflorus*, *Krascheninnikovia lanata*, *Purshia tridentata*, *Symphoricarpos oreophilus*, *Yucca harrimaniae*, and the succulent *Opuntia polyacantha*. The herbaceous layer is diverse and provides low to moderate cover. Associated graminoids include *Achnatherum pinetorum*, *Bouteloua gracilis*, *Elymus elymoides*, *Hesperostipa comata*, *Pascopyrum smithii*, *Pleuraphis jamesii*, *Poa fendleriana*, and introduced grasses *Bromus tectorum* and *Poa pratensis*. Forbs are variable, provide sparse cover, and include *Erigeron* spp., *Penstemon teucroides*, *Phlox* spp., and *Sphaeralcea coccinea*. *Juniperus scopulorum* trees are occasionally present. [Captured 2008-02-15]

References: Baker 1982b, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Ferchau 1973, Johnston 1987, Johnston 2001, Kagan et al. 2000, Kagan et al. 2004, Poulton 1955, Thorne Ecological Institute 1973a, Thorne Ecological Institute 1973b, Western Ecology Working Group n.d.

NNHP Plots: p030702e, p030722d (2 plots identified)

Representative Images:



p030702e.JPG

***Artemisia tridentata* ssp. *wyomingensis* / *Achnatherum thurberianum* Shrubland**

Wyoming Big Sagebrush / Thurber's Needlegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001052

Distribution (Nations/Subnations): US / CA, ID, NV, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: This shrubland association occurs primarily in the Owyhee Uplands ecoregional section in southwestern Idaho, southeastern Oregon, and northern Nevada but also occurs in northeastern California. The association occurs on gentle slopes with convex or straight microtopography in mid- and upper-slope positions at 1210-1700 m (4000-5600 feet) elevation. Soils are typically silt loams. *Artemisia tridentata* ssp. *wyomingensis* forms an open, medium-tall shrub canopy.

Achnatherum thurberianum (= *Stipa thurberiana*) is usually abundant; *Poa secunda* is common to well-represented. Commonly associated perennial forbs include *Phlox longifolia*, *Antennaria dimorpha*, *Crepis occidentalis*, *Erigeron pumilus*, *Allium acuminatum*, and [Captured 2008-02-15]

References: Blackburn et al. 1968b, Blackburn et al. 1969b, Blackburn et al. 1969c, Blackburn et al. 1969d, Blackburn et al. 1971, Bourgeron and Engelking 1994, Caicco and Wellner 1983i, Caicco and Wellner 1983j, Driscoll et al. 1984, Hironaka et al. 1983, Kagan et al. 2000, Murphy and Rust 2000, Western Ecology Working Group n.d.

NNHP Plots: p050608j (1 plots identified)

Representative Images:



p050608j_11-03-36.JPG

***Artemisia tridentata* ssp. *wyomingensis* / *Balsamorhiza sagittata* Shrubland**

Wyoming Big Sagebrush / Arrowleaf Balsamroot Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000994

Distribution (Nations/Subnations): US / CO, NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: This association occurs on plateaus, benches and canyons in northwestern Colorado, adjacent eastern Utah and northeastern Nevada. Elevations range from 2275 to 2325 m (7465-7625 feet) in Colorado and 2195 m (7200 feet) in Nevada. Soils are typically well-drained sandy loams. Bare ground and litter cover nearly all the unvegetated surface, except in rare cases where the substrate is quite rocky. *Artemisia tridentata* ssp. *wyomingensis* is the dominant species in this sparsely vegetated shrub association, with between 5 and 30% cover. Associated shrubs vary among sites, although *Purshia tridentata* is present in about half of them. *Mahonia repens* and *Ericameria nauseosa* may also be present. The broad-leafy forb *Balsamorhiza sagittata* dominates the diverse herbaceous understory, typically contributing at least 10% cover. Other commonly associated forbs that contribute less cover include *Phlox* spp., *Comandra umbellata*, *Achillea millefolium*, *Mertensia oblongifolia*, *Penstemon speciosus*, *Lupinus argenteus*, and *Petradoria pumila*. Grass cover is usually comparatively sparse, less species-rich, and most commonly includes *Poa fendleriana*, *Leymus cinereus*, *Achnatherum lettermanii*, and *Pseudoroegneria spicata*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Loope 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / *Distichlis spicata* Shrubland**

Wyoming Big Sage / Salt Grass Shrubland

Association Code: NNHP055

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G3

Summary: The shrub and grass layers of this vegetation type are two species that by some accounts, should not be capable of growing together due to little or no overlap in niche along a salinity gradient. The same is true of *Artemisia tridentata* ssp. *tridentata* / *Distichlis spicata* Shrubland. It might be reasonable to synonymise the two into *Artemisia tridentata* ssp. (*tridentata*, *wyomingensis*) / *Distichlis spicata* Shrubland.

References:

NNHP Plots: p030702f (1 plots identified)

Representative Images:



p030702f.JPG

***Artemisia tridentata* ssp. *wyomingensis* / *Elymus elymoides* Shrubland**

Wyoming Big Sagebrush / Bottlebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001043

Distribution (Nations/Subnations): US / CO, ID, NV, OR

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4G5

Summary: Little environmental information is available for this association. Some authorities believe that this association is either ecotonal or the result of grazing or burning other types of sagebrush shrublands. Documented sites occur between 1689 and 2134 m (5540-7000 feet) elevation on gentle to moderate slopes in northwestern Colorado, northeastern Nevada, southern Idaho and possibly in eastern Idaho and southeastern Oregon. Aspect is not important in determining the distribution of this association. Soils are deep and well-developed and may have a loam or clay loam texture. The unvegetated surface is dominated by bare soil, with little litter present in grazed stands. The vegetation of this sagebrush shrubland is characterized by an open layer of *Artemisia tridentata* ssp. *wyomingensis* with between 20 and 35% cover, and a mixed grass understory dominated or codominated by *Elymus elymoides* with between 5 and 15% cover. *Chrysothamnus viscidiflorus*, *Purshia tridentata*, *Sarcobatus vermiculatus*, *Symphoricarpos oreophilus*, *Atriplex confertifolia*, and *Krascheninnikovia lanata* may also be present in the shrub layer, although cover of these species is generally very low. Other important graminoids include *Pascopyrum smithii*, *Festuca idahoensis*, *Poa secunda*, *Achnatherum hymenoides*, *Hesperostipa comata*, *Leymus cinereus*, and *Poa fendleriana*. *Bromus tectorum* may be important in disturbed stands. Forbs are generally sparse and vary greatly from site to site. Some common species include *Achillea millefolium*, *Eriogonum ovalifolium*, *Lupinus argenteus*, *Packera multilobata* (= *Senecio multilobatus*), *Cryptantha* spp., *Sphaeralcea coccinea*, and *Phlox hoodii*.

[Captured 2008-02-15]

References: Hironaka et al. 1983, Jensen et al. 1988a, Jensen et al. 1988b, Western Ecology Working Group n.d., Winward 1970

NNHP Plots: p050614a, p020515o, p020516v, p020516y, p020531a, p020531n, p020601d, p020601o, p050604a, p050608b, p050609h, p050627n, p050627p, p050627q, p050628h, p060712.0714, p050614g (17 plots identified)

Representative Images:



p020601d_3.JPG



p020601o_2.JPG



p060712-0714-2.jpg



p050628h_10-10-43.JPG



p050627q_17-44-32.JPG



p020516v_1.JPG

*** New to Nevada - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / *Hesperostipa comata* Shrubland**

Wyoming Big Sagebrush / Needle-and-Thread Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001051

Distribution (Nations/Subnations): US / ID, OR, UT?, WA

Status: 1 Active Confidence: 1 (Strong) Global Rank: G2

Summary: This plant association is from the Columbia River Basin of Oregon and Washington (Columbia Basin and western portion of the Okanogan Highlands ecoregional sections) and the Snake River Plain (Owyhee Uplands and Snake River Basalts ecoregional sections) in Idaho. The association is restricted to sandy loam or uniformly high calcareous silt loam soils which receive approximately 8-12 inches precipitation annually. Stands are dominated by *Artemisia tridentata* ssp. *wyomingensis*. *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) and *Elymus elymoides* are consistently present with *Hesperostipa comata* (= *Stipa comata*). *Chrysothamnus viscidiflorus* is commonly associated.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983k, Driscoll et al. 1984, Hironaka et al. 1983, Kagan et al. 2000, WNHP unpubl. data, Western Ecology Working Group n.d., Winward 1970

NNHP Plots: p030702b, p050623f (2 plots identified)

Representative Images:



p030702b.JPG

*** * * New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / *Leymus cinereus* Shrubland**

Wyoming Big Sagebrush / Great Basin Wild Rye Shrubland

Association Code: NNHP022

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G4

Summary: This is a vegetation type that probably was much more widespread than it currently is, due to the heavy grazing in the Great Basin during the 20th century, which may have substantially reduced dominance of *Leymus cinereus* in the graminoid layer. It is likely that much of these sites became *Artemisia tridentata* ssp. *wyomingensis* / *Elymus elymoides* Shrublands or *Artemisia tridentata* ssp. *wyomingensis* / *Poa secunda* Shrublands. Although this type is seen mainly in low topographic positions, it may occur in dry upland sites where *L. cinereus* seed is adequately abundant, even with rather thin soils. A number of shrubs may be associated, particularly *Chrysothamnus viscidiflorus* and *Ericameria nauseosus*. Similarly, graminoid layers may be quite diverse with *Elymus elymoides* and *Poa secunda* being most common. A closely related association would be *Artemisia tridentata* ssp. *tridentata* / *Leymus cinereus* Shrubland, which is restricted to low topography, moist sites.

References:

NNHP Plots: p020601r (1 plots identified)

Representative Images:



p020601r_1.JPG

* **New to Nevada - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / *Pleuraphis jamesii* Shrubland**

Wyoming Big Sagebrush / James' Galleta Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002084

Distribution (Nations/Subnations): US / CO, UT

Status: 1 Active Confidence: (Weak) Global Rank: GNR

Summary: This shrubland association occurs on alluvial flats and terraces, as well as on upland slopes and mesas in the Colorado Plateau. Sites tend to have gentle to moderately steep slopes, and elevations range from 1400 to 1939 m (4600-6360 feet). Known sites have an east or southeast aspect. Soils are derived from a wide variety of substrates; however, soil texture tends to be a sandy loam. Cryptobiotic crust cover is usually present. The vegetation is characterized by a moderately dense canopy of *Artemisia tridentata* ssp. *wyomingensis* with a sparse herbaceous understory dominated by *Pleuraphis jamesii*. Other shrubs present may include scattered individuals of *Atriplex confertifolia*, *Sarcobatus vermiculatus*, *Ericameria nauseosa*, *Gutierrezia sarothrae*, and *Opuntia* spp. *Achnatherum hymenoides*, *Hesperostipa comata*, *Pseudoroegneria spicata*, *Poa secunda*, and *Leymus salinus* may be present in addition to *Pleuraphis jamesii*. Forbs tend to be sparse and inconsistent among stands but may include *Calochortus* spp., *Astragalus nuttallianus*, *Oenothera pallida*, and *Sphaeralcea coccinea*.

[Captured 2008-02-15]

References: Naumann pers. comm., Western Ecology Working Group n.d.

NNHP Plots: p050603r (1 plots identified)

***Artemisia tridentata* ssp. *wyomingensis* / *Poa secunda* Shrubland**

Wyoming Big Sagebrush / Curly Bluegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001049

Distribution (Nations/Subnations): US / CA?, CO, ID, MT?, NV, OR, WA, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: This sparse shrubland association occurs as patches in a matrix of other shrubland or shrub-steppe types in the Columbia and Uinta basins of Washington, Oregon, Idaho, Nevada and Colorado. Stands are on level to moderate slopes of derived substrates such as loess deposits or alluvial fans and terraces, often modified by a veneer of alluvial cobble or gravel. Elevations range from 1675 to 2300 m (5500-7550 feet). Soils are generally calcareous, excessively well-drained,

fine-textured silts or fine sands, often deep to bedrock but sometimes with a shallow duripan that limits water infiltration.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983, Driscoll et al. 1984, Franklin and Dyrness 1969, Hironaka et al. 1983, Jensen et al. 1988a, Jensen et al. 1988b, Kagan et al. 2000, MTNHP 2002b, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: p020515b, p020515n, p020531b, p020531c, p020531k, p020531l, p020531m, p020601h, p020601j, p020601l, p020601n, p020602g, p020602i, p020602r, p050607c, p050608p, p050622n, p050622o, p050622p, p050628f, p060706.0831, p060712.1722, p060719.0823, p060719.1015, p060719.1425, p060724.1753, p060725.1802, p060809.1409, p060815.1018, p060815.1206, p060815.1238a, p060815.1238b, p060815.1331, p060815.1333, p060815.1408, p060815.1451, p060815.1456, p060815.1542a, p060815.1542b, p060815.1930 (40 plots)

Representative Images:



p020601l_1.JPG



p020531k_1.JPG



p060719-0823-2.jpg



p050628f_09-26-28.JPG



p050622n_15-13-15.JPG



p050608p_17-14-18.JPG

***Artemisia tridentata* ssp. *wyomingensis* / *Pseudoroegneria spicata* Shrubland**

Wyoming Big Sagebrush / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001009

Distribution (Nations/Subnations): CA?, US / BC?, CO, ID, MT, ND, NV, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5?

Summary: This association is common and widespread throughout the sagebrush zone of the western Great Plains through southern British Columbia, south into the Great Basin and northern Colorado Plateau. Slopes may be gentle to steep, and aspect is not important in determining the distribution of this association. Stands occupy moderately deep to deep loamy soils (often with coarse fragments), sometimes with a cemented clay layer limiting water and root penetration. Parent materials are variable. Throughout the geographic range of this type, *Artemisia tridentata* ssp. *wyomingensis* dominates a shrub layer that has at least 10% canopy cover. Total vegetation cover ranges between 20% and more than 100%, roughly evenly divided between the shrub and herbaceous strata. The shrubs *Chrysothamnus* spp., *Atriplex confertifolia*, *Purshia tridentata*, *Symphoricarpos longiflorus*, and *Amelanchier utahensis* are often present as well. The herbaceous understory is generally a diverse mix of grasses and forbs. *Pseudoroegneria spicata* contributes more cover to the diverse herbaceous layer than does any other native species, and *Achnatherum thurberianum*, *Festuca idahoensis*, *Hesperostipa comata*, *Poa secunda*, *Koeleria macrantha*, and *Poa fendleriana* are often present. Forbs are variable across the range of this type, but common species include *Eriogonum umbellatum*, *Sphaeralcea coccinea*, and *Balsamorhiza sagittata*. Stands in the eastern part of the geographic range often include *Gutierrezia sarothrae*, *Artemisia frigida*, and *Bouteloua gracilis*. The height of the sagebrush ranges from about 35 cm tall in the eastern part of the range to about 1 m tall in the western part.

[Captured 2008-02-15]

References: Blackburn 1967, Blackburn et al. 1968a, Blackburn et al. 1968b, Blackburn et al. 1969a, Blackburn et al. 1969c, Blackburn et al. 1971, Bourgeron and Engelking 1994, Brotherson and Brotherson 1981, CONHP Ecology Team 2001, Cooper et al. 1995, Daubenmire 1970, DeVelice et al. 1991, Driscoll et al. 1984, Fisser 1964, Fisser 1970, Hall 1973, Heinze et al. 1962, Hironaka et al. 1983, Jensen et al. 1992, Johnston 1987, Jones 1992b, Knight et al. 1987, Lewis 1975a, MTNHP 2002b, McLean 1970, Moretti 1979, Moretti and Brotherson 1982, Mueggler and Stewart 1980, NDNHI n.d., Poulton 1955, Seminoe I Mine Application n.d., Thilenius et al. 1995, Tisdale 1947, Tweit and Houston 1980, Western Ecology Working Group n.d.

NNHP Plots: p060718.1703, p060718.1729, p020620n (3 plots identified)

Representative Images:



p020620n_1.JPG



p060718-1703-2.jpg



p060718-1729-1.jpg



p060718-1729-2.jpg

*** New to Nevada - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / Sparse Understory Shrubland**

Wyoming Big Sagebrush / Sparse Understory Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002768

Distribution (Nations/Subnations): US / CO, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GNR

Summary: This association is intended to represent sagebrush shrublands where the sparse understory is the result of edaphic conditions, not grazing or other disturbance. It occurs in scattered patches throughout the sagebrush zone of the Colorado Plateau and western Rocky Mountains of Colorado and Utah. Elevations range from 1590 to 2390 m (5215-7840 feet), and sites occur on level to moderately steep slopes. There is a slight tendency toward hot western and southern exposures. Soils may be thin over bedrock, or loose, unstable sands, or tight clays, or extremely well-drained gravels; all of these situations tend to discourage herbaceous growth. Total vegetation cover is somewhat sparse in these sagebrush communities, rarely exceeding 40% and usually closer to 25%. The shrub layer consists of dwarfed *Artemisia tridentata* ssp. *wyomingensis* shrubs, sometimes accompanied by *Purshia tridentata*, *Atriplex confertifolia*, *Ephedra viridis*, or *Ericameria nauseosa*. The understory of dwarf-shrubs and herbaceous species has less than 5%

cover, and usually much less. Common species include *Gutierrezia sarothrae*, *Achnatherum hymenoides*, *Pleuraphis jamesii*, and *Bouteloua gracilis*. Cryptobiotic crusts may be well-developed in sandy sites.

[Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: p050627a (1 plots identified)

Representative Images:



p050627a_11-16-45.JPG

***Atriplex (lentiformis, polycarpa)* Shrubland Alliance**

(Quailbush, Cattle-spinach) Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.864

Summary: This facultatively deciduous shrubland of the American Southwest is found in flats, playas, and bajadas. The annual precipitation in the region varies from 10-25 cm, falling mostly during the winter months. This alliance can occur at elevations ranging from 75 m below sea level to 250 m above. The most favorable habitat is flat to gentle slopes with fine soils that are often carbonate-rich. At least 2 species of saltbush are codominant, *Atriplex lentiformis* and *Atriplex polycarpa*. Other species of saltbush present may include *Atriplex depressa*, *Atriplex canescens*, and *Atriplex confertifolia*. The canopy is less than 3 m in height, and can range from continuous to open with a sparse herbaceous layer. This alliance intergrades with creosotebush and other saltbush alliances. [Captured 2008-02-18]

***Atriplex (lentiformis, polycarpa)* Shrubland [Placeholder]**

(Lens-fruit Saltbush, Cattle-spinach) Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003016

Distribution (Nations/Subnations): US / AZ?, CA, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Bundy et al. 1996, Charlet pers. comm., Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d., Zielinski pers. comm.

NNHP Plots: (0 plots identified)

***Atriplex canescens* Shrubland Alliance**

Fourwing Saltbush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.869

Summary: This alliance occurs primarily in arid and semi-arid areas of the southwestern U.S. from western Texas to southern and eastern California and into Chihuahua, Mexico. It is also found in the western Great Plains to the Great Basin from western Kansas, Colorado, and Wyoming to Utah, Nevada and eastern Oregon. Associations in this alliance vary throughout the range and occur in a variety of environmental settings. In western Texas, this alliance occupies alkaline flats, depressions among gypsum ridges, saline or sandy soils. Overall, shrublands in this alliance occur on lowland and upland sites with elevation ranging from 75 m below sea level to 2400 m. Lowland sites include alluvial flats, drainage terraces, playas, washes and interdune basins. Upland sites include bluffs and gentle to moderately steep, sandy or rocky slopes. Stands occur on all aspects. Soils are variable with depths ranging from shallow to moderately deep, and texture ranging from sand to loam to clay. The lowland sites may be moderately saline or alkaline.

Stands typically have a sparse to moderately dense (10-60% cover) short-shrub canopy (approximately 1.5 m tall) that is dominated by the facultative deciduous, xeromorphic shrub *Atriplex canescens*, with bare ground usually dominating the ground surface. Associated shrubs may include *Artemisia bigelovii*, *Artemisia tridentata*, *Ephedra viridis*, *Krascheninnikovia lanata*, *Purshia stansburiana* (= *Purshia mexicana* var. *stansburiana*), *Psoralea polydenius*, *Parthenium confertum*, *Sarcobatus vermiculatus*, and species of *Chrysothamnus*, *Ericameria*, and *Lycium*. Dwarf-shrubs, such as *Gutierrezia sarothrae* or *Eriogonum* spp., may be common in some stands. The sparse to moderately dense graminoid layer (1-60% cover) is typically dominated by warm-season, medium-tall and short grasses. The species present depend on geographic range of the grasses and past land use. Species may include *Bouteloua gracilis*, *Distichlis spicata*, *Elymus elymoides*, *Hesperostipa comata*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Muhlenbergia porteri*, *Scleropogon brevifolius*, *Pascopyrum smithii*, and *Sporobolus* spp. Forb cover is generally sparse, but annual forbs such as *Calycoseris parryi* may be abundant in wet years. Common forbs include species of *Sphaeralcea*, *Dalea*, *Cymopterus*, *Chenopodium*, *Kochia*, *Iva*, *Picradeniopsis*, and *Ratibida*. Cacti from the genus *Opuntia* are associated species in some stands. Trees are typically not present, but occasionally scattered *Juniperus* spp. occur. Very little is known about the expression of this alliance in the Midwest. [Captured 2008-02-18]

***Artemisia tridentata* - *Atriplex canescens* - *Sarcobatus vermiculatus* /
(*Achnatherum hymenoides*) Shrubland**

Basin Big Sagebrush - Fourwing Saltbush - Black Greasewood / (Indian Ricegrass) Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001355

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G1

Summary: This desert community is associated with sand dunes, which are found along the windward (eastern in the northern Great Basin) edge of large playa basins. Aspects and slopes of the dunes vary, but most are north-south, along the eastern playa edges of a completely flat landscape. In addition to the shrubs *Artemisia tridentata*, *Atriplex canescens*, and *Sarcobatus vermiculatus*, other occasional codominants include *Chrysothamnus viscidiflorus*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), and *Grayia spinosa* (= *Atriplex spinosa*). The most abundant but sparse grass is *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) although *Hesperostipa comata* (= *Stipa comata*), *Elymus lanceolatus*, and *Leymus cinereus* are occasionally found. Bare, alkaline sand provides significant cover. This community rapidly vanishes on the adjacent *Artemisia tridentata* ssp. *wyomingensis*-dominated slopes. This dune association represents a rich floral assemblage as compared to surrounding salt desert scrub and playa communities. This

is attributable to higher soil temperatures in spring promoting early growth, lower salt concentrations, and greater accumulation of wind-blown seeds.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Price et al. 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex canescens* - *Artemisia tridentata* Shrubland**

Fourwing Saltbush - Basin Big Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001282

Distribution (Nations/Subnations): US / AZ, CA?, CO, NV?, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This shrubland is found on the western slope of the Colorado Rocky Mountains, Colorado Plateau, Great Basin, and Mojave Desert. Elevation ranges from 1160-2100 m (3800-6900 feet). Stands occur on level plains, valley bottoms, alluvial flats, stream terraces, low and midslopes. Slopes are typically less than 25%. It occurs on all aspects, Substrates are well-drained, typically fine-textured soils (silty loam and clay) but may include coarser-textured soils (loamy sand). The vegetation is characterized by a sparse to moderately dense (10-35% cover) short-shrub layer that is codominated by *Atriplex canescens* and *Artemisia tridentata*. Associated shrubs include *Chrysothamnus viscidiflorus*, *Ephedra nevadensis*, *Ericameria nauseosa*, *Gutierrezia sarothrae*, *Gutierrezia microcephala*, *Krascheninnikovia lanata*, *Lycium* spp., and *Opuntia* spp. The sparse to moderate herbaceous layer (10-20% cover) is dominated by graminoids with scattered forbs. *Achnatherum hymenoides*, *Bouteloua gracilis*, *Elymus elymoides*, and *Pascopyrum smithii* are common grasses. Forbs may include *Cirsium neomexicanum*, *Eriogonum inflatum*, *Eriogonum racemosum*, *Penstemon* spp., or *Sphaeralcea coccinea*. Introduced species are common in disturbed stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bunting 1987, Cogan et al. 2004, Driscoll et al. 1984, Everett 1987, Roberts et al. 1992, Warren et al. 1982, Western Ecology Working Group n.d., Wright 1980, Wright et al. 1979

NNHP Plots: p030724h (1 plots identified)

Representative Images:



p030724h_1.JPG

***Atriplex canescens* - *Krascheninnikovia lanata* Shrubland**

Fourwing Saltbush - Winter-fat Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001285

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex canescens* / *Calycoseris parryi* Shrubland**

Fourwing Saltbush / Yellow Tackstem Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001284

Distribution (Nations/Subnations): US / AZ, NV?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2

Summary: This association is warm desertscrub found on nearly level alluvial plains adjacent to the Colorado River, elevation 700-800 m. The common shrubs are *Atriplex canescens*, *Prosopis glandulosa* and *Suaeda moquinii* (= *Suaeda torreyana*). The cacti *Opuntia erinacea* and *Opuntia basilaris* are common in this shrubland. Common ephemeral species include *Calycoseris parryi*, *Chaenactis stevioides*, *Erodium texanum*, and the Eurasian weed *Bromus rubens*. Near the river the *Prosopis glandulosa* density and size increase to form a thicket that resembles a mesquite 'bosque.' The soil is distinctive, a silty loam derived from the Grand Canyon series.
[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Warren et al. 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex canescens* / *Sporobolus airoides* Shrubland**

Fourwing Saltbush / Alkali Sacaton Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001291

Distribution (Nations/Subnations): MX?, US / AZ, CA, CO, NM, NV?, TX, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5?

Summary: This shrubland occurs in the northern Chihuahua Desert extending into the Trans-Pecos of Texas, southwestern Great Plains, and Colorado Plateau. Stands are found in washes, floodplains and on alluvial flats, extending up lower slopes of alluvial fans or bajadas. Sites are level to gently sloping. Substrates are typically moderately deep, alkaline, calcareous, fine-textured soils or calcareous sands. Cover of bare soil can be high (>50%). The vegetation is characterized by an open to moderately dense (10-50% cover) short-shrub layer dominated by *Atriplex canescens* with a perennial graminoid layer dominated by *Sporobolus airoides*. The shrub layer has greater cover than the herbaceous layer, which may include other scattered shrubs and dwarf-shrubs, such as *Artemisia filifolia*, *Atriplex confertifolia*, *Atriplex obovata*, *Chrysothamnus viscidiflorus*, *Ericameria nauseosa*, *Gutierrezia sarothrae*, *Isocoma pluriflora*, *Krascheninnikovia lanata*, *Lycium* spp., *Opuntia* spp., *Prosopis glandulosa*, and *Sarcobatus vermiculatus*. Associated herbaceous species, such as *Achnatherum hymenoides*, *Elymus elymoides*, *Pascopyrum smithii*, *Pleuraphis jamesii*, *Sphaeralcea coccinea*, *Sporobolus cryptandrus*, *Sporobolus nealleyi*, and

Suaeda spp., may be present. *Bouteloua gracilis* cover is minor and inconsistent. Diagnostic of this *Atriplex canescens*-dominated shrubland is a *Sporobolus airoides*-dominated herbaceous layer.
[Captured 2008-02-15]

References: Baker 1984a, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Diamond 1993, Dick-Peddie 1986, Donart et al. 1978a, Driscoll et al. 1984, Francis 1986, Hansen et al. 2004b, Muldavin et al. 2000b, Shaw et al. 1989, Soil Conservation Service n.d., USFS 1937, Vest 1962a, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex canescens* Shrubland**

Fourwing Saltbush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001281

Distribution (Nations/Subnations): US / CA, CO, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This shrubland association is known from the Great Basin north into the southern Columbia Basin and east into Wyoming and the Colorado Plateau. It is common at middle elevations on alluvial fans and toeslopes in deep, sandy soils but will occur at lower elevations along alluvial benches where soils are often finer-textured and possibly saline/alkaline. Parent materials are variable. The vegetation is characterized by a sparse to moderately dense short-shrub layer (10-35% cover) dominated or codominated by *Atriplex canescens*, typically with a variable and often sparse herbaceous layer. Notable codominants in the shrub layer include *Chrysothamnus viscidiflorus*, *Coleogyne ramosissima*, *Ephedra nevadensis*, *Eriogonum nummularum* (= *Eriogonum kearneyi*), *Grayia spinosa*, *Gutierrezia sarothrae*, *Lycium pallidum*, or *Psoralea* spp. *Artemisia bigelovii*, *Artemisia tridentata*, and *Ephedra viridis*, *Krascheninnikovia lanata*, or *Purshia stansburiana* may be present but are not codominants. The herbaceous layer includes low cover of species such as *Achnatherum hymenoides*, *Aristida purpurea*, *Elymus elymoides*, *Pleuraphis jamesii*, and *Sporobolus cryptandrus*. Introduced species, especially *Bromus tectorum*, *Bromus diandrus*, and *Salsola kali*, are common on disturbed sites and can create an herbaceous layer much more dense than on undisturbed sites. Winter annual forb cover is variable depending on annual precipitation.

[Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Cogan et al. 2004, Driscoll et al. 1984, Ostler et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: p020612a, p050407b (2 plots identified)

Representative Images:



p050407b.JPG

***Atriplex confertifolia* Shrubland Alliance**

Shadscale Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.870

Summary: This shrubland alliance occurs across the western U.S. from the eastern Mojave Desert and Great Basin east to the western Great Plains. These shrublands are usually associated with valley bottoms or alluvial slopes with medium- to fine-textured soils but may occur on coarser soils of erosional slopes with calcareous substrates. In most cases, the soils are alkaline and may have substantial salt accumulation. The vegetation included in this alliance is characterized by a sparse to moderately dense shrub layer dominated or codominated by *Atriplex confertifolia*. Shrub associates may include *Picrothamnus desertorum* (= *Artemisia spinescens*), *Atriplex polycarpa*, *Ephedra nevadensis*, *Chrysothamnus* spp., *Krascheninnikovia lanata*, *Lycium* spp., *Sarcobatus vermiculatus*, and *Tetradymia* spp. The usually sparse herbaceous layer is dominated by graminoids such as *Elymus elymoides*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Pleuraphis rigida* (= *Hilaria rigida*), *Leymus salinus*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Pseudoroegneria spicata*, *Hesperostipa* spp., and other perennial bunch grasses. Diagnostic of this shrubland alliance is a shrub layer dominated or codominated by *Atriplex confertifolia*. [Captured 2008-02-18]

***** New Vegetation Type - based on field observation:**

***Atriplex confertifolia* - *Ambrosia dumosa* Shrubland**

Shadscale - Bur Sage Shrubland

Association Code: NNHP038

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G4G5?

Summary: This represents an association under the same name listed in 'Classification of Vegetation on the Nevada Test Site', Bechtel Nevada Ecological Services, 2000. That document placed it into an alliance of the same name and I here suggest it belongs within the *Atriplex confertifolia* Shrubland Alliance. The document should be further examined to see if understory grasses provide sufficient ecological information for further splitting of the association.

References:

NNHP Plots: (0 plots identified)

***Atriplex confertifolia* - *Atriplex polycarpa* Shrubland**

Shadscale - Cattle-spinach Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001299

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Faden 1977, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex confertifolia* - *Ephedra nevadensis* Shrubland**

Shadscale - Nevada Joint-fir Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001303

Distribution (Nations/Subnations): US / AZ, CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Schramm 1982, Warren et al. 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex confertifolia* - *Krascheninnikovia lanata* Shrubland**

Shadscale - Winter-fat Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001301

Distribution (Nations/Subnations): US / CA?, CO, NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G5

Summary: This association occurs on shale hills, mesas and valley floors at elevations between 1500 and 1900 m (4920-6235 feet) in southern, eastern and western Utah, northwestern Colorado, and central Nevada. Slopes are typically gentle to moderate and may be oriented to any aspect. Bare ground, cryptobiotic crusts and gravel cover most of the unvegetated ground surface. Soils are clay loams or loams and are derived from marine shale or from shale-rich alluvium. A mixed sparse short-shrub canopy dominated by *Atriplex confertifolia* and *Krascheninnikovia lanata* characterizes this community, and *Picrothamnus desertorum* is nearly always present. Other shrubs present may include *Artemisia nova*, *Artemisia tridentata* ssp. *wyomingensis*, and *Atriplex canescens*. Total shrub cover rarely exceeds 25%. The herbaceous layer may be sparse to dense, depending on substrate and grazing history. Common species include *Poa fendleriana*, *Pleuraphis jamesii*, *Achnatherum hymenoides*, *Elymus elymoides*, *Sphaeralcea* spp., and *Eriogonum* spp., although in highly disturbed stands *Bromus tectorum* will be overwhelmingly dominant.

[Captured 2008-02-15]

References: Beatley 1976, Billings 1949, Blackburn et al. 1968a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Fautin 1946, Western Ecology Working Group n.d.

NNHP Plots: p050620a, p050620b (2 plots identified)

Representative Images:



p050620b_16-31-01.JPG



p050620a_15-56-00.JPG

***Atriplex confertifolia - Lycium pallidum / Mirabilis pudica* Shrubland**

Shadscale - Pale Desert-thorn / Bashful Four-o'clock Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001309

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G3G4Q

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Rickard and Beatley 1965, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex confertifolia - Lycium shockleyi* Shrubland**

Shadscale - Shockley's Desert-thorn Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001310

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - with plot data:**

***Atriplex confertifolia - Picrothamnus desertorum - Sarcobatus baileyi* Shrubland**

Shadscale - Budsage - Bailey Greasewood Shrubland

Association Code: NNHP051

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: This type occurs primarily in the western Great Basin and frequently lacks any perennial graminoid understory. If present at all, perennial grasses are sparse. Invasive annual grasses may be present. The shrub layer is of variable cover, typically ranging 10-20 percent. *A. confertifolia* typically has the greatest cover, but *S. baileyi* may occasionally slightly exceed it in total cover. This association may be previously described as *Atriplex confertifolia* - *Picrothamnus desertorum* / *Sarcobatus vermiculatus* Shrubland. *S. baileyi* is now recognised as a distinct species from *S. vermiculatus* and has different ecological requirements, resulting in different biogeography. The formerly described association also is oddly named in using the slash, implying *S. vermiculatus* is significantly

References:

NNHP Plots: p020617i, p020617n (2 plots identified)

Representative Images:



p020617n_1.JPG

***Atriplex confertifolia* - *Picrothamnus desertorum* / *Achnatherum hymenoides*
Shrubland**

Shadscale - Bud Sagebrush / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001297

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969b, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: p050629c, p030701d (2 plots identified)

Representative Images:



p030701d.JPG

***** New Vegetation Type - with plot data:**

***Atriplex confertifolia* - *Picrothamnus desertorum* / *Elymus elymoides* Shrubland**

Shadscale - Budsage / Squirreltail Shrubland

Association Code: NNHP024

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: This common lowland vegetation type is codominated by *Atriplex confertifolia* and *Picrothamnus desertorum* in basins of northern Nevada. Grasses are exceptionally sparse in these

communities and are dominated by *Elymus elymoides*, though others may be present, particularly *Achnatherum hymenoides*. This type may in fact be a degraded version of *Atriplex confertifolia* - *Picrothamnus desertorum* / *Achnatherum hymenoides* Shrubland as *A. hymenoides* may be reduced in abundance by significant levels of grazing in these low-carrying-capacity sites. These communities are among the most readily invaded by *Bromus tectorum* of salt desert vegetation. This is probably related to *Picrothamnus desertorum* / *Elymus elymoides* Shrubland [Provisional] (CEGL002992) or may even be the same type. In Nevada, *Picrothamnus* seldom occurs without *Atriplex confertifolia* and where I have seen it without is generally a site that becomes saturated and muddy seasonally, where *Elymus elymoides* is unlikely to have much cover. Placement in *Atriplex confertifolia* shrubland alliance rather than in *Picrothamnus desertorum* shrubland alliance is tentative.

References:

NNHP Plots: p020602y, p050609d (2 plots identified)

***Atriplex confertifolia* - *Picrothamnus desertorum* / *Krascheninnikovia lanata* Shrubland**

Shadscale - Bud Sagebrush / Winter-fat Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001296

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969b, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Atriplex confertifolia* - *Picrothamnus desertorum* / *Pleuraphis jamesii* Shrubland**

Shadscale - Budsage / James' Galleta Shrubland

Association Code: NNHP030

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This is a salt desert community of the Great Basin in the transition zone to the Mojave. The shrub layer typically resembles communities in salt desert environments of the Great Basin, codominated by *Atriplex confertifolia* and *Pleuraphis jamesii*. The graminoid layer, however, is more Mojave-like suggesting warm-desert conditions or greater occurrence of warm-season rainfall.

References:

NNHP Plots: p050603ze (1 plots identified)

Representative Images:



p050603ze_17-01-22.JPG

***Atriplex confertifolia* - *Picrothamnus desertorum* / *Sarcobatus vermiculatus*
Shrubland**

Shadscale - Bud Sagebrush / Black Greasewood Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001298

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969b, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP comments: This type seems poorly named and appears to lack a description (no summary available). NNHP Veg Ecologist, Eric Peterson, suggests removing it in favor of *Atriplex confertifolia* - *Picrothamnus desertorum* - *Sarcobatus baileyi* Shrubland. See the description of that vegetation type for more detail.

NNHP Plots: (0 plots identified)

***Atriplex confertifolia* - *Picrothamnus desertorum* Shrubland**

Shadscale / Bud Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001295

Distribution (Nations/Subnations): US / CA?, NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: This alkaline desert association occurs the Great Basin, Columbia Basin and Colorado Plateau and is likely more widespread in the intermountain western U.S. It occurs on barren toeslopes and playas on sandy or heavy clay soils, and foothill areas where saline hardpans occur at depths of 1-2 feet. The shrubs are low-statured and open, often with very low cover (5-15%).

Dominant shrubs are *Atriplex confertifolia* and *Picrothamnus desertorum* (= *Artemisia spinescens*). Other shrubs, such as *Artemisia tridentata* and *Sarcobatus vermiculatus* in Nevada, and *Coleogyne ramosissima*, *Gutierrezia sarothrae*, and *Tetradymia spinosa* in southern Utah, may be present to codominant. Herbaceous cover is generally very sparse, due to overgrazing or lack of moisture.

Graminoids include *Achnatherum hymenoides*, *Pleuraphis jamesii*, *Poa secunda*, and *Sporobolus airoides*; common forbs include *Calochortus nuttallii*, *Cymopterus newberryi*, *Encelia nutans*, and *Sphaeralcea coccinea*. The annual invasive grass *Bromus tectorum* can be abundant, but its

presence is variable year to year.

[Captured 2008-02-15]

References: Billings 1945, Billings 1949, Blackburn et al. 1969e, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: p050609m, p050614h, p020617l, p030603c (4 plots identified)

Representative Images:



p050614h_12-51-15.JPG



p020617l_1.JPG



p030603c.JPG



p050609m_13-06-59.JPG

***Atriplex confertifolia* - *Sarcobatus vermiculatus* Shrubland**

Shadscale - Black Greasewood Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001313

Distribution (Nations/Subnations): US / AZ, CA, CO, NV, OR, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This shrub association is found scattered in saline soils on valley floors, alluvial terraces and alluvial fans across the Colorado Plateau. Elevations range from 1350 to 1650 m, slopes range from level to moderately steep (1-50% slopes), and sites can be oriented to any aspect. Soils are fine-textured and poorly drained clays, clay loams and silt loams. Total vegetation cover ranges from less than 20% to more than 50%, with the higher values tending to occur in shrublands located on valley floors and alluvial terraces. The shrub stratum generally consists primarily of *Sarcobatus vermiculatus* shrubs with between 1 and 20% cover. *Atriplex confertifolia* shrubs are scattered throughout the canopy, with between 1 and 5% cover. Other shrubs present with minor

cover include *Gutierrezia sarothrae* and *Suaeda moquinii* (= *Suaeda torreyana*). The herbaceous layer is variable but can have as much as 35% cover. This layer tends to reflect a degree of disturbance; common species include *Achnatherum hymenoides*, *Astragalus nuttallianus*, *Bromus tectorum*, *Lappula occidentalis*, *Lepidium densiflorum*, *Plantago patagonica*, and *Sphaeralcea parvifolia*. Nonvascular species are generally present on the soil surface and may have as much as 95% cover in undisturbed sites.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Fenemore 1970, Kagan et al. 2004, Miller et al. 1977, Western Ecology Working Group n.d.

NNHP Plots: p020507j (1 plots identified)

Representative Images:



p020507j_2.JPG

***Atriplex confertifolia* / *Achnatherum hymenoides* Shrubland**

Shadscale / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001311

Distribution (Nations/Subnations): US / CA?, CO, ID, NV, OR, UT, WY?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This plant association is widely scattered on benches, plateaus, and gullies within the *Atriplex confertifolia* zone of Colorado, Idaho, Nevada, Utah and Oregon, and is also purported to occur in California and Wyoming. It is best developed in sites with an alkaline, yet coarse-textured soil. Elevations range from 1250 to 1780 m (4100-5840 feet) in Utah and Colorado. The association is typically found on well-drained, alkaline soils derived from volcanic tuff or shale that often have been modified by alluvial deposits. Low-growing *Atriplex confertifolia* is the dominant shrub, usually with up to 15% cover, although other shrubs, including *Picrothamnus desertorum* (= *Artemisia spinescens*), *Artemisia tridentata* ssp. *wyomingensis*, *Gutierrezia sarothrae*, *Opuntia polyacantha*, *Grayia spinosa*, and *Sarcobatus vermiculatus*, may also be present in low amounts. In high-quality, ungrazed stands *Achnatherum hymenoides* may have up to 20% cover and dominates the otherwise sparse herbaceous understory. Lesser amounts of other perennial grasses, including *Elymus elymoides*, *Hesperostipa comata*, *Pleuraphis jamesii*, *Poa fendleriana*, and *Poa secunda*, are often present. Forbs vary greatly across the range of this association and never contribute significant cover. Some locally common species include *Eriogonum* spp., *Phlox hoodii*, *Sphaeralcea grossulariifolia*, *Thelypodium flexuosum*, and *Townsendia florifera*. Stands degraded by excessive livestock grazing have abundant *Bromus tectorum* in the understory and higher total herbaceous cover.

[Captured 2008-02-15]

References: Baker 1982b, Blackburn et al. 1968a, Blackburn et al. 1969b, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Caicco and Wellner 1983g, Driscoll et al. 1984, Kagan et al. 2000, Keammerer 1974b, Keammerer 1977, Moseley 1987a, Moseley 1987b, Rickard and Beatley 1965, Rust et al. unpubl. data 2000b, Ward et al. 1974, Western Ecology Working Group n.d., Young et al. 1986

NNHP Plots: p050627d (1 plots identified)

Representative Images:



p050627d_12-22-37.JPG

* New to Nevada - with plot data:

***Atriplex confertifolia* / *Elymus elymoides* Shrubland**

Shadscale / Bottlebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001302

Distribution (Nations/Subnations): US / ID, OR, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Vest 1962b, Western Ecology Working Group n.d.

NNHP Plots: p020515h, p020531g, p020531i, p050620c, p050627k, p030603a (6 plots identified)

Representative Images:



p030603a.JPG



p050627k_14-52-48.JPG



p050620c_17-14-47.JPG

***Atriplex confertifolia* / *Pleuraphis jamesii* Shrubland**

Shadscale / James' Galleta Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001304

Distribution (Nations/Subnations): US / AZ, CA?, CO, NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G5

Summary: This widespread western shrubland association is reported from the southwestern Great Plains, Colorado Plateau, Great Basin, and Mojave Desert mountains. It occurs in a variety of habitats and can be found on two distinct substrates: coarse-textured, non-saline soils derived from sandstone or gravel or deep, fine-textured, alkaline, often saline soils derived from shale. Stands with coarse-textured soils tend to be on slopes, while those with fine-textured soils tend to be on low, relatively flat positions in the landscape (valley bottoms, basins, etc.). The common trait of these different substrates is that they are very dry either because of low precipitation or because of high internal plant moisture stress from soil salinity. The unvegetated surface is composed largely of bare soil, gravel, and large or small rocks. This association is characterized by a sparse to open canopy (1-25% cover) of short shrubs dominated by *Atriplex confertifolia* with a sparse to moderate graminoid layer dominated by *Pleuraphis jamesii*. Associated shrubs include *Artemisia bigelovii*, *Chrysothamnus viscidiflorus*, *Coleogyne ramosissima*, *Ephedra torreyana*, *Ericameria nauseosa*, *Grayia spinosa*, *Gutierrezia sarothrae*, *Krascheninnikovia lanata*, *Opuntia polyacantha*, *Picrothamnus desertorum*, and *Suaeda moquinii* (= *Suaeda fruticosa*), depending on substrate, or *Amphipappus fremontii*, *Ambrosia dumosa*, and *Lycium pallidum* in the Mojave Desert. If other *Atriplex* species are present, they do not dominate the canopy. Other graminoids include *Achnatherum hymenoides*, *Sporobolus cryptandrus*, and *Elymus elymoides* on sandy sites and *Bouteloua gracilis* and *Sporobolus airoides* on fine-textured soil. Forbs generally have low cover and may include *Sphaeralcea grossulariifolia*, *Eriogonum inflatum*, and species of *Chaenactis*, *Lappula*, *Phacelia*, *Plantago*, and *Chenopodium*. Introduced species such as *Bromus tectorum* and *Salsola kali* are common on some sites.

[Captured 2008-02-15]

References: Annable 1985, Bourgeron and Engelking 1994, Branson and Owen 1970, Branson et al. 1976, CONHP unpubl. data 2003, Campbell 1977, Dastrup 1963, Driscoll et al. 1984, Graham 1937, Harper and Jaynes 1986, Ibrahim et al. 1972, Lusby et al. 1963, Potter et al. 1985, Singh and West 1971, Soil Conservation Service 1978, Tuhy and MacMahon 1988, U.S. Bureau of Reclamation 1976, Von Loh 2000, Welsh 1957, West and Ibrahim 1968, Western Ecology Working Group n.d.

NNHP Plots: p050509c (1 plots identified)

Representative Images:



p050509c.JPG

***Atriplex confertifolia* / *Pseudoroegneria spicata* Shrubland**

Shadscale / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001312

Distribution (Nations/Subnations): US / CO, ID, NV?, WY?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Baker 1983b, Baker 1983c, Baker and Kennedy 1985, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex confertifolia* Great Basin Shrubland**

Shadscale Great Basin Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001294

Distribution (Nations/Subnations): US / CA?, CO, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This shrub association occurs in scattered stands on ridges, flats, alluvial fans, talus slopes and badlands throughout the Colorado Plateau and Great Basin, often in a matrix of other high desert shrublands. Sites tend to occur on level to gentle slopes between 1158 and 2194 m (3800-7200 feet) elevation. Soils tend to be alkaline, shallow, well-drained clay loams, sometimes with a high rock or gravel content. Parent materials are variable but generally include a high percentage of calcareous source rocks. Total vegetation cover rarely exceeds 20% and is clearly dominated by *Atriplex confertifolia*. Many other species of shrubs may also be present, although they contribute little to the total canopy, including *Krascheninnikovia lanata*, *Kochia americana*, *Picrothamnus desertorum*, *Acamptopappus shockleyi*, *Atriplex canescens*, *Ephedra nevadensis*, and *Ericameria nauseosa*. The herbaceous layer rarely has more than 5% total cover; species vary greatly by location, but common graminoids include *Elymus multisetus*, *Elymus elymoides*, *Poa secunda*, *Dasyochloa pulchella* (= *Erioneuron pulchellum*), and *Pleuraphis jamesii*. Forbs are diverse but only contribute measurable cover in unusually wet years; *Chaenactis douglasii*, *Phacelia crenulata*, and *Mentzelia albicaulis* are widespread. Disturbed sites have high cover of *Bromus tectorum*.

[Captured 2008-02-15]

References: Beatley 1976, Blackburn et al. 1968a, Bourgeron and Engelking 1994, Bradley 1964, Driscoll et al. 1984, Leary and Peterson 1984, Peterson 1984, Rickard and Beatley 1965, Western Ecology Working Group n.d.

NNHP Plots: p020617p, p020617s, p020618i (3 plots identified)

Representative Images:



p020617p_1.JPG



p020618i_1.JPG

*** New to Nevada - with plot data:**

***Atriplex confertifolia* Sparse Shrubland**

Shadscale Sparse Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003830

Distribution (Nations/Subnations): US / UT

Status: 1 **Active Confidence:** (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: p050614p (1 plots identified)

***Atriplex hymenelytra* Shrubland Alliance**

Desert-holly Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.872

Summary: Stands included in this alliance occur in valleys, bajadas and lower slopes of mountains in the Mojave Desert from 75 m below sea level to 1400 m above in elevation. Climate is characterized by hot, dry summers, with most rain occurring in the winter. Annual precipitation varies widely from year to year with mean annual precipitation of approximately 10 cm. Sites are very arid because of topography or salts. The alliance is commonly found along drainages that dissect west-facing bajadas and on western slopes of mountains. Topography is typically flat and rolling to moderately sloping. There are large areas of desert pavement with very sparse vegetation. Soils are deep, well-drained, alkaline, and coarse-textured. Vegetation included in this alliance has a very sparse canopy of *Atriplex hymenelytra* less than 1 m tall with scattered clumps of *Tidestromia oblongifolia* and *Chamaesyce parishii*. More mesic sites in drainages may support additional perennials, including *Larrea tridentata*, *Ambrosia dumosa*, *Baccharis sergiloides*, *Bebbia juncea*, *Hymenoclea salsola*, *Dalea mollissima*, and *Eriogonum inflatum*. During wet years, annual forbs may be present. Adjacent vegetation is generally

shrublands dominated by *Larrea tridentata* or *Ambrosia dumosa*. [Captured 2008-02-18]

***Atriplex hymenelytra* Shrubland**

Desert-holly Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001317

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Annable 1985, Bourgeron and Engelking 1994, Driscoll et al. 1984, Schramm 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex parryi* Shrubland Alliance**

Parry's Saltbush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2507

Summary: [no summary available] [Captured 2008-02-18]

***Atriplex parryi* Shrubland [Placeholder]**

Parry's Saltbush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002711

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Brown, L., pers. comm., Pointel pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Atriplex polycarpa* Shrubland Alliance**

Cattle-spinach Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.873

Summary: Shrublands in this alliance occur in desert valleys, basins, playas, bajadas, foothills and plains in southern New Mexico, Nevada and southern California. Sites are generally flat to gently sloping and moderately saline, but the alliance also occurs on rolling to hilly fans and slopes. Other environmental characteristics vary by site and region. The vegetation included in this alliance is characterized by a sparse to moderately dense shrub layer dominated or codominated by *Atriplex polycarpa*. Shrub associates may include *Larrea tridentata*, *Ambrosia dumosa*, *Eriogonum fasciculatum*, *Hymenoclea salsola*, *Atriplex canescens*, *Atriplex confertifolia*, *Gutierrezia sarothrae*, and *Suaeda moquinii*. Perennial graminoids are present to abundant in some habitats and may include *Distichlis spicata*, *Pleuraphis mutica* (= *Hilaria mutica*), and *Sporobolus* spp. Exotic annual grasses dominate the understory in some stands. Diagnostic of this shrubland alliance is the dominance or codominance of *Atriplex polycarpa*. [Captured 2008-02-18]

***Atriplex polycarpa* Shrubland**

Cattle-spinach Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001318

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Faden 1977, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Baccharis sergiloides* Intermittently Flooded Shrubland Alliance**

Waterweed Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2531

Summary: This wetland and riparian alliance occurs in washes and canyon bottoms in the Mojave Desert, southeastern Great Basin, and southern California mountains. Stands are restricted to intermittently flooded drainages, seeps, and springs. Substrates are gravelly sand to sandy loam-textured soils that are seasonally saturated. Boulders and bedrock are common. Parent materials are typically granitic. Sites range from flat washes to steep slopes. The vegetation is characterized by an open, microphyllous shrub layer dominated by *Baccharis sergiloides*. Other shrubs and dwarf-shrubs may be present including *Acacia greggii*, *Ericameria linearifolia*, *Eriogonum fasciculatum*, *Gutierrezia microcephala*, *Lotus rigidus*, *Opuntia acanthocarpa*, *Prunus fasciculata*, *Rhus trilobata*, and *Yucca schidigera*. Occasional emergent *Populus fremontii* or *Salix* spp. may occur. Herbaceous species such as *Artemisia ludoviciana*, *Muhlenbergia rigens*, or *Sphaeralcea ambigua* may be present to common. [Captured 2008-02-18]

***Baccharis sergiloides* Shrubland [Placeholder]**

Waterweed Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002953

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: GNR

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Betula occidentalis* Seasonally Flooded Shrubland Alliance**

Water Birch Seasonally Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.996

Summary: This alliance occurs on stream benches and floodplains in narrow to moderately wide valleys and hillside seeps in the mountains and foothills across much of the western U.S. Surface water is present for extended periods during the growing season. The water table, after flooding ceases, is

variable, extending from saturated to well below the ground surface. Substrates are typically alluvial and range from fairly shallow, finer-textured soils to gravel and boulders. Soils usually have signs of saturation (mottles). The vegetation is characterized by a nearly continuous tall-shrub to small-tree canopy dominated by *Betula occidentalis* along the streambank. Other shrub species include *Alnus incana*, *Cornus sericea*, *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides floribunda*), *Salix exigua*, *Amelanchier utahensis*, *Prunus virginiana*, and *Salix monticola*. Along narrow valleys at higher elevations, conifers may overhang the stream edge. Herbaceous undergrowth is usually limited because of the dense shrub canopy. Forb species include *Maianthemum stellatum*, *Heracleum sphondylium*, *Thalictrum fendleri*, and *Rudbeckia laciniata*. Graminoid cover is usually low and includes the following species: *Carex utriculata*, *Carex pellita* (= *Carex lanuginosa*), *Carex microptera*, *Carex nebrascensis*, *Glyceria* spp., *Juncus balticus*, and introduced hay grasses. Diagnostic of this alliance is the *Betula occidentalis*-dominated tall-shrub layer that occurs on sites that are flooded for extended periods during the growing season. [Captured 2008-02-18]

***Betula occidentalis* / Mesic Graminoids Shrubland**

Water Birch / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002654

Distribution (Nations/Subnations): US / CO, NV, UT

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3

Summary: This shrubland association often occurs as dense bands up to 35 m wide along moderately wide to wide floodplains in mountain valleys of Colorado, Nevada and Utah. Stands also occur in small patches at higher elevations and around seeps and isolated springs on hillslopes away from the valley bottom. These shrublands are characterized by bands of vegetation dominated by *Betula occidentalis* (40-60% canopy cover) but often including *Ribes inerme* and *Salix bebbiana*. This vegetation may extend well way from the channel edge in deep pockets of sandy loam soils. *Alnus incana* may be codominant. *Picea pungens* and *Juniperus scopulorum* may also be present but usually with low cover. Stands with a dense shrub layer may have a limited (<10%) but diverse herbaceous cover. Graminoids typically dominate the herbaceous layer where the most abundant species usually include *Carex pellita* (= *Carex lanuginosa*), *Carex deweyana*, or *Carex nebrascensis*. *Deschampsia caespitosa* and *Carex utriculata* are often present as well. Forb cover often includes *Achillea millefolium*, *Cardamine cordifolia*, *Heracleum maximum*, *Maianthemum stellatum*, and *Vicia americana*. Scouring rushes (*Equisetum* spp.) may also have significant cover. The introduced grasses *Agrostis stolonifera* and *Poa pratensis* may be present in disturbed stands. Diagnostic of this association is the dominance of *Betula occidentalis* in the shrub layer and the dominance of mesic graminoids in the herbaceous layer.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Hall and Hansen 1997, Hansen et al. 1995, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1999a, Kittel et al. 1999b, Manning and Padgett 1995, Padgett et al. 1989, Richard et al. 1996, Rosgen 1996, Western Ecology Working Group NNHP

Plots: (0 plots identified)

***Betula occidentalis* Shrubland**

Water Birch Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001080

Distribution (Nations/Subnations): CA, US / AB, CO, ID, MT, NV?, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This shrubland occurs on stream benches and floodplains in narrow to moderately wide valleys and hillside seeps in mountains, canyons and foothills across much of the western U.S. Surface water is present for extended periods during the growing season. The water table, after flooding ceases, is variable, extending from saturated to well below the ground surface. Substrates are typically alluvial and range from fairly shallow, finer-textured soils to gravel and boulders. Soils usually have signs of saturation (mottles). The vegetation is characterized by a nearly continuous tall-shrub to small-tree canopy dominated by *Betula occidentalis* along the streambank. Other shrub species include *Alnus incana*, *Cornus sericea*, *Dasiphora fruticosa ssp. floribunda* (= *Pentaphylloides floribunda*), *Salix* spp., *Amelanchier utahensis*, *Rhus trilobata*, *Shepherdia argentea*, and *Prunus virginiana*. Along narrow valleys at higher elevations, conifers may overhang the stream edge. Herbaceous undergrowth can be limited because of the dense shrub canopy. However, if the shrub canopy is open and the stand is on relatively well-drained yet mesic site (for example, elevated river benches), the herbaceous layer can be abundant. It is often a diverse mixture of grasses and forbs that is dominated by disturbance-induced species, including most commonly *Agrostis stolonifera*, *Cirsium arvense*, *Phleum pratense*, and *Poa pratensis*. Native forb species include *Maianthemum stellatum*, *Heracleum sphondylium*, *Thalictrum fendleri*, and *Rudbeckia laciniata*. Graminoid cover is highly variable and can include *Carex utriculata*, *Carex pellita* (= *Carex lanuginosa*), *Carex microptera*, *Carex nebrascensis*, *Glyceria* spp., *Juncus balticus*, and introduced hay grasses. Diagnostic of this association is the *Betula occidentalis*-dominated tall-shrub layer and a variable, weedy, mixed herbaceous undergrowth that occurs on sites that are flooded for extended periods during the growing season.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Chadde et al. 1988, Crowe and Clausnitzer 1997, Driscoll et al. 1984, Evans 1989a, Hall and Hansen 1997, Hansen and Hall 2002, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jones 1992b, Kittel and Lederer 1993, MTNHP 2002b, Manning and Padgett 1995, Padgett et al. 1989, Weixelman et al. 1996, Western NNHP **Plots:** (0 plots identified)

***Betula occidentalis* Temporarily Flooded Shrubland Alliance**

Water Birch Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.967

Summary: This riparian alliance occurs on stream benches and floodplains in narrow to moderately wide valleys and hillside seeps in the mountains and foothills across much of the western U.S. Surface water is present for brief periods during the growing season, but the water table usually lies well below soil surface. Substrates are typically alluvial and range from fairly shallow, finer-textured soils to gravel and boulders. Soils usually have signs of saturation (mottles). The vegetation is characterized by a nearly continuous tall-shrub to small-tree canopy dominated by *Betula occidentalis* along the streambank with up to 90% cover. Other shrub species include *Alnus incana*, *Cornus sericea*, *Dasiphora fruticosa ssp. floribunda* (= *Pentaphylloides floribunda*), *Salix exigua*, *Amelanchier utahensis*, *Prunus virginiana*, and *Salix monticola*. Along narrow valleys at higher elevations, conifers may overhang the stream edge. Herbaceous undergrowth is usually limited because of the dense shrub canopy. Forb species include *Maianthemum stellatum*, *Heracleum sphondylium*, *Thalictrum fendleri*, and *Rudbeckia laciniata*. Graminoid cover is usually low and includes the following species: *Carex utriculata*, *Carex pellita* (= *Carex lanuginosa*), *Carex microptera*, *Carex nebrascensis*, *Glyceria* spp.,

Juncus balticus, and introduced hay grasses. Diagnostic of this alliance is the *Betula occidentalis*-dominated tall-shrub layer that occurs on sites that are flooded for brief periods during the growing season. [Captured 2008-02-18]

***Betula occidentalis* / *Cornus sericea* Shrubland**

Water Birch / Red-osier Dogwood Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001161

Distribution (Nations/Subnations): US / CA, CO, ID, MT?, NM, NV, OR, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This is a wide-ranging but locally limited riparian association found from the Great Basin and central Utah cordillera, north to the Columbia Basin and northern Rocky Mountains, as far south as northern California, and east to Montana, the Black Hills of South Dakota and the Southern Rocky Mountains in Wyoming at elevations ranging from about 610 to 2288 m (2000-7500 feet). It occurs on gently sloping, often undulating, streambanks and terraces of low- to high-gradient perennial or intermittent, spring-fed streams and rivers. Stands sometimes occur within the flood-prone zone, although water tables are typically deep during the growing season. Soils are alluvial and textures are coarse to fine, ranging from loamy skeletal and fine-loamy over sandy-skeletal, to coarse-loamy. *Betula occidentalis*, averaging 5 to 6 m tall, clearly dominates the tall-shrub overstory, usually with over 30% cover. The understory is characterized by an open to dense tall-shrub layer dominated by *Cornus sericea* with 15-90% cover. *Alnus incana*, *Rosa woodsii*, and tall *Salix* spp., are frequently present with up to 20% cover each. At low elevations in southwestern Idaho and eastern Washington, *Philadelphus lewisii*, *Symphoricarpos albus*, and/or *Toxicodendron rydbergii* are sometimes present with less than 10% cover each. The cover of the herbaceous layer varies inversely with that of the shrub layer. Consistently present herbaceous species include *Elymus glaucus*, *Equisetum* spp., *Galium* spp., *Maianthemum stellatum*, *Poa pratensis*, and *Urtica dioica*, all with low cover.

The type is also known from the Upper Rio Grande watershed in northern New Mexico at elevations around 2400 m (7875 feet) along montane streams with gradients near 1.5%. Soils have been reported as coarse-loamy Aeric Fluvaquents. It is characterized by dense thickets of short deciduous shrubs codominated by *Betula occidentalis* and *Cornus sericea* ssp. *sericea*. A diverse number of shrub species can also be present, including *Acer glabrum*, *Amelanchier utahensis*, *Alnus incana* ssp. *tenuifolia*, *Rosa woodsii*, *Rubus idaeus* ssp. *strigosus*, *Rubus parviflorus*, and *Ribes americanum*. Like alders and willows that are common at this elevation, these river birch communities overhang streambanks and can be thicket-forming and quite shrubby. The herbaceous understory is represented by scattered grasses and forbs. The most common native wetland species are *Carex microptera*, *Carex rostrata*, *Aconitum columbianum*, *Argentina anserina*, *Equisetum laevigatum*, and *Mentha arvensis*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Crawford 2001, Driscoll et al. 1984, Evans 1989a, Hansen and Hall 2002, Hansen et al. 1988b, Hansen et al. 1995, IDCDC 2005, IDCDC unpubl. data 2002, Jankovsky-Jones et al. 2001, Jones 1992b, Kagan et al. 2000, MTNHP 2002b, MTNHP unpubl. data 2002a, Manning and Padgett 1995, Marriott and Faber-Langendoen 2000, Muldavin et al. 2000a, Padgett et al. 1988b, Padgett et al. 1989, WNHP unpubl. data, WNHP unpubl. data 2002, Western Ecology Working Group n.d., Youngblood and Mauk 1985, Youngblood et al. 1985b

NNHP Plots: (0 plots identified)

***Betula occidentalis* / *Maianthemum stellatum* Shrubland**

Water Birch / Starflower False Solomon's-seal Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001162

Distribution (Nations/Subnations): US / CA, CO, ID, NV, OR, UT, WA

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G4?

Summary: This plant association occurs within the Intermountain West from Colorado north and west into the Pacific Northwest. It typically forms a tall band of shrubs (1.5-2.5 m [5-8 feet]) lining the channel of first- and second-order streams in the elevational range of 2000-2700 m (6400-8800 feet). At higher elevations, conifer trees on the upper slopes intermix with *Betula occidentalis* at the streambank. At lower elevations along sunny valley bottoms, well-developed, large occurrences occupy relatively flat stream benches and often extend away from the channel edge. Other shrubs that may be present include *Alnus incana* ssp. *tenuifolia*, *Cornus sericea*, *Salix exigua*, *Jamesia americana*, *Amelanchier utahensis*, *Prunus virginiana*, and *Salix monticola*. The undergrowth can be a sparse or thick carpet of grasses and forbs. In undisturbed stands, forb species richness can be high, with over 30 species in one stand, and may include species such as *Maianthemum stellatum*, *Heracleum maximum*, *Thalictrum fendleri*, and *Rudbeckia laciniata*. Graminoid cover is usually low but can include *Poa pratensis*, *Equisetum arvense*, *Carex utriculata*, and others. An abundance of non-native grass species is considered an indication of past or current heavy grazing.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Driscoll et al. 1984, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999a, Manning and Padgett 1995, Nachlinger and Reese 1996, Padgett et al. 1989, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Cercocarpus ledifolius* Shrubland Alliance**

Curl-leaf Mountain-mahogany Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.828

Summary: The plant associations in this alliance occur in semi-arid, mountainous habitats of the interior western United States. These shrublands are often located on rocky outcrops or escarpments in forested areas. Most stands occur on steep rimrock slopes, usually in areas of shallow soils or protected slopes. In Wyoming, stands of this alliance primarily grow on carbonate sediments (limestone or dolomite) or on sandstones rich in calcium carbonate. Other rock types include quartz, gneiss, and basalt. Soils are typically rocky and immature, and are always rockier than found in surrounding sites. The vegetation in this alliance is characterized by an open shrub canopy of *Cercocarpus ledifolius*. The vegetation may occur as scattered small- and large-patch communities in arid steppe or on rocky outcrops or steep escarpments within forests. Other shrubs often occur in the stands and include *Artemisia tridentata*, *Artemisia arbuscula*, *Artemisia nova*, *Artemisia frigida*, *Amelanchier alnifolia*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Prunus virginiana*, *Ribes* spp., and *Symphoricarpos* spp. The herbaceous layer is usually composed of xeric graminoids including *Festuca idahoensis*, *Pseudoroegneria spicata*, *Poa secunda*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Achnatherum occidentale* (= *Stipa occidentalis*), *Elymus glaucus*, *Calamagrostis rubescens*, *Koeleria macrantha*, and *Hesperostipa comata* (= *Stipa comata*). Outcrop communities usually include many of the species above, but may also include forest trees such as *Pseudotsuga menziesii*, *Pinus ponderosa*, *Pinus flexilis*, *Pinus jeffreyi*, *Juniperus osteosperma*, *Juniperus scopulorum*, or *Juniperus occidentalis*. Adjacent vegetation is usually *Pinus ponderosa* or *Pseudotsuga*

menziesii forests or woodlands, pinyon and/or juniper woodlands, *Artemisia* shrublands, or grasslands dominated by species of *Festuca*, *Achnatherum*, *Hesperostipa*, or *Pseudoroegneria*. [Captured 2008-02-18]

***Cercocarpus ledifolius* / *Mahonia repens* Shrubland**

Curl-leaf Mountain-mahogany / Creeping Oregon-grape Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000965

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Lewis 1971, Lewis 1975a, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Cercocarpus ledifolius* / *Prunus virginiana* Shrubland**

Curl-leaf Mountain-mahogany / Choke Cherry Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000966

Distribution (Nations/Subnations): US / CA?, CO, NV, OR?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: This association occupies slopes and ridgelines of high plateaus between 2450 and 2650 m (8040-8700 feet) elevation in northwestern Colorado and has been reported from eastern Oregon, as well as from the Ruby and Jarbidge mountains of Nevada. Stands occur on level to moderate slopes that generally face north to east, with a few stands on southeast exposures. Soils are deep sandy loams, but most stands also include outcrops or boulders of the underlying sandstone or limestone bedrock. The vegetation is characterized by an arborescent canopy of *Cercocarpus ledifolius* shrubs with at least 25% cover and up to 5 m tall. In some stands, scattered individual *Pseudotsuga menziesii*, *Pinus ponderosa*, or *Populus tremuloides* will emerge from the *Cercocarpus* canopy. The shrub layer is diverse, relatively dense, and is characterized by the presence (and often dominance) of *Prunus virginiana*. Other common shrubs include *Amelanchier alnifolia*, *Symphoricarpos oreophilus*, *Artemisia tridentata*, *Rosa woodsii*, *Mahonia repens*, and *Paxistima myrsinites*. A variety of grasses and forbs are present in a diverse ground layer and may include *Stenotus acaulis*, *Arenaria* spp., *Comandra umbellata*, or *Hackelia patens*.

Pseudoroegneria spicata is sparse to absent in these stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Lewis 1975a, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Cercocarpus ledifolius* / *Pseudoroegneria spicata* Shrubland**

Curl-leaf Mountain-mahogany / Bluebunch Wheatgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000967

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV, OR, UT, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4Q

Summary: This small-patch association occurs in isolated stands throughout the interior western U.S. Sites are generally located in gentle to moderately steep, dry, rocky habitats, where soils are

patchy and shallow and fracturing allows *Cercocarpus* roots to penetrate the underlying bedrock. Elevations range from 1400 m (4600 feet) in Montana to over 2600 m (8530 feet) in western Colorado. The substrate is often limestone, less often quartzite or sandstone. This tall shrubland is dominated by *Cercocarpus ledifolius*, often treelike in form. Scattered *Juniperus osteosperma*, *Juniperus scopulorum*, and *Pinus edulis* may also occur in the canopy. Total canopy cover is between 30 and 60%. There is usually no developed shrub layer, but *Amelanchier utahensis*, *Amelanchier alnifolia*, *Artemisia nova*, *Artemisia tridentata*, *Physocarpus monogynus*, *Symphoricarpos oreophilus*, and *Juniperus communis* may be present. *Prunus virginiana* is absent or has very low cover. Herbaceous species have relatively high cover (20-30%), dominated by *Pseudoroegneria spicata*. Other graminoid species with significant cover include *Achnatherum hymenoides* and *Hesperostipa comata*, and common forbs include *Artemisia frigida*, *Balsamorhiza sagittata*, *Hackelia patens*, *Mertensia oblongifolia*, *Phlox hoodii*, and *Petradoria pumila*.

[Captured 2008-02-15]

References: Baker 1983c, Baker and Kennedy 1985, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, Knight et al. 1987, Lewis 1975a, MTNHP 2002b, Miller 1964, Mueggler and Stewart 1980, Tisdale 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Cercocarpus ledifolius* / *Symphoricarpos longiflorus* Shrubland**

Curl-leaf Mountain-mahogany / Desert Snowberry Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL000969

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Chilopsis linearis* Intermittently Flooded Shrubland Alliance**

Desert-willow Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1044

Summary: This alliance includes shrublands occurring along ephemeral, intermittently flooded streams in the southwestern United States, dominated by *Chilopsis linearis*. Shrublands within this southwestern desert alliance occur within and along drainages that dissect bajadas, mesas and plains in the Chihuahuan, Sonoran, Colorado, Mojave and southern Great Basin deserts usually below 1600 m in elevation. Specific sites are known from western Texas, southern Nevada, southern California, and the Mexican state of Coahuila. They also occur in southern New Mexico and Arizona, and Sonora, Mexico. They are restricted by the arid climate to arroyo riparian zones and adjacent floodplains. The best examples of this community are in the lower portions of the arroyo where the streambed widens. This community is dependent on the intermittent flows/flooding of the channel to supplement soil moisture. In western Texas, these shrublands occur on cobble beds of intermittently flooded streams. These communities have a 2- to 5-m tall woody layer that is dominated by the xeromorphic, cold-deciduous shrub *Chilopsis linearis*. Other characteristic shrubs may include *Acacia greggii*, *Baccharis salicifolia*

(= *Baccharis glutinosa*), *Baccharis pteronioides*, *Brickellia laciniata*, *Fallugia paradoxa*, *Hymenoclea monogyra*, *Indigofera lindheimeriana*, *Platanus occidentalis*, or *Salix nigra*. The usually sparse herbaceous layer is dominated by annual grasses such as *Bouteloua barbata*. In southern Nevada, stands are surrounded by Mojavean desertscrub dominated by *Larrea tridentata* or *Coleogyne ramosissima*. In western Texas, stands are surrounded by Chihuahuan desertscrub dominated by *Larrea tridentata*. [Captured 2008-02-18]

***Chilopsis linearis* Shrubland**

Desert-willow Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001164

Distribution (Nations/Subnations): MX, US / AZ, CA, MXSO, NM, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3

Summary: This palustrine shrubland occurs along desert washes in the southwestern U.S. and northwestern Mexico. Sites are intermittently flooded drainages on alluvial fans and basins from 960-1080 (3135-3550 feet) elevation at Buenos Aires National Wildlife Refuge. Stands in the Verde Valley at Tuzigoot National Monument occur on floodplains at around 1500 m. Substrates are generally sandy. The vegetation is characterized by a tall-shrub layer dominated by *Chilopsis linearis*. *Acacia greggii* may codominate in the tall-shrub layer, but *Prosopis velutina* generally has low cover (<10%). *Baccharis sarothroides* forms an open short-shrub layer in some stands. A sparse to moderately dense herbaceous layer is present and composed of a mixture of annual and perennial forbs and grasses. Common species include *Acalypha neomexicana*, *Amaranthus palmeri*, *Boerhavia coccinea*, *Bouteloua aristidoides*, *Urochloa arizonica* (= *Brachiaria arizonica*), *Eriogonum polycladon*, *Gutierrezia microcephala*, and *Setaria* spp. The exotic grass *Eragrostis lehmanniana* is present in some stands but at relatively low cover.

[Captured 2008-02-15]

References: Armstrong 1969, Bourgeron and Engelking 1994, Driscoll et al. 1984, Plumb 1988, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Chrysothamnus albidus* Shrubland Alliance**

White-flower Rabbitbrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.834

Summary: Stands included in this shrubland alliance occur around seeps, saline meadows and flats, and around pluvial lakes in the Great Basin. The climate is arid; mean annual precipitation is generally less than 15 cm. Summers are hot and winters are cold. Elevations range from 1450-1900 m. Described stands occur on mesic sites on the nearly flat lakeplain where groundwater reaches the soil surface at some time during the growing season. There are miniature pedicels with perennial grasses growing on them. Soils are generally deep, fine-textured (silty clay), poorly drained, calcareous, alkaline and saline. Stands have a sparse woody layer dominated by the microphyllous evergreen shrub *Chrysothamnus albidus*. The herbaceous layer is sparse to possibly moderately dense, but no cover values are available. The most frequent species are the graminoids *Puccinellia nuttalliana* and *Muhlenbergia richardsonis*. Other scattered species include *Distichlis spicata*, *Pyrrocoma uniflora* var. *uniflora*, *Nitrophila occidentalis*, and *Crepis runcinata*. Adjacent vegetation includes sparse shrublands dominated by *Sarcobatus vermiculatus* and *Atriplex confertifolia*, or *Distichlis spicata*-dominated herbaceous community. [Captured 2008-02-18]

***Chrysothamnus albidus* / *Puccinellia nuttalliana* Shrubland**

White-flower Rabbitbrush / Nuttall's Alkali Grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001328

Distribution (Nations/Subnations): US / CA, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d., Young et al. 1986

NNHP Plots: (0 plots identified)

***Coleogyne ramosissima* Shrubland Alliance**

Blackbrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.874

Summary: This alliance occurs at the transition between the Mojave and Great Basin deserts on mountain slopes, mesas or bajadas bordering intermountain basins. Soils are highly variable across the large range of this vegetation type, but are generally coarse-textured and well-drained. This vegetation is characterized by a sparse to moderately dense shrub layer of *Coleogyne ramosissima*. Although *Coleogyne* is apparently restricted to a particular elevational zone, associated shrub species can be of either Mojavean or Great Basin affinities. Shrub species may include *Menodora spinescens*, *Picrothamnus desertorum* (= *Artemisia spinescens*), *Eriogonum fasciculatum*, *Ephedra* spp., *Atriplex* spp., *Grayia spinosa*, *Larrea tridentata*, *Chrysothamnus viscidiflorus*, *Yucca baccata*, *Gutierrezia sarothrae*, and *Opuntia* spp. Occasionally, scattered individuals of *Yucca brevifolia* may be emergent through the shrub layer. The herbaceous layer is typically sparse. Species of *Eriogonum*, *Navarretia*, *Sphaeralcea*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Mirabilis multiflora*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), and *Achnatherum speciosum* (= *Stipa speciosa*) may be present. Diagnostic of this alliance is the dominance of *Coleogyne ramosissima* in the shrub layer. [Captured 2008-02-18]

***Coleogyne ramosissima* - *Eriogonum fasciculatum* Shrubland**

Blackbrush - California Wild Buckwheat Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001333

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Harper and Jaynes 1986, Loope and West 1979, Tuhy and MacMahon 1988, Utah Environmental and Agricultural Consultants 1973, West et al. 1972, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Coleogyne ramosissima* - *Purshia stansburiana* Shrubland**

Blackbrush - Stansbury's Cliffrose Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL002720

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Nachlinger and Reese 1996, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Coleogyne ramosissima* - *Thamnosma montana* Shrubland**

Blackbrush - Turpentine-broom Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002718

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf pers. comm., Nachlinger and Reese 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* **New to Nevada - with plot data:**

***Coleogyne ramosissima* / *Pleuraphis jamesii* Shrubland**

Blackbrush / James' Galleta Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001334

Distribution (Nations/Subnations): US / AZ?, CA?, CO, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This shrubland association occurs in the Colorado Plateau and Mojave Desert in areas with hot summers and cold winters. Sites are gently sloping to flat. Elevations range up to 1850 m (6070 feet). Substrates are variable and range from deep, well-drained, sandy soils derived from sandstone to rocky, clayey soils derived from shale. The vegetation is characterized by an open (10-30% cover) short-shrub layer that is dominated by the deciduous, microphyllous shrub *Coleogyne ramosissima* with a sparse to moderately dense perennial graminoid layer that is dominated or codominated by *Pleuraphis jamesii*. Shrub associates may be present, including *Atriplex canescens*, *Atriplex confertifolia*, *Ephedra nevadensis*, *Ephedra torreyana*, *Ericameria nauseosa*, *Gutierrezia sarothrae*, and *Opuntia* spp. *Achnatherum hymenoides*, *Calochortus nuttallii*, and several annuals may be present to abundant in the herbaceous layer, especially during wet years. Cover of introduced annual *Bromus* species may be high in disturbed stands. Occasional *Juniperus osteosperma* or *Pinus edulis* trees are present in some stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bowns and West 1976, CONHP unpubl. data 2003, Cogan et al. 2004, Driscoll et al. 1984, Utah Environmental and Agricultural Consultants 1973, Warren et al. 1982, Western Ecology Working Group n.d., Wright 1980

NNHP Plots: p050407q (1 plots identified)

Representative Images:



p050407q.JPG

***Coleogyne ramosissima* Shrubland**

Blackbrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001332

Distribution (Nations/Subnations): US / AZ, CA, NV, UT

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4G5

Summary: This broadly defined, common shrubland association occurs in the Colorado Plateau, southern Great Basin, Mojave Desert, and Sierra Nevada foothills in areas with hot summers and cold winters. Elevations range from 1065-2133 m (3500-7000 feet). Sites are on level to moderate slopes, rarely exceeding 20%. In Nevada, stands occur on lower foothills and upper bajadas, often with cooler northern and eastern aspects. In the Colorado Plateau, stands occupy plateaus, ridges, dunes, alluvial fans, benches and colluvial slopes oriented to any aspect. The unvegetated surface is dominated by bare ground, except on some sandy sites, where biological soil crusts may provide more than 50% cover. Substrates range from barren shales to alluvium and eolian sands to broken limestone. Soils tend to be shallow, calcareous, sandy-textured on eolian sand sites, and clay-textured on shale sites. There is often a caliche subhorizon. Gravel, boulders and rock outcrops are common. The vegetation is characterized by an open to moderately dense short-shrub layer that is clearly dominated by the evergreen microphyllous shrub *Coleogyne ramosissima*, sometimes in nearly pure stands. Shrub cover is usually around 20%, although it can range as low as 5% or as high as 50%. Other shrub and dwarf-shrub species may be present with low cover, including *Ambrosia dumosa*, *Artemisia filifolia*, *Atriplex canescens*, *Atriplex confertifolia*, *Chrysothamnus viscidiflorus*, *Ephedra funerea*, *Ephedra torreyana*, *Ephedra nevadensis*, *Ephedra viridis*, *Ericameria linearifolia*, *Ericameria teretifolia*, *Gutierrezia sarothrae*, *Gutierrezia microcephala*, *Krascheninnikovia lanata*, *Lycium* spp., *Menodora spinescens*, *Opuntia* spp., and *Yucca baccata*. Occasional *Juniperus* spp., *Pinus edulis*, or *Pinus monophylla* trees are present in some stands. The herbaceous layer generally includes only sparse cover of graminoids and forbs, except during wet years when cover of annuals may be high. Cover of the introduced annual *Bromus* spp. may be high in disturbed stands, but in general, the substrate does not support the growth of more than a trace of grasses.

[Captured 2008-02-15]

References: Annable 1985, Armstrong 1969, BIA 1979, Beatley 1976, Bourgeron and Engelking 1994, Bowns and West 1976, Bradley 1964, Callison et al. 1985, Cogan et al. 2004, Driscoll et al. 1984, Ostler et al. 2000, Peterson 1984, Schultz et al. 1987, Shields et al. 1959, Warren et al. 1982, Wells 1960, West 1983d, Western Ecology Working Group n.d., Wright **NNHP Plots:** p050506d,

p050506e (2 plots identified)

Representative Images:



p050506e.JPG

Cornus sericea Temporarily Flooded Shrubland Alliance

Red-osier Dogwood Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.968

Summary: This shrubland alliance occurs adjacent to streams and rivers throughout the montane areas in the western U.S. Stands are restricted to narrow stream benches in ravines and on narrow terraces of wider valleys that are flooded for brief periods during the growing season. Soils are alluvial with little or no development. Vegetation within this alliance is characterized by a moderately dense to dense shrub layer dominated by *Cornus sericea*. Shrub associates may include *Salix* spp., *Ribes inerme*, *Alnus incana*, *Lonicera involucrata*, *Betula occidentalis*, and *Acer glabrum*. Occasional *Populus angustifolia*, *Pinus ponderosa*, *Populus deltoides*, and *Pseudotsuga menziesii* trees may be present. The herbaceous layer is sparse due to the dense shrub canopy. Common graminoid species are *Phalaris arundinacea* and *Poa palustris*. Forb species include *Heracleum maximum* (= *Heracleum lanatum*) and *Galium triflorum*. Diagnostic of this alliance is the dominance of *Cornus sericea* in the shrub layer and the presence of surface water for brief periods during the growing season. [Captured 2008-02-18]

Cornus sericea Shrubland

Red-osier Dogwood Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001165

Distribution (Nations/Subnations): US / CO, ID, MT, NV, OR, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4Q

Summary: This riparian tall shrubland is widespread in the Columbia Basin, the Intermountain Basin, and in the Rocky Mountains, and is discontinuously scattered in sheltered areas of the Colorado Plateau. It often forms continuous, narrow bands along streambanks, benches and bars, as well as in slot canyons. Many stands are located on nearly level, frequently flooded banks, in burns in steep avalanche chutes, or otherwise experience periodic disturbance. It also can form very dense, small stands with limited disturbance, often at the base of a cliff. Soils are relatively deep, well-drained silty to sandy clay loams derived from alluvium, colluvium or glacial till. Elevations range from 715 to 2700 m (2300-8800 feet), with the lower elevations occurring at the northern end of the range in Montana, the higher elevations in Utah and Colorado. The tall (1-2 m) deciduous shrub canopy is dominated by *Cornus sericea*, generally accompanied by other tall shrubs,

including *Prunus virginiana*, *Ribes aureum*, *Crataegus douglasii*, *Acer glabrum*, *Alnus incana*, *Salix bebbiana*, *Salix scouleriana*, *Cercocarpus ledifolius*, and *Juniperus scopulorum*. Short shrubs have sparse to moderate cover and include *Rosa woodsii*, *Symphoricarpos* spp., *Paxistima myrsinites*, *Mahonia repens*, *Arctostaphylos patula*, *Ribes cereum*, and the liana *Clematis ligusticifolia*. The understory is diverse and ranges from sparse to dense depending on how closed the tall-shrub layer is. Common forbs include *Thalictrum occidentale*, *Solidago canadensis*, *Aralia nudicaulis*, *Heracleum maximum*, *Heliomeris multiflora*, *Erythronium grandiflorum*, *Equisetum arvense*, *Maianthemum stellatum*, *Sanicula marilandica*, *Angelica arguta*, and *Symphyotrichum laeve* (= *Aster laevis*). Graminoids are generally less important but may include significant cover by *Elymus glaucus* or *Calamagrostis canadensis*. The majority of the herbaceous layer may consist of non-native species, including *Cirsium arvense*, *Dactylis glomerata*, *Agrostis stolonifera*, *Poa palustris*, *Phalaris arundinacea*, and *Phleum pratense*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Crawford 2001, Crawford 2003, Crowe and Clausnitzer 1997, Crowe et al. 2004, Diaz and Mellen 1996, Driscoll et al. 1984, Hansen et al. 1988b, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 2001, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, Kittel et al. 1994, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1993, MTNHP 2002b, MacKenzie and Moran 2004, Manning and Padgett 1995, Padgett et al. 1989, WNHP unpubl. data, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

***Dasiphora fruticosa* Temporarily Flooded Shrubland Alliance**

Shrubby-cinquefoil Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.958

Summary: This shrubland alliance is highly variable, occupying various landforms in the foothills, montane, and subalpine regions in the Rocky Mountain region. Sites include glacial depressions, terraces along meandering streams, slopes near springs and seeps, steep scree slopes, or broad mountain meadows. Typically, stands occur on broad, gently sloping valley bottoms and floodplains or along the drier edges of isolated wetlands and fens. Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface. The soils are typically sandy loams over sand and gravel layers. Peat accumulation is common in stands located on fens. Soil texture can be fine-textured with occasional mottling and gleying. This alliance is dominated by *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides floribunda*). Associates include *Artemisia cana* and *Deschampsia caespitosa* and *Trifolium longipes* on wetter sites. Other graminoids present in the wetter sites may include *Poa secunda*, *Festuca rubra*, *Carex aquatilis*, *Carex buxbaumii*, *Carex microptera*, *Carex pachystachya*, *Juncus balticus*, and *Muhlenbergia filiformis*. The drier sites typically are composed of a dense graminoid layer that includes *Festuca idahoensis*, *Festuca campestris*, *Schizachyrium scoparium*, and *Andropogon gerardii*. Diagnostic of this alliance is the dominance of *Dasiphora fruticosa* ssp. *floribunda* in a shrub layer with over 25% cover. [Captured 2008-02-18]

***Dasiphora fruticosa* ssp. *floribunda* Shrubland [Provisional]**

Shrubby-cinquefoil Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001105

Distribution (Nations/Subnations): US / CO, NV, WY

Status: 3 **Deprecated Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Loope 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Encelia farinosa* Shrubland Alliance**

Brittlebush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.867

Summary: This arid shrubland alliance occurs on a variety of sites in the Mojave and Sonoran deserts. Stands are found locally throughout much of the nearly level *Larrea tridentata*-dominated intermountain basins, on rocky bajadas, and on bouldery or rocky slopes of mountains and canyons. Elevations range from -75 to 1100 m. Level to gently sloping sites often have a desert pavement surface. Soils are shallow, well-drained, poorly developed and often rocky, derived from coarse-textured alluvium or colluvium. Vegetation included in this alliance is characterized by a sparse to moderately dense woody layer that is dominated by *Encelia farinosa*. Other characteristic shrubs may include *Larrea tridentata*, *Ambrosia dumosa*, *Ephedra* spp., *Fouquieria splendens*, and *Krameria grayi*. Cacti, such as *Ferocactus cylindraceus* (= *Ferocactus acanthodes*), *Opuntia basilaris*, *Opuntia acanthocarpa*, *Echinocactus polycephalus*, and *Echinocereus engelmannii* may be present to abundant. The herbaceous layer is usually sparse. Common perennial species may include *Eriogonum inflatum* and *Dasyochloa pulchella* (= *Erioneuron pulchellum*). Annuals are seasonally present, and species such as the exotic *Bromus rubens* may dominate the understory during years of favorable winter precipitation. On slopes, vegetation is often patchily distributed around rock outcrops where suitable habitat is present. Diagnostic of this shrubland alliance is total vegetation cover of over 25% that is dominated by *Encelia farinosa*. [Captured 2008-02-18]

***Encelia farinosa* Shrubland**

Brittlebush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001251

Distribution (Nations/Subnations): US / CA, NV

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Holland 1982, Schramm 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Encelia virginensis* Shrubland Alliance**

Virgin River Brittlebush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.860

Summary: This arid shrubland alliance occurs in the Mojave Desert, and is found along drainages that dissect bajadas and in mountain canyons at lower and middle elevations (300-1950 m) in the Creosote and Mixed Shrub zones. Topography is typically flat and rolling to moderately sloping. Soils are well-drained, alkaline, and coarse-textured. Soils are derived from alluvium, colluvium and residuum. A

moderately dense woody layer dominated by broad-leaved and microphyllous evergreen shrubs characterizes these shrublands. *Encelia virginensis* is the diagnostic species and *Ericameria nauseosa* (= *Chrysothamnus nauseosus*) is usually codominant. The shrub layer is diverse. Shrub associates may include *Gutierrezia microcephala*, *Viguiera reticulata*, *Psorothamnus arborescens* var. *minutifolius*, *Purshia stansburiana* (= *Purshia mexicana* var. *stansburiana*), *Atriplex confertifolia*, *Prunus fasciculata*, and *Hymenoclea salsola* var. *salsola*. The herbaceous layer is usually sparse with less than 5% cover of perennial species, such as the grasses *Achnatherum speciosum* (= *Stipa speciosa*) and *Poa secunda* (= *Poa scabrella*), and the forbs *Eriogonum inflatum*, *Eriogonum saxatile*, *Penstemon fruticiformis*, and *Stanleya elata*. Annuals are seasonally present and include species of *Mimulus*, *Cryptantha*, *Phacelia*, *Mentzelia*, *Gilia*, *Camissonia*, and *Eschscholzia*. The exotic annual grass *Bromus rubens* may dominate the understory during years of favorable winter precipitation. Diagnostic of this shrubland alliance is total vegetation cover over 25% that is dominated by *Encelia virginensis*. [Captured 2008-02-18]

***Encelia virginensis* Shrubland**

Virgin River Brittlebush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001335

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Annable 1985, Bourgeron and Engelking 1994, Driscoll et al. 1984, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ephedra nevadensis* Shrubland Alliance**

Nevada Joint-fir Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.857

Summary: This arid shrubland alliance occurs in valleys, bajadas, and mountains of the Mojave Desert and Great Basin, from 600-1525 m in elevation. Sites are commonly found on all aspects in drainage bottoms, broad valleys and on alluvial fans. Topography is typically flat or undulating to moderately sloping, but can be more diverse at higher elevations. Soil textures range from sandy loams to loamy sands with rock fragments derived from alluvium. Vegetation in this shrubland alliance is characterized by a sparse to moderate cover of mixed xeromorphic short shrubs and sparse herbaceous cover. The shrub layer is usually dominated by *Ephedra nevadensis*. Characteristic codominant shrubs are *Ericameria cooperi* and *Eriogonum fasciculatum*. The shrub layer is diverse and may include *Grayia spinosa*, *Sarcobatus vermiculatus*, *Salazaria mexicana*, *Hymenoclea salsola*, *Psorothamnus arborescens*, and *Chrysothamnus* spp. Perennial grasses dominate the sparse herbaceous layer and may include *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Elymus elymoides*, and *Poa secunda* (= *Poa scabrella*). Common forbs may include perennials, such as *Mentzelia multiflora*, *Camissonia multijuga*, *Astragalus layneae*, and *Lomatium mohavense*, and annuals, such as *Eriogonum polycladon*, *Camissonia contorta*, *Navarretia* spp., *Eriastrum eremicum*, *Oxytheca perfoliata*, and *Phacelia* spp. Total vegetation cover is sparse on rock outcrop sites and in soils derived from granite. Diagnostic of this shrubland alliance is total vegetation cover over 25% that is dominated by *Ephedra nevadensis*. [Captured 2008-02-18]

***Artemisia tridentata* - *Ephedra nevadensis* Shrubland**

Basin Big Sagebrush - Nevada Joint-fir Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001002

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Wallace et al. 1980, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ephedra nevadensis* - *Ericameria cooperi* Shrubland**

Nevada Joint-fir - Cooper's Heath-goldenrod Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001253

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ephedra nevadensis* - *Eriogonum fasciculatum* Shrubland**

Nevada Joint-fir - California Wild Buckwheat Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001254

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Holland 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Ephedra nevadensis* - *Grayia spinosa* shrubland**

Nevada ephedra - spiny hopsage shrubland

Association Code: NNHP003

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G4

Summary: Classification deserves more thought, based primarily on p020507c with very little *Grayia spinosa* but heavily invaded by *Salsola tragus* and somewhat by *Bromus tectorum* as well. No *Atriplex confertifolia* and only trace *Picrothamnus desertorum* suggests to me that it is not a salt desert shrubland in the sense of the *Atriplex confertifolia* - *Ephedra nevadensis* Shrubland Association.

References:

NNHP Plots: p050421e, p020507c, p050420h (3 plots identified)

Representative Images:



p050420h.JPG

***Ephedra nevadensis* / *Achnatherum hymenoides* Shrubland**

Nevada Joint-fir / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001255

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ephedra viridis* Shrubland Alliance**

Mormon-tea Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.858

Summary: Stands of this alliance occur on canyon slopes in the Colorado Plateau, Mojave and Sonoran deserts of Arizona and California. The climate is semi-arid. Where described in the Grand Canyon, sites occur on moderate to steep northern slopes, the most mesic slopes of the Inner Gorge. Elevation ranges from 580-980 m. The soils are shallow, coarse-textured and rocky, and derived from limestone, sandstone and igneous rocks. Total mean annual precipitation is approximately 20 cm with almost all falling as rain. Information on other sites was not available. Stands are dominated by a sparse to moderately dense cover of xeromorphic evergreen and broad-leaved shrubs ranging from 0.3-1.0 m in height with perennial grasses usually less than 0.3 m tall. Total vegetation cover is 15-25%. The diagnostic species are the microphyllous shrub *Ephedra viridis* and the perennial bunchgrass *Pleuraphis rigida* (= *Hilaria rigida*). Other characteristic species include the shrub *Acacia greggii*, the dwarf-shrub *Gutierrezia sarothrae*, the perennial forbs *Machaeranthera pinnatifida* and *Sphaeralcea ambigua*, and the cactus *Ferocactus cylindraceus* (= *Ferocactus acanthodes*). Associated species include *Echinocereus engelmannii*, *Agave utahensis*, *Galium stellatum*, *Porophyllum gracile*, and *Encelia farinosa*. [Captured 2008-02-18]

***Artemisia tridentata* - *Ephedra viridis* Shrubland**

Basin Big Sagebrush - Mormon-tea Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001003

Distribution (Nations/Subnations): US / AZ, CA?, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Kurzius 1981, Peterson 1984, Warren et al. 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ericameria nauseosa* Shrubland Alliance**

Rubber Rabbitbrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.835

Summary: This alliance includes both natural and semi-natural stands from localized areas across the northern Great Plains and throughout the western U.S. Naturally occurring stands have been described from areas of partially stabilized sands, in a region of actively moving dune deposits, from 1525-1800 m elevation in southeastern Idaho and in other areas of high natural disturbance such as on steep colluvial slopes, along drainages or in floodplains. The semi-natural stands included in this alliance are seral shrubland communities resulting from overgrazing by livestock, road building, or other cultural disturbance of typically grass-dominated communities. Elevations range from 1220-1800 m. Soils are variable, but generally well-drained and coarse-textured. The vegetation is characterized by a open to moderately dense, short-shrub layer (15-60% cover) that is dominated by *Ericameria nauseosa*. Depending on geography, associated shrubs may include scattered *Artemisia tridentata*, *Artemisia filifolia*, *Chrysothamnus viscidiflorus*, *Gutierrezia sarothrae*, *Rhus trilobata*, *Opuntia* spp., *Prunus virginiana*, *Symphoricarpos occidentalis*, and *Yucca* spp. The herbaceous layer can vary from moderately dense and dominated by graminoids to absent. Common native grasses include *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Bouteloua* spp., *Elymus trachycaulus* ssp. *trachycaulus*, *Leymus flavescens* (= *Elymus flavescens*), *Pascopyrum smithii*, *Pleuraphis jamesii*, *Pseudoroegneria spicata*, and *Sporobolus cryptandrus*. Native forbs generally have low cover. Disturbed stands typically have high cover of introduced annual *Bromus* species. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Ericameria nauseosa* / *Leymus cinereus* Bottomland Vegetation**

Rubber Rabbitbrush / Great Basin Wild Rye Bottomland Vegetation

Association Code: NNHP021

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3?

Summary: This is an uncommon, but increasing vegetation type that may have been quite abundant historically. Heavy grazing in the 20th century heavily impacted these sites, removing most of the *Leymus cinereus* but as grazing pressures reduce, recovering sites can be found scattered about the Great Basin within Nevada. Sites tend to be in semi-frequently flooded landscape positions with accumulated sandy or silty sediments. Few other species are present, though sometimes other phreatophytic shrubs may occur, such as *Sarcobatus vermiculatus*. Frequently, monotypic stands of *E. nauseosa* may be found which can be assigned to this type, but with low condition ranks due to absence of *L. cinereus*. Several similar associations have been named, but may lack proper definition due to incomplete knowledge of the ecology and grazing influences that affect this vegetation. (Note, however, that the loss of *L. cinereus* by grazing and current recovery is a hypothesis from a single person, NNHP Ecologist Eric Peterson.) Among the similar associations in the IVC are *Ericameria nauseosa* Desert Wash Shrubland (though listed

associates imply this is a more upland situation), *Ericameria nauseosa* Sand Deposit Sparse Shrubland (though this type seems to be for other shrubland sites where the other species have been removed by grazing), and *Ericameria nauseosa* Shrubland (though again this seems like a more upland type and is rather loosely defined).

References:

NNHP Plots: p020601q, p020601s (2 plots identified)

Representative Images:



p020601q_2.JPG



p020601q_3.JPG



p020601s_1.JPG

***Ericameria nauseosa* Shrubland**

Rubber Rabbitbrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002713

Distribution (Nations/Subnations): US / CO, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5

Summary: This is a broadly defined, semi-arid upland shrubland association currently described from western Colorado and Nevada, but it is likely more widespread. Elevations range from 1191 m in Nevada to 2291-2312 m in Colorado. Stands occur on flat to gently sloping (<8%), dry alluvial terraces above ephemeral washes or perennial stream and river channels or may form a band in the alluvial flats above playas. Substrates are deep, moderately well- to well-drained silty clay loam to sandy loam soils derived from stratified alluvium. The ground surface has moderate to high cover of bare soil. The vegetation is characterized by a moderately dense to dense (40-70% cover) shrub canopy dominated by *Ericameria nauseosa* shrubs 0.5-3 m tall, with a relatively sparse herbaceous

layer. In Colorado, stands have low diversity. Additional associated short and dwarf-shrubs are *Artemisia frigida*, *Artemisia tridentata* ssp. *wyomingensis*, and *Rosa woodsii*. In Nevada, stands are more diverse, and several other shrubs, such as *Atriplex canescens*, *Psoralea polydenius*, *Sarcobatus vermiculatus*, and *Tetradymia tetrameres*, may be important. The sparse herbaceous layer is a mixture of grasses and forbs. Introduced annual grass *Bromus tectorum* and native grasses *Pseudoroegneria spicata* and *Sporobolus airoides* are typically absent or have low cover. [Captured 2008-02-15]

References: Bundy et al. 1996, FEIS 2006, McArthur et al. 1997, USFS 1937, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ericameria paniculata* Intermittently Flooded Shrubland Alliance**

Paniculate Rabbitbrush Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2509

Summary: This xeromorphic shrubland alliance occurs locally in washes in southwestern deserts from southern California to the Sonoran Desert, north into the southeastern Great Basin. Stands are restricted to growing in intermittently flooded channels and terraces on bajadas and alluvial fans. Substrates are coarse-textured soils derived from alluvium. Disturbance from flooding scours out existing vegetation and creates habitat for the seedlings of the dominant/diagnostic species, *Ericameria paniculata*. The vegetation is characterized by a moderately dense, xeromorphic, typically short-shrub layer (2 m tall) that is dominated by *Ericameria paniculata*. Individuals may reach 4 m. Other shrubs and dwarf-shrubs present may include *Ambrosia eriocentra*, *Brickellia incana*, *Ephedra californica*, *Ephedra nevadensis*, *Encelia farinosa*, *Encelia virginensis*, *Eriogonum fasciculatum*, *Gutierrezia sarothrae*, *Hymenoclea salsola*, *Opuntia chlorotica*, *Salvia dorrii*, or *Stephanomeria pauciflora*. Occasional emergent tall shrubs or small trees may be present such as *Acacia greggii* or *Chilopsis linearis*. The herbaceous layer is generally sparse or absent. [Captured 2008-02-18]

***Ericameria paniculata* Shrubland [Placeholder]**

Paniculate Rabbitbrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002706

Distribution (Nations/Subnations): US / AZ, CA, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ericameria parryi* Shrubland Alliance**

Parry's Rabbitbrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.818

Summary: This alliance occurs in the Great Basin and Colorado Plateau on bajadas, pediments and valleys, including pumice flats. Substrates and parent materials are variable. Soils are shallow, well-drained, calcareous, alkaline and often gravelly. Vegetation included in this shrubland alliance is characterized by having a sparse to dense shrub layer dominated by *Ericameria parryi* (=

Chrysothamnus parryi). Shrub associates include *Artemisia tridentata*, *Krascheninnikovia lanata*, *Ephedra* spp., and *Purshia tridentata*. The sparse to moderate herbaceous layer is dominated by graminoids such as *Bouteloua gracilis*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Sporobolus airoides*, *Achnatherum occidentale* ssp. *pubescens* (= *Stipa occidentalis* var. *pubescens*), and *Elymus elymoides*. Perennial forbs are generally sparse. Some stands may have scattered *Juniperus* spp. and *Pinus* spp. trees. Diagnostic of this shrubland alliance is the dominance of *Ericameria parryi* in the shrub layer. [Captured 2008-02-18]

Ericameria parryi Shrubland [Provisional]

Parry's Rabbitbrush Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG003040

Distribution (Nations/Subnations): US / CA, NV?, OR?

Status: 3 Depreciated **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Barbour and Major 1988, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Eriogonum fasciculatum* Shrubland Alliance**

California Wild Buckwheat Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.868

Summary: This alliance occurs in California from the Central Coast south to Baja California, Mexico, and in the Mojave Desert. Elevations range from sea level to 2000 m. Coastal stands occur on coastal bluffs and hillslopes, and Mojave Desert sites are typically flat to moderately sloping. Soils are rocky and desert pavement is common. Vegetation is characterized by a sparse to dense woody canopy up to 2 m tall that is dominated by the shrub *Eriogonum fasciculatum*. Associated species are diverse and variable. In coastal stands, shrub associates may include *Artemisia* spp., *Baccharis pilularis*, *Encelia* spp., *Isocoma menziesii*, *Lotus scoparius*, *Malacothamnus fasciculatus*, *Diplacus aurantiacus* (= *Mimulus aurantiacus*), *Salvia* spp., and the emergent shrub *Rhus integrifolia*. The herbaceous layer is variable depending on shrub cover but is often dominated by annual exotic grass species of *Avena* and *Bromus*. In the Mojave Desert, *Purshia glandulosa* may codominate; other shrubs commonly present include *Ambrosia dumosa*, *Artemisia tridentata*, *Ephedra nevadensis*, *Ephedra viridis*, *Larrea tridentata*, *Ericameria linearifolia*, *Hymenoclea salsola*, *Grayia spinosa*, *Salazaria mexicana*, *Viguiera parishii* (= *Viguiera deltoidea*), and *Ericameria laricifolia* in rock outcrops. The herbaceous layer is generally sparse and may include the grasses *Elymus multisetus*, *Poa secunda*, and *Achnatherum speciosum* (= *Stipa speciosa*). Characteristic perennial forbs may consist of *Argemone munita*, *Cheilanthes covillei*, *Eriogonum panamintense*, *Silene verecunda*, *Sphaeralcea ambigua*, and *Stephanomeria pauciflora*. During wet years, annual forb species of *Camissonia*, *Chaenactis*, *Cryptantha*, *Eriogonum*, *Langloisia*, *Nama*, *Phacelia*, and *Silene* can be abundant. Diagnostic of this shrubland alliance is total vegetation cover over 25% that is dominated by *Eriogonum fasciculatum* without significant cover of *Salvia apiana* or *Cercocarpus montanus*. [Captured 2008-02-18]

***Eriogonum fasciculatum* - *Purshia glandulosa* Shrubland**

California Wild Buckwheat - Antelope Brush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001259

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Leary and Peterson 1984, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Eriogonum fasciculatum* Rock Outcrop Shrubland**

California Wild Buckwheat Rock Outcrop Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001260

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Annable 1985, Bourgeron and Engelking 1994, Driscoll et al. 1984, Leary and Peterson 1984, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Eriogonum fasciculatum* Shrubland**

California Wild Buckwheat Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001258

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This chaparral shrubland occurs in the interior Central Coast Ranges, from the Santa Monica Mountains to northern San Benito County, California. It occurs on gentle to very steep slopes of variable but often southerly aspects, along a wide range of elevations from 5 to 1585 m (16-5200 feet). This association usually occurs on alluvial/depositional, lower to upper slopes that are undulating or convex. The parent material is highly variable, including granitic, volcanic, or sedimentary substrates. Soils are various loams, sands, and clays. *Eriogonum fasciculatum* is consistently present at low to high cover. A wide variety of chaparral, coastal sage, and disturbance shrub species (e.g., *Adenostoma fasciculatum*, *Artemisia californica*, *Ericameria linearifolia*, *Ceanothus cuneatus*, *Corethrogyne filaginifolia* (= *Lessingia filaginifolia*), *Lotus scoparius*, *Rhus ovata*, *Salvia apiana*, *Yucca whipplei*) may be present at low cover. Diverse annual herbs comprise the herbaceous understory, the most common being natives *Cryptantha* spp., *Dichelostemma capitatum* ssp. *capitatum*, *Erodium brachycarpum*, and *Erodium cicutarium*, and non-natives such as *Hirschfeldia incana*, *Erodium* spp., *Bromus* spp., and *Avena* spp. Occasionally there is an emergent tree layer, with species such as *Juniperus californica*, *Pinus sabiniana*, and *Quercus douglasii* found at trace cover.

[Captured 2008-02-15]

References: Borchert et al. 2004, Bourgeron and Engelking 1994, Driscoll et al. 1984, Evens and San 2006, Evens et al. 2006, Gordon and White 1994, Holland 1982, Keeler-Wolf and Evens 2006, Klein and Evens 2006, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Glossopetalon spinescens* Shrubland Alliance**

Spiny Greasebush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1032

Summary: These sparse shrublands occur along the rims of the Snake River and Imnaha River canyons in Idaho and eastern Oregon. Elevations range from 550-900 m, and the climate is temperate, continental. Mean annual precipitation is approximately 25-30 cm. Precipitation primarily occurs in the winter as snow or rain. This moisture is stored in the soil and in fractures in the highly weathered bedrock, and utilized during the usually dry summers. Stands are typically found on steep upper canyon slopes, but may occur on the lower canyon slopes. Sites are predominantly on hot, dry southwestern aspects although the alliance may occur on all aspects. Soils are shallow, well-drained loams or sandy loams with a high percentage of rock fragments (greater than 35% by volume and 40% ground cover), and derived from loess and various bedrock types. Vegetation included in this minor alliance has a sparse woody layer (usually less than 1 m tall) that is dominated by the xeromorphic shrub *Glossopetalon spinescens* (15-23% cover). The herbaceous layer is also relatively sparse (typically 10-20% cover). It is dominated by the perennial bunchgrass *Pseudoroegneria spicata*. Other characteristic species include the annual grass *Vulpia myuros* and forbs such as *Achillea millefolium*, *Cerastium arvense*, *Erigeron pumilus*, *Opuntia polyacantha*, and *Phacelia heterophylla*. Moss and lichen cover is moderate and averages 22% cover. Exotic species, namely *Bromus tectorum*, *Bromus japonicus*, and *Bromus briziformis*, are often present. Adjacent stands include grasslands dominated by *Pseudoroegneria spicata* on sites with deeper soils. [Captured 2008-02-18]

***** New Vegetation Type - with plot data:**

***Glossopetalon spinescens* - *Psorothamnus polydenius* Shrubland**

Spiny Greasebush - Nevada Dalea Shrubland

Association Code: NNHP058

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G1G3

Summary: This is typically a sparse vegetation type occurring in exceptionally dry areas of the southwestern Great Basin with sandy soils. (The NNHP recommends elimination of 'sparse vegetation' as a high-level distinction in the IVC.) The shrub layer is dominated by *Glossopetalon spinescens* and *Psorothamnus polydenius*, though other species may be present as well, including *Sarcobatus baileyi*. Graminoids are sparse, with *Achnatherum hymenoides* likely to be most frequent.

References:

NNHP Plots: p030729d (1 plots identified)

Representative Images:



p030729d.JPG

***** New Vegetation Type - with plot data:**

***Glossopetalon spinescens* / *Poa secunda* Shrubland**

Spiny Greasebush / Sandburg Bluegrass Shrubland

Association Code: NNHP043

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2G4

Summary: This vegetation type is known from a single site in the Pah Rah Range east of Reno, NV, where it occurred in a high topographic position, though in a relatively low range so the actual elevation was moderate (1630 m). It occurred as a small patch within a matrix of *Artimisia arbuscula* ssp. *arbuscula* dominated vegetation and recently burned areas. The north-west slope of the site was sufficiently moist in the early growing season for *Poa secunda* to dominate the graminoids. The high exposure of the western component of the aspect combined with the high topographic position and rocky soils likely resulted in a very dry site in summers after *P. secunda* goes dormant. Such situations probably occur frequently in small patches around the Lahontan Trough, so the estimated G-rank range extends fairly high.

References:

NNHP Plots: p050524e (1 plots identified)

Representative Images:



p050524e_10-03-12.JPG

***Grayia spinosa* - *Ephedra viridis* Shrubland Alliance**

Spiny Hop-sage - Mormon-tea Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1057

Summary: [no summary available] [Captured 2008-02-18]

***Grayia spinosa* - *Ephedra viridis* Shrubland**

Spiny Hop-sage - Mormon-tea Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001346

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kurzius 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* Intermittently Flooded Shrubland Alliance**

Spiny Hop-sage Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1045

Summary: This alliance is found in the transition zone between the Mojave Desert and the Great Basin in eastern California and southern Nevada at elevations from 1000-1800 m. Stands occur in areas with low topographic relief, such as ephemeral drainages and playa margins. Some sites may experience short-term flooding following precipitation or snowmelt. The affinity of this vegetation for basins and drainages may have more to do with winter cold-air drainage than soil moisture or other edaphic characteristics. Soils are generally medium-textured and often somewhat alkaline. Vegetation included in this alliance is characterized by a sparse to moderately dense shrub layer of *Grayia spinosa*, usually in association with *Lycium andersonii* or *Lycium pallidum*. Other shrub species include *Atriplex canescens*, *Ephedra nevadensis*, *Krascheninnikovia lanata*, *Picrothamnus desertorum* (= *Artemisia spinescens*), and *Tetradymia axillaris*. The herbaceous layer is usually very sparse and is composed of perennial bunch grasses, including *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) and *Pleuraphis jamesii* (= *Hilaria jamesii*), with scattered forbs. Frequent perennial forbs include *Calochortus kennedyi*, *Castilleja applegatei* ssp. *martinii* (= *Castilleja chromosa*), *Lomatium*

mohavense, and *Astragalus* spp. Annual grasses and forbs include *Bromus rubens*, *Oxytheca perfoliata*, *Eriogonum deflexum*, *Mentzelia* spp., and *Camissonia* spp. Diagnostic of this desert alliance is the dominance of *Grayia spinosa* in the shrub layer with over 25% cover. [Captured 2008-02-18]

***Grayia spinosa* - *Lycium andersonii* Shrubland**

Spiny Hop-sage - Redberry Desert-thorn Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001347

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Driscoll et al. 1984, Peterson 1984, Rickard and Beatley 1965, Shields et al. 1959, Webb et al. 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* - *Lycium pallidum* Shrubland**

Spiny Hop-sage - Pale Desert-thorn Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001348

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* Shrubland Alliance**

Spiny Hop-sage Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1038

Summary: Vegetation in this alliance occurs throughout the lower to middle elevations (600-1600 m) of the Great Basin and the eastern Mojave Desert, usually on mountain slopes or alluvial fans bordering intermountain basins, and east into the Colorado Plateau of southern Utah. The climate is arid to semi-arid with precipitation ranging from 15-30 cm annually. Winter precipitation dominates in the western area, with summer rain becoming more important eastward. Soils are highly variable, but are generally coarse-textured and well-drained, and often alkaline. The vegetation is more drought-tolerant than *Artemisia tridentata*-dominated communities and typically occurs where local climate or salty soils create high moisture stress. This alliance is characterized by a sparse to moderately dense shrub layer of *Grayia spinosa*. Other shrub species are species of Mojavean or Great Basin affinities. Species found in southern stands include *Menodora spinescens*, *Picrothamnus desertorum* (= *Artemisia spinescens*), *Ephedra nevadensis*, *Atriplex confertifolia*, *Atriplex canescens*, *Coleogyne ramosissima*, and *Larrea tridentata*. Occasionally, scattered individuals of *Yucca brevifolia* may be emergent through the shrub layer. The herbaceous layer in these xeric southern stands is typically sparse with *Achnatherum speciosum* (= *Stipa speciosa*), *Pleuraphis jamesii* (= *Hilaria jamesii*), *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Navarretia* spp., and *Eriogonum* spp. being common associates. Northward, and at higher elevations, the Mojavean element drops out, and common shrub associates include *Artemisia nova*, *Artemisia tridentata*, *Ephedra viridis*, *Chrysothamnus* spp., and *Prunus andersonii*.

Herbaceous associates include *Elymus elymoides*, *Poa secunda*, *Stipa* spp., and *Festuca* spp. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Grayia spinosa* - *Krascheninnikovia lanata* / *Achnatherum hymenoides* Shrubland**

Spiny Hopsage - Winterfat / Indian Rice Grass Shrubland

Association Code: NNHP049

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This type has thus far been observed primarily on sandy alluvial fans at edges of large basins, placed between more classic salt desert scrub communities and sagebrush communities. The ratio of the dominant species is variable and cover is sparse with total shrub cover around 10 percent. Traces of salt desert scrub shrubs and lower-elevation sagebrush species may be present. Grass density is variable, dependant largely on intensity of grazing, both recent and historic. *Achnatherum hymenoides* typically dominates the graminoids, though significant quantities of *Elymus elymoides* may also be present.

References:

NNHP Plots: p050614m (1 plots identified)

Representative Images:



p050614m_14-47-34.JPG

***Grayia spinosa* - *Menodora spinescens* Shrubland**

Spiny Hop-sage - Greenfire Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001349

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kurzius 1981, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* - *Prunus andersonii* Shrubland**

Spiny Hop-sage - Desert Peach Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001352

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Ralston 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Grayia spinosa* - *Sarcobatus vermiculatus* Shrubland**

Spiny hopsage - big greasewood Shrubland

Association Code: NNHP014

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4G5

Summary: This vegetation type represents upland (not-flooded) areas with a mixture of *Grayia spinosa* and *Sarcobatus vermiculatus* typically with other vegetation components common at the interface between salt desert scrub and low elevation sagebrush communities. Although upland in that it is not flooded, this type is generally in low topographic positions as *S. vermiculatus* is a phreatophyte. This is in contrast to the smaller, more compact, and non-phreatophytic *S. baileyi* which may also associate with *G. spinosa*.

References:

NNHP Plots: p020515c (1 plots identified)

***Grayia spinosa* / *Achnatherum hymenoides* Shrubland**

Spiny Hop-sage / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001350

Distribution (Nations/Subnations): US / CA?, CO, NV, OR, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This unusual shrubland association is known from isolated occurrences in northwestern Colorado and is reported from northern Nevada, Wyoming and southeastern Oregon. It is likely also to occur in eastern California. It occurs on level to gently sloping benches, partly stabilized dunes and terraces. Elevations range from 1600 to 1800 m (5250-5900 feet). Soils are deep, well-drained, alkaline sandy loams or loamy sands derived from underlying bedrock or eolian sands. Soil lichens, mosses and litter may have significant cover, especially in areas that have not been grazed in recent decades. The vegetation is characterized by the co-occurrence of *Grayia spinosa*, *Sarcobatus vermiculatus*, and *Artemisia tridentata* ssp. *wyomingensis*, although in some stands either *Artemisia* or *Sarcobatus* may be missing. Total shrub cover is typically 30% or less. Other shrubs may occasionally be present with low cover, including *Chrysothamnus viscidiflorus*, *Atriplex confertifolia*, and *Ephedra* spp. Commonly associated species in the herbaceous layer include native grasses *Achnatherum hymenoides*, *Distichlis spicata*, *Hesperostipa comata*, *Poa secunda*, and the exotic annual grass *Bromus tectorum*. Forbs are absent to sparse in cover and inconsistent in composition. Total herbaceous cover is typically less than 10%, with no single species except *Bromus tectorum* regularly exceeding 5% cover. Scattered juniper are occasionally present.

[Captured 2008-02-15]

References: Blackburn et al. 1968a, Bourgeron and Engelking 1994, Copeland 1979, Driscoll et al. 1984, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* / *Achnatherum thurberianum* Shrubland**

Spiny Hop-sage / Thurber's Needlegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002681

Distribution (Nations/Subnations): US / CA?, NV, OR

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G3

Summary: This is a loose-soiled, salt desert scrub, open shrub vegetation type. As with all salt desert scrub types, it is poorly sampled. It is found in the northern Great Basin in southeastern Oregon, northern Nevada, and possibly extreme northeastern California. It is found along sandy margins of basins, usually adjacent to low dunes. Range types include northern and southern, shallow (6-12 inches) slopes and sodic terraces. The presence of *Grayia spinosa* as the dominant species is characteristic, although rarely is it found without other salt desert shrubs. In most of the valley and dune sites, *Sarcobatus vermiculatus*, *Atriplex confertifolia*, *Picrothamnus desertorum* (= *Artemisia spinescens*), *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), and *Tetradymia spinosa* can be found at low cover. There is very low forb and graminoid cover, but *Achnatherum thurberianum* is characteristic and always present - and occasionally dominant. In some sites, *Achnatherum thurberianum* or *Leymus triticoides* (= *Elymus triticoides*) can be more important in the understory. Also occasionally present are *Distichlis spicata*, *Leymus cinereus*, *Suaeda moquinii* (= *Suaeda nigra*), *Ambrosia artemisiifolia*, and *Penstemon acuminatus*. This type usually is adjacent to *Artemisia tridentata* ssp. *wyomingensis* upland vegetation.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, ORNHP unpubl. data, Price and Seibert 1981, Roberts 1979, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* / *Artemisia nova* / *Achnatherum speciosum* Shrubland**

Spiny Hop-sage / Black Sagebrush / Desert Needlegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001344

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Grayia spinosa* / *Picrothamnus desertorum* Shrubland**

Spiny Hop-sage / Bud Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001345

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968c, Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

Grayia spinosa Shrubland

Spiny Hop-sage Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002358

Distribution (Nations/Subnations): US / UT

Status: 1 Active Confidence: (Weak) Global Rank: GNR

Summary: This global summary is based on the local description from Arches National Park. More information will be added when it becomes available. This association occurs on benches, plains, and alluvial fans. Soils are rapidly drained clay loam. This spiny hop-sage community is common but may occur as smaller patches in alluvial flat shrublands. Total vegetation cover ranges from 5 to 25%, most of which is concentrated in an open canopy of *Grayia spinosa* shrubs. Associated shrubs include *Coleogyne ramosissima*, *Ephedra viridis*, *Gutierrezia sarothrae*, and the succulents *Opuntia polyacantha* and *Yucca harrimaniae*. The herbaceous layer contributes little to the community, being both sparse and depauperate. Herbaceous species include *Pleuraphis jamesii*, *Chamaesyce fendleri* (= *Euphorbia fendleri*), and *Lepidium montanum*. Biological soil crusts provide less than 5% cover.

[Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP Plots: p030724e (1 plots identified)

Larrea tridentata - Ambrosia dumosa Shrubland Alliance

Creosotebush - White Burrobush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2532

Summary: This widespread alliance occurs in the Mojave, Sonoran and Colorado deserts and extends into the southeastern Great Basin. Stands occur on alluvial fans, bajadas, upland slopes and minor washes. Sites are gentle to moderately sloping. Substrates are typically well-drained, sandy soils derived from colluvium or alluvium, and are often calcareous with a caliche hardpan and/or a pavement surface. The vegetation is characterized by an open, xeromorphic shrub layer codominated by *Larrea tridentata* and *Ambrosia dumosa*. Cover of either species does not exceed the other by more than twice, and no other species greatly exceeds the cover of both combined. Other desert shrubs and dwarf-shrubs may be present to codominant including *Atriplex confertifolia*, *Atriplex hymenelytra*, *Ephedra funerea*, *Ephedra nevadensis*, *Hymenoclea salsola*, *Krameria grayi*, *Krameria erecta*, *Lycium andersonii*, *Opuntia ramosissima*, *Psoralea argophylla*, *Psoralea argophylla*, *Psoralea argophylla*, *Psoralea argophylla*, *Salazaria mexicana*, *Senna armata*, and many others. If *Encelia farinosa* or *Yucca schidigera* is present, cover is low (<1-2% cover). Occasional emergent *Fouquieria splendens* or *Yucca brevifolia* and herbaceous species such as *Croton californicus*, *Eriogonum inflatum*, *Echinocactus polycephalus*, *Galium angustifolium*, or *Pleuraphis rigida* may also be present. Abundant annuals may be seasonally present. This vegetation is very common and dominates much of the desert landscapes in the southwestern U.S. [Captured 2008-02-18]

Larrea tridentata - Ambrosia dumosa Shrubland [Placeholder]

Creosotebush - White Burrobush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002954

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Annable 1985, Armstrong 1969, Bourgeron and Engelking 1994, Bradley 1964, Faden 1977, Holland 1982, Kurzius 1981, Peterson 1984, Schramm 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Larrea tridentata* Shrubland Alliance**

Creosotebush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.851

Summary: The bulk of the distribution of this alliance in the United States is west of Texas, in New Mexico, Arizona, Nevada, and California. Stands found in southeastern to western Texas are on low-elevation flats below 1050 m (3500 feet). These shrublands are dominated by *Larrea tridentata*. Associated species in Texas can include *Parthenium incanum*, *Atriplex canescens*, *Flourensia cernua*, *Agave lechuguilla*, *Bouteloua eriopoda*, *Bouteloua ramosa*, *Euphorbia antisyphilitica*, *Dasyochloa pulchella* (= *Erioneuron pulchellum*), *Flourensia cernua*, *Hechtia texensis*, *Jatropha dioica* var. *graminea*, *Opuntia schottii*, *Prosopis glandulosa*, *Tiquilia greggii*, and *Acacia* spp. This alliance is also a widespread disturbance type that has spread into former desert grasslands and mixed shrublands. [Captured 2008-02-18]

* **New to Nevada - with plot data:**

***Larrea tridentata* - *Ambrosia dumosa* Shrubland**

Creosotebush - White Burrobush Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001262

Distribution (Nations/Subnations): /

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G3G4 **NNHP Proposed State Rank:** S5

Summary: [no summary available] [Captured 2008-02-15]

References:

NNHP comments: This type covers an awful lot of variation. Although some sites may have only the two species from the association name dominating, there are many cases of subdominant shrubs and perennial grasses. Close study will likely result in splitting this type into numerous new associations.

NNHP Plots: p050505o, p050505n, p050503b, p050505f, p050506f, p050506h, p050506i (7 plots identified)

Representative Images:



p050505f.JPG



p050505n.JPG



p050505o.JPG



p050506f_1.JPG



p050506h_1.JPG



p050506i_1.JPG

***Larrea tridentata - Atriplex confertifolia* Shrubland**

Creosotebush - Shadscale Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001263

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Driscoll et al. 1984, Peterson 1984, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Larrea tridentata - Atriplex hymenelytra* Shrubland**

Creosotebush - Desert-holly Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001264

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Annable 1985, Bourgeron and Engelking 1994, Driscoll et al. 1984, Kurzius 1981, Leary and Peterson 1984, Peterson 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Larrea tridentata - Coleogyne ramosissima* Shrubland**

Creosotebush - Blackbrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL002717

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Larrea tridentata - Ephedra nevadensis* Shrubland**

Creosotebush - Nevada Joint-fir Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001268

Distribution (Nations/Subnations): US / AZ, CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Warren et al. 1982, Wells 1961, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Larrea tridentata / Lycium andersonii - Grayia spinosa* Shrubland**

Creosotebush / Redberry Desert-thorn - Spiny Hop-sage Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001271

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Bradley 1967, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Larrea tridentata* / *Schismus barbatus* Semi-natural Shrubland**

Creosote Bush / Mediterranean Semi-natural Shrubland

Association Code: NNHP037

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G?

Summary: This classification should be used with hesitation - only for sites where the understory has been lost to the extent that classification in native types (with a 'D' rank) would be impossible without predictive modeling (empirical or intuitive). *Larrea tridentata* remains in these sites with variable ground-cover (e.g. 5-15%) but few other perennial shrubs, or perennial grasses are present. Ephemeral forbs may be diverse and with high cover in wet years, but are not visible much of the year. The annual grasses *Bromus rubens* or *Schismus* spp. are typically present, though total cover varies depending on precipitation over the previous year. In wet years, annual grass cover may exceed 30% and *Schismus barbatus* is generally the most abundant and widespread throughout the community while *B. rubens* tends to be more clumped and is often not present in quantity in the first wet year following several years of draught.

References:

NNHP Plots: p050505h, p050503d (2 plots identified)

Representative Images:



p050503d_1.JPG



p050505h_2_v2.jpg

***Larrea tridentata* / *Yucca* spp. Shrubland**

Creosotebush / Yucca species Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001278

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bradley 1964, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Larrea tridentata* Monotype Shrubland**

Creosotebush Monotype Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001261

Distribution (Nations/Subnations): US / AZ, CA?, NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Annable 1985, Bourgeron and Engelking 1994, Gible 1950, Shields et al. 1959, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ledum glandulosum* Saturated Shrubland Alliance**

Glandular Labrador-tea Saturated Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2514

Summary: [no summary available] [Captured 2008-02-18]

***Ledum glandulosum* Shrubland [Provisional]**

Glandular Labrador-tea Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002739

Distribution (Nations/Subnations): US / NV

Status: 3 Depreciated Confidence: 3 (Weak) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Holland 1986b, Reuter pers. comm., Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Nolina bigelovii* Shrubland Alliance**

Bigelow's Bear-grass Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2534

Summary: This widespread shrubland of the desert Southwest requires very xeric conditions, although its range extends beyond the pure deserts of the Mojave and Colorado. Stands may occur at elevations ranging from 250-2250 m. Stands typically occur on steep slopes or in valleys. Optimal soils are thin and rocky, and are derived from granite or are of calcareous origin. This extremely xeromorphic evergreen shrubland is characterized by the subshrubs *Nolina bigelovii*, including *Nolina parryi* (= *Nolina bigelovii* var. *parryi*), forming an open canopy over a low-shrub layer. Shrubs may include *Ferocactus cylindraceus*, *Coleogyne ramosissima*, *Encelia farinosa*, *Eriogonum fasciculatum*, *Acacia greggii*, *Agave deserti*, *Hyptis emoryi*, *Ericameria linearifolia*, and *Ambrosia dumosa*. Emergent individuals of *Juniperus californica* and/or *Fouquieria splendens* may occur. The herbaceous layer is sparse. [Captured 2008-02-18]

***Nolina bigelovii* Shrubland [Placeholder]**

Bigelow's Bear-grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003064

Distribution (Nations/Subnations): US / AZ, CA, NV?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: This shrubland vegetation type forms local, scattered stands in the mountains and deserts of southern California, and the Mojave and Lower Sonoran deserts. Stands likely also occur in Arizona and Nevada. Elevations range from 250-2250 m, and sites typically occur on steep slopes with abundant rock outcrop. Substrates are rocky, poorly developed soils derived from granitic rocks or are of calcareous origin. Rocky substrates allow water to run off rock faces and concentrate in the crevices. This shrubland is characterized by the subshrub *Nolina bigelovii*, forming an open, emergent canopy over a low (<1 m tall) shrub layer that is composed of succulents and microphyllous evergreen and deciduous species. Common species may include *Ferocactus cylindraceus*, *Coleogyne ramosissima*, *Encelia farinosa*, *Eriogonum fasciculatum*, *Acacia greggii*, *Agave deserti*, *Hyptis emoryi*, *Ericameria linearifolia*, *Simmondsia chinensis*, and *Ambrosia dumosa*. Emergent individuals of *Juniperus californica* or *Fouquieria splendens* up to 5 m in height, may also be present. The herbaceous layer is typically sparse and composed primarily of perennials, both forbs and grasses.

[Captured 2008-02-15]

References: Hickman 1993, Holland 1986b, Reid et al. 1994, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Nolina parryi* Shrubland Alliance**

Parry's Bear-grass Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2535

Summary: This widespread shrubland of the desert Southwest requires very xeric conditions, although its range extends beyond the pure deserts of the Mojave and Colorado. Stands may occur at elevations ranging from 250-2250 m. Stands typically occur on steep slopes or in valleys. Optimal soils are thin and rocky, and are derived from granite or are of calcareous origin. This extremely xeromorphic evergreen shrubland is characterized by the subshrub *Nolina parryi* (= *Nolina bigelovii* var. *parryi*), forming an open canopy over a low-shrub layer. Shrubs may include *Ferocactus cylindraceus*, *Coleogyne ramosissima*, *Encelia farinosa*, *Eriogonum fasciculatum*, *Acacia greggii*, *Agave deserti*, *Hyptis emoryi*, *Ericameria linearifolia*, and *Ambrosia dumosa*. Emergent individuals of *Juniperus californica* and/or *Fouquieria splendens* may occur. The herbaceous layer is sparse. [Captured 2008-02-18]

***Nolina parryi* Shrubland [Placeholder]**

Parry's Bear-grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002956

Distribution (Nations/Subnations): US / AZ, CA, NV?

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Peucephyllum schottii* Shrubland Alliance**

Desert-fir Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2516

Summary: This alliance occurs at mid elevations in the Mojave Desert of California and southern Nevada. Elevation ranges from 1000-1500 m. Stands occur on disturbed upland sites. The vegetation is characterized by an open, xeromorphic shrub layer dominated by *Peucephyllum schottii*. *Gutierrezia microcephala* is codominant in some stands. [Captured 2008-02-18]

***Peucephyllum schottii* Shrubland [Placeholder]**

Desert-fir Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002722

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Picrothamnus desertorum* Shrubland Alliance**

Bud Sagebrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1128

Summary: Little information is available for the *Picrothamnus desertorum* Shrubland Alliance (A. 1128). It is one of the least common salt desert shrub communities. It occurs on alkaline, lacustrine ash deposits of the Owyhee Uplands, along the margins of the large playas, and on alluvial gravel deposits of Pleistocene lake basins. These latter habitats are the most prevalent in Nevada, and thus the alliance may prove to be more common than presently documented. *Picrothamnus desertorum* (= *Artemisia spinescens*) is the indicator woody species, with *Elymus elymoides* the dominant graminoid species. Some valley margins sites with deep ash or alkaline sands support only open understories of *Elymus elymoides*, *Achnatherum hymenoides*, and *Hesperostipa comata*. [Captured 2008-02-18]

***Picrothamnus desertorum* / *Elymus elymoides* Shrubland [Provisional]**

Bud Sagebrush / Bottlebrush Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002992

Distribution (Nations/Subnations): US / ID, NV?, OR

Status: 3 Depreciated **Confidence:** 3 (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Picrothamnus desertorum* Shrubland**

Bud Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001452

Distribution (Nations/Subnations): US / MT?, NV, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, MTNHP 2002b, MTNHP unpubl. data, Western Ecology Working Group n.d.

NNHP comments: I suppose the plot sampled by NNHP could be shoe-horned into an *Atriplex confertifolia* - *Picrothamnus desertorum* type, so the 'weak' certainty given by NatureServe should remain.

NNHP Plots: p030730c, p050421b, p050421c, p050604c (4 plots identified)

Representative Images:



p030730c.JPG



p050421c.JPG

***Prosopis glandulosa* Shrubland Alliance**

Honey Mesquite Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1031

Summary: This alliance includes shrublands dominated by *Prosopis glandulosa*. Shrublands in this alliance can cover extensive areas, invading open grasslands and often forming thickets. The shrublands extend up to 4500 feet elevation. Associated species can include *Atriplex canescens*, *Bouteloua curtipendula*, *Bouteloua gracilis*, *Muhlenbergia porteri*, *Sporobolus airoides*, *Sporobolus flexuosus*, and *Buchloe dactyloides*. [Captured 2008-02-18]

***Prosopis glandulosa* var. *torreyana* Shrubland**

Western Honey Mesquite Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001381

Distribution (Nations/Subnations): US / AZ?, NM?, NV, TX

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Prunus fasciculata* Intermittently Flooded Shrubland Alliance**

Desert Almond Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2519

Summary: This alliance occurs in a variety of habitats throughout the Mojave Desert. Stands often occur in desert washes, arroyos and canyon bottoms, but are also found on upland sites such as alluvial terraces, bajadas and lower canyon slopes. Soils are generally alluvial. Disturbance from intermittent flooding or upland disturbance from grazing animals and ORVs occurs on many sites and may be important to the maintenance of this alliance. The vegetation is characterized by an open to closed, xeromorphic shrub layer dominated by *Prunus fasciculata*. Other shrubs and dwarf-shrubs present may include *Atriplex confertifolia*, *Acamptopappus sphaerocephalus*, *Ephedra nevadensis*, *Eriogonum fasciculatum*, *Grayia spinosa*, *Hymenoclea salsola*, *Krascheninnikovia lanata*, *Larrea tridentata*, *Lycium andersonii*, *Mortonia utahensis*, *Rhus trilobata*, *Salvia dorrii*, *Salazaria mexicana*, *Thamnosma montana*, or *Viguiera reticulata*. Occasional emergent tall shrubs or small trees may be present. The herbaceous layer is typically sparse. Dominance of *Prunus fasciculata* is diagnostic of this shrubland alliance. [Captured 2008-02-18]

***Prunus fasciculata* Shrubland [Placeholder]**

Desert Almond Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002704

Distribution (Nations/Subnations): US / AZ?, CA, NV, UT

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Prunus virginiana* Shrubland Alliance**

Choke Cherry Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.919

Summary: This alliance occurs in scattered locations at low to mid elevations of the western U.S. Sites typically occur along streams, rivers, lakes and ponds, and on terraces. It also is found in canyons or steep gullies and along arroyos. Elevations range from 716 m to about 1600 m in Montana, Wyoming and Colorado, and up to 2440 m in Nevada. In some places the alliance occurs on side slopes of hillsides, immediately below a seep or spring. Some examples of this alliance have been placed into an intermittently or temporarily flooded hydrologic regime. Soils are usually well-developed, older, and well-drained, formed in shallow to deep alluvial deposits. These soils have higher fertility and afford good rooting depth. Textures range from silt to sandy loams, often becoming skeletal at depth. *Prunus virginiana* can tolerate weakly saline soils, but is intolerant of poor drainage and prolonged flooding. This alliance is characterized by a tall, dense layer of shrubs, primarily of *Prunus virginiana*. In the absence of disturbance, this species can form dense, monotypic thickets. With grazing or browsing disturbance, stands become more open allowing other shrubs to become common, including *Symphoricarpos occidentalis*, *Rosa woodsii*, *Ribes aureum*, and, in Oregon, *Sambucus caerulea*. The woody vine *Toxicodendron rydbergii* is present in most stands, as are the forbs *Maianthemum stellatum* and *Galium triflorum*. The herbaceous layer is typically not abundant, although stands with an open

shrub canopy will typically have a component of weedy forbs and graminoids. A few scattered *Juniperus scopulorum* also occur. [Captured 2008-02-18]

***Prunus virginiana* - (*Prunus americana*) Shrubland**

Choke Cherry - (American Plum) Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001108

Distribution (Nations/Subnations): US / CO, ID, MT, NV, OR, SD, WA, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4Q

Summary: This is a widespread small-patch shrubland that is known from the Columbia Plateau of eastern Washington and eastern Oregon, eastern Nevada, southeastern Idaho, throughout Wyoming, Montana, Colorado and western South Dakota. It occurs in the foothills and lower slopes of mountain ranges, along higher creeks, and in draws and ravines of high plateaus and the Great Plains. The elevational range is 680 to 2652 m (2234-8700 feet). This association grows at the interface between larger riparian areas and the adjacent upland and occurs as small dense thickets, narrow bands, or irregular patches. It often occupies draws, ephemeral creeks in steep narrow-bottomed canyons, and shallow ravines. It can occur on slopes below seeps and springs and on high slopes where snow collects. Shrub cover ranges from 100% to more open stands of 30%. Shrub cover is generally greater in drainage bottoms and on lowermost slopes, and less on upper slopes. *Prunus virginiana* is usually the dominant shrub species, but *Prunus americana* may be solely present to codominant as well. Stands can be dominated by one species but are often a mix of three to six other shrub species, which can be as abundant and even more abundant than the *Prunus*. Other shrubs include *Rhus trilobata*, *Ribes aureum*, *Ribes lacustre*, *Ribes inerme*, *Salix exigua*, *Sambucus* spp., *Amelanchier* spp., *Amorpha canescens*, *Symphoricarpos oreophilus*, *Symphoricarpos occidentalis*, *Juniperus scopulorum*, *Rosa woodsii*, and *Toxicodendron rydbergii*. In drainage bottoms, herbaceous cover is usually sparse, less than 10%. On slopes, the shrubs typically occur in some grassland type, and graminoid cover can be greater than 75%. Herbaceous species include *Bromus inermis*, *Heracleum maximum* (= *Heracleum lanatum*), *Juncus arcticus*, *Maianthemum stellatum* (= *Smilacina stellata*), *Poa pratensis*, *Cirsium arvense*, *Muhlenbergia montana*, *Leymus cinereus*, and *Bromus tectorum*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP pers. comm., CONHP unpubl. data 2003, Caicco and Wellner 1983n, Carsey et al. 2003a, Copeland 1980a, Driscoll et al. 1984, Evans 1989a, Evans 1989b, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Johnston 1987, Jones 1992b, Jones and Walford 1995, Kagan et al. 2000, Kittel et al. 1996, Kittel et al. 1999b, Kovalchik 1987, Kudray et al. 2004, MTNHP 2002b, Manning and Padgett 1995, Marriott pers. comm., Von Loh et al. 1999, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Psorothamnus polydenius* Shrubland Alliance**

Nevada Smokebush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1039

Summary: This shrubland alliance is found in drainage bottoms in the Great Basin. Elevation ranges from 670-2250 m. Sites include sandy alluvial flats, plains and washes, typically are flat to undulating, and occur on all aspects. The soils are well-drained, moderately deep and coarse-textured with a sandy surface over sandy loams. Soils are derived from sandy/gravelly alluvium. Stands have a sparse woody layer dominated by the xeromorphic, deciduous, subdesert shrub *Psorothamnus polydenius*. Other

common shrubs and dwarf-shrubs present may include *Atriplex canescens*, *Krascheninnikovia lanata*, *Tetradymia glabrata*, and occasional *Artemisia tridentata*. The herbaceous layer ranges from sparse to possibly moderately dense, but no cover values are available. Frequent graminoids are *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Elymus elymoides*, and the exotic annual *Bromus tectorum*. Common forbs consist of *Phacelia* spp., *Abronia fragrans*, *Gayophytum ramosissimum*, *Mentzelia multiflora*, *Cleome lutea*, *Navarretia* sp., and *Sphaeralcea coccinea*. [Captured 2008-02-18]

***Psorothamnus polydenius* var. *polydenius* / *Achnatherum hymenoides* Shrubland**

Nevada Smokebush / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001353

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Psorothamnus spinosus* Intermittently Flooded Shrubland Alliance**

Smokethorn Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2520

Summary: This xeromorphic tall shrubland alliance occurs locally in moderate-sized washes in the Mojave, Colorado and Sonoran deserts. Stands are restricted to growing in intermittently flooded channels. Substrates are typically sandy-textured alluvium without cobbles or boulders. It may form a matrix with other wash vegetation alliances. The vegetation is characterized by an open, xeromorphic, tall-shrub layer (3-5 m tall) that is dominated by *Psorothamnus spinosus*. Individuals may reach 4 m. Other tall shrubs/small trees present may include *Acacia greggii*, *Chilopsis linearis*, *Olneya tesota*, or *Parkinsonia florida*. A sparse short-shrub layer of species such as *Ambrosia dumosa*, *Bebbia juncea*, *Baccharis emoryi*, *Encelia farinosa*, *Ericameria* spp., *Hymenoclea salsola*, *Hyptis emoryi*, *Larrea tridentata*, *Petalonyx thurberi*, or *Stephanomeria pauciflora* may also be present. The herbaceous layer is sparse and consists of annuals or is absent. [Captured 2008-02-18]

***Psorothamnus spinosus* Shrubland [Placeholder]**

Smokethorn Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002701

Distribution (Nations/Subnations): MX?, US / AZ?, CA, MXBC?, MXSO?, NV?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Keeler-Wolf and Thomas 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Purshia (stansburiana, mexicana)* Shrubland Alliance**

(Stansbury's Cliffrose, Mexican Cliffrose) Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.833

Summary: The vegetation in this alliance occurs at middle elevations (800-2000 m) of the Intermountain West, usually in washes, on cliffs, or on steep, rocky terrain. Precipitation averages 20-45 cm annually. These communities occur on skeletal soils derived from granitic or sedimentary parent materials. In central Utah the alliance is associated with limestone. These shrublands are dominated by *Purshia mexicana*, an erect evergreen shrub that grows up to 8 m tall, or *Purshia stansburiana*. Associated shrubs include *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Coleogyne ramosissima*, *Artemisia tridentata*, and *Yucca baccata*. The herbaceous ground layer is typically sparse, but can be moderately dense in stands which have been invaded by non-native annual grasses. Typical native species include *Sporobolus cryptandrus*, *Poa secunda*, and *Pseudoroegneria spicata*. Adjacent vegetation is usually *Pinus - Juniperus* woodlands, *Quercus gambelii* shrublands, or *Artemisia tridentata* shrublands. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Purshia stansburiana* / *Artemisia (tridentata ssp. wyomingensis)* Shrubland**

Stansbury's Cliffrose / (Wyoming Big) Sagebrush Shrubland

Association Code: NNHP078

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4?

Summary: This southern Nevada type is dominated by *P. stansburiana* and *A. tridentata* ssp. *wyomingensis*, both of which generally have high cover. Note, however, that changing concepts in *Artemisia* now suggest that the taxon in the area is actually a tall form of *Artemisia nova*, and thus the name of this association may require future revision.

References:

NNHP Plots: p050506b (1 plots identified)

***Purshia tridentata* Shrubland Alliance**

Bitterbrush Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.825

Summary: This alliance occurs throughout the Intermountain West at elevations from 500-3000 m. These shrublands occur over a broad range of landforms and microhabitats including stabilized dunes in Idaho and steep exposed mountain slopes with southerly aspects on the eastern side of the Front Range. These sites are typically too xeric to support extensions of the surrounding coniferous forests. These soils are poorly developed and rocky, with loamy and sandy textures. Shrublands included in this alliance are characterized by a *Purshia tridentata*-dominated shrub canopy, often with *Artemisia tridentata*. Other important shrubs include *Artemisia frigida*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Prunus virginiana*, *Ribes cereum*, and *Arctostaphylos uva-ursi*. Scattered trees may form an emergent layer where *Purshia tridentata* shrublands grade into adjacent woodlands or forests. Typical tree associates include *Pinus ponderosa*, *Pinus washoensis*, *Pinus jeffreyi*, *Juniperus occidentalis*, *Juniperus osteosperma*, *Juniperus scopulorum*, *Yucca brevifolia*, *Quercus garryana*, *Populus tremuloides*, and *Cercocarpus ledifolius*. The herbaceous layer is usually dominated by perennial bunch grasses, including *Muhlenbergia montana*, *Elymus lanceolatus*, *Hesperostipa comata* (= *Stipa comata*), *Poa secunda* (= *Poa sandbergii*), *Koeleria macrantha*, and *Achnatherum hymenoides* (= *Oryzopsis hymenoides*). Some stands may have a well-developed forb component composed of *Achillea*

millefolium, *Balsamorhiza sagittata*, *Brodiaea* spp., and *Erigeron corymbosus*. Mosses and lichens are important in some stands. Diagnostic of this alliance is the dominance of *Purshia tridentata* in a shrub layer that is greater than 25% on average. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Purshia tridentata* - *Amelanchier alnifolia* / *Leymus cinereus* Shrubland**

Antelope Bitterbrush - Saskatoon Serviceberry / Basin Wild Rye Shrubland

Association Code: NNHP054

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This type occurs in cool, lower-montane situations in the northern Great Basin. The shrub layer is codominated by *Purshia tridentata* and *Amelanchier alnifolia*, with other shrubs often present including *Artemisia tridentata* ssp. *vaseyana* and *Chrysothamnus viscidiflorus*. The short-tree *Cercocarpus ledifolius* may also be present in low amounts. The graminoid layer is dominated by *Leymus cinereus* but may be codominated by *Pseudoroegneria spicata*.

References:

NNHP Plots: p020621i (1 plots identified)

Representative Images:



p020621i_1.JPG

***Quercus turbinella* Shrubland Alliance**

Turbinella Live Oak Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.793

Summary: This alliance includes evergreen shrublands where *Quercus turbinella* forms thickets with other desert shrubs. Important shrub associates can include *Arctostaphylos* spp., *Cercocarpus montanus*, *Coleogyne ramosissima*, *Ephedra viridis*, *Juniperus osteosperma*, *Rhus virens*, *Rhus trilobata*, *Rhus microphylla*, *Fraxinus greggii*, *Ceanothus greggii*, *Quercus mohriana*, *Quercus pungens*, and *Garrya wrightii*. Ground cover is typically sparse with scattered grasses, forbs, and ferns. Some typical herbaceous components include *Bouteloua curtipendula*, *Bouteloua eriopoda*, *Aristida* spp., *Astrolepis sinuata* (= *Notholaena sinuata*), and *Notholaena standleyi*. Shrublands in this alliance are small in extent and occur in a matrix of succulent desert scrub and semi-desert grassland. *Quercus turbinella* shrublands are typically found on steep, rocky slopes, often sheltered slopes in limestone canyons, in the mountains of Nevada, Arizona, New Mexico, and western Texas. [Captured 2008-02-18]

***Quercus turbinella* - *Ephedra viridis* Shrubland**

Turbinella Live Oak - Mormon-tea Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000980

Distribution (Nations/Subnations): US / NV, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: G3?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Wells 1960, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Quercus turbinella* - *Juniperus osteosperma* Shrubland**

Turbinella Live Oak - Utah Juniper Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000981

Distribution (Nations/Subnations): US / NV, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Wells 1960, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Rosa woodsii* Temporarily Flooded Shrubland Alliance**

Woods' Rose Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.959

Summary: These shrublands occur in the foothills and plains of Montana and Idaho. Elevations range from 650-1700 m. Stands occur in floodplains and on alluvial terraces along rivers and streams, on hillsides below springs, and in ravines and swales where overland flow from snowmelt and summer thunderstorms provides additional moisture. Sites are flat to moderately steep. Although sites are temporarily flooded, they are well-drained and do not have a shallow water table. Soils range from sandy loams to silt loams. Stands typically have a moderately dense short-shrub layer which *Rosa woodsii* dominates. Some stands have moderate cover of *Rosa acicularis*, *Symphoricarpos occidentalis*, or *Toxicodendron rydbergii*. Some stands have an herbaceous layer dominated by the exotic forage grass *Poa pratensis* and the weedy forb *Cirsium arvense*. Other common herbaceous species include perennial graminoids, such as *Elymus glaucus*, *Carex* spp., *Juncus balticus*, and *Muhlenbergia racemosa*, and the forbs *Achillea millefolium*, *Ambrosia psilostachya*, *Artemisia ludoviciana*, *Fragaria virginiana*, *Galium boreale*, *Geum macrophyllum*, and *Solidago canadensis*. [Captured 2008-02-18]

***Rosa woodsii* Shrubland**

Woods' Rose Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001126

Distribution (Nations/Subnations): CA?, US / CA, ID, MT, NV, OR, SK?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: This shrubland occurs in the foothills and plains of Montana, Idaho, Nevada, and eastern California. Elevations range from 650-2490 m. Stands occur in floodplains and on alluvial terraces along rivers and streams, on hillsides below springs, and in ravines and swales where

overland flow from snowmelt and summer thunderstorms provides additional moisture. It can also occur on disturbed sites with little moisture, such as steep south-facing hill slopes. Sites are flat to moderately steep. Floodplain sites are temporarily flooded, well-drained with no perched water table. Soils range from sandy loams to silt loams. Stands typically have a moderately dense short-shrub layer which *Rosa woodsii* dominates. Some stands have moderate cover of *Rosa acicularis*, *Symphoricarpos occidentalis*, or *Toxicodendron rydbergii*. Other shrubs can include *Artemisia tridentata* and *Ribes aureum*. Some stands have an herbaceous layer dominated by the exotic grasses *Poa pratensis* or *Bromus tectorum* and the weedy forb *Cirsium arvense*. Other common herbaceous species include perennial graminoids, such as *Elymus glaucus*, *Leymus cinereus*, *Carex* spp., *Juncus balticus*, and *Muhlenbergia racemosa*, and the forbs *Achillea millefolium*, *Ambrosia psilostachya*, *Artemisia ludoviciana*, *Fragaria virginiana*, *Galium boreale*, *Geum macrophyllum*, and *Solidago canadensis*.

[Captured 2008-02-15]

References: Bagley pers. comm., Bourgeron and Engelking 1994, Driscoll et al. 1984, Hansen et al. 1990, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Kagan et al. 2004, MTNHP 2002b, Manning and Padgett 1995, Nachlinger and Reese 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salazaria mexicana* Shrubland Alliance**

Bladder-sage Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2538

Summary: This alliance occurs in a variety of disturbed habitats throughout the Mojave Desert. Stands often occur in washes, but may be found on upland sites such as hillslopes, bajadas, or alluvial terraces in areas disturbed by water erosion, grazing animals or ORV use. Soils are alluvial and/or colluvial. The vegetation is characterized by an open, xeromorphic shrub layer dominated by *Salazaria mexicana*. Other shrubs and dwarf-shrubs present may include *Atriplex confertifolia*, *Acamptopappus sphaerocephalus*, *Ephedra nevadensis*, *Eriogonum fasciculatum*, *Grayia spinosa*, *Hymenoclea salsola*, *Krascheninnikovia lanata*, *Larrea tridentata*, *Lycium andersonii*, *Salvia dorrii*, or *Viguiera reticulata*. Occasional emergent tall shrubs may be present such as *Acacia greggii* or *Yucca brevifolia*. The herbaceous layer is generally sparse and often dominated by graminoids such as *Achnatherum speciosum*. Annual species such as *Eriogonum inflatum* or introduced annual grasses, especially *Bromus* spp., are seasonally present. Dominance of *Salazaria mexicana* is diagnostic of this shrubland alliance. [Captured 2008-02-18]

***Salazaria mexicana* Shrubland [Placeholder]**

Bladder-sage Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002961

Distribution (Nations/Subnations): US / CA, NV?

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix (exigua, interior)* Temporarily Flooded Shrubland Alliance**

(Coyote Willow, Sandbar Willow) Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.947

Summary: Plant associations within this temporarily flooded shrubland alliance are located on floodplains and gravel bars between 780 and 2700 m (2560-9100 feet) elevation in the western U.S., and at lower elevations (to below 100 m) in the midwestern and southeastern U.S. Stands may be dominated either by *Salix exigua* (in the West) or *Salix interior* (in the Midwest and East). Both species or intermediates may occur in stands in the region where the range of the two species overlap. These shrublands are found on open sandbars without tree canopy shading, on larger, well-developed drainages and along larger sandy rivers, or on coarser-textured substrates. They are associated with annual flooding and inundation and will grow well into the channel, where it is flooded, even in drier years. Even though flooding is frequent, surface water is not present for much of the growing season, and the water table is well below the surface. Some stands form large, wide stands on mid-channel islands on larger rivers, or narrow stringer bands on small, rocky tributaries. Stream reaches range widely from moderately sinuous and moderate-gradient reaches to broad, meandering rivers with wide floodplains or broad, braided channels. Many stands also occur within highly entrenched or eroding gullies. The canopy is dominated by a tall, 2- to 5-m, broad-leaved deciduous shrub that is typically many-branched with continuous cover of 60-100%. The herbaceous stratum has sparse to moderate cover including a variety of pioneering species. This alliance represents an early-seral, primary successional stage on newly deposited sediments that may persist under a regime of repeated fluvial disturbance. *Salix exigua* and *Salix interior* are highly adapted to most forms of disturbance. Both species are prolific sprouters and will reestablish themselves on sites dominated by other disturbance-associated species, e.g., *Glycyrrhiza lepidota* and *Pascopyrum smithii* (= *Agropyron smithii*). Associations in this shrubland alliance are common and widespread.

Shrublands dominated solely by *Salix exigua* (*sensu stricto*) extend from the Pacific Northwest and California east into the Rocky Mountains and onto the Great Plains. Stands of possibly mixed or ambiguous composition may occur from the northern Great Plains south to the Colorado plains, possibly extending into northeastern New Mexico and the western portions of the Dakotas, Nebraska, Kansas, and Oklahoma. Examples dominated by *Salix interior* occur in the Midwest in Iowa, Illinois, Indiana, Ohio, and the eastern portions of North Dakota, South Dakota, Nebraska, and Kansas. They also extend into Arkansas, Tennessee, Kentucky, Texas, and eastern Oklahoma, and possibly in Pennsylvania and West Virginia, as well as in Manitoba and other provinces of Canada. In western Oklahoma and throughout the Ozarks the associations are local along major streams. In the West, adjacent upland plains communities include agricultural fields and rolling hills of *Artemisia filifolia*, xeric tallgrass prairies, and *Bouteloua gracilis* shortgrass prairies. In the steep canyons of the foothills, upslope vegetation includes *Pseudotsuga menziesii* and *Pinus ponderosa* forests, *Pinus edulis* and *Juniperus* spp. woodlands, oak, sagebrush, and greasewood scrub. In the lower montane, upslope vegetation includes *Pinus contorta* and *Populus tremuloides* forests.

In California, stands *Salix exigua* is dominant or codominant often with *Salix lasiolepis*, *Rosa californica*, *Rubus discolor*, *Rubus ursinus*, and *Cephalanthus occidentalis*. Emergent trees may be present, including *Acer negundo*, *Alnus rhombifolia*, *Juglans hindsii*, *Populus fremontii*, *Salix goodingii*, *Salix laevigata*, and *Salix lucida*. [Captured 2008-02-18]

***Salix exigua* / Barren Shrubland**

Coyote Willow / Barren Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001200

Distribution (Nations/Subnations): US / AZ, CO, ID?, NM, NV, OR, UT, WA

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This riparian shrubland is common in the Rocky Mountains, Colorado Plateau and Great Basin. It is composed of nearly pure stands of *Salix exigua*, with few other species. Exposed gravel, cobbles or sand characterize the ground cover, but an undergrowth of a few, scattered forbs and grasses is usually present. This association occurs within the annual flood zone of rivers on point bars, islands, sand or cobble bars, and streambanks.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Christy 1973, Cogan et al. 2004, Cowardin et al. 1979, Culver et al. 1996, Donnelly et al. 2006, Dorn 1997, Driscoll et al. 1984, Durkin et al. 1995b, Hall and Hansen 1997, Hansen et al. 1995, Hansen et al. 2004b, IDCDC 2005, Johnston 1987, Jones and Walford 1995, Kagan et al. 2004, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999a, Kovalchik 1987, Manning and Padgett 1995, Muldavin et al. 2000a, Padgett 1981, Padgett et al. 1988b, Padgett et al. 1989, Richard et al. 1996, Tuhy and Jensen 1982, Von Loh et al. 2002, Western Ecology Working Group n.d.

NNHP Plots: p050420a (1 plots identified)

Representative Images:



p050420a.JPG

***Salix exigua* / Mesic Forbs Shrubland**

Coyote Willow / Mesic Forbs Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001202

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2

Summary: This association typically occurs between 1464 and 2562 m (4800-8400 feet) elevation in Utah, western Colorado, central Nevada and eastern Idaho, where it occupies streambanks, terraces, and meadows along a wide variety of low- to moderate-gradient stream types. In contrast, a low-elevation phase of this plant association is found below 1128 m (3700 feet) in south-central and southwestern Idaho on annually flooded banks, islands, and terraces of reservoirs and large rivers (e.g., the Snake River and Boise River). This type usually occurs on well-developed sandy to silty alluvial loam soils, on the wettest (often flooded) but stable sites supporting *Salix exigua*

associations. Both phases are dominated by a tall-shrub overstory of open to dense *Salix exigua*, although *Salix lutea*, *Ribes* spp., and *Rosa woodsii* are sometimes also present in lesser amounts. In the typical phase, the herbaceous understory is clearly dominated by a lush understory of mixed tall forbs, each with moderate cover, with *Aconitum columbianum*, *Equisetum arvense*, *Heracleum maximum*, *Maianthemum stellatum*, *Mertensia ciliata*, *Rudbeckia* spp., *Solidago canadensis*, and *Urtica dioica* being most common. No single forb has consistently high constancy and cover across the association's range. In the low-elevation phase, flood-disturbed stands in riverine habitats contain abundant native colonizing forbs (e.g., *Apocynum cannabinum*, *Euthamia occidentalis*, *Glycyrrhiza lepidota*, and *Polygonum* spp.) often mixed with dense exotic forbs (e.g., *Dipsacus fullonum*, *Lythrum salicaria*, *Melilotus officinalis*, and *Xanthium strumarium*). Total mesic graminoid cover is low in both phases of this association (with each species having only low cover) and composed of both native species (e.g., *Carex* spp., *Elymus glaucus*) and/or exotics (e.g., *Phalaris arundinacea*, *Poa pratensis*).
[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Cole 1995, Cole 1996, Crawford 2001, Crowe and Clausnitzer 1997, Crowe et al. 2002, Driscoll et al. 1984, Hansen and Hall 2002, Hansen et al. 1995, Holmstead 2001, IDCDC 2005, IDCDC unpubl. data 2002, Jankovsky-Jones et al. 2001, Jones 1992b, Manning and Padgett 1995, Padgett et al. 1988b, Padgett et al. 1989, Western Ecology Working Group n.d.

NNHP Plots: p020601f (1 plots identified)

Representative Images:



p020601f_1.JPG

* New to Nevada - with plot data:

***Salix exigua* / Mesic Graminoids Shrubland**

Coyote Willow / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001203

Distribution (Nations/Subnations): US / CA, CO, ID?, KS, NE, NM, OK, SD, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This riparian association is found primarily in the central Great Plains but also occurs in parts of the Rocky Mountains and Intermountain semi-desert regions. It generally occurs along backwater channels and other perennially wet but less scoured sites such as floodplain swales and irrigation ditches. The vegetation is characterized by the dominance of *Salix exigua* in a moderately dense tall-shrub canopy with a dense herbaceous layer dominated by graminoids. Other common shrubs include saplings of *Populus deltoides* or *Salix amygdaloides*, *Salix eriocephala*, *Salix lutea*,

and *Amorpha fruticosa*. Tall perennial grasses can appear to codominate the stand when *Spartina pectinata*, *Panicum virgatum* or other tall grasses are present. Other mesic graminoids, such as *Carex* spp., *Eleocharis* spp., *Juncus* spp., *Pascopyrum smithii*, *Schoenoplectus pungens* (= *Scirpus pungens*), and *Sphenopholis obtusata*, may be present. Common forb species include *Bidens* spp., *Lobelia siphilitica*, *Lycopus americanus*, *Lythrum alatum*, *Polygonum* spp., and *Xanthium strumarium*. Diagnostic features of this association include the nearly pure stands of *Salix exigua* shrubs, with a dense herbaceous layer of at least 30% cover of mesic graminoids.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Butler et al. 2002, CONHP unpubl. data 2003, Carsey et al. 2003a, Cogan et al. 2004, Cooper and Cottrell 1990, Driscoll et al. 1984, Hansen et al. 1995, Hoagland 1998c, Hoagland 2000, IDCDC 2005, Jones 1992b, Jones and Walford 1995, Kittel 1994, Kittel and Lederer 1993, Kittel et al. 1996, Kittel et al. 1999a, Lauver et al. 1999, Padgett et al. 1988b, Padgett et al. 1989, Steinauer and Rolfsmeier 2000, Walford et al. 2001, Western Ecology Working Group n.d.

NNHP Plots: p020601e (1 plots identified)

***Salix bebbiana* Temporarily Flooded Shrubland Alliance**

Long-beak Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.971

Summary: This alliance occurs along rivers and streams in the western Great Plains and Rocky Mountains. This alliance is a briefly flooded, scrub-shrub wetland on slightly to moderately alkaline soils, usually near low-gradient streams. The water table is well below the soil surface for over half the growing season. However, there are periods of several days to a few weeks when water is at the surface. These communities are typically dominated by a dense growth of shrubs 0.5-3 m tall. Multiple-stemmed trees and/or shrubs 0.5-5 m tall have 30-100% cover; single-stemmed trees have less than 30% cover. The most abundant species in the shrub layer are *Salix bebbiana*, *Salix scouleriana*, and *Salix lucida* ssp. *caudata* (= *Salix fendleriana*). Other species found in this stratum include *Betula occidentalis*, *Cornus sericea*, *Salix exigua*, *Salix fluviatilis*, and *Prunus virginiana*. The herbaceous layer often contains *Scirpus* spp., *Carex* spp., *Triglochin palustris*, *Calamagrostis canadensis*, and *Equisetum* spp. along the wetter margins of the alliance. In the drier areas *Gentianella amarella* ssp. *acuta* (= *Gentiana strictiflora*), *Prunella vulgaris*, *Pyrola asarifolia*, *Ranunculus macounii*, *Sanicula marilandica*, *Viola canadensis*, *Vicia americana*, and *Zizia aptera* (= *Zizia cordata*) are frequently present. [Captured 2008-02-18]

***Salix bebbiana* / Mesic Graminoids Shrubland**

Bebb's Willow / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001174

Distribution (Nations/Subnations): US / AZ?, CO, ID, MT, NM?, NV, UT, WA?, WY?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This shrubland is a broadly distributed but infrequently occurring association confirmed from high plateaus and canyonlands of southern Utah, central Nevada, and both the northern panhandle and southern Idaho. It occurs in western Montana and in lower elevation valleys of western and central Colorado, and in other areas where *Salix bebbiana*-dominated stands form (e.g., Arizona, New Mexico, Washington, and Wyoming). Because of this broad distribution, elevations for this occurrence range from as low as 640 m (2100 feet) in northern Idaho to at least 2805 m (9200 feet) in the southern Rocky Mountains. This association often occurs on well-developed

alluvial soils found along low- to moderate-gradient streams, ranging from intermittent streams to broad valley floodplains of higher order systems. Landforms are also variable, including alluvial terraces, subirrigated lower slopes (e.g., springs), and abandoned oxbows. Stands are typically characterized by an open to dense overstory of mature *Salix bebbiana*, occasionally mixed with other *Salix* spp., with shorter *Ribes inerme* frequently present at the bases of willow clumps. The herbaceous understory is dominated by a mixture of at least several native mesic graminoids, often in combination with some exotic grasses and various mesic forbs. The most frequently occurring and often also the most abundant native mesic graminoids include *Bromus ciliatus*, *Calamagrostis canadensis*, several *Carex* species, including *Carex nebrascensis*, *Carex praegracilis*, and *Carex utriculata*, *Eleocharis palustris*, and several *Juncus* species, such as *Juncus balticus* and *Juncus ensifolius*. Exotic grasses, especially *Agrostis stolonifera* and *Poa pratensis*, are nearly always present with variable cover. Forb species cover ranges from low to high with the most common species being *Aconitum columbianum*, *Actaea rubra*, Asteraceae spp., *Equisetum arvense*, *Galium triflorum*, *Geranium richardsonii*, *Taraxacum officinale*, and *Trifolium* spp.

[Captured 2008-02-15]

References: Boggs et al. 1990, Bourgeron and Engelking 1994, Carsey et al. 2003a, Crawford 2003, Driscoll et al. 1984, Hansen and Hall 2002, Hansen et al. 1988b, Hansen et al. 1995, IDCDC 2005, Manning and Padgett 1995, Padgett et al. 1988b, Padgett et al. 1989, Weixelman et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix boothii* Seasonally Flooded Shrubland Alliance**

Booth's Willow Seasonally Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1001

Summary: This widespread alliance occurs throughout much of the western U.S. at elevations from 1320-2800 m. Sites include valley bottoms on swales, banks, and occasionally terraces of stream channels which receive surface water for extended periods of time, especially during the early part of the growing season. Stands adjacent to the stream channel receive moisture from overland and lateral streamflows and are often associated with beaver ponds. Stands occur on terraces that have a continually high water table. Vegetation in the alliance is also located adjacent to seeps on gently sloping toeslopes and occasionally in bogs or fens. Soils generally have a deep organic layer with some minerals, fine sands, loams, and clays, and gravel or cobbles below. Communities within this shrubland alliance are characterized by a moderately dense to dense *Salix boothii*-dominated tall-shrub layer. Other shrubs may codominate, including *Salix geyeriana*, *Salix planifolia*, or *Salix drummondiana*. *Salix wolfii* may occasionally form a relatively sparse low-shrub layer. Other shrubs may include *Lonicera involucrata*, *Betula nana* (= *Betula glandulosa*), and *Ribes* spp. The moderately dense to dense herbaceous layer is dominated by graminoids and includes *Carex aquatilis*, *Carex utriculata*, *Carex nebrascensis*, *Deschampsia caespitosa*, *Juncus balticus*, and *Trisetum wolfii*. Forb cover is sparse to moderately dense. Common forbs are *Symphotrichum foliaceum* (= *Aster foliaceus*), *Hedysarum sulphurescens*, *Geum macrophyllum*, *Mertensia ciliata*, *Trollius laxus*, and *Urtica dioica*. Diagnostic of this wetland alliance is a *Salix boothii*-dominated or codominated tall shrubland that is flooded for extended periods during the growing season. [Captured 2008-02-18]

***Salix boothii* / *Calamagrostis canadensis* Shrubland**

Booth's Willow / Bluejoint Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001175

Distribution (Nations/Subnations): US / CO, ID, MT?, NV, OR, UT, WA?, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4Q

Summary: This riparian shrub association is found in the U.S. Rocky Mountains from western Montana south through western Wyoming, central and eastern Idaho, and northeastern Utah, into northern Colorado, and west as far as eastern Oregon and possibly eastern Washington. Stands occur on medium- or fine-textured mineral soils (sometimes with an appreciable volume of rock fragments) with a seasonally high water table, on terraces and gentle slopes. Elevations vary with geographic area from 1469 m (4820 feet) in Montana to over 2745 m (9000 feet) in the Uinta Mountains of Utah. The vegetation consists of a tall-shrub layer dominated by *Salix boothii* and often containing *Salix geyeriana*, *Salix drummondiana*, *Salix eastwoodiae*, or *Salix commutata*; often, a low-shrub layer of *Lonicera involucrata*, *Ribes* spp., and *Salix wolfii*; and a thick herbaceous layer in which *Calamagrostis canadensis* (or, in Montana, *Calamagrostis stricta*) contributes as much cover as does any other native species. The dominance of *Salix boothii* in the tall-shrub layer and *Calamagrostis canadensis* in the herbaceous layer set this association apart from other willow associations.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Crowe et al. 2004, Driscoll et al. 1984, Hansen et al. 1995, IDCDC 2005, Kagan et al. 2004, Kovalchik 2001, MTNHP 2002b, Mutz and Graham 1982, Mutz and Queiroz 1983, Norton et al. 1981, Padgett et al. 1988b, Padgett et al. 1989, Tuhy and Jensen 1982, Walford et al. 2001, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

***Salix boothii* Temporarily Flooded Shrubland Alliance**

Booth's Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.972

Summary: This widespread riparian shrubland alliance is found throughout the interior western U.S. between 1320-2800 m in elevation. Stands occur in valley bottoms, swales, streambanks, and occasionally terraces of stream channels in areas that have surface water present for only brief periods of time during the growing season, and are usually found within 1 m of the water table. Stands are also located adjacent to seeps on gently sloping toeslopes. The ground surface is often uneven and hummocky due to past flooding and beaver activity. The soils are variable and include highly stratified alluvium or fine-textured, highly organic soils. Shrublands within this alliance are dominated by *Salix boothii* with a canopy ranging from 20-80% cover. *Salix geyeriana*, *Salix lemmonii*, or *Salix drummondiana* may codominate. Other shrubs present include *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides floribunda*) and *Betula nana* (= *Betula glandulosa*). A mixture of forbs and graminoids growing on raised hummocks characterizes the moderately dense herbaceous layer. Common forb and graminoid species include *Swertia perennis*, *Pedicularis groenlandica*, *Polygonum bistortoides*, *Heracleum maximum* (= *Heracleum lanatum*), *Achillea millefolium*, *Carex aquatilis*, *Carex utriculata*, and *Calamagrostis canadensis*. Diagnostic of this riparian alliance is a *Salix boothii*-dominated or -codominated tall shrubland that is flooded for brief periods during the growing season and has a shallow water table. [Captured 2008-02-18]

***Salix boothii* - *Salix eastwoodiae* / *Carex nigricans* Shrubland**

Booth's Willow - Sierran Willow / Black Alpine Sedge Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002607

Distribution (Nations/Subnations): US / NV?, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This high-elevation riparian shrubland association is known from the Cascade Range in Oregon. Sites are on glacial outwash floodplains near alpine-subalpine lakes. Substrate is a rocky, sand-textured soil. The vegetation is characterized by a low-shrub layer (<1 m tall) that is codominated *Salix boothii* and *Salix eastwoodiae* with *Phyllodoce empetrififormis* and *Kalmia microphylla* also present. The relatively sparse herbaceous layer is dominated by *Carex nigricans*. Other herbaceous species include *Antennaria* spp., *Carex scopulorum*, *Eleocharis quinqueflora* (= *Eleocharis pauciflora*), *Juncus drummondii*, *Lupinus latifolius*, *Pedicularis groenlandica*, and *Triantha glutinosa* (= *Tofieldia glutinosa*).

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Kovalchik 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix boothii* - *Salix lemmonii* Shrubland**

Booth's Willow - Lemmon's Willow Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001186

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Kovalchik 1987, Manning and Padgett 1991, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix boothii* / Mesic Forbs Shrubland**

Booth's Willow / Mesic Forbs Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001180

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV, OR, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This association is known from southern and central Idaho, western Montana, western Colorado, Utah, California, and Wyoming. Stands are found over a broad range of elevations from 1370-3050 m (4500-10,000 feet), in riparian areas on stream benches, meadows, and seeps located in narrow or broad valley bottoms. Soils are often organic. The vegetation has a 1- to 2-m tall-shrub layer that often forms extensive thickets, or willow carrs, on broad montane floodplains. The overstory of this shrubland association is dominated by *Salix boothii*. *Salix geyeriana* or *Salix drummondiana* may codominate. *Salix wolfii*, *Lonicera involucrata*, and/or *Ribes inerme* commonly form a low-shrub layer, generally tucked under the bases of the taller willows. The dense herbaceous understory is dominated by forbs. No one species is dominant or consistently present in all stands; however, when taken together, the total forb cover is greater than the total graminoid cover. Forb species typically include *Heracleum maximum* (= *Heracleum lanatum*), *Mertensia* spp., *Maianthemum stellatum* (= *Smilacina stellata*), *Symphotrichum foliaceum*, *Aconitum columbianum*, *Cirsium arvense*, *Fragaria virginiana*, *Geranium viscosissimum*, *Hydrophyllum fendleri*, *Urtica dioica*, and *Rudbeckia occidentalis*. Although highly variable, graminoid cover is typically less than 20%. Graminoid species include *Poa pratensis*, *Carex microptera*, *Calamagrostis canadensis*, *Agrostis gigantea*, and *Phleum pratense*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Hansen et al. 1988b, Hansen et al. 1995, IDCDC 2005, Jones and Ogle 2000, Kagan et al. 2004, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1997b, Kittel et al. 1999b, Norton et al. 1981, Padgett et al. 1988b, Padgett et al. 1989, Sawyer and Keeler-Wolf 1995, Weixelman et al. 1996, Western Ecology Working Group n.d., Youngblood et al. 1985a, Youngblood et al. 1985b

NNHP Plots: (0 plots identified)

***Salix eriocephala* Temporarily Flooded Shrubland Alliance**

Missouri Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.974

Summary: This riparian vegetation occurs along stream channels in V-shaped valleys in mountains of southeastern Oregon. Stands are typically narrow, occupying elevated streambanks and terraces within the floodplain, but can be broader where environmental conditions permit. Sites are flat to gently sloping (<10%) with the water table generally >1 m deep. Soils are derived from alluvium. The vegetation is characterized by a moderately dense to dense (up to 98% cover), cold-deciduous tall-shrub layer (2-5 m tall) that is dominated by *Salix lutea* with *Salix boothii* sometimes codominating. The short-shrub layer is typically sparse and averages between (25-30% cover), with a range of 5-85% cover. The most consistent short shrub is *Rosa woodsii* with *Ribes aureum* or *Ribes inerme* codominating. Other shrub species include *Salix exigua*, *Salix geyeriana*, and *Symphoricarpos oreophilus*. The herbaceous layer is moderately dense (30-50% cover) with a fairly even mixture of perennial graminoids and forbs. [Captured 2008-02-18]

***Salix eriocephala* / *Ribes aureum* - *Rosa woodsii* Shrubland**

Missouri Willow / Golden Currant - Woods' Rose Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001233

Distribution (Nations/Subnations): US / NV, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Evenden 1990, Kagan et al. 2000, Manning and Padgett 1991, Manning and Padgett 1995, Padgett 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix geyeriana* Seasonally Flooded Shrubland Alliance**

Geyer's Willow Seasonally Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1006

Summary: Communities within this temporarily flooded, cold-deciduous shrubland alliance occur from the foothills to high elevations in the mountains of the western United States. Elevation ranges from 1320-2900 m. Landforms include broad benches and alluvial terraces of streams, springs, and seeps. Stands often develop on abandoned and sediment-filled beaver ponds. Soils are composed of deep, fine-textured alluvium over subsurface soils of various textures and origin. Surface textures are silt to silty clay loam with mottling near the surface. Soils have a high water-holding capacity. Organic

matter may accumulate on the surface. The communities are characterized by a tall-shrub layer dominated by *Salix geyeriana*. Occasional codominants include *Salix monticola*, *Salix boothii*, *Salix lemmonii*, or *Salix eriocephala*. Some stands have shorter willows in the understory, including *Salix wolfii* and *Salix planifolia*. Other shrub species include *Lonicera utahensis*, *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides fruticosa*), and *Ribes* spp. *Calamagrostis canadensis*, *Calamagrostis stricta*, *Poa palustris*, *Deschampsia caespitosa*, *Carex aquatilis*, and *Carex utriculata* are the dominant graminoid species with 10-60% cover. The forb layer is minor with 10-20% cover and includes *Geum macrophyllum*, *Pyrola asarifolia*, *Galium trifidum*, and *Epilobium ciliatum*. *Populus tremuloides*, *Pinus contorta*, and *Pinus ponderosa* forests occur on surrounding hillslopes. [Captured 2008-02-18]

***Salix geyeriana* / *Carex utriculata* Shrubland**

Geyer's Willow / Northwest Territory Sedge Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001207

Distribution (Nations/Subnations): US / CO, ID, MT, NV, OR, UT, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: Throughout its distribution, this association occurs in mountains and high valleys at elevations ranging from 1310 to 2740 m (4300-9000 feet). This is the wettest of the *Salix geyeriana*-dominated willow shrublands. It is most common on broad, level floodplains but does occur in narrow bands along smaller streams in open U-shaped valleys. Valley bottom gradients are usually low. Surface microtopography is often hummocky as a result of the irregular buildup of organic material. Stands have a 1- to 3-m tall, nearly closed canopy to open clumps that are dominated by the deciduous shrub *Salix geyeriana*, with a thick carpet of graminoids in the undergrowth that is dominated by *Carex utriculata*. A diversity of other shrubs may be present but usually in low amounts. Some of these subordinate shrubs are present in the upper canopy along with *Salix geyeriana*, such as *Salix boothii*, *Salix drummondiana*, *Salix monticola*, and *Alnus incana*. Often there are shorter shrubs present but usually with not more than 20% cover. Shorter shrub species include *Salix planifolia*, *Salix wolfii*, *Betula nana* (= *Betula glandulosa*), *Ribes inerme*, *Lonicera involucrata*, or *Dasiphora fruticosa* ssp. *floribunda* (= *Potentilla fruticosa*). *Carex utriculata* clearly dominates the understory. Other sedges and grasses, such as *Carex aquatilis*, *Carex interior*, *Carex scopulorum*, *Carex simulata*, *Carex praegracilis*, or *Calamagrostis canadensis*, may be present, but they have low cover. Forb species are sparse, but *Geum macrophyllum* appears to be the most constant species across the range of this type. [Captured 2008-02-15]

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Girard et al. 1997, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Johnston 1987, Jones 1992c, Jones and Ogle 2000, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1999a, Kovalchik 1987, MTNHP 2002b, Manning and Padgett 1995, Mutz and Queiroz 1983, Padgett et al. 1989, Phillips 1977, Reznicek 1987, Tuhy and Jensen 1982, Walford et al. 2001, Western Ecology Working Group n.d., **NNHP Plots:** (0 plots identified)

***Salix geyeriana* Temporarily Flooded Shrubland Alliance**

Geyer's Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.975

Summary: Communities within this riparian shrubland alliance occur from the foothills to high elevations in the mountains of the western United States. Elevation ranges from 1320-2900 m.

Landforms include broad benches and alluvial terraces of streams, springs, and seeps. Stands often develop on abandoned and sediment-filled beaver ponds. Soils are composed of deep, fine-textured alluvium over subsurface soils of various textures and origin. Soils have a high water-holding capacity. A tall-shrub layer dominated by *Salix geyeriana* characterizes these communities. Occasional codominants include *Salix monticola*, *Salix boothii*, *Salix lemmonii*, or *Salix eriocephala*. Some stands have shorter willows in the understory, including *Salix wolfii* and *Salix planifolia*. Other shrub species include *Lonicera utahensis*, *Dasiphora fruticosa ssp. floribunda* (= *Pentaphylloides fruticosa*), and *Ribes* spp. *Calamagrostis canadensis*, *Calamagrostis stricta*, *Poa palustris*, *Deschampsia caespitosa*, *Carex aquatilis*, and *Carex utriculata* are the dominant graminoid species with 10-60% cover. The forb layer is minor with 10-20% cover and includes *Geum macrophyllum*, *Pyrola asarifolia*, *Galium trifidum*, and *Epilobium ciliatum*. *Populus tremuloides*, *Pinus contorta*, and *Pinus ponderosa* forests occur on surrounding hillslopes. [Captured 2008-02-18]

***Salix geyeriana* - *Salix eriocephala* Shrubland**

Geyer's Willow - Missouri Willow Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001213

Distribution (Nations/Subnations): US / NV?, OR

Status: 1 Active Confidence: 3 (Weak) Global Rank: GU

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, ORNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix geyeriana* - *Salix lemmonii* / *Carex aquatilis* var. *dives* Shrubland**

Geyer's Willow - Lemmon's Willow / Sitka Sedge Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001212

Distribution (Nations/Subnations): US / CA?, ID?, NV?, OR

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3

Summary: This riparian shrubland association is locally abundant in the eastern central Cascades and rare in the southern portion of the eastern Cascades. Elevations are low to moderately high, ranging from 945 to 1585 m (3100-5200 feet). Most occurrences are on low-gradient floodplains along streams, although a few large occurrences are found on the headwaters and tributary drainages in wet, poorly drained marshes and swamps. Floodplain soils are very deep alluviums that usually have significant amounts of sedge peat. The vegetation is dominated by tall willows (*Salix geyeriana* and/or *Salix lemmonii*) with a sward of *Carex aquatilis* var. *dives*. In the higher elevation headwaters, *Salix eastwoodiae* (sometimes with *Salix sitchensis*) may be codominant with *Salix geyeriana* or *Salix lemmonii*. *Salix eastwoodiae* or *Betula nana* can be dominant where beaver have reduced the cover of the more palatable *Salix geyeriana*, *Salix lemmonii*, and *Salix sitchensis*. *Spiraea douglasii* and *Vaccinium uliginosum* are often common under the tall shrubs. Aside from the very dominant *Carex aquatilis* var. *dives*, *Carex utriculata* is common on wetter sites, but other graminoids and forbs are inconspicuous. Typical forbs include *Pyrola asarifolia*, *Epilobium ciliatum*, *Galium triflorum*, *Cicuta douglasii*, *Platanthera dilatata* (= *Habenaria dilatata*), and *Equisetum arvense*. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Crowe et al. 2002, Driscoll et al. 1984, Kagan et al. 2000, Kovalchik 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix geyeriana* / Mesic Graminoids Shrubland**

Geyer's Willow / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001210

Distribution (Nations/Subnations): US / CO, ID, NV, UT, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3?

Summary: This is an important association in Idaho, Oregon, Montana, Utah, Colorado, and northwestern Wyoming. Stands of this association are often found in wide mountain valleys, cirques, and troughs, at elevations from about 1525 to 2745 m (5000-9000 feet) with narrow, meandering streams or braided rivers. The association mainly occurs on seasonally saturated or flooded sites such as streambanks, terraces, floodplains, abandoned meanders, spring-fed meadows, lake or reservoir shores, and occasionally alluvial gravel bars. Soils vary but are mostly silt to clay loams with organic/sedge peat horizons. An open canopy of tall, clumped *Salix geyeriana*, with occasionally intermixed *Salix boothii* (with <20% cover), characterizes this association. Other shrubs, including *Dasiphora fruticosa ssp. floribunda*, *Ribes* spp., *Rosa woodsii*, and low *Salix* spp., are scattered around the bases of taller *Salix* clumps. The herbaceous understory is dominated by a diverse mix of mesic graminoid species that always has greater total cover than the total cover of mesic forbs. In good-condition, mid- to late-seral stands, the most common graminoids are *Carex microptera*, *Carex pellita*, *Deschampsia caespitosa*, and occasionally *Carex nebrascensis*, but no single species consistently has high cover. Other graminoids with moderate cover and constancy include *Calamagrostis canadensis*, *Carex aquatilis*, *Carex praegracilis*, *Carex rostrata*, *Carex utriculata*, *Glyceria* spp., and *Juncus balticus*. *Poa pratensis* is present in nearly all stands, but its cover varies depending on the amount of grazing disturbance and site desiccation. Stands in poor condition need to be codominated by a mixture of native graminoids (not a single species such as *Deschampsia caespitosa*) with the introduced graminoids and forbs. The most common forb species are sometimes indicative of grazing disturbance (e.g., *Achillea millefolium*, *Geum macrophyllum*, *Iris missouriensis*, *Maianthemum stellatum*, *Potentilla gracilis*, *Thalictrum* spp., *Taraxacum officinale*, and *Trifolium* spp.).

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Crowe et al. 2002, Driscoll et al. 1984, Evenden 1990, Hansen and Hall 2002, Hansen et al. 1995, IDCDC 2005, IDCDC unpubl. data 2002, Kovalchik 2001, Manning and Padgett 1995, Mutz and Queiroz 1983, Norton et al. 1981, Padgett et al. 1988b, Padgett et al. 1989, Walford et al. 2001, Weixelman et al. 1996, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

***Salix lasiolepis* Temporarily Flooded Shrubland Alliance**

Arroyo Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.977

Summary: Communities within this cold-deciduous, temporarily (or seasonally) flooded shrubland alliance occupy stream benches and occasionally seeps. They can form stringer communities along drainages with slopes ranging between 1-15%. Elevations range between 259 and 2490 m. Soils are xeric and developed on alluvium. Water tables were rarely reached by researchers within the depth of soil pits, and mottles were not evident because of the coarse soil texture. The tall-shrub layer is dominated by *Salix lasiolepis* which forms a dense overstory ranging from 60-100% cover. Other shrubs that may be equally important include *Baccharis pilularis*, *Baccharis salicifolia*, *Cephalanthus occidentalis*, *Cornus sericea*, *Morella californica*, and *Toxicodendron diversilobum*. Emergent trees

may include *Acer macrophyllum*, *Platanus racemosa*, *Populus balsamifera*, *Populus fremontii*, *Salix* spp., and *Sambucus canadensis* (= *Sambucus nigra* ssp. *canadensis*). *Ribes aureum*, *Rosa californica*, or *Rosa woodsii* typically form a low-shrub layer near the base of the willows. The undergrowth is typically depauperate, with *Clematis ligusticifolia* and *Maianthemum stellatum* (= *Smilacina stellata*) present in minor amounts. Bare ground and/or leaf litter from the willow overstory are characteristic of stands within this alliance. [Captured 2008-02-18]

***Salix lasiolepis* / Barren Ground Shrubland**

Arroyo Willow / Barren Ground Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001216

Distribution (Nations/Subnations): US / ID, NV, UT

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3?

Summary: This plant association typically occurs in narrow valley bottoms throughout Nevada, in southern Utah, and southwestern Idaho. Stands occur on stream benches (channel bars that have become elevated due to sediment accumulation), as stringers along moderate gradient channels, and occasionally around sloping springs. *Salix lasiolepis* creates a dense overstory. *Ribes aureum* and *Rosa woodsii* are sometimes present with low cover. Herbaceous undergrowth is sparse due to shading, xeric soil conditions, or possibly grazing pressure and no species has high cover or constancy.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, IDCDC 2005, Manning and Padgett 1992, Manning and Padgett 1995, Moseley 1998, Moseley et al. unpubl. data 1998, Padgett et al. 1989, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix lasiolepis* / *Rosa woodsii* / Mixed Herbs Shrubland**

Arroyo Willow / Woods' Rose / Mixed Herbs Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001217

Distribution (Nations/Subnations): US / NV, OR

Status: 1 Active Confidence: 3 (Weak) Global Rank: G3Q

Summary: This riparian willow shrubland association is reported in north-central Nevada. Sites are on gentle slopes at around 1692 m (5550 feet) elevation with western aspects. The vegetation is characterized by a *Salix lasiolepis*-dominated, dense tall-shrub canopy with a short-shrub layer (1-2 m tall) codominated by *Rosa woodsii* and *Artemisia tridentata*. Other common shrubs include *Cornus sericea* (= *Cornus stolonifera*) and *Ericameria nauseosa*. *Clematis ligusticifolia*, a vine, is often present. The herbaceous layer is composed of mixed forbs and graminoids such as *Hordeum brachyantherum*, *Leymus cinereus*, *Phlox longifolia*, *Polygonum argyrocoleon*, and *Ranunculus cymbalaria*. However, most sampled stands are dominated by the introduced annual grass *Bromus tectorum* and introduced perennial herb *Cirsium vulgare*.

[Captured 2008-02-15]

References: Blackburn et al. 1968a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2004, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix lemmonii* Seasonally Flooded Shrubland Alliance**

Lemmon's Willow Seasonally Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2523

Summary: [no summary available] [Captured 2008-02-18]

***Salix lemmonii* / Mesic Graminoids Shrubland**

Lemmon's Willow / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002069

Distribution (Nations/Subnations): US / ID, NV, WY

Status: 1 Active Confidence: (Weak) Global Rank: GNR

Summary: This riparian shrubland occurs in the Sierra Nevada, Carson and Sweetwater ranges of western Nevada, the Wildhorse Range of northern Nevada, and in the Teton Range of western Wyoming. Elevation ranges from 2045-2660 m (6700-8720 feet). It occurs on stream terraces, benches or on seeps in narrow to wide valleys, on low- to moderate-gradient slopes. Stream channels are often wide and only slightly sinuous. This is a tall willow shrubland dominated by *Salix lemmonii*. Other shrubs present include *Salix geeyeriana* and *Salix lutea* intermixed in the upper canopy, with *Ribes inerme* occasionally occurring as a sub-shrub canopy. The herbaceous undergrowth is moderate to dense with several graminoid species; none are singly dominant, but graminoid cover is greater than that of any forbs present. Typical graminoid species are *Carex pellita* (= *Carex lanuginosa*), *Carex nebrascensis*, *Carex simulata*, *Carex hoodii*, *Poa pratensis*, and/or *Calamagrostis canadensis*. Forbs, when present, are sparse or low-growing species not visible due to the dense graminoid cover. Forb species in Nevada indicate moist surface conditions and include *Mimulus guttatus*, *Mentha arvensis*, *Polemonium caeruleum*, and *Cardamine* spp. In Wyoming, sampled stands were disturbed from grazing and had dry-condition indicator forb species present such as *Eriogonum umbellatum*, *Achillea millefolium*, *Potentilla pulcherrima*, and *Symphyotrichum ascendens*.

[Captured 2008-02-15]

References: IDCDC 2005, Manning and Padgett 1995, Western Ecology Working Group n.d.

NNHP Plots: p020603b (1 plots identified)

***Salix lemmonii* / Mesic-Tall Forbs Shrubland**

Lemmon's Willow / Mesic-Tall Forbs Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002771

Distribution (Nations/Subnations): US / NV, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3?

Summary: This upper montane-subalpine riparian shrubland association is known from the eastern Sierra Nevada, Carson Range, and Independence Range in northeastern Nevada at elevations ranging from 2088 to 3110 m (6800-10,200 feet). Stand widths are typically narrow on terraces and benches along streams but are occasionally very wide in wet meadows near seeps and springs. Valley-bottom gradients vary from flat to very high (0-7%) with sideslopes gentle to moderate (<25%). Substrates are generally Cryoborolls with fine or coarse textures. Litter and cryptogams comprise half the ground cover. The vegetation is characterized by a dense tall-shrub layer (2-5 m tall) that is dominated by *Salix lemmonii*, with an herbaceous layer dominated by tall and mesic forbs. Occasional *Alnus incana* are emergent over willows, and *Ribes* spp., *Lonicera involucrata*, and *Symphoricarpos oreophilus* are often present and may form an open short-shrub layer (1-2 m

tall). Abundant and consistent species in the moderately dense herbaceous layer include dominance or codominance by *Aconitum columbianum*, *Castilleja miniata*, *Conium maculatum*, *Lupinus polyphyllus*, *Mertensia ciliata*, *Osmorhiza occidentalis*, *Senecio triangularis*, *Thalictrum fendleri*, or *Veratrum californicum*. Other common forbs include *Chamerion angustifolium* (= *Epilobium angustifolium*), *Hackelia micrantha*, and *Solidago canadensis*. Low cover of graminoids, including *Bromus carinatus*, *Carex athrostachya*, *Carex microptera*, *Carex scopulorum*, or *Hordeum brachyantherum*, is common.

[Captured 2008-02-15]

References: Manning and Padgett 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix lemmonii* / *Rosa woodsii* Shrubland**

Lemmon's Willow / Woods' Rose Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002772

Distribution (Nations/Subnations): US / CA, ID, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This riparian association is a tall shrubland found at moderate elevations of 840 to 1720 m (2760-5650 feet) in eastern Oregon, Idaho, northern Nevada, and northeastern California. It is found along alluvial bars, streambanks and benches in many types of valley settings. These settings range from V- to trough-shaped and very narrow to moderately wide with moderate to high gradients and moderately steep to very steep sideslopes. Most sites have a high percentage of rock or bare soil on the ground surface. This association is found on second and third order streams.

Salix lemmonii forms a dense shrub overstory over *Rosa woodsii* and *Ribes* spp. (*Ribes aureum* and/or *Ribes inerme*) in the understory. *Philadelphus lewisii* occurs at sparse to abundant canopy cover in many shrub overstories in Oregon, but is not reported from the California, Nevada or Idaho stands. The herbaceous layer consists of a variety of forbs and grasses including *Artemisia douglasiana*, *Achillea millefolium*, *Rumex crispus*, *Clematis ligusticifolia*, *Urtica dioica*, *Mimulus guttatus*, and *Hordeum brachyantherum*. In areas that have been heavily used by livestock, *Poa pratensis* often dominates.

[Captured 2008-02-15]

References: Crowe et al. 2002, Jankovsky-Jones et al. 2001, Manning and Padgett 1995, Western Ecology Working Group n.d., Zamudio pers. comm.

NNHP Plots: (0 plots identified)

***Salix lucida* Temporarily Flooded Shrubland Alliance**

Whiplash Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.979

Summary: This riparian shrubland alliance is found along streams, from near sea level to moderate elevations (0-3050 m). These communities typically occur immediately adjacent to small streams and rivers and are occasionally associated with abandoned beaver ponds and sloughs. Landforms diagnostic of these types include overflow channels of large rivers, alluvial deposits (point bars) of sands and gravels and sloughs. Soils are typically coarse-textured but remain moist with water tables above 1 m throughout the growing season. The dominant species is *Salix lucida*. At lower elevations, *Salix lucida* grows into medium-sized trees overtopping all other willows. However, at higher elevations, it tends to have a more shrubby growth form. It dominates a dense canopy, although *Salix exigua* and *Salix lutea* share dominance in some stands. Additional species in the shrub layer include *Cornus sericea*,

Lonicera involucrata, *Rosa woodsii*, *Alnus incana* ssp. *tenuifolia* (= *Alnus tenuifolia*), and *Ribes aureum*. The herbaceous layer consists of *Mentha arvensis*, *Phalaris arundinacea*, and *Poa palustris*. Forb cover was sparse and light in many of the stands. [Captured 2008-02-18]

***Salix lucida* ssp. *caudata* / *Rosa woodsii* Shrubland**

Shining Willow / Woods' Rose Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002621

Distribution (Nations/Subnations): US / CA?, CO?, ID, MT, NV, OR, WY?

Status: 1 Active Confidence: 1 (Strong) Global Rank: G3

Summary: This association occurs in a variety of landscapes and hydrologic regimes across the range of the association. It is known from the northern Great Basin of Nevada, into southeastern Oregon, across the Snake River Plain of southern Idaho, and into Montana. Stands occur from low elevation (1128 m [3700 feet]), wide floodplains in foothill canyons of high order streams, to low order, moderate-gradient (5% or more), perennial and intermittent streams in relatively narrow V-shaped foothill valleys at mid-elevations (1402-2438 m [4600-8000 feet]). Stands are also known from headwater spring and seep-fed channels. The association typically occurs on stable sites, such as low to moderately high stream terraces (sometimes over 1 m above water table) with silty, sandy, or clayey soils derived from alluvium. Typically found as late-seral, dense, and nearly impenetrable thickets, stands of this association are characterized by mature *Salix lucida* ssp. *caudata* about 7 to 8 m tall (with 60 to 90% cover), over an understory of 20 to 50% cover of *Rosa woodsii* (often most dense in canopy gaps). *Ribes aureum*, *Salix lutea*, and *Prunus virginiana* are commonly associated but with lesser cover than the diagnostic shrubs. While herb species diversity can be moderate, the dense shrub cover prevents light from reaching the soil surface resulting in relatively low cover in the herbaceous layer. *Galium triflorum*, *Maianthemum stellatum*, *Solidago* spp., and *Urtica dioica* are the most frequently associated forbs, while common graminoids include *Carex nebrascensis* and *Poa pratensis*, mostly in moister microsites. This association is probably a late-seral association that forms when floodplain terraces supporting other *Salix lucida* ssp. *caudata* associations become drier after natural or disturbance-induced stream channel incision. Because *Rosa woodsii* often occurs on higher and drier terraces, especially where livestock grazing occurs, it can invade the understory of *Salix lucida* ssp. *caudata* stands forming this association.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Carsey et al. 2003a, Crowe et al. 2004, Driscoll et al. 1984, Evenden 1990, Hansen and Hall 2002, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 2001, Kagan et al. 2000, Manning and Padgett 1991, Manning and Padgett 1992, Manning and Padgett 1995, Rust et al. 2003, Walford et al. 2001, Weixelman et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix lutea* Seasonally Flooded Shrubland Alliance**

Yellow Willow Seasonally Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1007

Summary: Communities within this cold-deciduous, seasonally flooded shrubland alliance occur on alluvial terraces adjacent to mountain rivers and streams. They occupy broad floodplains (0-6% slope), stream and river edges, ditches, seeps, and moist alluvial terraces. Stands are associated with beaver ponds or lakes. Elevations range from 1100-3600 m. The soils are typically peaty Histosols. Soils texture ranges from sandy clay loam to silt. These soils are saturated early in spring and often remain

moist throughout the growing season. The tall-shrub canopy is continuous and dominated by *Salix lutea* with varying amounts of *Salix exigua*, *Salix bebbiana*, and *Salix boothii*. The short-shrub layer cover is typically 25% or greater and consists of *Ribes aureum*, *Ribes inerme*, and *Rosa woodsii*. The graminoid layer ranges from sparse to dense canopy cover. Major herbaceous species include *Calamagrostis canadensis*, *Carex utriculata*, *Calamagrostis stricta*, and *Carex microptera*. Adjacent upland communities include *Pinus contorta* and *Populus tremuloides*. [Captured 2008-02-18]

***Salix lutea* / *Carex utriculata* Shrubland**

Yellow Willow / Northwest Territory Sedge Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001220

Distribution (Nations/Subnations): US / CA, ID, MT, NV, OR

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Evenden 1990, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Kagan et al. 2000, MTNHP 2002b, Manning and Padgett 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salix lutea* Temporarily Flooded Shrubland Alliance**

Yellow Willow Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.980

Summary: Communities within this cold-deciduous, temporarily flooded shrubland alliance occur on alluvial terraces adjacent to mountain rivers and streams, and slickrock-bounded streams. They occupy broad floodplains (0-6% slope), stream and river edges, ditches, seeps, and moist alluvial terraces. Elevations range from 1100-3600 m. Soils on the alluvial terraces are usually a deep silt or sand. These soils are saturated early in spring and often remain moist throughout the growing season. The tall-shrub canopy is continuous and dominated by *Salix lutea* with varying amounts of *Salix exigua*, *Salix bebbiana*, and *Salix boothii*. *Salix boothii* and *Salix lutea* may hybridize, so some stands in this alliance may represent the "glaucous" form of *Salix lutea*, and true hybrids of *Salix boothii* X *lutea*, but are called either *Salix lutea* or *Salix boothii*. The short-shrub layer's cover is typically 25% or greater and consists of *Ribes aureum*, *Ribes inerme*, and *Rosa woodsii*. The graminoid layer ranges from sparse to dense canopy cover. Major herbaceous species include *Calamagrostis canadensis*, *Carex utriculata*, *Calamagrostis stricta*, and *Carex microptera*. [Captured 2008-02-18]

***Salix lutea* / Mesic Graminoids Shrubland**

Yellow Willow / Mesic Graminoids Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002073

Distribution (Nations/Subnations): US / ID, MT, NV, WY

Status: 1 Active Confidence: (Weak) Global Rank: GNR

Summary: This association occurs in mountain valleys at 1645 to 2585 m (5400-8480 feet) in elevation. It occurs on stream benches, streambanks, moist terraces and occasionally on seeps and meadows. Slopes are gentle (<6%). Stands are dominated by *Salix lutea*. Other tall willows present include *Salix boothii*, *Salix geeyeriana*, *Salix drummondiana*, and *Salix exigua*. Other shrubs present may include *Lonicera involucrata* and *Ribes lacustre*. Common graminoids include *Agrostis stolonifera*, *Deschampsia caespitosa*, *Poa pratensis*, and *Poa palustris*. Other graminoid species include *Carex pellita* (= *Carex lanuginosa*), *Carex microptera*, *Carex nebrascensis*, *Carex*

utriculata, *Carex aquatilis*, *Calamagrostis stricta*, and *Juncus balticus*. Forbs are typically present but are less abundant than graminoids. Forb species include *Achillea millefolium*, *Equisetum arvense*, *Aconitum columbianum*, *Geum macrophyllum*, *Maianthemum stellatum* (= *Smilacina stellata*), *Plantago major*, and *Mentha arvensis*.

[Captured 2008-02-15]

References: Dorn 1995, Hansen et al. 1995, Kartesz 1999, Manning and Padgett 1995, Padgett et al. 1989, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

***Salix lutea* / *Rosa woodsii* Shrubland**

Yellow Willow / Woods' Rose Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002624

Distribution (Nations/Subnations): US / CA?, ID, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: The association is found in dry regions of southeastern Oregon, southwestern Idaho, and Nevada at elevations ranging from 976 to 2440 m (3200-8000 feet). This association usually occurs in moderate width, V-shaped valleys on terraces and bars with sandy and silty soils that are up to 1 m above the adjacent channel's average high water line. Stream channels are mostly narrow, classified as Rosgen B2, B3, or B4, with low to moderate gradients (up to 5%). The water table is usually deep during late summer and near the surface at high water in the spring when flooding of terraces sometimes occurs. Mature, sometimes dense, *Salix lutea* (up to 5 m tall) clearly dominates this association, and the understory is usually dry and open. *Rosa woodsii* is prominent in the understory; both it and/or *Ribes* spp. (especially *Ribes aureum*, but also *Ribes inerme*) usually have greater than 20% cover. Herbaceous cover is variable and no species has consistently high cover; more than half of the ground is unvegetated and covered with a layer of leaf litter. *Poa pratensis* is the most common understory species. On periodically flooded stream bars, this association might be naturally disturbance-induced. Within *Salix lutea* stands, heavy livestock grazing can promote *Rosa woodsii* and *Ribes aureum*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dean 1960, Driscoll et al. 1984, Evenden 1990, Holmstead 2001, IDCDC 2005, IDCDC unpubl. data 2002, Jankovsky-Jones et al. 2001, Kagan et al. 2000, Manning and Padgett 1992, Manning and Padgett 1995, Padgett 1982, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* Shrubland Alliance**

Bailey's greasewood Shrubland Alliance

Alliance Code: B.001

Summary: *Sarcobatus baileyi* is a widespread shrub that frequently dominates vegetation, yet is endemic to Nevada. Taxonomy of the shrub has been uncertain in the past, but its ecology and morphology are distinct. It has been accepted in the Flora of North America and is now included in the National Plants Database at the full species level. Ecologically, this shrub differs from *S. vermiculatus* in water table requirements; *S. vermiculatus* is a phreatophyte requiring access to ground water via a taproot, while *S. baileyi* inhabits more upland situations. The two species seldom intermix, and intermediate specimens (hybrids?) are exceedingly rare.

The species intermixes with a variety of shrubs, particularly those common in salt desert scrub

vegetation types. Perennial grasses are generally present, but usually quite sparse. Still, the species of perennial grass that is/are present can be strong indicators of distinct habitat types. Among these are at least 4 grasses indicating two gradients. Sites that are transitional to warm deserts (the Mojave) have *Pleuraphis jamesii* while more distinctly cool-desert situations may have *Achnatherum hymenoides*, *Elymus elymoides*, or *Poa secunda*. Other needle grasses may also form associations. These will be discussed further within particular associations.

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* - *Artemisia arbuscula* ssp. *longicaulis* / *Elymus elymoides*
Shrubland**

Bailey's greasewood - small sagebrush / squirreltail Shrubland

Association Code: NNHP0001

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4G5 **NNHP Proposed State Rank:** S4S5

Summary: This shrubland is dominated by a blend of *Sarcobatus baileyi* and *Artemisia arbuscula* ssp. *longicaulis* and has a variable understory of *Elymus elymoides*, *Poa secunda* and *Bromus tectorum*. *S. baileyi* is thought to be endemic to California though it occurs in nearly monospecific stands within a quarter-mile of California SE of Dyer in Fish Lake Valley and do should be searched for on the other side of the border. However, we are unaware of *A. arbuscula* ssp. *longicaulis* occurring in that situation; rather, it has a slightly more northern distribution, associated roughly with the extent of the pleistocene Lake Lahontan.

References:

NNHP comments: This association should be quite abundant in western Nevada along the transition between salt deserts and sagebrush. Some have speculated that the distribution of *Artemisia tridentata* ssp. *wyomingensis* may be associated with the glacial Lake Lahontan.

NNHP Plots: p020507f (1 plots identified)

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* - *Ephedra nevadensis* Shrublands**

Bailey's Greasewood - Nevada Jointfir Shrublands

Association Code: NNHP071

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: These shrublands typically occur in dry sandy sites in central-western Nevada.

Sarcobatus baileyi is generally dominant, though occasionally one of the other primary shrub associates may have higher cover. *Ephedra nevadensis* is a reliable associate, though cover may vary and in some cases, the species is minimally present. *Grayia spinosa* and *Krascheninnikovia lanata* may also be present and can even co-dominate the type. It is possible that with further sampling, sites with these other species co-dominating may best be split into new associations. Perennial grasses are sparse to absent; *Achnatherum hymenoides* appears to be the primary species present.

References:

NNHP Plots: p050406b, p030722a, p020507g, p050406a, p050408c, p050420f, p050524g, p050614r (8 plots identified)

Representative Images:



p050614r_17-22-03.JPG



p050420f.JPG



p050408c.JPG



p050524g_12-37-26.JPG

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* - *Menodora spinescens* Shrubland**

Bailey's Greasewood - Spiny Menodora Shrubland

Association Code: NNHP073

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This type occurs in the southwestern Great Basin in transitional areas toward Mojave conditions. The type is roughly equally dominated by *Sarcobatus baileyi* and *Menodora spinescens*. The decision to place it within the *S. baileyi* alliance is based primarily on the generally higher stature of that species, but may be subject to revision based on further sampling in the future. Other shrubs that may be present are those typical of Great Basin salt desert scrub environments, though some Mojave species may be present as well. Particularly *Picrothamnus desertorum* seems to be a regular associate. Perennial grasses are sparse to absent, with *Pleuraphis jamesii* and *Achnatherum hymenoides* being the primary species observed thus far. The former grass often indicates more warm-desert conditions while the latter indicates cool-desert conditions, so this type may later be split to accommodate each separately.

References:

NNHP Plots: p030729c, p050406e (2 plots identified)

Representative Images:



p030729c.JPG



p050406e.JPG

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* - *Picrothamnus desertorum* - (*Atriplex confertifolia*) / (*Achnatherum hymenoides*) Shrubland**

Bailey's Greasewood - Bud Sagebrush - (Shadscale) / (Indian Rice Grass) Shrubland

Association Code: NNHP068

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This common lowland vegetation type in the western Great Basin occurs at the upper elevations of the salt desert scrub environments. It is codominated by *S. baileyi* and *P. desertorum*, and typically has some amount of *A. confertifolia*, though generally not in amounts equal to the first two. The graminoid layer is quite sparse, sometimes even absent. When present, *A. hymenoides* is most abundant, indicating dry, sandy soils in a Great Basin climate.

References:

NNHP Plots: p050615i, p050615f, p030807c, p050420i, p050615j, p030701e, p030729a, p030729e, p030729h, p030729i, p030729j, p030730e, p030801b, p030801a, p030730f, p030807a, p030807e, p050420b, p050609l, p020617c, p020617f (21 plots identified)

Representative Images:



p020617c_3.JPG



p020617f_1.JPG



p030701e.JPG



p050609l_12-16-54.JPG

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* - *Picrothamnus desertorum* - (*Atriplex confertifolia*) / (*Elymus elymoides*, *Poa secunda*) Shrubland**

Bailey's Greasewood - Bud Sagebrush - (Shadscale) / (Squirreltail, Sandburg's Bluegrass) Shrubland

Association Code: NNHP069

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This common lowland vegetation type in the western Great Basin occurs at the upper elevations of the salt desert scrub environments. It is codominated by *S. baileyi* and *P. desertorum*, and typically has some amount of *A. confertifolia*, though generally not in amounts equal to the first two. The graminoid layer is quite sparse, sometimes even absent. When present, either *Elymus elymoides* or *Poa secunda* are most abundant, indicating relatively mesic, less-sandy soils compared to much of the *Sarcobatus baileyi* Shrubland Alliance.

References:

NNHP Plots: p020613f, p020507a, p020507b, p020507h, p020507i, p050421a, p020617e, p020617d, p020617g (9 plots identified)

Representative Images:



p020617e_1.JPG



p020617g_1.JPG



p020507i_1.JPG



p020507a_1.JPG

*** * * New Vegetation Type - with plot data:**

***Sarcobatus baileyi* - *Picrothamnus desertorum* - (*Atriplex confertifolia*) / (*Pleuraphis jamesii*) Shrubland**

Bailey's Greasewood - Bud Sagebrush - (Shadscale) / (James' Galleta) Shrubland

Association Code: NNHP070

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4?

Summary: This common lowland vegetation type in the western Great Basin occurs at the upper elevations of the salt desert scrub environments. It is codominated by *S. baileyi* and *P. desertorum*, and typically has some amount of *A. confertifolia*, though generally not in amounts equal to the first two. The graminoid layer is quite sparse, sometimes even absent. When present, *P. jamesii* is most abundant, indicating Mojavean influences, perhaps in greater warm-season rainfall than is typical for the Great Basin.

References:

NNHP Plots: p050509b, p050421i, p050604g, p050407n, p050408e, p050603zf (6 plots identified)

Representative Images:



p050604g_07-47-37.JPG



p050603zf_17-37-30.JPG



p050421i.JPG



p050509b.JPG

***** New Vegetation Type - with plot data:**

***Sarcobatus baileyi* Near-monoculture Shrubland**

Bailey's greasewood Near-monoculture Shrubland

Association Code: NNHP002

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5 **NNHP Proposed State Rank:** 5

Summary: This type describes *Sarcobatus baileyi* shrublands where little, if any, other perennial shrubs or perennial grasses are present. Ephemeral forbs may be abundant and invasive annual grasses often have greater cover than any other component of the vegetation, especially in wet years. However, it is the opinion of NNHP Vegetation Ecologist that this abundance of annual grasses does NOT imply the loss of perennial grasses or any perennial shrubs. This type occurs in very dry sites where soil surface resources are not readily available to plants in dry years, so the resources are readily available to annuals when a wet year occurs.

References:

NNHP Plots: p030807d, p030801c, p050407c, p050524i (4 plots identified)

Representative Images:



p030807d_1.JPG



p050524i_13-14-49.JPG

***Sarcobatus vermiculatus* Intermittently Flooded Shrubland Alliance**

Black Greasewood Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1046

Summary: This widespread shrubland alliance occurs on lowland sites in plains, mountain valleys and intermountain basins throughout the arid and semi-arid western United States. Sites are generally flat, poorly drained and intermittently flooded with a shallow or perched water table often within 1 m depth such as alkali flats around playas and floodplains along stream channels. Substrates are generally shallow, calcareous, fine-textured soils derived from alluvium. Soils are alkaline and typically moderately saline. Shrublands included in this alliance are dominated or codominated by *Sarcobatus vermiculatus*. Other shrubby codominants include *Picrothamnus desertorum* (= *Artemisia spinescens*), *Artemisia tridentata*, *Atriplex confertifolia*, *Atriplex gardneri*, *Chrysothamnus* spp., or *Grayia spinosa*. In more saline environments, *Nitrophila occidentalis* and *Suaeda moquinii* may be present. If present, the sparse to moderate herbaceous layer is dominated by perennial grasses, such as *Distichlis spicata* and *Pascopyrum smithii*, or the perennial bunch grasses *Elymus elymoides*, *Hordeum jubatum*, *Leymus cinereus*, and *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) will dominate. Perennial forbs are typically sparse and often include *Grindelia squarrosa*, *Iva axillaris*, and *Sphaeralcea coccinea*. Annual grasses, especially the exotic *Bromus* spp., may be present to abundant. Forbs are common on disturbed sites. Weedy annual forbs may include the exotics *Descurainia* spp., *Helianthus annuus*, *Halogeton glomeratus*, *Lactuca serriola*, and *Lepidium perfoliatum*. Diagnostic of this alliance is the *Sarcobatus vermiculatus*-dominated shrub layer in a shrubland that has a relatively shallow water table and may be flooded intermittently during the growing season. [Captured 2008-02-18]

***Sarcobatus vermiculatus* - *Atriplex parryi* / *Distichlis spicata* Shrubland**

Black Greasewood - Parry's Saltbush / Saltgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL002764

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Morefield pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Sarcobatus vermiculatus* - *Psoralea polydenius* Shrubland**

Black Greasewood - Nevada Smokebush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL002763

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Morefield pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Sarcobatus vermiculatus* / *Achnatherum hymenoides* Shrubland**

Black Greasewood / Indian Ricegrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001373

Distribution (Nations/Subnations): US / CA?, ID?, NV, OR, TX?

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969d, Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

***Sarcobatus vermiculatus* / *Artemisia tridentata* Shrubland**

Black Greasewood / Basin Big Sagebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001359

Distribution (Nations/Subnations): US / CO, MT, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4

Summary: This mixed bottomland shrubland is characteristic of stream terraces and floodplains of the Intermountain West. The presence of other shrubs in the canopy indicates less saline conditions than found in *Sarcobatus vermiculatus* Disturbed Shrubland (CEGL001357). Soils are deep and generally sandy, but a few sites are on well-drained silt loams. The sagebrush element may be either *Artemisia tridentata* ssp. *tridentata* or *Artemisia tridentata* ssp. *wyomingensis*, and either the sagebrush or *Sarcobatus vermiculatus* may have the greater cover. *Atriplex canescens*, *Ericameria nauseosa*, and *Chrysothamnus viscidiflorus* are other common minor elements of the shrub canopy. Total shrub cover is between 5 and 30%. The understory is variable; cover by herbaceous species may be sparse to dense, or exotic species may dominate the field layer.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Lesica and DeVelice 1992, MTNHP 2002b, Western Ecology Working Group n.d.

NNHP Plots: p020531p (1 plots identified)

***Sarcobatus vermiculatus* / *Atriplex confertifolia* - (*Picrothamnus desertorum*, *Suaeda moquinii*) Shrubland**

Black Greasewood / Shadscale - (Bud Sagebrush, Shrubby Seepweed) Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001371

Distribution (Nations/Subnations): US / NV, OR, UT

Status: 1 Active Confidence: 3 (Weak) Global Rank: G5?

Summary: This short-shrub association occurs on high alluvial terraces and canyon bottoms, as well as in the outer ring of palustrine or lacustrine wetlands on basin floors. Stands are reported from scattered sites in the Colorado Plateau of southeastern Utah, the Great Basin of northern Nevada, and the Columbia Basin of southeastern Oregon. This association is located high enough above the flood zone or water table that there is rarely standing water on the ground surface. Sites are generally level or gently sloping and occur between 1125 and 1300 m (3700-4300 feet) elevation in Nevada and between 1525 and 1830 m (5000-6000 feet) elevation in Utah. Most of the unvegetated ground surface is bare soil. Parent materials include alluvium, lake bottom deposits and

olian loess. Soils are deep, saline, well-drained sands, sandy loams or sandy clays. Total vegetation cover rarely exceeds 40%; the vegetation is characterized by a mixed shrub canopy of *Sarcobatus vermiculatus* generally accompanied by lesser amounts of *Atriplex confertifolia* and *Suaeda moquinii*. Other associated shrubs are sparse and variable, including *Allenrolfea occidentalis*, *Picrothamnus desertorum*, *Atriplex canescens*, *Gutierrezia sarothrae*, *Tetradymia spinosa*, and *Opuntia polyacantha*. The herbaceous layer provides sparse to moderate cover. Graminoids vary throughout the range, but common species include *Bromus tectorum*, *Distichlis spicata*, *Elymus elymoides*, *Sporobolus airoides*, *Sporobolus contractus*, and *Sporobolus cryptandrus*. Forbs provide variable cover as they tend to be dominated by annual exotics, such as *Bassia hyssopifolia*, *Lepidium perfoliatum*, *Salsola tragus*, and *Halogeton glomeratus*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bundy et al. 1996, Driscoll et al. 1984, Kagan et al. 2004, Western Ecology Working Group n.d.

NNHP comments: This is one of numerous *S. vermiculatus* based associations that should be in an upland alliance rather than an 'intermittantly flooded' alliance.

NNHP Plots: p050421h, p050604h, p030603k, p030709b, p050604d, p05060912, p050627e, p050627g, p050614k, p050614o (10 plots identified)

Representative Images:



p030603k.JPG



p030709b.JPG



p050627g_13-05-51.JPG



p050604h_08-20-53.JPG

***Sarcobatus vermiculatus* / *Distichlis spicata* Shrubland**
Black Greasewood / Saltgrass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001363

Distribution (Nations/Subnations): US / CO, ID, MT, NM, NV?, OR, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: This association is reported from western Montana to Washington, south to Nevada, Utah and Colorado. Elevation ranges from approximately 600-2300 m. It forms expansive shrublands on broad floodplains along large rivers and streams, on the margins of upland seeps, and forms an outer ring around playas above the *Distichlis spicata*-dominated center. Flooding is generally intermittent. Substrates are deep, alkaline, saline and generally fine-textured soils with a perennial high water table. However, in southern Colorado's San Luis Valley, stands grow between salt flat depressions (playas) on sandy hummocks approximately 1.2 m above the lakebed. The vegetation is characterized by a fairly open to moderate shrub canopy (18-60% cover) dominated by *Sarcobatus vermiculatus* with an herbaceous layer dominated by the rhizomatous graminoid *Distichlis spicata* (10-80% cover). Associated shrubs and dwarf-shrubs may include *Ericameria nauseosa*, *Gutierrezia sarothrae*, and *Tetradymia canescens*. *Sporobolus airoides* may codominate the graminoid layer, and *Hordeum jubatum* is common in disturbed stands. *Juncus balticus* and *Leymus cinereus* are also present in some stands. The forb layer is generally sparse and composed of species such as *Iva axillaris* and *Ipomopsis* spp. Introduced species may be present to abundant in disturbed stands.

[Captured 2008-02-15]

References: Baker 1982b, Bourgeron and Engelking 1994, Branson et al. 1976, CONHP unpubl. data 2003, Carsey et al. 2003a, Costello 1944b, Crawford 2001, Daubenmire 1970, Donnelly et al. 2006, Driscoll et al. 1984, Franklin and Dyrness 1973, Hansen et al. 1995, Hanson 1929, IDCDC 2005, Jones 1992b, Jones and Walford 1995, Kagan et al. 2000, Kittel et al. 1999a, Kittel et al. 1999b, MTNHP 2002b, Mueggler and Stewart 1980, Ungar et al. 1969, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: p030605c, p020516w, p020601a (3 plots identified)

Representative Images:



p020601a_1.JPG



p020516w_1.JPG

***Sarcobatus vermiculatus* / *Elymus elymoides* Shrubland**

Black Greasewood / Bottlebrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001372

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1969b, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: p020515r (1 plots identified)

Representative Images:



p020515r~_3.JPG

***Sarcobatus vermiculatus* / *Ericameria nauseosa* Shrubland**

Black Greasewood / Rubber Rabbitbrush Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001362

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Fenemore 1970, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Sarcobatus vermiculatus* / *Leymus cinereus* Shrubland**

Black Greasewood / Great Basin Lyme Grass Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001366

Distribution (Nations/Subnations): US / CA?, ID, MT, NV?, OR, WA

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This shrubland is found in Montana and Oregon, and possibly Washington, California and Nevada. This type occurred historically in Idaho, but appears to be eliminated from that state. Stands often are found in a relatively narrow band on floodplains and toeslopes above drainages in semi-arid environments. The association has also been observed around lakes and playas in north-central Montana. Substrates are poorly drained, alkaline soils that are often saline. This vegetation has a moderately dense short-shrub canopy (25-50% cover) that is dominated by *Sarcobatus vermiculatus*. Other shrubs and dwarf-shrubs include *Chrysothamnus viscidiflorus*, *Artemisia frigida* and *Gutierrezia sarothrae*. The moderately dense herbaceous layer (20-50% cover) is dominated by perennial graminoids. *Pascopyrum smithii* and *Leymus cinereus*, the diagnostic grass, codominate with *Pseudoroegneria spicata*, *Koeleria macrantha*, *Carex filifolia*, and the introduced grass *Poa pratensis*. Scattered forbs include *Symphotrichum chilense* (= *Aster chilensis*),

Comandra umbellata, *Iva axillaris*, *Tragopogon dubius*, and *Sphaeralcea coccinea*. The cactus *Opuntia polyacantha* is typically present.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, IDCDC 2005, Kagan et al. 2000, MTNHP 2002b, Mueggler and Stewart 1980, Sawyer and Keeler-Wolf 1995, Tweit and Houston 1980, Western Ecology Working Group n.d.

NNHP Plots: p020531o (1 plots identified)

Representative Images:



p020531o_1.JPG

***Sarcobatus vermiculatus* / *Nitrophila occidentalis* - *Suaeda moquinii* Shrubland**

Black Greasewood / Western Borax-weed - Shrubby Seepweed Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001369

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Copeland 1979, Copeland and Greene 1982, Driscoll et al. 1984, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* **New to Nevada - with plot data:**

***Sarcobatus vermiculatus* / *Suaeda moquinii* Shrubland**

Black Greasewood / Shrubby Seepweed Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001370

Distribution (Nations/Subnations): US / AZ, CO, NM, OR

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GUQ

Summary: This shrubland association is reported from the Colorado Plateau and Columbia Basin. Sites are generally flat to gently sloping saline valley bottoms and toeslopes, river floodplains and playas at elevations ranging from 1620 to 1680 m (5315-5500 feet). Soils are deep, saline, alkaline clay loams. The vegetation has a generally sparse shrub layer (<20% cover) that is less than 1.5 m tall and is codominated by *Sarcobatus vermiculatus* and *Suaeda moquinii*. The herbaceous layer is sparse.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Branson and Owen 1970, CONHP unpubl. data 2003,

Donnelly et al. 2006, Driscoll et al. 1984, Kagan et al. 2004, Kuchler 1964, Shiflet 1994, Western Ecology Working Group n.d.

NNHP Plots: p030729b, p050615d, p030709c, p030709e, p020612c, p020618f (6 plots identified)

Representative Images:



p020618f_1.JPG



p030709e.JPG

***Sarcobatus vermiculatus* Disturbed Shrubland**

Black Greasewood Disturbed Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001357

Distribution (Nations/Subnations): US / CA, CO, NM, NV, UT

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This shrubland association occurs on saline soils of terraces, swales, alluvial fans, valley floors, toeslopes and ridges throughout the Colorado Plateau and Great Basin. It is distinguished from other *Sarcobatus vermiculatus* associations in that disturbance has removed most or all of the native herbaceous understory. Black greasewood will increase in density at the expense of grasses such as *Sporobolus airoides* under conditions of heavy grazing, since the shrub is only moderately palatable and is somewhat poisonous to livestock. Soil textures in these communities range from sandy loam to silty clay and may have a white salt crust on the soil surface. *Sarcobatus vermiculatus* dominates the sparse to moderately dense shrub layer, usually with a minor component of *Ericameria nauseosa*, *Suaeda moquinii* (= *Suaeda torreyana*), *Opuntia polyacantha*, *Atriplex canescens*, or *Atriplex confertifolia*. If *Artemisia tridentata* is present, it is with very low cover. The understory ranges from sparse to dense in cover, but native species typically have very low cover. The dominant herbaceous species tend to be weedy and/or exotic; *Vulpia octoflora*, *Bromus tectorum*, *Descurainia pinnata*, *Salsola tragus*, *Alyssum desertorum*, and *Halogeton glomeratus* are typical understory species.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Brotherson et al. 1986, Dastrup 1963, Donovan et al. 1996, Driscoll et al. 1984, Francis 1986, Ganskopp 1986, Graham 1937, Groeneveld and Crowley 1988, Shantz and Piemeisel 1940, Western Ecology Working Group n.d., Young et al. 1986

NNHP comments: First, This association is unusual for classification methods within the IVC, as it focuses on a single dominant shrub and captures any variants of co-dominants. Similar [single dominant species] Disturbed Shrubland associations could be made for many other alliances, but are perhaps best placed as D-ranked communities in other native associations or placed into 'semi-natural' types. Recommendation is that this become '*Sarcobatus vermiculatus* / *Bromus tectorum*

Semi-natural Shrubland'.

Second, the inclusion under an intermittently flooded alliance is odd. The association summary seems to fit a more upland situation (albeit phreatophytic).

Plots classified here by the NNHP probably should be placed into different associations that use the standard IVC floristic methods, but do not fit any currently defined, or clearly proposed, types. For example, p050608n might go nicely into a *Sarcobatus vermiculatus* / *Atriplex confertifolia* (- *Picrothamnus desertorum*) Shrubland, if such a type existed.

NNHP Plots: p020515k, p050608n (2 plots identified)

Representative Images:



p020515k_1.JPG



p050608n_16-09-38.JPG

*** * * New Vegetation Type - with plot data:**

***Sarcobatus vermiculatus* Mud Flat Vegetation**

Big Greasewood Mud Flat Vegetation

Association Code: NNHP018

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4G5

Summary: This class is meant as an alternative to "*Sarcobatus vermiculatus* Disturbed Vegetation" and is more encompassing as the disturbed variants may be simply given a low condition grade.

These are essentially playa margin habitats where *S. vermiculatus* occurs in typically open stands and with rather few other shrub species. *Grayia spinosa* may be a minor component of the shrub layer. Grasses, particularly annual grasses, may occur, though will be primarily restricted to under the shrub canopy. Old branches on the *S. vermiculatus* may host an abundance of orange lichens (Teloschistaceae) with *Xanthoria montana* probably being most abundant. Cover of biological soil crusts may be variable, depending on depth and frequency of flooding (an frequency of disturbance). Small rises in topography should host abundant biological soil crusts when this community is in A condition.

References:

NNHP Plots: p030724f, p030807b, p020531h, p020601b (4 plots identified)

Representative Images:



p020601b_1.JPG



p030724f.JPG



p030807b.JPG

***Sarcobatus vermiculatus* Shrubland Alliance**

Black Greasewood Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1041

Summary: This widespread shrubland alliance has been described from badlands in the northern Great Plains, silt dunes around pluvial lakes in the Great Basin, and alluvial plains in north-central New Mexico. Sites are nearly flat to steep and are located on contouring microbenches on middle or lower slopes with generally southern aspects. The microbenches are the result of differential erosion of shale layers. Lowland sites may receive overland flow during intense summer thunderstorms, but drain and are not considered flooded. However, some sites have high water tables. Soils are generally fine-textured, poorly drained, calcareous, alkaline and saline. Soils from some sites have large amounts of rock. The soil surface is mostly bare ground often with white salt crust. Shrublands included in this alliance are dominated by *Sarcobatus vermiculatus*. Other characteristic shrubs and dwarf-shrubs may include *Artemisia tridentata*, *Atriplex canescens*, *Atriplex confertifolia*, *Chrysothamnus* spp., *Grayia spinosa*, *Gutierrezia sarothrae*, or *Suaeda moquinii*. The herbaceous layer is absent to moderately sparse (<25%) and composed of scattered perennial grasses, such as *Pseudoroegneria spicata*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Sporobolus cryptandrus*, and *Bouteloua gracilis*. Annual grasses, especially the exotics *Bromus tectorum* and *Bromus japonicus*, may be present. Forbs are sparse except on disturbed, weedy sites. Forb species may include *Eriogonum pauciflorum*, *Suaeda calceoliformis*, *Thelypodium sagittatum*, *Halogeton glomeratus*, and *Lepidium perfoliatum*. Occasionally cacti, small trees or yucca may be

present in New Mexican stands. Diagnostic of this alliance is the *Sarcobatus vermiculatus*-dominated shrub layer in a shrubland that has a relatively shallow water table, but is not flooded. [Captured 2008-02-18]

***** New Vegetation Type - with plot data:**

***Sarcobatus vermiculatus* - *Artemisia tridentata* ssp. *tridentata* / *Poa secunda*
Shrubland**

Big Greasewood - Basin Big Sagebrush / Sandberg's Bluegrass Shrubland

Association Code: NNHP019

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4?

Summary: A complex bottom-land vegetation type... a not-quite 'wet meadow' situation. This has a diversity of phreatophytes, most notably *Sarcobatus vermiculatus* and *Artemisia tridentata* ssp. *tridentata* (either of which may have the most cover). The understory is dominated by mesic species, particularly *Poa secunda*. *Carex* and *Juncus* species may also be present, but if notably more abundant than *P. secunda* then a separate Association may be warranted to accommodate it.

References:

NNHP Plots: p020531j (1 plots identified)

***** New Vegetation Type - based on field observation:**

***Sarcobatus vermiculatus* - *Atriplex lentiformis* Shrubland**

Sarcobatus vermiculatus - *Atriplex lentiformis* Shrubland

Association Code: NNHP064

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G?

Summary: Paraphrased from Morefield (2000):

Known primarily from the northern Mojave Desert where it occurs mainly on low dissected alluvial benches and remnants surrounded by various valley-bottom meadow associations above. The soil surface is generally dry with various degrees of salt crust, and consists of alluvial rock and gravel in a silty to clay matrix. The association sampled by Morefield remained within about 3 vertical meters above the valley bottom, presumably limited by proximity to the water table and seasonal surface moisture. It was co-dominated by moderate to high covers of the tall shrubs *Sarcobatus vermiculatus* (big greasewood), *Atriplex lentiformis* var. *torreyi* (big saltbush), and *Ericameria nauseosa* ssp. *consimilis* (rubber rabbitbrush), with *Suaeda moquini* (bush seepweed) co-dominant and *Distichlis spicata* (saltgrass) subdominant in the understory. The only other significant component was scattered *Sporobolus airoides* (alkali sacaton). The 4 stands ranged from 0.20 to 3.80 acres (0.082 to 1.54 ha) and totaling 5.61 acres (2.27 ha). Total ground cover was generally 50-90%.

References: Morefield 2000

NNHP Plots: (0 plots identified)

***** New Vegetation Type - with plot data:**

***Sarcobatus vermiculatus* / *Lepidium perfoliatum* Semi-natural Shrubland**

Big Greasewood / Claspig Pepperweed Semi-natural Shrubland

Association Code: NNHP047

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4G5

Summary: This type is tentatively placed within the *Sarcobatus vermiculatus* Shrubland Alliance

rather than the 'Intermittantly Flooded' alliance. NNHP experience is that this type occurs in areas around playa margins that are frequently saturated during wet seasons, but standing water would be quite unusual. It is characterized by a sparse overstory of *S. vermiculatus* and occasional other shrubs such as *Ericameria nauseosa*, *Suaeda moquinii*, and *Atriplex* spp. Other invasives are frequently present including *Bromus tectorum*, *Halogeton glomeratus*, *Salsola* spp., and *Sisymbrium altissimum*.

References:

NNHP Plots: p050614j (1 plots identified)

Representative Images:



p050614j_13-38-31.JPG

***Sarcobatus vermiculatus* Dune Shrubland**

Black Greasewood Dune Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001364

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d., Young et al. 1986

NNHP Plots: p020617a (1 plots identified)

Representative Images:



p020617a_1.JPG

***Suaeda moquinii* Intermittently Flooded Shrubland Alliance**

Shrubby Seepweed Intermittently Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.941

Summary: Shrublands in this alliance occur in desert basins or playas in Nevada, Arizona, and southern and eastern California. Elevations range from sea level to 1600 m. Climate is arid to semi-arid with hot summers. Winter rain makes up the majority of the annual precipitation. Sites are generally flat to gently sloping saline valley bottoms and playas. Soils are deep, saline, alkaline, clay loams. The vegetation has a generally sparse shrub layer that is less than 1.5 m tall and is strongly dominated by *Suaeda moquinii* with scattered *Atriplex polycarpa*, *Atriplex canescens*, *Allenrolfea occidentalis*, or *Sarcobatus vermiculatus* in some stands. The sparse herbaceous layer includes the forbs *Bassia hyssopifolia* and *Salicornia maritima* (= *Salicornia europaea*). Graminoids are typically not present except for occasional *Sporobolus airoides*. The adjacent shrublands are dominated by *Sarcobatus vermiculatus* or *Atriplex polycarpa*. [Captured 2008-02-18]

***Suaeda moquinii* Shrubland**

Shrubby Seepweed Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001991

Distribution (Nations/Subnations): US / AZ, CA, NM, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: These shrublands occur in desert basins or playas in Nevada, Arizona, and southern and eastern California. Sites are generally flat to gently sloping saline valley bottoms, floodplains and playas, saline seeps, and along intermittent washes at elevations ranging from sea level to 1640 m (5381 feet). Soils are deep, saline, alkaline clay loams. The vegetation has a generally sparse shrub layer that is less than 1.5 m tall and strongly dominated by *Suaeda moquinii* with scattered *Atriplex polycarpa*, *Atriplex canescens*, *Allenrolfea occidentalis*, or *Sarcobatus vermiculatus* in some stands. The sparse herbaceous layer may include the forbs *Bassia hyssopifolia* and *Salicornia maritima* (= *Salicornia europaea*). Graminoids are not abundant except for *Distichlis spicata* and occasional *Sporobolus airoides* or *Sporobolus cryptandrus*. The adjacent shrublands are dominated by *Sarcobatus vermiculatus* or *Atriplex* spp.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Donnelly et al. 2006, Driscoll et al. 1984, Faden 1977, Western Ecology Working Group n.d.

NNHP comments: In Nevada, *Suaeda moquinii* often occurs on saline soils in upland situations, particularly lower alluvial fans on the downwind side of playas. Therefore, perhaps the alliance should be redefined to not specify 'temporarily flooded' situations. Mention of *Atriplex confertifolia* as a common associate should also be included.

NNHP Plots: p050615a, p020612b, p050614q (3 plots identified)

Representative Images:



p050614q_16-59-09.JPG

***Tamarix* spp. Semi-natural Temporarily Flooded Shrubland Alliance**

Salt-cedar species Semi-natural Temporarily Flooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.842

Summary: This alliance is composed of shrublands which form moderately dense to dense thickets on banks of larger streams, rivers and playas across the western Great Plains, interior and southwestern U.S., and northern Mexico. Stands are dominated by introduced species of *Tamarix*, including *Tamarix ramosissima*, *Tamarix chinensis*, *Tamarix gallica*, and *Tamarix parviflora*. Introduced from the Mediterranean, *Tamarix* spp. have become naturalized in various sites, including salt flats, springs, and especially along streams and regulated rivers, often replacing *Salix* or *Prosopis* spp. shrublands or other native vegetation. A remnant herbaceous layer may be present, depending on the age and density of the shrub layer. These species have become a critical nuisance along most large rivers in the semi-arid western U.S. Because of the difficulty to remove, *Tamarix* spp. may have irreversibly changed the vegetation along many rivers. [Captured 2008-02-18]

***Tamarix* spp. Temporarily Flooded Semi-natural Shrubland**

Salt-cedar species Temporarily Flooded Semi-natural Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003114

Distribution (Nations/Subnations): MX, US / AZ, CA, CO, MT, MXCH, MXCO, MXSO, NM, NV, OK, TX, UT, WY?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Baalman 1965, Carsey et al. 2003a, Cogan et al. 2004, Cowardin et al. 1979, Hansen et al. 1995, Hansen et al. 2004b, Hoagland 2000, Holland 1986b, MTNHP 2002b, Muldavin et al. 2000a, Nachlinger and Reese 1996, Ortenberger and Bird 1933, Paysen et al. 1980, Sawyer and Keeler-Wolf 1995, Smith 1989, Stevens and Shannon 1917, Szaro 1989, Ungar 1968, Von Loh et al. 2002, Ware and Penfound 1949, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Viguiera parishii* Shrubland Alliance**

Parish's Goldeneye Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2526

Summary: This alliance occurs in a variety of upland habitats in the southwestern deserts from southern California to the Sonoran Desert in western Arizona, and extends into Nevada. Sites are commonly moderate to steep colluvial slopes. Stands may also be found in valleys on rocky or bouldery alluvium and along washes and arroyos. Disturbance may be important to stands of this alliance. Soils are coarse-textured and often derived from granitic or volcanic rock. The vegetation is characterized by an open shrub layer dominated by the facultatively deciduous *Viguiera parishii*. Other short shrubs and dwarf-shrubs present may include *Agave deserti*, *Bebbia juncea*, *Ephedra nevadensis*, *Encelia farinosa*, *Ericameria teretifolia*, *Eriogonum fasciculatum*, *Ferocactus cylindraceus*, *Galium stellatum*, *Gutierrezia microcephala*, *Krameria grayi*, *Opuntia acanthocarpa*, *Salazaria mexicana*, *Salvia dorrii*, *Simmondsia chinensis*, or *Yucca schidigera*. Occasional emergent tall shrubs or small trees may be present such as *Acacia greggii*, *Fouquieria splendens*, or *Juniperus californica*. The herbaceous layer is generally sparse. [Captured 2008-02-18]

***Viguiera parishii* Shrubland [Placeholder]**

Parish's Goldeneye Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002721

Distribution (Nations/Subnations): US / CA, NV

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Yucca brevifolia* Wooded Shrubland Alliance**

Joshua Tree Wooded Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.884

Summary: These extremely xeromorphic, succulent shrublands of the Mojave Desert are found on gentle alluvial fans. Soil types and elevation limit the distribution of the vegetation. Soils are colluvial or alluvial deposits and have textures that are sandy, loamy, or gravelly. Slopes are gentle to moderate, and all aspects can support this vegetation. Annual precipitation varies from 4-20 cm, and summer droughts are typical. The vegetation in this alliance contains a wide diversity of lifeforms: sclerophyllous evergreen trees and shrubs, microphyllous evergreen shrubs, semi-deciduous shrubs, semi-succulents and succulents. The vegetation is characterized by an emergent (up to 13 m tall) and typically abundant *Yucca brevifolia* layer over a shrub-dominated understory layer. *Yucca brevifolia* must be evenly distributed with over 1% total cover (Keeler-Wolf and Thomas 2000). Emergent *Quercus turbinella*, *Pinus monophylla* or *Juniperus* spp. may be present, but have less than 1% cover. Shrub and ground layers are variable. Shrub species may include *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Coleogyne ramosissima*, *Ephedra nevadensis*, *Eriogonum fasciculatum*, *Larrea tridentata*, *Lycium andersonii*, *Salazaria mexicana*, *Tetradymia axillaris*, and *Yucca schidigera*. The ground layer contains cacti, perennial grasses, and seasonal annuals. [Captured 2008-02-18]

***Yucca brevifolia* - *Juniperus osteosperma* / *Artemisia tridentata* Wooded Shrubland**

Joshua Tree - Utah Juniper / Basin Big Sagebrush Wooded Shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002744

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G2G3

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - with plot data:**

***Yucca brevifolia* / *Artemisia tridentata* ssp. *wyomingensis* / (*Achnatherum hymenoides* - *Pleuraphis jamesii*) Wooded Shrubland**

Joshua Tree / Wyoming Big Sagebrush / (Indian Rice Grass - James' Galleta) Wooded Shrubland

Association Code: NNHP040

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G5

Summary: This multi-layered vegetation type occurs in the Great Basin - Mojave transition zone. *Yucca brevifolia* may be sparse, with a suggested lower limit for this type around 3 percent ground cover. *Artemisia* is typically dense and the shrub layer may include other species from either ecoregion. Note that recent discoveries in *Artemisia* taxonomy call this identification into question as much of what was referred to as *A. tridentata* ssp. *wyomingensis* in eastern and southern Nevada is apparently a large form of *A. nova*, so the typification of this vegetation may need to be revisited when *Artemisia* taxonomy is better understood. The graminoid layer is variable in cover (often sparse) but is dominated by either *Achnatherum hymenoides* and/or *Pleuraphis jamesii*.

References:

NNHP Plots: p050510n (1 plots identified)

Representative Images:



p050510n.JPG

***** New Vegetation Type - with plot data:**

***Yucca brevifolia* / *Menodora spinescens* / *Pluraphis jamesii* Wooded Shrubland**

Joshua Tree / Spiny Menodora / James' Galleta Wooded Shrubland

Association Code: NNHP035

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G4

Summary: This association is known from the southwestern Great Basin in the Moave transition zone. It involves a sparse overstory of *Yucca brevifolia* with around 5 % cover (*Y. brevifolia* stands do not often exceed 10% cover), a relatively high abundance of *Menodora spinescens* (ca. 20 % cover) and variable cover of *Pluraphis jamesii*. Other species of shrubs and grasses are often present including *Ephedra nevadensis*, *Sarcobatus baileyi*, *Atriplex confertifolia*, *Picrothamnus desertorum*, *Opuntia* spp., *Cylindropuntia* spp., *Chrysothamnus* spp., *Ericameria nauseosa*, *Achnatherum hymenoides*, *Vulpia octoflora*, *Bromus tectorum*, *Bromus rubens*, etc.

References:

NNHP Plots: p050407m (1 plots identified)

Representative Images:



p050407m.JPG

***Yucca brevifolia* Wooded Shrubland [Placeholder]**

Joshua Tree Wooded Shrubland

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL003116

Distribution (Nations/Subnations): US / AZ?, CA, NV?, UT?

Status: 2 Depreciated **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: p050506a (1 plots identified)

Representative Images:



p050506a_1.JPG

***Yucca schidigera* Shrubland Alliance**

Mojave Yucca Shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.881

Summary: This desert shrubland alliance of the Mojave and Colorado deserts grows on rocky, well-drained slopes between 50 and 2500 m elevation. The yearly precipitation totals are quite low, averaging between 10 and 25 cm. Year-to-year precipitation variability can be quite large. Stands of this shrubland have a sparse, emergent tree layer of 3-5% total cover of *Yucca schidigera* over a shrub canopy. Shrubs present may include *Ferocactus cylindraceus*, *Pleuraphis rigida*, *Coleogyne ramosissima*, *Encelia farinosa*, *Opuntia* spp., *Echinocactus polycephalus*, *Agave deserti*, *Echinocereus engelmannii*, *Simmondsia chinensis*, *Peucephyllum schottii*, and *Ambrosia dumosa*. The herbaceous layer is open, with annuals seasonally present. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Yucca schidigera* - *Larrea tridentata* - *Ambrosia dumosa* Shrubland**

Mojave Yucca - Creosotebush - Bursage Shrubland

Association Code: NNHP080

Distribution (Nations/Subnations): NV / US

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4G5

Summary: This Mojave vegetation type consists of 5% ground cover or more *Yucca schidigera* with co-dominants of *Larrea tridentata* and *Ambrosia dumosa*. A variety of other shrubs may be present though typically in small amounts. The type tends to occur on alluvial fans and lower foothills.

References:

NNHP Plots: p050504f (1 plots identified)

Representative Images:



p050504f.JPG

***** New Vegetation Type - with plot data:**

***Yucca schidigera* - *Menodora spinescens* Shrubland**

Mojave Yucca - Spiny Menodora Shrubland

Association Code: NNHP079

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This Mojave vegetation type occurs primarily in foothill situations. Shrub cover is variable (~15 - 25%) and diverse with both *Yucca schidigera* and *Menodora spinescens* generally at about 5%, while other shrubs are generally in more minor amounts.

References:

NNHP Plots: p050505j1 (1 plots identified)

Representative Images:



p050505j1.JPG

IV . Dwarf-shrubland

* New to Nevada - with plot data:

***Ambrosia dumosa* Dwarf-shrubland Alliance**

White Burrobush Dwarf-shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1102

Summary: This sparse, desert sand dune alliance occurs on active to partially stabilized desert sand dunes in the northern Sonoran Desert, between 88 and 305 m (290-1000 feet) elevation. *Ambrosia dumosa* and *Pleuraphis rigida* (= *Hilaria rigida*) codominate, though a number of other dune-adapted, shrubby perennial plants may occur. Occasionally common are *Ephedra trifurca*, *Croton californicus*, *Croton wigginsii*, *Eriogonum deserticola*, and *Psorothamnus emoryi*. [Captured 2008-02-27]

* New to Nevada - with plot data:

***Ambrosia dumosa* - *Larrea tridentata* var. *tridentata* Dwarf-shrubland**

White Burrobush - Creosotebush Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL000956

Distribution (Nations/Subnations): US / AZ, CA

Status: 1 **Active Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Warren and Laurenzi 1987, Western Ecology Working Group n.d.

NNHP Plots: p050505e, p050505a (2 plots identified)

Representative Images:



p050505a_01.JPG



p050505e.JPG

***Krascheninnikovia lanata* Dwarf-shrubland Alliance**

Winter-fat Dwarf-shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1104

Summary: This minor alliance includes dwarf-shrublands scattered across the interior western U.S. Stands occur on plateaus, plains, mesas, hillslopes, alkaline flats around playas and along drainages. Some habitats are intermittently flooded wetlands. Sites are typically flat to gently sloping occurring on any aspect, but stands have also been reported from moderately steep slopes. Soils are calcareous,

moderately alkaline and sometimes saline. Soil texture is typically stony, sandy loam, but may be coarser textured. The ground cover is mostly bare soil. Vegetation included in this alliance is characterized by a sparse to moderately dense dwarf-shrub layer dominated by *Krascheninnikovia lanata*. Other woody species may include scattered *Artemisia frigida*, *Artemisia nova*, *Artemisia tridentata*, *Chrysothamnus* spp., *Gutierrezia sarothrae*, *Opuntia polyacantha*, *Rhus trilobata*, and *Yucca glauca*. In the Mojave Desert *Larrea tridentata*, *Lycium andersonii*, *Ambrosia dumosa*, and *Atriplex polycarpa* may also be present. The herbaceous layer has sparse to moderately dense cover dominated by graminoids with scattered perennial forbs. Graminoids, such as *Poa secunda*, *Hesperostipa comata* (= *Stipa comata*), *Pleuraphis jamesii* (= *Hilaria jamesii*), *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), and *Pseudoroegneria spicata*, are most abundant. Perennial forbs may include *Phlox hoodii*, *Sphaeralcea coccinea*, *Sphaeralcea munroana*, *Achillea millefolium*, *Astragalus purshii*, *Calochortus macrocarpus*, and *Erigeron* spp. Annuals may be seasonally present to abundant depending on precipitation and disturbance. Exotic annuals, such as *Bromus tectorum*, can be abundant. Diagnostic of this alliance is the *Krascheninnikovia lanata*-dominated dwarf-shrub canopy with over 25% cover. [Captured 2008-02-18]

***Krascheninnikovia lanata* / *Achnatherum hymenoides* Dwarf-shrubland**

Winter-fat / Indian Ricegrass Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001323

Distribution (Nations/Subnations): US / CO, NV, UT?, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This dwarf-shrub association is reported from the Great Basin and the western slope of the southern Rocky Mountains. Sites vary from gently sloping bottomland at 1470-1860 m (4825-6100 feet) in elevation in northern Nevada to a steep (40% slope) eroded ridge at 2161 m (7085 feet) elevation in western Colorado. Soils are shallow, rapidly drained sandy loam to silty clay loam. This vegetation is characterized by an open to moderately dense (to 25% cover) dwarf-shrub canopy dominated by *Krascheninnikovia lanata*, with the medium-tall bunchgrass *Achnatherum hymenoides* in the understory. The dwarf-shrub layer is low in diversity. Other dwarf-shrubs may include *Artemisia tridentata* ssp. *wyomingensis*, *Atriplex canescens*, *Ericameria parryi*, and *Grayia spinosa*. Herbaceous vegetation is typically patchy and sparse, but may form an open to moderately dense herbaceous layer with low species diversity. *Achnatherum hymenoides* is a constant species with up to 5% cover. Other common species include *Elymus elymoides*, *Pascopyrum smithii*, *Pleuraphis jamesii*, and a variety of native forbs such as *Chenopodium* sp., *Eriogonum* spp., *Eriophyllum pringlei*, *Mentzelia multiflora*, *Opuntia polyacantha*, *Phacelia* sp., and *Sphaeralcea coccinea*. Introduced species *Bromus inermis*, *Bromus tectorum*, *Halogeton glomeratus*, and *Salsola tragus* are common in disturbed sites.

[Captured 2008-02-15]

References: Baker 1984a, Blackburn et al. 1968c, Blackburn et al. 1969c, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Soil Conservation Service 1978, Western Ecology Working Group n.d.

NNHP Plots: p050603o, p050603s, p050603x, p050614i (4 plots identified)

Representative Images:



p050603x_13-43-27.JPG



p050603s_11-36-39.JPG

*** * * New Vegetation Type - with plot data:**

***Krascheninnikovia lanata* / *Halogeton glomeratus* Semi-natural Dwarf-shrubland**

Winterfat / Halogeton Semi-natural Dwarf-shrubland

Association Code: NNHP045

Distribution (Nations/Subnations): US / NV, UT?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This type represents *Krascheninnikovia lanata* shrublands invaded by *Halogeton glomeratus*, usually due to heavy grazing, though reports from Utah suggest *H. glomeratus* is capable of invading and displacing *K. lanata* when flooding causes die-off of native shrubs. This vegetation usually has few perennial species, though some salt desert shrubs may be present (e.g. *Atriplex confertifolia*) or sparse semi-desert grasses such as *Achnatherum hymenoides*.

References:

NNHP Plots: p050602i (1 plots identified)

Representative Images:



p050602i_15-20-06.JPG



p050602i_15-20-20.JPG

***Krascheninnikovia lanata* / *Poa secunda* Dwarf-shrubland**

Winter-fat / Curly Bluegrass Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001326

Distribution (Nations/Subnations): US / CO, ID, NV?, OR, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This dwarf-shrub association is a minor community type in Washington found in Benton, Yakima, Grant and adjacent counties. In Oregon, it occurs only in the northern Basin and Range in Malheur and Harney counties. It is reported from Idaho and is likely to occur in northern Nevada. In Colorado, it occurs on steep colluvial canyon slopes at around 1700 m elevation; otherwise, environmental information is lacking. The association has open vegetation with most of the total cover found in only two lifeforms: dwarf-shrub and shortgrass. *Krascheninnikovia lanata*, less than 1 m tall, dominates these communities contributing 10-50% to total plant cover. Associated dwarf-shrubs include *Eriogonum corymbosum*, *Artemisia frigida*, and *Opuntia polyacantha*. *Poa secunda* is often the only conspicuous perennial grass, although *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) is a common associate. Forb species are diverse, weedy, low in cover, and inconsistent among sites, but native recorded species include *Erigeron piperianus*, *Sphaeralcea munroana*, and *Helianthus cusickii*. Annuals usually appear in all communities; the exotic grass *Bromus tectorum* is the most abundant annual. *Pseudoroegneria spicata* is absent to <1% cover. Mosses and lichens cover the soil surface in many sites.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Daubenmire 1970, Driscoll et al. 1984, Kagan et al. 2000, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: p050628t, p020515e (2 plots identified)

Representative Images:



p020515e_1.JPG



p050628t_16-19-37.JPG

***Krascheninnikovia lanata* Dwarf-shrubland**

Winter-fat Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001320

Distribution (Nations/Subnations): US / AZ, CA?, NV, TX, UT

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: This association is known from Colorado Plateau west into to the Great Basin and northern Mojave Desert and east into the northern panhandle of Texas and is likely to be more widespread in similar habitats in the southwestern Great Plains. It is an alkaline dwarf-shrub association that occurs primarily on sandsheets, slopes and plains often on eolian deposits near canyon walls and in alkaline flats in and around playas and along washes. Sites are flat to steep (up to 40% slope) and occur between 800 and 1770 m (2620-5800 feet) elevation. Soils are rapidly

drained loamy sands or sandy loams derived from alluvium from a variety of parent materials and sandstones that have eroded and been redeposited by wind and water. It occurs on low to high levels of soil salinity and alkalinity. Total vegetation cover ranges from 5 to 45% and is characterized by the dwarf-shrub *Krascheninnikovia lanata* with cover between 5 and 30%. In southern Nevada, scattered *Ambrosia dumosa*, *Atriplex polycarpa*, *Larrea tridentata*, *Lycium andersonii*, *Sphaeralcea ambigua*, and *Suaeda moquinii* (= *Suaeda fruticosa*) may be present. The herbaceous layer is poorly developed but may contain tufts of the grass *Achnatherum hymenoides*. Forbs commonly present include *Eriogonum* spp., *Opuntia polyacantha*, *Oenothera pallida*, *Plantago patagonica*, and *Sphaeralcea parvifolia*. Biological soil crusts may provide up to 45% cover. Introduced annuals *Bromus tectorum*, *Bromus rubens*, and *Salsola tragus* may be abundant on some sites.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Faden 1977, Mitchell et al. 1966, Western Ecology Working Group n.d.

NNHP Plots: p020507d, p050510l, p050603m, p050603n, p020618u (5 plots identified)

Representative Images:



p020618u_1.JPG



p020507d_1.JPG

***Menodora spinescens* Dwarf-shrubland Alliance**

Greenfire Dwarf-shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2515

Summary: This xeromorphic upland shrubland alliance occurs locally in the Mojave Desert and southern Great Basin. Stands are found on ridges, hills, slopes and upper bajadas. Substrates are shallow, rocky soils derived from bedrock or alluvium. The vegetation is characterized by an open, xeromorphic, short-shrub layer (0.5-2 m tall) that is dominated or codominated by *Menodora spinescens*. Other shrubs and dwarf-shrubs present may include *Picrothamnus desertorum* (= *Artemisia spinescens*), *Atriplex confertifolia*, *Coleogyne ramosissima*, *Ephedra nevadensis*, *Hymenoclea salsola*, *Krascheninnikovia lanata*, *Lepidium fremontii*, *Lycium andersonii*, *Sphaeralcea ambigua*, and *Tetradymia axillaris*. Emergent *Yucca brevifolia* may be scattered through the stand. Herbaceous cover is sparse or absent. [Captured 2008-02-18]

***** New Vegetation Type - with plot data:**

***Menodora spinescens* - *Grayia spinosa* - *Psorothamnus polydenius* Dwarf-shrubland**

Spiny Menodora - Spiny Hopsage - Nevada Dalea Dwarf-shrubland

Association Code: NNHP075

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2G4

Summary: Occurring in the southwestern Great Basin, this type is dominated by *Menodora spinescens*, but with *Grayia spinosa* and *Psorothamnus polydenius* occurring regularly, often as subdominants. Other shrubs may be present and are generally species found commonly in the salt desert scrub habitats of the Great Basin. Perennial grasses are sparse to absent, with *Pleuraphis jamesii* and *Achnatherum hymenoides* likely to be present. The former grass often indicates more warm-desert conditions while the later indicates cool-desert conditions, so this type may later be split to accommodate each separately.

References:

NNHP Plots: p050406d (1 plots identified)

Representative Images:



p050406d.JPG

***** New Vegetation Type - with plot data:**

***Menodora spinescens* - *Sarcobatus baileyi* - *Grayia spinosa* Shrubland**

Spiny Menodora - Bailey's Greasewood - Spiny Hopsage Shrubland

Association Code: NNHP074

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G5

Summary: This association occurs in the southwestern Great Basin in regions transitional to the Mojave. The vegetation is clearly dominated by *Menodora spinescens*, but both *Sarcobatus baileyi* and *Grayia spinosa* are reliably present, usually as subdominants. Other shrubs may be present and are generally species found commonly in the salt desert scrub habitats of the Great Basin. Perennial grasses are sparse to absent, with *Pleuraphis jamesii* and *Achnatherum hymenoides* likely to be present. The former grass often indicates more warm-desert conditions while the later indicates cool-desert conditions, so this type may later be split to accommodate each separately.

References:

NNHP Plots: p030729f (1 plots identified)

Representative Images:



p030729f.JPG

*** * * New Vegetation Type - with plot data:**

***Menodora spinescens* / *Pleuraphis jamesii* Shrubland**

Spiny Menodora / James' Galleta Shrubland

Association Code: NNHP077

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4G5

Summary: This southwestern Great Basin vegetation type occurs in transitional sites to the Mojave. Despite the spring snow falling on NNHP employees while sampling one site, the presence of *Pleuraphis jamesii*, *Yucca brevifolia* and a species of cholla suggest warm-desert influences. The shrub layer is heavily dominated by *Menodora spinescens*. Numerous other shrub species may be present but few, if any, reach sub-dominant levels in this vegetation type.

References:

NNHP Plots: p0504071 (1 plots identified)

***Menodora spinescens* Dwarf-shrubland [Placeholder]**

Greenfire Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002767

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Morefield pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

Representative Images:



p030729g_1.JPG



p0504071.JPG

***Salix arctica* Saturated Dwarf-shrubland Alliance**

Arctic Willow Saturated Dwarf-shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1124

Summary: Communities within the *Salix arctica* Saturated Dwarf-shrubland Alliance (A.1124) occur on subalpine meadows or on high mountain peaks in Nevada. They range in elevation from 2800 to over 3500 m. Landforms that support these associations are typically gentle to moderate in slope and have northerly aspects. They occur where snow lingers into the spring and summer in places such as lees of cliffs and boulders, secondary slopes, and shallow depressions. Soils are probably wet throughout the growing season, as *Caltha leptosepala* is always associated with wet soils. Communities within this alliance are defined as cold-deciduous dwarf-shrublands. They are dominated by *Salix arctica*, which forms a thick canopy with a mat-forming growth form seldom rising more than 1 dm above the ground. *Salix reticulata* occasionally is found as a codominant in the dwarf-shrub layer. The herbaceous layer commonly includes *Caltha leptosepala*, *Erigeron peregrinus*, *Polygonum bistortoides*, and *Pedicularis groenlandica*. No other information on species composition is available. [Captured 2008-02-18]

***Salix arctica* - *Salix petrophila* / *Caltha leptosepala* Dwarf-shrubland**

Arctic Willow - Alpine Willow / White Marsh-marigold Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001429

Distribution (Nations/Subnations): US / NV, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G3

Summary: This mesic alpine dwarf-shrubland is found at 2800 to 3050 m (9200-10,000 feet) elevation in ranges of the Intermountain Basin of northern Nevada and in the Rocky Mountains of western Wyoming. Sites are on gentle, northerly slopes. It is found on mesic sites and is one of the wettest associations in the *Salix arctica* Dwarf-shrubland Alliance (A.1117). The dwarf-shrub is creeping along the ground and is rarely taller than 12.7-20.3 cm (5-8 inches), forming the dwarf-shrub layer. Snowmelt keeps the site wet to saturated for much of the growing season. The vegetation is characterized by the dominance of the dwarf-shrub *Salix arctica* or *Salix petrophila* (= *Salix arctica* ssp. *petraea*), sometimes with *Salix reticulata* and with *Caltha leptosepala* as a dominant forb. Other common species include *Antennaria* spp., *Astragalus alpinus*, *Carex elynoides*, *Erigeron peregrinus*, *Gentiana calycosa*, *Festuca brachyphylla*, *Packera*

dimorphophylla, *Pedicularis groenlandica*, *Polygonum bistortoides*, *Ranunculus eschscholtzii*, *Sibbaldia procumbens*, and *Senecio crassulus*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kartesz 1999, Loope 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salvia dorrii* Dwarf-shrubland Alliance**

Gray Ball Sage Dwarf-shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1129

Summary: In Oregon, this is a somewhat common scrubland alliance found from roughly 300-1670 m in elevation. It occurs on barren, fairly young basalts or shallow loams over basalt. Sites include ridgetops and steeper sites with rock outcrops. Extreme topo-edaphic drought is the major process influencing these communities. The alliance is often in a mosaic with *Pseudoroegneria spicata* canyon grassland or shrub steppe communities, but occasionally is found in *Juniperus* woodlands or *Pinus ponderosa* forests. *Salvia dorrii* is the dominant shrub, but cover or abundance information is not available. *Poa secunda* and *Pseudoroegneria spicata* are the dominant grasses, making up most of the herbaceous cover. *Danthonia unispicata* and *Achnatherum hendersonii* (= *Stipa hendersonii*) are occasionally important. Forb species can include *Physaria oregona*, *Lewisia rediviva*, *Trifolium macrocephalum*, *Viola trinervata*, and species of *Lomatium*, *Collomia*, *Erigeron*, and *Arenaria*, all early blooming species. Many forb species are largely restricted to these environments. Information from California must be reviewed for inclusion in this description. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Salvia dorrii* - *Grayia spinosa* / *Pleuraphis jamesii* Dwarf-shrubland**

Purple Sage - Spiny Hopsage / James' Galleta Dwarf-shrubland

Association Code: NNHP039

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G1G4

Summary: This is an unusual vegetation type that occurs primarily in the Great Basin - Mojave transition zone. Cover is low (< 20%) and co-dominated by *Salvia dorrii* and *Grayia spinosa*, though one may have substantially more cover than the other, and often with other shrubs from either ecoregion. A mix of graminoids may also be present, but *Pluraphis jamesii* forms a substantial portion of the graminoid layer, suggesting influence of either warm-desert conditions or significant warm-season rainfall.

References:

NNHP Plots: p050510k (1 plots identified)

Representative Images:



p050510k.JPG

***Vaccinium (caespitosum, myrtilus, scoparium)* Dwarf-shrubland Alliance**

(Dwarf Blueberry, Whortleberry, Grouseberry) Dwarf-shrubland Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1114

Summary: Vegetation in this alliance occurs in the alpine tundra in Colorado north into Montana, and also in the high Sierras of California. The climate regime is continental, with long, cold winters and short summers with frequent afternoon thunderstorms. Strong westerly winds are common in the winter and spring and distribute snow on the leeward side of the mountains. Large areas of late-lying snowpatches are located on the eastern slope. Stands are found between 1775 and 3580 m elevation on gentle- to moderate-gradient slopes. Stands are located in the lower alpine just above treeline in areas where snow accumulates in the winter and melts relatively late in the summer. In Montana, it is mostly found on mid- to upper slopes as well as slope shoulders and ridges. Soils have developed from argillites, mudstone and sandstone of colluvial or glacial deposition, contain more than 20% rock in the upper profile, and are rapidly drained loams and loamy sands. In Colorado, soils are documented as being poorly developed, may have a high organic matter content, and are classified as Inceptisols (Cryumbrepts or Cryochrepts). The soil profile has A and B horizons; the B horizon is moderately thick. The average surface pH is 5.0, indicating leached soils. The vegetation in the alliance is found in snowbed habitats, areas where snow accumulates in the winter and melts relatively late in the summer, although the summer moisture regime is variable. *Vaccinium caespitosum* and *Vaccinium scoparium* dominate the dwarf-shrub canopy. A number of herbaceous species occur in the understory. *Carex rossii* (= *Carex brevipes*), *Danthonia intermedia*, *Luzula glabrata*, *Trisetum spicatum*, *Carex geyeri*, *Gentiana calycosa*, *Geum rossii*, *Hieracium gracile*, *Penstemon whippleanus*, *Poa reflexa*, and *Viola adunca* are the most common species. The cryptogam layer is dominated by lichens; *Cladonia pyxidata* and *Catapyrenium cinereum* (= *Dermatocarpon cinereum*) are the most common. [Captured 2008-02-18]

***Vaccinium (caespitosum, scoparium)* Dwarf-shrubland**

(Dwarf Blueberry, Grouseberry) Dwarf-shrubland

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001140

Distribution (Nations/Subnations): CA, US / AB, CO, NV, WY

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G4

Summary: This dwarf-shrub association occurs near treeline in the mountains of northern

Colorado and northwestern Wyoming. It has also been reported from the Ruby Mountains of northeastern Nevada and Banff National Park in Alberta, Canada. Slopes range from gentle to steep (1-100%), and sites may be oriented to any aspect. Sites are generally on lee slopes and are snow-covered throughout the winter and into the late spring, but one Colorado stand was on an exposed ridgetop below treeline. Sites generally remain mesic throughout the growing season. This vegetation is characterized by a moderate to dense carpet of either *Vaccinium caespitosum* and/or *Vaccinium scoparium*. Herbaceous species reflect the subalpine/low alpine character of the association and vary greatly across the range of this association. Because of the late snowmelt and mesic soil conditions, some wetland species may be present. Herbaceous species that are abundant may include *Polygonum bistortoides* (= *Bistorta bistortoides*), *Danthonia intermedia*, *Sibbaldia procumbens*, *Penstemon whippleanus*, *Poa cusickii*, *Carex pyrenaica*, *Geum rossii*, *Erigeron peregrinus*, *Caltha leptosepala*, and *Juncus drummondii*. *Abies lasiocarpa*, *Picea engelmannii*, and/or *Pinus albicaulis* seedlings may be scattered through the community.

[Captured 2008-02-15]

References: Benedict 1977b, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Holway 1960, Holway 1962a, Holway and Ward 1963, Johnston 1987, Komarkova 1976, Komarkova 1979, Komarkova 1986, Olmsted and Taylor 1977a, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

V . Herbaceous Vegetation

(*Potamogeton diversifolius*, *Stuckenia filiformis*)

Permanently Flooded Herbaceous Alliance

(Waterthread, Slender False Pondweed) Permanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1763

Summary: The permanently flooded wetlands in this alliance occur in north-central and southeastern Colorado in two very different habitats. These wetlands are dominated by hydromorphically rooted herbaceous species. One habitat dominated by *Stuckenia filiformis* (= *Potamogeton filiformis*) occurs in shallow, montane lakes in north-central Colorado, elevation is 2060-2530 m. The climate is cool, with a relatively short growing season. The mean annual precipitation is 20-40 cm, mostly falling as snow. These lakes get water primarily from snowmelt-fed streams. The other habitat dominated by *Potamogeton diversifolius* is found in the canyons of southeastern Colorado, growing in plunge pools in sandstone bedrock. The elevation is usually between 1100-1850 m. Climate is semi-arid with hot summers and cold winters. The mean annual precipitation is 25-35 cm, mostly falling during the growing season. These pools fill up with runoff during summer thunderstorms. Both are permanently flooded; however, the water level in the plunge pools can vary greatly during the year. The herbaceous layer in the montane wetlands is dominated by the submerged plant *Stuckenia filiformis*, which often grows in dense mats. Associated immersed plants include *Sagittaria cuneata* and *Polygonum amphibium* var. *emersum* (= *Persicaria amphibia* var. *emersa*). This wetland is found in open water surrounded by *Carex* and *Scirpus* marshes growing out from the shore. The bedrock plunge pool wetlands have been described from canyons where pools form in the sandstone bedrock. They are dominated by *Potamogeton diversifolius*, another hydromorphically rooted, submerged forb. Little is known about these wetlands. [Captured 2008-02-18]

***Stuckenia filiformis* Herbaceous Vegetation**

Slender False Pondweed Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002008

Distribution (Nations/Subnations): US / CO, NV?

Status: 1 Active Confidence: 3 (Weak) Global Rank: GU

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Johnson 1939, Johnson 1941, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***(Sarcocornia utahensis) - (Arthrocnemum subterminale)* Semipermanently Flooded Herbaceous**

(Utah Swampfire) - (Parish's Glasswort) Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1676

Summary: [no summary available] [Captured 2008-02-18]

***(Sarcocornia utahensis) - (Arthrocnemum subterminale)* Seasonally Flooded Herbaceous Vegetation [Placeholder]**

(Utah Swampfire) - (Parish's Glasswort) Seasonally Flooded Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG003120

Distribution (Nations/Subnations): US / CA, NV?, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: GNR

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Achnatherum lettermanii* Herbaceous Alliance**

Letterman's Needlegrass Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2524

Summary: [no summary available] [Captured 2008-02-18]

***Achnatherum lettermanii - Oxytropis oreophila* Herbaceous Vegetation**

Letterman's Needlegrass - Mountain Locoweed Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002734

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G2?

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Nachlinger and Reese 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

Agropyron cristatum Semi-natural Herbaceous Alliance

Crested Wheatgrass Semi-natural Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.3563

Summary: This introduced-species grassland alliance occurs throughout the northwestern Great Plains of the United States and adjacent Canada. It is likely more widespread because it has been planted into pastures to improve forage production and is well suited to the cold, semi-arid conditions of the northwestern Great Plains and higher elevation rangeland in more southern latitudes. Stands can occur in a wide variety of human-disturbed habitats, including highway rights-of-way, revegetation projects, etc. The vegetation is characterized by a moderately dense to dense herbaceous layer dominated by medium-tall (0.5-1 m) perennial graminoids. The dominant grass is *Agropyron cristatum*, a naturalized species from the plains of Siberia. Other weedy species may occur as well, but native species are generally less than 10% cover. Native species may include mixed-grass prairie grasses, such as *Pascopyrum smithii* and *Hesperostipa comata* (= *Stipa comata*), as well as others. Where native species are conspicuous enough to identify the native plant association that could occupy the site, the stand should be typed as such. [Captured 2008-02-27]

* New to Nevada - with plot data:

Agropyron cristatum - (Pascopyrum smithii, Hesperostipa comata) Semi-natural Herbaceous Vegetation

Crested Wheatgrass - (Western Wheatgrass, Needle-and-Thread) Semi-natural Herbaceous Vegetation

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL005266

Distribution (Nations/Subnations): CA, US / CO, MT, ND, SD, SK, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Butler et al. 2002, Hansen et al. 1984, MTNHP 2002b, Midwestern Ecology Working Group n.d., NDNHI n.d., Von Loh et al. 2000

NNHP comments: It is surprising that this association is not already listed for Nevada. Such (near-) monocultures are frequent and some are fairly self-sustaining, most are eventually reinvaded by shrubs or *Poa secunda* (or converted to *Bromus tectorum* stands), but some have remained nearly constant for decades.

NNHP Plots: p020601c, p020601k, p020602q, p050511j, p060711.0750, p060711.1218, p060711.1243 (7 plots identified)

Representative Images:



p020601c_1.JPG



p020601k_1.JPG

***Agrostis stolonifera* Seasonally Flooded Herbaceous Alliance**

Creeping Bentgrass Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1405

Summary: This alliance includes grasslands dominated by an introduced perennial sod grass native to Europe. Stands have been described from Montana, but the alliance is likely more widespread. *Agrostis stolonifera* has been widely planted for forage in North America and has invaded native communities from hay fields, especially more mesic areas such as riparian floodplains and seasonally flooded wetlands in the semi-arid western U.S. [Captured 2008-02-18]

***Agrostis (gigantea, stolonifera)* Semi-natural Herbaceous Vegetation**

(Giant Bentgrass, Spreading Bentgrass) Semi-natural Herbaceous Vegetation

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001558

Distribution (Nations/Subnations): US / CO, ID, MT, NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Carsey et al. 2003a, Driscoll et al. 1984, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, Kittel et al. 1999b, MTNHP 2002b, Manning and Padgett 1995, Western Ecology Working Group n.d., Wohl and Hammack 1995

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

***Aristida purpurea* Herbaceous Alliance**

Purple Three-awn Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2570

Summary: [no summary available] [Captured 2008-02-27]

* New to Nevada - with plot data:

***Aristida purpurea* Herbaceous Vegetation**

Purple Three-awn Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL005800

Distribution (Nations/Subnations): US / AZ, CO, NM?, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Hansen et al. 2004a, Western Ecology Working Group n.d.

NNHP Plots: p020602w (1 plots identified)

***Artemisia arbuscula* ssp. *arbuscula* Shrub Herbaceous Alliance**

Dwarf Sagebrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1566

Summary: This widespread shrub herbaceous alliance is known from cold, dry areas of the Intermountain West, as well as in dry alpine and subalpine habitats of the Sierra Nevada. Perennial grasses are prominent with *Artemisia arbuscula* ssp. *arbuscula* dominating the open to moderately dense low-shrub layer. Stands typically occur on shallow, rocky, poorly drained soils on a variety of landforms; from flats and depressions to slopes, ridges or alpine fell-fields. Soils are usually shallow, rocky clays, often with an impenetrable layer at less than 60 cm depth. Poor drainage often leads to perched water tables in the spring, which may control the distribution of the vegetation in this alliance and explain its patchy distribution. The vegetation is characterized by a moderate to dense herbaceous layer dominated by perennial graminoids. Dominant to common grass species include *Achnatherum thurberianum* (= *Stipa thurberiana*), *Festuca idahoensis*, *Leymus salinus* ssp. *salmonis*, *Pascopyrum smithii*, *Poa secunda*, *Pseudoroegneria spicata*, and *Elymus elymoides* (in areas in poor condition). *Agoseris glauca*, *Allium* spp., *Antennaria rosea*, *Balsamorhiza sagittata*, *Castilleja angustifolia*, *Phlox hoodii*, and *Phlox longifolia* are common forbs species. Shrub associates include *Artemisia tridentata* ssp. *wyomingensis*, *Artemisia tridentata* ssp. *vaseyana*, *Artemisia nova*, *Chrysothamnus* spp., *Ephedra viridis*, *Gutierrezia sarothrae*, *Juniperus occidentalis*, *Juniperus osteosperma*, *Purshia tridentata*, and *Tetradymia canescens*. Diagnostic of this alliance is a moderate (>20% cover) perennial graminoid layer with an *Artemisia arbuscula* ssp. *arbuscula*-dominated low-shrub layer that has 10-40% cover. At least 40% of the total shrub cover is *Artemisia arbuscula* ssp. *arbuscula*. [Captured 2008-02-18]

* New to Nevada - with plot data:

***Artemisia arbuscula* ssp. *arbuscula* - *Purshia tridentata* / *Pseudoroegneria spicata* - *Festuca idahoensis* Shrub Herbaceous Vegetation**

Dwarf Sagebrush - Bitterbrush / Bluebunch Wheatgrass - Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001518

Distribution (Nations/Subnations): US / OR

Status: 1 Active Confidence: 1 (Strong) Global Rank: G2G3

Summary: *Artemisia arbuscula* and *Purshia tridentata* are the dominant shrubs with *Chrysothamnus viscidiflorus* and *Ericameria nauseosa* (= *Chrysothamnus nauseosus*) being minor components. This association usually occurs on side and toe slopes on north, northeastern and eastern aspects at elevations from 1370 to 1525 m (4500-5000 feet). Slopes are gently sloping to

nearly level, ranging from 0-5%. Bare ground is 50-75% of ground cover. Stones and gravel cover less than 10% of the surface. Soils are moderately well-drained. *Pseudoroegneria spicata* and *Festuca idahoensis* are the dominant grasses, with *Achnatherum thurberianum*, *Elymus elymoides*, *Poa secunda*, *Koeleria macrantha* and the non-native *Bromus tectorum* commonly found. Important forbs include *Astragalus* sp., *Erigeron* sp., and *Lomatium triternatum*. The *Chrysothamnus* species and *Bromus tectorum* increase with grazing intensity. Normally in central Oregon, *Purshia tridentata* and *Artemisia arbuscula* would not be growing together since *Purshia tridentata* requires a considerably deeper and better drained soil than does *Artemisia arbuscula*. Tests indicate that the two species are growing on distinct microsites. *Artemisia arbuscula* grows in areas that have a layer restrictive to roots approximately 38.1-50.8 cm (15-20 inches) deep, and *Purshia tridentata* occurs on sites where this restrictive layer does not occur. The scattered distribution of the two shrubs reflects an underlying distribution of soil condition. Silica has been identified as the major cementing agent that restricts drainage and root penetration on the *Artemisia arbuscula* sites.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1971, Driscoll et al. 1984, Kagan et al. 2000, Segura-Bustamante 1970, Western Ecology Working Group n.d.

NNHP Plots: p020516k (1 plots identified)

***Artemisia arbuscula* ssp. *arbuscula* / *Achnatherum thurberianum* Shrub**

Herbaceous Vegetation

Dwarf Sagebrush / Thurber's Needlegrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001413

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d., Zamora and Tueller 1973

NNHP Plots: (0 plots identified)

Representative Images:



p020516h_1.JPG

***Artemisia arbuscula* ssp. *arbuscula* / *Festuca idahoensis* Shrub Herbaceous Vegetation**

Dwarf Sagebrush / Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001409

Distribution (Nations/Subnations): US / CA?, CO, ID, MT, NV, OR, UT?, WA, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This dwarf sagebrush shrub herbaceous association occurs from 1525 to 2775 m (5000-9100 feet) elevation. It occurs on dry, exposed moderate slopes, on undulating to rolling topography, lower mountain toeslopes, inaccessible ridges, and on very steep canyon talus slopes. Soils are shallow or moderately deep, from well- to moderately well-developed. *Artemisia arbuscula* is the characteristic and predominant low shrub, although it can be obscured by the grass cover. Cover of the low shrub is scattered and open (8-30%). *Festuca idahoensis* is the dominant understory grass (3-36% cover), with *Pseudoroegneria spicata* usually present, but can often be absent (0-25%). *Koeleria macrantha* (= *Koeleria cristata*), *Poa secunda* (= *Poa sandbergii*), *Achnatherum thurberianum* (= *Stipa thurberiana*), and *Elymus elymoides* (= *Sitanion hystrix*) are typical co-occurring grasses. Common forbs include *Phlox hoodii*, *Phlox longifolia*, *Antennaria rosea*, *Crepis acuminata*, *Senecio integerrimus*, *Balsamorhiza* ssp., *Eriogonum* spp., and *Erigeron compositus*.

[Captured 2008-02-15]

References: Blackburn et al. 1968b, Blackburn et al. 1969a, Blackburn et al. 1969c, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Hall 1973, Hironaka et al. 1983, Jones 1992b, Kagan et al. 2000, Lewis 1971, Lewis 1975a, MTNHP 2002b, Mueggler and Stewart 1980, Sabinske 1978, Tweit and Houston 1980, WNHP unpubl. data, Western Ecology Working Group n.d., Zamora and Tueller 1973

NNHP Plots: (0 plots identified)

***Artemisia arbuscula* ssp. *arbuscula* / *Poa secunda* Shrub Herbaceous Vegetation**

Dwarf Sagebrush / Curly Bluegrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001411

Distribution (Nations/Subnations): US / CA, ID, NV, OR

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968a, Blackburn et al. 1968b, Blackburn et al. 1969a, Blackburn et al. 1969b, Blackburn et al. 1969c, Bourgeron and Engelking 1994, Driscoll et al. 1984, Heinze et al. 1962, Kagan et al. 2000, Savage 1968, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

Representative Images:



p060815-1929-1.jpg

***Artemisia arbuscula* ssp. *arbuscula* / *Pseudoroegneria spicata* Shrub Herbaceous Vegetation**

Dwarf Sagebrush / Bluebunch Wheatgrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001412

Distribution (Nations/Subnations): US / ID, MT, NM?, NV, OR, WA, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This dwarf-shrubland occurs on foothills and open steep slopes from 1370 to 2930 m (4500-9600 feet) in elevation. Slopes are generally quite steep, 24% average, 37% maximum. Soils often have a hard layer constricting drainage. The soil surface is generally gravelly with up to 50% open bare gravelly soils. This montane dwarf-shrub steppe association is dominated by *Artemisia arbuscula*. *Artemisia nova* and *Artemisia tridentata* may also be present, adding to the shrubby aspect of this type. Shrubs can be widely spaced, and there is generally equal to sometimes greater cover provided by the herbaceous cover. Shrub cover ranges from 7 to 20%. Herbaceous cover ranges from 20 to 30% cover. *Pseudoroegneria spicata* is the dominant grass. *Koeleria macrantha* (= *Koeleria cristata*) and *Poa secunda* are commonly also present. Forbs are less abundant but can include *Phlox hoodii*, *Linum perenne*, *Sedum lanceolatum*, *Eriogonum umbellatum*, and *Arenaria congesta*.

[Captured 2008-02-15]

References: Blackburn et al. 1971, Bourgeron and Engelking 1994, Driscoll et al. 1984, Hall 1973, Hironaka et al. 1983, Jensen et al. 1988a, Jensen et al. 1988b, Kagan et al. 2000, Lewis 1975a, MTNHP 2002b, Mueggler and Stewart 1980, Schuller and Evans 1986, Tiedemann and Klock 1977, Western Ecology Working Group n.d., Zamora and Tueller 1973

NNHP Plots: p060815.1405 (1 plots identified)

Representative Images:



p060815-1405-1.jpg

***Artemisia arbuscula* ssp. *longiloba* Shrub Herbaceous Alliance**

Alkali Sagebrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2552

Summary: This shrub herbaceous alliance occurs in the Intermountain West, into the southern Rocky Mountains and in the western Great Plains. Perennial grasses are prominent with *Artemisia arbuscula* ssp. *longiloba* dominating the open to moderately dense low-shrub layer. Stands occur on a variety of landforms, from flats and depressions to slopes and ridges. Soils are generally characterized by a heavy clay subsoil occurring within 25 cm of the soil surface, which restricts rooting depth. Soils are also alkaline and calcareous. The vegetation is characterized by a moderate to dense herbaceous layer dominated by perennial graminoids. Dominant to common grass species include *Danthonia parryi*, *Elymus lanceolatus*, *Festuca idahoensis*, *Festuca thurberi*, *Pascopyrum smithii*, *Poa secunda*, and *Pseudoroegneria spicata*. Other perennial grasses that may be present include *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Elymus elymoides*, *Hesperostipa comata* (= *Stipa comata*), and *Koeleria macrantha*. Forb cover is typically minor. Shrub associates include *Artemisia tridentata* ssp. *wyomingensis*, *Artemisia tridentata* ssp. *vaseyana*, *Artemisia tripartita*, *Artemisia nova*, *Chrysothamnus viscidiflorus*, *Gutierrezia sarothrae*, and *Purshia tridentata*. Diagnostic of this alliance is a moderate (>20% cover) perennial graminoid layer with an *Artemisia arbuscula* ssp. *longiloba*-dominated low-shrub layer that has 10-40% cover. At least 40% of the total shrub cover is *Artemisia arbuscula* ssp. *arbuscula*. [Captured 2008-02-18]

***Artemisia arbuscula* ssp. *longiloba* / *Festuca idahoensis* Shrub Herbaceous Vegetation**

Alkali Sagebrush / Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001522

Distribution (Nations/Subnations): US / ID, MT, NV, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: This plant association occurs in scattered locations from southeastern Oregon to Montana, northern Nevada and probably Wyoming. The association occurs on gentle, lower-slope and basin positions at 1650-1890 m (5400-6200 feet) elevation. It is restricted to rocky, claypan soils. *Artemisia arbuscula* ssp. *longiloba* forms an open low-shrub canopy. *Festuca idahoensis* and

Poa secunda are well-represented to abundant. Commonly associated forbs include *Mertensia longiflora*, *Antennaria stenophylla*, *Ionactis alpina* (= *Aster scopulorum*), *Allium acuminatum*, and *Arabis holboellii*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983h, Driscoll et al. 1984, Hironaka et al. 1983, Jensen et al. 1988a, MTNHP 2002b, Mueggler and Stewart 1980, Schlatterer 1972, Tisdale et al. 1965, Western Ecology Working Group n.d., Zamora and Tueller 1973

NNHP Plots: (0 plots identified)

***Artemisia arbuscula* ssp. *longiloba* / *Poa secunda* Shrub Herbaceous Vegetation**

Alkali Sagebrush / Curly Bluegrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001523

Distribution (Nations/Subnations): US / CO, ID, NV, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3Q

Summary: This low-shrub association is found between 1600 and 2600 m (5250-8530 feet) elevation in southwestern Idaho, north-central Colorado, and northeastern Nevada. It is located on gentle to moderate slopes, ridges, and basin bottoms of northerly and southeasterly aspects. Soils tend to be a heavy clay loam. *Artemisia arbuscula* ssp. *longiloba* dominates the shrub overstory. Traces to low coverage of *Purshia tridentata*, *Chrysothamnus viscidiflorus*, and *Ericameria nauseosa* may also be present. *Elymus elymoides* and *Festuca idahoensis* are consistently present with *Poa secunda*. Common forbs include *Allium acuminatum*, *Eriogonum caespitosum*, and *Phlox hoodii*.

[Captured 2008-02-15]

References: Blackburn et al. 1968b, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Jones 1992b, Tiedemann et al. 1987, Western Ecology Working Group n.d., Zamora and Tueller 1973

NNHP Plots: (0 plots identified)

***Artemisia cana* (ssp. *bolanderi*, ssp. *viscidula*) Shrub Herbaceous Alliance**

(Bolander's Silver Sagebrush, Mountain Silver Sagebrush) Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1531

Summary: This alliance occurs across the northern portions of the Great Basin in Oregon and Idaho, and into southwestern Montana, as well as the mountains of Nevada. Stands are found on inactive elevated stream and river terraces and on upland areas with sandy soils. This vegetation has a sparse shrub layer (<25%) composed primarily of the characteristic shrub *Artemisia cana* (ssp. *bolanderi* or ssp. *viscidula*), but *Artemisia tridentata* (usually ssp. *vaseyana* but occasionally ssp. *tridentata*) are common in some stands. The herbaceous layer is dominated by graminoids, generally with >20% cover, and often with more cover than the shrub layer. Important understory associates include *Festuca idahoensis*, *Poa fendleriana* ssp. *fendleriana*, *Poa cusickii*, *Muhlenbergia richardsonis*, *Elymus caninus*, *Koeleria macrantha* (= *Koeleria nitida*), *Achnatherum occidentale*, *Carex praegracilis*, and *Elymus trachycaulus*. Common exotic associates include *Poa pratensis*, *Taraxacum officinale*, and *Agrostis stolonifera*. Among the forbs that are typically found are *Achillea millefolium*, *Symphotrichum campestre* var. *bloomeri* (= *Aster campestris* var. *bloomeri*), and *Cirsium foliosum*. The vegetation in the alliance includes non-wetland plant associations dominated by *Artemisia cana*

ssp. bolanderi or *Artemisia cana ssp. viscidula* with typically less than 25% total shrub cover and an abundant herbaceous cover of medium stature. [Captured 2008-02-18]

***Artemisia cana* (ssp. *bolanderi*, ssp. *viscidula*) - *Artemisia tridentata* ssp. *vaseyana* / *Poa cusickii* Shrub Herbaceous Vegetation [Provisional]**

(Bolander Silver Sagebrush, Mountain Silver Sagebrush) - Mountain Big Sagebrush / Cusick's Bluegrass Shrub Herbaceous Vegetation

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001549

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 3 Depreciated **Confidence:** 3 (Weak) **Global Rank:** G2

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kartesz 1999, Kovalchik 1987, ORNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia cana* (ssp. *bolanderi*, ssp. *viscidula*) / *Poa fendleriana* ssp. *fendleriana* Shrub Herbaceous Vegetation**

(Bolander Silver Sagebrush, Mountain Silver Sagebrush) / Muttongrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001551

Distribution (Nations/Subnations): US / CA?, NV?, OR

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2

Summary: This community occurs on broad, low-gradient floodplains at moderate to high elevations where it occurs on dry terraces and inactive floodplains and on the dry margins of mid-elevation meadows. Elevations range from 1340 to 1710 m (4400-5600 feet) and as high as 2135 m (7000 feet) in the Warner Mountains. Soils are deep, easily eroded alluvium with surface textures of fine sandy to silty clay loams. Available water-holding capacity is moderately high. Water tables are within 2 feet of the soil surface in May and June, dropping to 4-5.5 feet below the soil surface in July through September. *Artemisia cana* is the dominant shrub. *Artemisia tridentata* (usually *ssp. vaseyana* but occasionally *ssp. tridentata*) is also common in some sites. *Poa fendleriana* is the dominant herbaceous species. Other common herbaceous species include *Koeleria macrantha*, *Elymus trachycaulus*, *Muhlenbergia richardsonis*, *Achnatherum occidentale* ssp. *occidentale*, *Carex praegracilis*, *Achillea millefolium*, *Symphotrichum campestre* var. *bloomeri* (= *Aster campestris* var. *bloomeri*), and *Cirsium foliosum*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1971, Driscoll et al. 1984, Kagan et al. 2000, Kovalchik 1987, ORNHP unpubl. data, Padgett 1982, Western Ecology Working Group n.d., Winward 1980b

NNHP Plots: (0 plots identified)

***Artemisia cana* ssp. *bolanderi* / *Muhlenbergia richardsonis* Shrub Herbaceous Vegetation**

Bolander's Silver Sagebrush / Mat Muhly Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001743

Distribution (Nations/Subnations): US / CA, ID, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3

Summary: This association occurs on playa bottoms and on moist sites in valley bottoms in the northern Great Basin of southeastern Oregon, northwestern California, extreme southwestern Idaho and northeastern Nevada. It ranges between thick shrublands to open grasslands with scattered shrubs. It has only been described from arid, closed basins, although generally in areas with sufficient freshwater input to allow *Artemisia cana* to grow. All stands are in vernal wet areas, with the characteristics of intermountain vernal pools. *Artemisia cana ssp. bolanderi* dominates the shrub layer of all sites, generally as the only shrub present. *Artemisia tridentata* or less frequently *Sarcobatus vermiculatus* are occasionally found in stands, generally occurring at the margins of the communities. *Artemisia cana ssp. bolanderi* cover ranges from 5-60%, so that this type can be found as grasslands with shrubs, steppe and most commonly as shrublands. The perennial grass *Muhlenbergia richardsonis* comprises most of the understory. Occasionally, *Puccinellia* spp., *Elymus* spp., *Poa secunda*, *Juncus nevadensis*, *Juncus effusus*, or *Eleocharis* spp. are present. Often, *Muhlenbergia richardsonis* forms a solid, short mat across the stands, although in dry years or drier locations, alkaline playa (bare ground) makes up to 40% of the cover.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Dealy 1971, Driscoll et al. 1984, Franklin and Dyrness 1973, Hironaka et al. 1983, IDCDC 2005, Kagan et al. 2000, Manning and Padgett 1991, Manning and Padgett 1995, Moseley 1998, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia nova* Shrub Herbaceous Alliance**

Black Sagebrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1567

Summary: [Captured]

* **New to Nevada - with plot data:**

***Artemisia nova* / *Festuca idahoensis* Shrub Herbaceous Vegetation**

Black Sagebrush / Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001524

Distribution (Nations/Subnations): US / ID, MT, WY?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2?

Summary: This shrub herbaceous association has been documented from only two drainages in Idaho, one in the southwest (Owyhee Uplands Section (342C), the other in the Little Lost River valley (Beaverhead Mountains Section, M332E), though it might be more extensive. There is no confirmation of this type occurring in Montana despite extensive searches within M332E. It is associated with limestone or dolomite-like parent materials that weather to shallow, well-drained and highly calcareous soils; information regarding its landscape setting and other abiotic param is lacking. *Artemisia nova* is the dominant shrub component and *Pseudoroegneria spicata* is the dominant grass; *Festuca idahoensis* cover is sufficiently high to indicate a more mesic moisture regime and distinguishes this association from the much more common *Artemisia nova* / *Pseudoroegneria spicata* Shrubland (CEGL001424).

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Hironaka et al. 1983, Jones

1992b, MTNHP 2002b, Mueggler and Stewart 1980, Western Ecology Working Group n.d.
NNHP Plots: p020621o2, p020621q (2 plots identified)

Representative Images:



p020621o2_1.JPG

***Artemisia tridentata* (ssp. *tridentata*, ssp. *xericensis*) Shrub Herbaceous Alliance**

(Basin Big Sagebrush, Foothill Big Sagebrush) Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1522

Summary: This alliance is found in the steppe regions in the Intermountain West of the U.S. Sites typically occur in deep, generally alluvial soils of fans, swales and draws in basins and foothills. The vegetation is characterized by a moderate to dense herbaceous layer dominated by perennial graminoids, with *Artemisia tridentata* ssp. *tridentata* or *Artemisia tridentata* ssp. *xericensis* dominating or codominating the open to moderately dense (10-40% cover) short-shrub layer (<2 m tall). The herbaceous layer generally has >20% cover of perennial graminoids and is typically dominated by bunch grasses which may form a matrix surrounding the shrubs or occur in patches. The most widespread and common species is *Pseudoroegneria spicata*, which occurs from the Columbia Basin to the northern Rockies. Other locally important species include *Koeleria macrantha*, *Elymus elymoides*, *Hesperostipa comata* (= *Stipa comata*), and *Poa secunda*. Associated shrubs include *Artemisia tridentata* ssp. *wyomingensis*, *Artemisia tridentata* ssp. *vaseyana*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Chrysothamnus viscidiflorus*, *Grayia spinosa*, *Tetradymia canescens*, *Gutierrezia sarothrae*, and *Artemisia frigida*. Forbs are generally of low importance and highly variable across the range of the alliance. A cryptogamic soil crust is often present and will cover the ground surface in undisturbed stands. Diagnostic of this alliance is a moderate (>20% cover) perennial graminoid layer with an *Artemisia tridentata* ssp. *tridentata*- or *Artemisia tridentata* ssp. *xericensis*-dominated (or codominated) shrub layer that has 10-40% cover. *Artemisia tridentata* ssp. *tridentata* and/or *Artemisia tridentata* ssp. *xericensis* must contribute at least 40% of the total shrub cover if the shrub layer is mixed. [Captured 2008-02-18]

***Artemisia tridentata* (ssp. *tridentata*, ssp. *xericensis*) / *Pseudoroegneria spicata* Shrub Herbaceous Vegetation**

(Basin Big Sagebrush, Foothill Big Sagebrush) / Bluebunch Wheatgrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001018

Distribution (Nations/Subnations): US / CA, CO?, ID, MT, NV, OR, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G1

Summary: This is a tall-shrub type from deep soils in basins and foothills of the Idaho, Montana and Wyoming Rocky Mountains west to eastern Washington, eastern Oregon, and northeastern California. Stands of this type grow in deep, generally alluvial soils of fans, swales, and draws in intermountain basins and in the foothills of the surrounding mountains. *Artemisia tridentata* ssp. *tridentata* dominates the shrub layer, which may contain *Chrysothamnus* spp. and *Artemisia tridentata* ssp. *wyomingensis*. Shrub cover generally ranges from 10-25%, but may exceed 25% in some stands. *Pseudoroegneria spicata* dominates the understory in good condition stands, which may also contain a variety of other graminoids and forbs. *Bromus tectorum* is common in degraded stands. The species composition of this type is very similar to *Artemisia tridentata* ssp. *wyomingensis* / *Pseudoroegneria spicata* Shrubland (CEGL001009) (which grows on shallower, drier soils), but *Artemisia tridentata* ssp. *tridentata* dominates the overstory in this association. Stands of this type occupy deeper soils than do stands of the shorter *Artemisia tridentata* ssp. *wyomingensis* / *Pseudoroegneria spicata* Shrubland (CEGL001009), which may form the surrounding matrix vegetation.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Caicco and Wellner 1983k, Cooper et al. 1999, Daubenmire 1970, Daubenmire 1988, Driscoll et al. 1984, Hansen et al. 1984, Hironaka et al. 1983, Jensen et al. 1988a, Johnston 1987, Jones and Ogle 2000, MTNHP 2002b, Mooney 1985, Mueggler and Stewart 1980, Tweit and Houston 1980, Western Ecology Working **NNHP Plots:** (0 plots identified)

***Artemisia tridentata* Shrub Herbaceous Alliance**

Basin Big Sagebrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1521

Summary: This alliance, found in the western United States, occurs on flat to gently rolling sites, often with fine soils. Stands can be found on uplands or dry alluvial plains. The herbaceous layer is composed of moderately open to moderately dense mid grasses and short grasses. The shrub layer is typically 10-30% but may be higher in some stands. *Pascopyrum smithii* is the dominant species, typically accompanied by *Bouteloua gracilis*, *Koeleria macrantha*, *Nassella viridula*, *Sphaeralcea coccinea*, and *Hesperostipa comata* (= *Stipa comata*). *Artemisia tridentata* is the most abundant shrub. [Captured 2008-02-18]

***Artemisia tridentata* / *Festuca idahoensis* Shrub Herbaceous Vegetation**

Basin Big Sagebrush / Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001530

Distribution (Nations/Subnations): US / NV, WA

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4Q

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968a, Bourgeron and Engelking 1994, Daubenmire 1970, Driscoll et al. 1984, Hall 1973, Hironaka et al. 1983, McLean 1970, Mueggler and Stewart 1980, Poulton 1955, Tisdale 1947, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* / *Leymus cinereus* Shrub Herbaceous Vegetation**

Basin Big Sagebrush / Great Basin Lyme Grass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001458

Distribution (Nations/Subnations): US / NV, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G4

Summary: [no summary available] [Captured 2008-02-15]

References: Blackburn et al. 1968b, Blackburn et al. 1969a, Blackburn et al. 1969d, Blackburn et al. 1971, Bourgeron and Engelking 1994, Driscoll et al. 1984, Tueller et al. 1966, Walker and Brotherson 1982, Western Ecology Working Group n.d., Young et al. 1986

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* Shrub Herbaceous Alliance**

Mountain Big Sagebrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1526

Summary: This alliance is widespread in mountainous areas across the western U.S. The alliance can form large, continuous stands on mid-elevation mountain slopes and foothills, and can extend above lower treeline as patches within montane or subalpine coniferous forests. Sites are variable and range from flats to steep slopes to ridgetops with deep to shallow rocky soil. The vegetation included in this alliance is characterized by a sparse (<25% cover on average) shrub layer of *Artemisia tridentata* ssp. *vaseyana*, but generally high cover of perennial graminoids (>20% total cover). Associated shrubs include *Artemisia arbuscula*, *Artemisia rigida*, *Ribes cereum*, *Symphoricarpos oreophilus*, *Purshia tridentata*, *Prunus virginiana*, *Tetradymia canescens*, and *Amelanchier alnifolia*. The herbaceous layer is typically abundant and dominated by perennial graminoids. The most common species is the bunchgrass *Festuca idahoensis*, or *Carex geyeri*, a sod-forming sedge. Other locally important species include *Pseudoroegneria spicata*, *Festuca thurberi*, *Bromus carinatus*, *Elymus elymoides*, *Elymus trachycaulus*, *Koeleria macrantha*, *Achnatherum occidentale* (= *Stipa occidentalis*), and *Poa secunda*. Forb canopy cover and species composition are variable; species of *Castilleja*, *Potentilla*, *Erigeron*, *Phlox*, *Astragalus*, *Geum*, *Lupinus*, and *Eriogonum* are characteristic, and *Balsamorhiza sagittata*, *Achillea millefolium*, *Eriogonum umbellatum*, *Antennaria rosea*, and *Geranium viscosissimum* are common. Trees are uncommon but individuals of *Pinus ponderosa*, *Cercocarpus ledifolius*, *Populus tremuloides*, *Juniperus occidentalis*, *Pinus albicaulis*, and *Abies lasiocarpa* may occasionally occur. Diagnostic of this shrub herbaceous alliance is the relatively sparse *Artemisia tridentata* ssp. *vaseyana* shrub layer (<25% cover on average) with an abundant graminoid layer. [Captured 2008-02-18]

***Artemisia tridentata* ssp. *vaseyana* / *Carex geyeri* Shrub Herbaceous Vegetation**

Mountain Big Sagebrush / Geyer's Sedge Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001532

Distribution (Nations/Subnations): US / CO, ID, NV?, OR, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3

Summary: This shrubland association is present in southern and central Idaho, western Wyoming, northeastern Oregon, and central and western Colorado. Stands are found above 1524 m (5000 feet) elevation predominantly on southerly aspects of moderate to steep mountain ridges and slopes. In Colorado, the association is found on gentle slopes or ridgetops. Soils are derived from colluvial

deposits with a moderate to high percentage of coarse fragments. *Artemisia tridentata* ssp. *vaseyana* dominates the shrub overstory. Commonly the shrub *Symphoricarpos oreophilus* may be present but with low cover. The understory is dominated by *Carex geyeri*. Common herbaceous species include *Arenaria aculeata*, *Eriogonum heracleoides*, *Eriogonum umbellatum*, *Festuca idahoensis*, *Hesperostipa comata* ssp. *comata*, and *Lupinus argenteus*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Hall 1973, Hironaka et al. 1983, Johnson and Clausnitzer 1992, Johnson and Simon 1987, Kagan et al. 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Artemisia tridentata* ssp. *vaseyana* / *Festuca idahoensis* Shrub Herbaceous**

Vegetation

Mountain Big Sagebrush / Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001533

Distribution (Nations/Subnations): CA?, US / AB?, CA?, CO, ID, MT, NV, OR, UT?, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This association is widespread in mountainous areas across the western U.S. The shrubland can form large, continuous stands on mid-elevation mountain slopes and foothills, and can extend above lower treeline as patches within montane or subalpine coniferous forests. Sites are variable and range from flats to steep slopes to ridgetops with deep to shallow rocky soil. The vegetation is characterized by an open (<25% cover on average) shrub layer of *Artemisia tridentata* ssp. *vaseyana*, but generally high cover of perennial graminoids (>20% total cover). Associated shrubs include *Artemisia arbuscula*, *Artemisia rigida*, *Ribes cereum*, *Purshia tridentata*, *Prunus virginiana*, and *Tetradymia canescens*. The herbaceous layer is typically abundant and dominated by perennial graminoids. The most common species is the bunchgrass *Festuca idahoensis*. Other locally important species include *Pseudoroegneria spicata*, *Festuca thurberi*, *Bromus carinatus*, *Elymus elymoides*, *Elymus trachycaulus*, *Koeleria macrantha*, *Achnatherum occidentale* (= *Stipa occidentalis*), and *Poa secunda*. Forb canopy cover and species composition are variable.

Characteristic forb species include *Castilleja*, *Potentilla*, *Erigeron*, *Phlox*, *Astragalus*, *Geum*, *Lupinus*, and *Eriogonum*. Other forbs common, if less frequent, include *Balsamorhiza sagittata*, *Achillea millefolium*, *Eriogonum umbellatum*, *Antennaria rosea*, and *Geranium viscosissimum*.

Some authors have noted different phases based on dominance of forb species. All phases are included within this one herbaceous shrubland concept. Trees are uncommon but individuals of *Pinus ponderosa*, *Cercocarpus ledifolius*, *Populus tremuloides*, *Juniperus occidentalis*, *Pinus albicaulis*, and *Abies lasiocarpa* may occasionally occur.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bramble-Brodahl 1978, CONHP unpubl. data 2003, Despain 1973a, Driscoll et al. 1984, Francis 1983, Hess 1981, Hess and Wasser 1982, Hironaka et al. 1983, Hurd 1961, Jensen et al. 1988a, Johnston 1987, Jones and Ogle 2000, Kagan et al. 2000, Komarkova 1986, Lewis 1971, Lewis 1975a, MTNHP 2002b, Mooney 1985, Mueggler and Stewart 1980, Sabinske 1978, Smith 1966, Strong 1980, Terwilliger and Smith 1978, Tiedemann et al. 1987, Tweit and Houston 1980, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *vaseyana* / *Wyethia* spp. Shrubland**

Mountain Big Sagebrush / Mule-Ears Shrubland

Association Code: NNHP053

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4G5

Summary: This type occurs in upper montane situations where melting snowpacks provide abundant water in the spring. The vegetation is quite dense with high cover of *Wyethia* sp. (up to 50+ % cover), while the shrub layer is of typical cover for *A. tridentata* ssp. *vaseyana* (ca. 25 %). Other shrubs, forbs, and graminoids may be present, including *Symphoricarpos oreophilus*, *Pseudoroegneria spicata*, and *Balsamorhiza* spp.

References:

NNHP Plots: p020621f (1 plots identified)

Representative Images:



p020621f_1.JPG

***Artemisia tridentata* ssp. *wyomingensis* Shrub Herbaceous Alliance**

Wyoming Big Sagebrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1527

Summary: This dry steppe alliance is widespread across the northern part of the western U.S. and southwestern Canada from the Columbia River Basin across the Great Basin to the Rocky Mountains and northwestern Great Plains. Stands occur on flat to steeply sloping upland sites. Soils are variable but tend to be well-drained. The vegetation is characterized by a moderate to dense herbaceous layer dominated by perennial graminoids with *Artemisia tridentata* ssp. *wyomingensis* dominating or codominating the open to moderately dense (10-40% cover) short-shrub layer (<2 m tall). The herbaceous layer generally has >20% cover of perennial graminoids which forms the matrix surrounding the shrubs or occurs in patches. The most widespread and common species are *Pseudoroegneria spicata*, which occurs from the Columbia Basin to the northern Rockies, and *Pascopyrum smithii*, which is more common in the northwestern Great Plains. Associated shrubs include *Artemisia frigida*, *Atriplex gardneri*, *Ericameria nauseosa*, *Gutierrezia sarothrae*, *Sarcobatus vermiculatus*, and species of *Chrysothamnus* or *Tetradymia*. Trees are uncommon, but individuals of various conifers may occasionally occur. The herbaceous layer is typically abundant and dominated by perennial graminoids. Other locally abundant grass associates include *Hesperostipa comata* (= *Stipa*

comata), *Achnatherum thurberianum* (= *Stipa thurberiana*), *Elymus lanceolatus*, *Carex filifolia*, *Bouteloua curtipendula*, *Bouteloua gracilis*, *Koeleria macrantha*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), and *Leymus ambiguus*. Forbs form a minor and highly variable portion of this vegetation. Mosses and lichens may also be important. Diagnostic of this alliance is a moderate to abundant (>20% cover) perennial graminoid layer with an *Artemisia tridentata* ssp. *wyomingensis*-dominated (or codominated) shrub layer that has 10-40% cover. *Artemisia tridentata* ssp. *wyomingensis* must contribute at least 40% of the total shrub cover (relative cover) if the shrub layer is mixed.
[Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Artemisia tridentata* ssp. *wyomingensis* / *Leymus triticoides* Shrub Herbaceous Vegetation**

Wyoming Big Sagebrush / Creeping Wild Rye Shrub Herbaceous Vegetation

Association Code: NNHP041

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G2G4

Summary: This unusual vegetation type was found forming a large expanse on lower slopes of a mountain range in central-eastern Nevada. The site was relatively mesic for *Artemisia tridentata* ssp. *wyomingensis* but unusually upland for *Leymus triticoides*. The neighboring vegetation had recently burned and although no charring was evident, it is possible that this area had burned lightly. The remnants of scattered trees in the clearly burned area suggest prior presence of *Juniperus osteosperma*, though at sufficiently low cover that the prior vegetation type would likely have been a shrubland rather than a woodland.

References:

NNHP Plots: p050511h (1 plots identified)

Representative Images:



p050511h.JPG

***Artemisia tridentata* ssp. *wyomingensis* / *Pseudoroegneria spicata* Shrub Herbaceous Vegetation**

Wyoming Big Sagebrush / Bluebunch Wheatgrass Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001535

Distribution (Nations/Subnations): CA?, US / AZ?, BC?, CA, CO, ID, MT, ND, NM?, NV, OR, SD, UT?, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: This bunchgrass vegetation type with an open Wyoming big sagebrush shrub layer occurs in Montana, Wyoming, Colorado, Idaho, Washington, Oregon (apparently), Nevada, and British Columbia, Canada. It probably also occurs in western North Dakota and Utah, and it may occur in South Dakota. Stands occur on moderate to steep slopes at low to mid elevations, and on a variety of soils. Throughout the range of this association, the vegetation consists of an open to moderately dense shrub layer (about 10-25% canopy cover) dominated by *Artemisia tridentata* ssp. *wyomingensis*, and a herbaceous layer dominated by *Pseudoroegneria spicata* with lesser amounts of *Poa secunda* (sometimes a codominant grass). From the Great Plains westward to eastern Idaho and south to Colorado, the sagebrush seldom exceeds 0.5 m in height, but in western Idaho and Washington, the shrubs typically are 1 m tall. Other shrubs (especially *Chrysothamnus* sp.) and herbaceous species (especially *Hesperostipa comata* (= *Stipa comata*)) usually are present. *Festuca idahoensis* is absent or present in small amounts. The stands in the eastern half of the geographic range often contain small amounts of *Gutierrezia sarothrae*, *Artemisia frigida*, *Sphaeralcea coccinea*, *Phlox hoodii*, *Koeleria macrantha*, and *Opuntia polyacantha*. Less constant species are *Bouteloua* spp. (especially *Bouteloua gracilis*), *Carex filifolia*, and *Pascopyrum smithii*. Missing from these stands is *Achnatherum thurberianum* (= *Stipa thurberiana*). In the western half of the geographic range, the vegetation generally lacks the associated species listed above and often contains *Antennaria dimorpha* and *Achnatherum thurberianum*. In addition, the stands in Washington often contain large amounts of crustose lichens as ground cover.

[Captured 2008-02-15]

References: Baker 1983c, Baker and Kennedy 1985, Blackburn 1967, Blackburn et al. 1968b, Bourgeron and Engelking 1994, Brown 1971, CONHP unpubl. data 2003, Cooper et al. 1995, Daubenmire 1988, DeVelice and Lesica 1993, Driscoll et al. 1984, Eckert 1957, Fisser 1964, Fisser 1970, Hansen and Hoffman 1988, Hess 1981, Hironaka et al. 1983, Johnston 1987, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, Knight et al. 1987, Lucky McMine Application n.d., MTNHP 2002b, McLean 1970, Mueggler and Stewart 1980, NDNHI n.d., Northwest Resources Co. 1981, Seminoe I Mine Application n.d., Smith unpubl. data b, Strong 1980, Thilenius et al. 1995, Tiedemann et al. 1987, Tisdale 1947, Tweit and Houston 1980, WNHP unpubl. data, **NNHP**

Plots: p050622j (1 plots identified)

Representative Images:



p050622j_13-01-06.JPG

***Bacopa eisenii* Permanently Flooded Herbaceous Alliance**

Gila River Water-hyssop Permanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2508

Summary: [no summary available] [Captured 2008-02-18]

***Bacopa eisenii* Herbaceous Vegetation**

Gila River Water-hyssop Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002758

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 1 (Strong) Global Rank: GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Bundy et al. 1996, Keeler-Wolf pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Bromus tectorum* Semi-natural Herbaceous Alliance**

Cheatgrass Semi-natural Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1814

Summary: This alliance is found throughout much of western North America from the western Great Plains to intermountain and southwestern U.S. Elevation ranges from sea level to 2200 m. It occurs after disturbance of a natural shrub- or grass-dominated community resulting in the replacement of the natural vegetation by non-native, annual grass species of *Bromus*. *Bromus tectorum* typically dominates the community with over 80-90% of the total vegetation cover, making it difficult to determine what natural community was formerly present. This alliance also includes grasslands dominated or codominated by other Eurasian introduced annual *Bromus* species such as *Bromus hordeaceus*, *Bromus madritensis*, *Bromus japonicus*, *Bromus rigidus*, or *Bromus rubens*, but is distinct from the annual *Bromus* communities found along the Pacific Coast with Mediterranean or maritime climates.

[Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Bromus tectorum* - *Lepidium perfoliatum* Semi-natural Herbaceous Vegetation**

Cheatgrass - Claspig Pepperweed Semi-natural Herbaceous Vegetation

Association Code: NNHP060

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G5

Summary: This is an association dominated by two invasive species: *Bromus tectorum* and *Lepidium perfoliatum*. With the extreme extent of *B. tectorum* invasion in the arid west, a number of invasive associations are likely to occur within the *Bromus tectorum* Semi-natural Herbaceous Alliance despite the common references to *B. tectorum* 'monocultures'. The present association appears to be quite common in lower elevation *B. tectorum* sties, particularly where native vegetation would tend toward salt desert communities.

References:

NNHP Plots: p020613j, p020515i, p050608m (3 plots identified)

Representative Images:



p020515i_1.JPG



p050608m_15-31-09.JPG

* New to Nevada - with plot data:

Bromus tectorum Semi-natural Herbaceous Vegetation

Cheatgrass Semi-natural Herbaceous Vegetation

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003019

Distribution (Nations/Subnations): US / AZ, CA, CO, SD, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GNA

Summary: [no summary available] [Captured 2008-02-15]

References: Beatley 1976, Cogan et al. 2004, Daubenmire 1975, Englund 2004, Evans et al. 2001, FEIS 2001, Karl et al. 1999, Marriott pers. comm., Naumann pers. comm., Redente et al. 1992, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d., Young and Evans 1973, Young and Evans 1978

NNHP Plots: p020516z, p020515a, p020515d, p020515f, p020515g, p020515m, p020531d, p020531e, p020602t, p020602u, p050420j, p050510m, p050603w, p050609n, p050627f, p050627i, p050627o, p060712.0812, p060712.2036, p050524k, p050614d2, p050614j2, p020618j (23 plots identified)

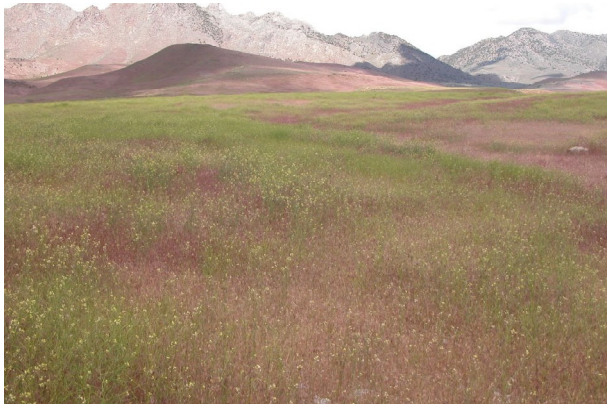
Representative Images:



p020618j_2.JPG



p050627f_12-45-31.JPG



p050609n_14-03-54.JPG



p050510m.JPG

***Carex (rostrata, utriculata)* Seasonally Flooded Herbaceous Alliance**

(Beaked Sedge, Northwest Territory Sedge) Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1403

Summary: This alliance is found in the upper midwestern United States and most western states as well as several Canadian provinces. Stands usually occur on wet mineral soil, muck, or shallow peat (<0.5 m). Standing water (generally stagnant) is present in the spring and after heavy rains, but the water table is generally below the surface for most of the growing season. This permits the breakdown of dead organic matter and the release of nutrients. Where stands are found along stream courses or lake margins, water levels may be more constant relative to stands in depressions or basins. This vegetation is dominated by tall wider-leaved sedges, with a mixture of forbs. Typical dominants include *Carex rostrata* or *Carex utriculata* (= *Carex rostrata* var. *utriculata*), as well as *Carex vesicaria*. Further study is needed to clarify the floristic characteristics of this alliance. [Captured 2008-02-18]

***Carex utriculata* Herbaceous Vegetation**

Northwest Territory Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001562

Distribution (Nations/Subnations): CA, US / AB, AZ?, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This herbaceous wetland association is found throughout much of the western U.S. Stands occur in montane and subalpine areas around the edges of lakes and beaver ponds, along the margins of slow-moving reaches of streams and rivers, and in marshy swales and overflow channels on broad floodplains. Sites are flat to undulating, often with a hummocky microtopography. The water table is usually near the surface for most of the growing season. There are a wide variety of soil types for this association. The vegetation is characterized by a moderately dense to dense perennial graminoid layer dominated or codominated by *Carex utriculata* (20-99% cover). Stands often appear to be nearly pure *Carex utriculata*, but a variety of other graminoid species may be present as well. Other *Carex* species present include *Carex aquatilis*, *Carex canescens*, *Carex lenticularis*, *Carex aquatilis*, and *Carex microptera*, but usually with low cover. Other graminoid species that may be present include *Calamagrostis canadensis*, *Eriophorum angustifolium*,

Glyceria striata, and *Juncus balticus*. The sparse forb cover can include *Geum macrophyllum*, *Fragaria virginiana*, *Mentha arvensis*, and *Mimulus guttatus*. Scattered *Salix* spp. shrubs may be present because these riparian shrublands are often adjacent. *Salix* species vary depending on elevation and geography. This association is distinguished from *Carex aquatilis* - *Carex utriculata* Herbaceous Vegetation (CEGL001803) by the dominance of *Carex utriculata*. *Carex aquatilis*, if present, is not more than one-third of the total cover.

[Captured 2008-02-15]

References: Achuff et al. 2002a, Andrews 1983, Baker 1983a, Benedict 1983, Boggs 2000, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Christy 2004, Cogan et al. 2004, Cole 1977b, Cole 1982, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Evans 1989b, Franklin and Dyrness 1973, Frenkel et al. 1986, Hall and Hansen 1997, Halpern 1986, Hansen et al. 1988b, Hansen et al. 1991, Hansen et al. 1995, Hess and Wasser 1982, IDCDC 2005, Jankovsky-Jones et al. 1999, Johnson and Simon 1987, Jones and Ogle 2000, Kagan et al. 2000, Kartesz 1999, Kauffman 1982, Kauffman et al. 1985, Kerr and Henderson 1979, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1987, Kovalchik 1993, Kunze 1994, Looman 1982, MTNHP 2002b, Manning and Padgett 1995, Mattson 1984, Moseley 1998, Murray 2000, Mutel 1973, Mutel 1976, Mutel and Marr 1973, Mutz and Graham 1982, Mutz and Queiroz 1983, Nachlinger 1985, Norton et al. 1981, Padgett 1982, Padgett et al. 1988b, Padgett et al. 1989, Ramaley 1919a, Ramaley and Robbins 1909, Ratliff 1982, Schlatterer 1972, Seyer 1979, Seyer 1981, Stuth 1975, Taylor 1984, Titus and Christy 1996a, Titus and Christy 1999, Titus unpubl. data 1996, Tuhy 1981, Tuhy and Jensen 1982, Viereck et al. 1992, WNHP unpubl. data, Western Ecology Working Group n.d., Wohl and Hammack 1995, Youngblood et al. 1985a, Youngblood et al. 1985b

NNHP Plots: (0 plots identified)

***Carex aquatilis* Seasonally Flooded Herbaceous Alliance**

Aquatic Sedge Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1404

Summary: This alliance is found from the western Great Lakes to the western United States. This description is based on the one community that occurs in the Midwest. Stands typically occur in depressions or around ponds or lakes, although they sometimes can be found adjacent to streams or rivers. The sites on which it develops are flooded for some time during the growing season in most years. *Carex aquatilis*-dominated stands were found in the northern Great Plains on mostly mineral soils in fresh or slightly saline shallow marshes. The vegetation is dominated by graminoids approximately 0.4-0.7 m tall. *Carex* spp. predominate, especially *Carex aquatilis*, and often include *Carex rostrata*, *Carex lacustris*, and *Carex stricta*. *Eleocharis palustris*, *Polygonum amphibium*, *Scirpus* spp., and *Typha* spp. may all be found in stands of this alliance. *Scolochloa festucacea* may be found in drier stands. Woody species are rare. If present, they are shrubs such as *Salix* spp. [Captured 2008-02-18]

***Carex aquatilis* Herbaceous Vegetation**

Aquatic Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001802

Distribution (Nations/Subnations): CA, US / AB, AZ?, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This common, widespread herbaceous vegetation occurs as large, mesic meadows in high montane valleys or as narrow strips bordering ponds and streams at lower elevations throughout the western U.S. It occurs in a variety of environmental settings in the montane and subalpine zones. Some of the largest expanses occur in broad, low-gradient valleys where large snowmelt-fed swales and slopes dominate the landscape. It can also grow in fine sediments at the margins of lakes and beaver ponds. Presence of *Carex aquatilis* typically indicates wet soils with high organic matter or histic epipedons. This plant association is characterized by a dense rhizomatous meadow of *Carex aquatilis* (10-80% cover), usually accompanied by a few other graminoids species such as *Calamagrostis canadensis*, *Deschampsia caespitosa*, *Juncus balticus*, and *Poa palustris*. *Eleocharis quinqueflora* can be abundant on organic substrates at high elevations. Woody species rarely occur in these sites. A clear dominance by *Carex aquatilis* and low cover of *Carex utriculata* or *Pedicularis groenlandica* set this plant association apart from closely related types.

[Captured 2008-02-15]

References: Achuff et al. 2002a, Baker 1983c, Baker 1984a, Baker and Kennedy 1985, Bierly 1972, Bourgeron and Engelking 1994, Briggs and MacMahon 1983, Bunin 1975c, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Christy 2004, Cooper and Cottrell 1990, Cox 1933, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Giese 1975, Girard et al. 1997, Hall 1971, Hall 1973, Hansen et al. 1988b, Hansen et al. 1995, Hess and Wasser 1982, Hopkins 1979a, IDCDC 2005, Jankovsky-Jones et al. 1999, Johnson 1932a, Johnson 1932b, Johnson 1936, Johnson 1939, Johnson and Simon 1987, Jones 1992b, Jones and Ogle 2000, Kagan et al. 2000, Kauffman 1982, Kauffman et al. 1985, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Komarkova 1976, Kovalchik 1987, Kovalchik 1993, Kovalchik 2001, Kovalchik and Elmore 1992, Lewis 1970, MTNHP 2002b, Manning and Padgett 1991, Manning and Padgett 1992, Manning and Padgett 1995, Mattson 1984, Norton et al. 1981, Padgett and Manning 1988, Padgett et al. 1988b, Padgett et al. 1989, Ramaley 1919a, Ramaley 1920, Robbins 1918, Sanderson and Kettler 1996, Stuth 1975, Terwilliger et al. 1979a, Titus and Christy 1996a, Titus and Christy 1999, Tuhy 1981, Tuhy and Jensen 1982, Volland 1976, WNHP unpubl. data, Western Ecology Working Group n.d., Wilson 1969, Young 1982, Youngblood et al. 1985a, Youngblood et al. 1985b

NNHP Plots: (0 plots identified)

***Carex douglasii* Herbaceous Alliance**

Douglas' Sedge Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1286

Summary: Vegetation types within this alliance are common and very widely distributed on dry, often alkaline, open plains, foothills, and lower mountains. Elevations range from 1350-2250 m (occasionally to 3300 m). One association described for this alliance occurs on alluvial fill in valley meadow systems in northwestern Nevada. This type is located on the dry fringes of meadows. Soils are loamy and often disturbed. Vegetation types within this alliance are classified as short sod, temperate or subpolar grasslands. They are dominated by *Carex douglasii* with at least 62% cover. Other associates are *Carex nebrascensis*, *Astragalus agrestis*, and *Sisyrinchium idahoense*. No information on adjacent upland communities is available. [Captured 2008-02-18]

***Carex douglasii* Herbaceous Vegetation**

Douglas' Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001768

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Manning 1988, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Carex nebrascensis* Seasonally Flooded Herbaceous Alliance**

Nebraska Sedge Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1417

Summary: Vegetation types within this seasonally flooded, temperate or subpolar grassland alliance occur on saturated soils of flat floodplains bordering ponds or pools adjacent to stream channels. Stands also occur on flat marshy areas surrounding springs or wet meadows. Elevations range from sea level in California to 2400 m in Colorado. The alluvial soils are heavy clays and silty clay loams with high organic matter content. Soils are alkaline in some sites. Anoxic conditions often occur within 20 cm of the surface either in the form of a gleyed layer or abundant mottling. Soils often remain saturated throughout the summer, but water tables occasionally drop below 1 m of the soil surface by the end of the growing season. This alliance is dominated by 30-98% cover of *Carex nebrascensis*. *Carex nebrascensis* typically occurs on sites where water flows over the surface but does not pond. Other graminoids include *Eleocharis palustris*, *Carex praegracilis*, *Catabrosa aquatica*, *Calamagrostis stricta*, *Triglochin maritima*, and *Schoenoplectus pungens* (= *Scirpus pungens*). Forb cover is generally low. Adjacent riparian vegetation includes *Populus angustifolia* and *Populus balsamifera* ssp. *trichocarpa* (= *Populus trichocarpa*) forests, *Salix exigua*, *Salix lucida*, and *Salix boothii* shrublands, and *Carex praegracilis*, *Carex utriculata*, and *Schoenoplectus tabernaemontani*? (= *Scirpus lacustris*) meadows. *Pinus edulis* - *Juniperus* spp. and *Quercus gambelii* woodlands, *Sarcobatus vermiculatus* and *Artemisia tridentata* shrublands, and *Bouteloua gracilis* shortgrass prairies occur on adjacent hillslopes. [Captured 2008-02-18]

***Carex nebrascensis* - *Carex microptera* Herbaceous Vegetation**

Nebraska Sedge - Small-wing Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001815

Distribution (Nations/Subnations): US / CA?, NV?, OR, WA?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G4

Summary: This association occurs in broad valleys in the central and eastern parts of Oregon. Examples are found in wet basins, floodplains, and springs on flat to gentle slopes between 1150 and 1665 m (3770-5460 feet) elevation. Soils are generally saturated early in the growing season but dry later in the season. This community is dominated by graminoids, especially *Carex nebrascensis*, and generally accompanied by *Carex microptera*, *Juncus balticus*, and *Glyceria striata*. Disturbed examples may contain significant cover of *Poa pratensis*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Crowe et al. 2004, Driscoll et al. 1984, Hall 1973, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Carex nebrascensis* Herbaceous Vegetation**

Nebraska Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001813

Distribution (Nations/Subnations): US / AZ, CA, CO, ID, MT, NE, NM?, NV?, OR, SD, UT, WA?, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4

Summary: These minor wetlands occur on the western Great Plains and throughout much of the western U.S. Elevation ranges from 1000-2800 m (3300-9200 feet). Stands form open meadows that occur along the margins of streambanks, flat floodplains, and lakes often forming a band along the alluvial terrace, or on marshy areas surrounding springs and below seeps on lower hillslopes. This association is often found on well-developed soil, but occurs on a wide variety of soil types that tend to be fine-textured alluvium, or clay to organic and are typically gleyed and mottled near the surface because of the high water table most of the growing season. The vegetation is characterized by a moderately dense to dense perennial graminoid layer dominated or codominated by *Carex nebrascensis*. Other graminoid species may be present such as *Carex praegracilis*, *Calamagrostis stricta*, *Deschampsia caespitosa*, *Eleocharis palustris*, *Glyceria striata*, *Juncus balticus*, *Schoenoplectus pungens* (= *Scirpus pungens*), or *Triglochin maritima*. Forb cover is generally low, but can be high in moist locations.

[Captured 2008-02-15]

References: Baker 1982b, Beguin and Major 1975, Bourgeron and Engelking 1994, Butler et al. 2002, CONHP unpubl. data 2003, Carsey et al. 2003a, Christy 2004, Christy and Cornelius 1980, Cogan et al. 2004, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Durkin et al. 1994b, Durkin et al. 1995a, Evans 1989b, Griffiths 1902, Hall 1973, Hall and Hansen 1997, Hansen et al. 1988b, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 1999, Jankovsky-Jones et al. 2001, Johnston 1987, Jones 1992b, Jones and Walford 1995, Kagan et al. 2000, Kierstead and Pogson 1976, Kittel et al. 1994, Kittel et al. 1996, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1987, MTNHP 2002b, Manning and Padgett 1991, Manning and Padgett 1995, Marriott and Faber-Langendoen 2000, Mutz and Queiroz 1983, Padgett et al. 1988b, Padgett et al. 1989, Ratliff 1982, Reid and Pickford 1946, Steinauer and Rolfsmeier 2000, Western Ecology Working Group n.d., Youngblood et al. 1985a, Youngblood et al. 1985b

NNHP Plots: (0 plots identified)

***Carex scopulorum* Seasonally Flooded Herbaceous Alliance**

Holm's Rocky Mountain Sedge Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1420

Summary: This alliance has been described from wet meadows, streambanks, and lakeshores in the mountains of Oregon, Nevada, Colorado and Montana, and likely occurs in similar habitats throughout the western U.S. Stands also occur in wet areas in alpine tundra. Soils are generally poorly drained. Saturated soils retard plant decomposition and favor organic matter accumulation. Flooding during spring runoff is common, and water tables remain within the root zone throughout the summer. Vegetation within this alliance is characterized by an herbaceous layer dominated or codominated by *Carex scopulorum*. Many other graminoids may be present to common including *Agrostis humilis* (= *Agrostis thurberiana*), *Alopecurus alpinus*, *Carex phaeocephala*, *Carex jonesii*, *Carex illota*, *Carex*

nigricans, *Deschampsia caespitosa*, and *Eleocharis quinqueflora* (= *Eleocharis pauciflora*). Forb cover may codominate the herbaceous layer. Characteristic species include *Caltha leptosepala*, *Mimulus primuloides*, *Ligusticum filicinum*, *Saxifraga odontoloma*, *Oreostemma alpigenum* (= *Aster alpigenus*), *Parnassia fimbriata*, *Dodecatheon jeffreyi*, *Pedicularis groenlandica*, and *Equisetum arvense*. Scattered shrubs are occasionally present, such as *Salix commutata*, *Salix planifolia*, and *Kalmia microphylla*. Diagnostic of this herbaceous alliance is the dominance or codominance of *Carex scopulorum* and the presence of surface water for extended periods during the growing season. [Captured 2008-02-18]

***Carex scopulorum* Herbaceous Vegetation**

Holm's Rocky Mountain Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001822

Distribution (Nations/Subnations): CA?, US / BC?, CA, ID, MT, NV?, OR, UT?, WA

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: From Christy (2004): Habitat is depressions and seepy alluvial fans in subalpine heath. Stands of this association occur in transitional areas between the slightly wetter *Carex nigricans* Herbaceous Vegetation (CEGL001816) and slightly drier associations of *Carex spectabilis* and upland *Phyllodoce* heath, and intergrade with both. Stands on alluvial fans occur below springs and seeps and may be laced with rivulets and or irrigated by sheetflow. Trees are absent. Shrubs are sparse, *Salix commutata* being the most abundant in 25% of the plots, but with a very low cover. *Carex scopulorum* is the primary herbaceous species with an average cover of 49% and ranging from 10-90%. Other species with significant patches include *Deschampsia caespitosa*, *Eleocharis quinqueflora*, *Muhlenbergia filiformis*, *Eleocharis palustris*, and *Juncus balticus*. The other 40 species occur at low constancy and cover and are mostly wetland taxa indicative of perennial saturation.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Campbell 1973, Christy 2004, Cole 1977b, Cole 1982, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Evenden 1990, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 1999, Kagan et al. 2000, Kovalchik 1987, Kovalchik 1993, Kovalchik 2001, MTNHP 2002b, Manning and Padgett 1989, Manning and Padgett 1991, Seyer 1981, WNHP unpubl. data, Western Ecology Working Group n.d. NNHP Plots: (0 plots identified)

***Carex simulata* Saturated Herbaceous Alliance**

Analogue Sedge Saturated Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1469

Summary: Vegetation types within this saturated, temperate or subpolar grassland alliance occur in wet meadows from the foothills to moderate elevations in the mountains. Elevations range from 1350 m in eastern Oregon to 2700 m in Wyoming. Stands occur in wet basins on gentle slopes below seeps and on flat alluvial terraces adjacent to streams. Surface topography is usually smooth to slightly undulating. Soils are typically Histosols with organic matter accumulations 30-120 cm thick, but may be poorly drained, fine-textured mineral soils as well. Redox depletions or reduced matrices are common throughout the profile. Water tables remain at or near the soil surface during the growing season. Soils are slightly acidic to neutral (pH 6.0-7.0). The soils often quake when walked on due to cold, mucky, groundwater flowing just below the surface. *Carex simulata* dominates the graminoid stratum with 30-80% cover. Other graminoid species include *Carex aquatilis*, *Carex utriculata*,

Deschampsia caespitosa, and *Juncus balticus*. Forb cover is sparse and includes *Pedicularis groenlandica* and *Triglochin maritima*. Shrub species are uncommon, typically forming less than 5% cover. Shrub species include *Betula nana* (= *Betula glandulosa*), *Salix wolfii*, and *Salix planifolia*. The moss layer may be dense with up to 90% cover. Adjacent vegetation includes *Schoenoplectus acutus* (= *Scirpus acutus*) on wetter sites and *Carex utriculata* and *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides floribunda*) on drier sites. [Captured 2008-02-18]

***Carex simulata* Herbaceous Vegetation**

Analogous Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001825

Distribution (Nations/Subnations): US / CA?, CO, ID, MT, NM, NV, OR, UT, WA?, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4

Summary: In Colorado, *Carex simulata* is found only on quaking fens. It is commonly found with many other sedge species, but its presence is associated with deep organic soils and a perennially high water table.

From Christy (2004): Habitat is montane fens. This association is better known from east of the Cascade Range and is not common in northwestern Oregon. The hydroperiod for the plots reported here is much wetter than the norm for this association, and they must be considered at the wet end of the spectrum. No trees or shrubs are present, and only ten species are reported from the herb layer. Stands may have considerable expanses of water 1-3 inches deep, mud, or *Sphagnum* between sparsely distributed plants. *Carex simulata* is the most abundant herb, ranging from 25-65% cover and averaging 47%. *Juncus balticus* and *Deschampsia caespitosa* occur in about half the plots but with very low cover. *Carex utriculata* may have patches with up to 30% cover, indicating some conditions similar to reed swamp. Other species occur mostly in trace amounts. Stands may intergrade with the *Eleocharis quinqueflora* and *Carex limosa* associations that often have similar sparse vegetation and sloppy substrate. Because it is so wet, this expression probably should be separated from other concepts of this *Carex simulata* association, but more study is needed.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Christy 2004, Christy and Cornelius 1980, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Evans 1989a, Hansen et al. 1988b, Hansen et al. 1989, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 1999, Jankovsky-Jones et al. 2001, Jones 1992b, Kagan et al. 2000, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1987, MTNHP 2002b, Manning and Padgett 1991, Manning and Padgett 1995, Nachlinger 1985, Padgett et al. 1988b, Padgett et al. 1989, Sanderson and Kettler 1996, Titus and Christy 1996a, Titus and Christy 1999, Tuhy and Jensen 1982, Western Ecology Working Group n.d., Youngblood et al. **NNHP Plots:** (0 plots identified)

***Carex straminiformis* Herbaceous Alliance**

Mount Shasta Sedge Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1314

Summary: Stands included in this herbaceous alliance have been reported from subalpine meadows in the Sierra Nevada near Lake Tahoe at elevations from 2330-2850 m, but may occur at subalpine and montane elevations in the northwestern U.S. and the central Rocky Mountains. Climate is temperate

with cool summers and cold winters with typically below freezing temperatures and deep snow. Mean annual precipitation is about 82 cm with dry summers. Stands occur on gently sloping sites on eastern aspects where snow accumulation is less and duration is moderate. Sites are relatively xeric, well-drained slopes with the water table well below 1 m from the surface. Total vegetation cover is sparse to up to 80% depending on the level of disturbance. Stands are dominated by *Carex straminiformis*. Other characteristic perennial graminoids include *Elymus elymoides*, *Festuca viridula*, *Poa cusickii* ssp. *cusickii* (= *Poa hanseni*), *Achnatherum nelsonii* (= *Stipa nelsonii*), *Achnatherum lettermanii* (= *Stipa lettermanii*), and *Trisetum spicatum*. Perennial forbs, such as *Agoseris glauca* var. *monticola*, *Antennaria rosea*, *Lupinus sellulus* var. *lobbii*, and *Polygonum douglasii* ssp. *douglasii*, are relatively sparse. Annual forbs are seasonally present especially on sites disturbed by small mammals. Species include *Draba albertina*, *Cistanthe umbellata* var. *umbellata* (= *Calyptridium umbellatum*), *Gayophytum diffusum* ssp. *parviflorum*, *Linanthus harknessii*, *Mimulus leptaleus*, and *Polygonum douglasii* ssp. *douglasii*. Adjacent vegetation includes open forest stands of *Pinus contorta* var. *murrayana*, *Pinus albicaulis*, *Pinus monticola*, *Tsuga mertensiana*, and *Abies magnifica*. [Captured 2008-02-18]

***Carex straminiformis* Herbaceous Vegetation**

Mount Shasta Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001793

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: This association is reported from the central Sierra Nevada. The known occurrences are on the dry, well-drained, gently sloping margins of subalpine meadows south and northeast of Lake Tahoe. Elevation ranges from 2658 to 2853 m (8720-9360 feet), and the soils are very acidic (pH 4.7). Vegetative cover averages 70%. Stands are dominated by *Carex straminiformis*, usually with *Achnatherum lettermanii* and *Achnatherum nelsonii* ssp. *dorei*. The forb component is significant and may include *Gayophytum diffusum*, *Cistanthe umbellata* (= *Calyptridium umbellatum*), and *Draba albertina*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Nachlinger 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Carex vernacula* Herbaceous Alliance**

Native Sedge Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1309

Summary: Vegetation types within this short alpine or subalpine sod grassland alliance can occur on open, sunny, wet places in spruce-fir or alpine zones. Elevations range 1800-4200 m. Sites can range from moderately wide (25 m), gently sloping, glaciated, snowmelt alpine basins, to moist lakeshores and solifluction terraces below snowpatches and shallow marshes in the Indian Peaks Wilderness, to wet meadows in Nevada. The soils are skeletal with low organic matter accumulation, low clay content and low available moisture. *Carex vernacula* dominates the graminoid layer with up to 45% cover. *Poa fendleriana* or *Deschampsia caespitosa* often codominate. *Caltha leptosepala* and *Rhodiola rhodantha* (= *Sedum rhodanthum*) are the only forbs of significance in the Colorado stands. *Monolepis nuttalliana* and *Phlox* sp. exhibit fair cover (18%). *Philonotis fontana* var. *pumila* (= *Philonotis tomentella*) dominates the moss layer in the Indian Peak Wilderness stands. [Captured 2008-02-18]

***Carex vernacula* - *Poa fendleriana* Herbaceous Vegetation**

Native Sedge - Muttongrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001869

Distribution (Nations/Subnations): US / NV, OR?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G3

Summary: This association is reported from a single drainage in the western Great Basin of northern Nevada. It occupies low spots with gentle slopes within a sagebrush steppe community matrix. It has a high cover of vegetation (86%). Soils are fine-textured, well-developed, and seasonally wet (mottling). This herbaceous community is dominated by the graminoids *Carex vernacula* and *Poa fendleriana*. Because most stands have been heavily grazed, forbs such as *Monolepis nuttalliana*, *Phlox*, and *Potentilla arguta* may contribute significantly to the total cover. Shrubs are absent.

[Captured 2008-02-15]

References: Blackburn et al. 1968b, Bourgeron and Engelking 1994, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Carex vesicaria* Seasonally Flooded Herbaceous Alliance**

Inflated Sedge Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2501

Summary: This alliance is found in several western states and is likely more widespread in the western U.S. Stands commonly occur as wet meadow communities that are found around the edges of montane lakes and beaver ponds, along the margins of slow-moving reaches of streams and rivers, and in marshy swales and overflow channels on broad floodplains. Stands are either adjacent to low-gradient streams in wide valley bottoms or associated with perennial seeps and may occur in subalpine environments. They can occur in standing water or on sites that become relatively dry during the later part of the growing season. Many sites are located where beaver ponds have filled with sediment. The vegetation is characterized by the dominance of *Carex vesicaria*, with 20-98% cover. Other graminoids can be present and can be codominant. *Juncus balticus*, *Deschampsia caespitosa*, *Carex nebrascensis*, *Carex utriculata*, *Eleocharis palustris*, and *Glyceria* spp. are some of the more common associated species. Forbs can include species of *Epilobium*, *Galium trifidum*, *Camassia quamash*, *Symphotrichum foliaceum* (= *Aster foliaceus*), *Equisetum arvense*, and *Mentha arvensis*. [Captured 2008-02-18]

***Carex vesicaria* Herbaceous Vegetation**

Inflated Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002661

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV?, OR, WA

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4Q

Summary: Stands of this vegetation type are commonly found in wet meadows, around the edges of montane lakes and beaver ponds, along the margins of slow-moving reaches of streams and rivers, and in marshy swales and overflow channels on broad floodplains throughout the western United States. Elevations range from 1075-2900 m (3525-9500 feet). These communities can occur in standing water or on sites that become relatively dry during the later part of the growing season. Many sites are located where beaver ponds have filled with sediment. A wide range of soils are

associated with this association. Histosols are most common and often have organic accumulations greater than 1 meter thick. Mollisols and Entisols are also associated with this type. Soil texture varies widely from loamy clay to sandy loam. This association is characterized by the dominance of *Carex vesicaria*, with 20-98% cover. Other graminoids can be present and can be codominant. *Juncus balticus*, *Deschampsia caespitosa*, *Carex nebrascensis*, *Carex utriculata*, *Eleocharis palustris*, and *Glyceria* spp. are some of the more common associated species. Forbs can include *Epilobium* sp., *Galium trifidum*, *Camassia quamash*, *Symphyotrichum foliaceum* (= *Aster foliaceus*), *Equisetum arvense*, and *Mentha arvensis*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Christy and Cornelius 1980, Cooper and Severn 1992, Crowe and Clausnitzer 1997, Hansen et al. 1995, Henderson and McAllister 1983, IDCDC 2005, Kagan et al. 2000, Kittel et al. 1999b, Kovalchik 1987, Kovalchik 1993, Manning and Padgett 1991, Sanderson and Kettler 1996, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Centaurea solstitialis* Semi-natural Herbaceous Alliance**

Yellow star-thistle Semi-natural Herbaceous Alliance

Alliance Code: B.006

Summary: Occurring in Nevada in small patches so far, but expected to increase significantly in the near future. No plot data available, but Alliance has been observed by NNHP Ecologist Eric Peterson. This alliance is widespread in California, where it can associate with a variety of other species including invasive annual grasses.

***** New Vegetation Type - based on field observation:**

***Centaurea solstitialis* / *Bromus tectorum* Semi-natural Herbaceous Vegetation**

Yellow star-thistle / cheatgrass Semi-natural Herbaceous Vegetation

Association Code: NNHP008

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G?

Summary: Occurring in Nevada in small patches so far, but expected to increase significantly in the near future. No plot data available, but community has been observed by NNHP Ecologist Eric Peterson. Proportional cover of *Bromus tectorum* may vary significantly, being nearly excluded within dense stands of *Centaurea solstitialis*.

References:

NNHP Plots: (0 plots identified)

***** New Vegetation Type - with plot data:**

***Ceratocephala testiculata* Semi-natural Herbaceous Vegetation Alliance**

Bur Buttercup Semi-natural Herbaceous Vegetation Alliance

Alliance Code: B.016

Summary: Although this type currently is known only as small patch communities of roadsides and highly disturbed sites in Nevada, the population densities seem to be increasing even in native vegetation and it is quite likely that some areas will soon have large patches, particularly in current salt desert communities.

*** * * New Vegetation Type - with plot data:**

***Ceratocephala testiculata* Semi-natural Herbaceous Vegetation**

Bur Buttercup Semi-natural Herbaceous Vegetation

Association Code: NNHP056

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G4+

Summary: See alliance summary.

References:

NNHP Plots: p030609d (1 plots identified)

Representative Images:



Ranunculus_testiculatus_2005-04-22_14-15-51.jpg

***Deschampsia caespitosa* Seasonally Flooded Herbaceous Alliance**

Tufted Hairgrass Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1408

Summary: Plant associations included in this alliance are circumboreal and are common in alpine, wet meadows and wetland margin habitats. Stands are found in moist, low-gradient valley bottoms and along streams throughout the mountainous areas of the western U.S. Typically, communities occur in areas of abundant snowfall where snowmelt saturates soils from late spring through early summer. Communities occur in the alpine tundra in snowmelt basins and around the edges of alpine wetlands. At lower elevations, the communities are typically wetlands, requiring wet or moist soils throughout most of the growing season. Soils are variable. Fine-textured soils retain soil moisture longer in areas of seasonal drought, and coarse substrates allow aeration in areas with perennial high water tables. This vegetation is characterized by a moderately dense to dense herbaceous layer dominated by the perennial bunchgrass *Deschampsia caespitosa*. Commonly associated graminoid species include *Carex nebrascensis*, *Carex microptera*, *Carex aquatilis*, *Juncus balticus*, *Phleum alpinum*, *Danthonia intermedia*, and *Agrostis scabra*. Common forbs include *Geum rossii*, *Ligusticum tenuifolium*, *Polygonum bistortoides*, and *Caltha leptosepala*. Diagnostic of this herbaceous alliance is the dominance or codominance of *Deschampsia caespitosa* and the presence of surface water for extended periods during the growing season. [Captured 2008-02-18]

***Deschampsia caespitosa* - *Carex nebrascensis* Herbaceous Vegetation**

Tufted Hairgrass - Nebraska Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001601

Distribution (Nations/Subnations): US / CO, MT?, NV, OR, UT?, WY

Status: 1 Active Confidence: 3 (Weak) Global Rank: G3?Q

Summary: This meadow vegetation grows on moist "bottomland" sites on the Medicine Bow National Forest in southeastern Wyoming, mesic meadows and seeps within meadows in foothills and montane sites within the Great Basin and Sierra Nevada, and in riparian bottoms and wet meadows in central and eastern Oregon. Sites are typically flat with finer-textured soils. Mottles and/or gleying may be present. Codominant species in the vegetation are *Deschampsia caespitosa* and *Carex nebrascensis*. Other common species with lower cover include *Carex athrostachya*, *Carex simulata*, *Juncus balticus*, *Muhlenbergia filiculmis*, and species of moss. In disturbed stands, grazing tolerant exotics *Poa pratensis* or *Poa palustris* may be common.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Crowe et al. 2004, Driscoll et al. 1984, Hansen et al. 1995, Kagan et al. 2004, Kittel et al. 1999b, Manning and Padgett 1995, Padgett et al. 1989, Soil Conservation Service 1978, Terwilliger et al. 1979b, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Deschampsia caespitosa* Herbaceous Vegetation**

Tufted Hairgrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001599

Distribution (Nations/Subnations): CA, US / AB, AZ, CA?, CO, ID, MT, NM, NV?, OR, UT, WA, WY

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: This herbaceous vegetation is dominated by a circumboreal species which is common in alpine wet meadows and wetland margin habitats. Stands are found in moist, low-gradient valley bottoms and along streams throughout the mountainous areas of the western U.S. at elevations ranging from 800 to 3550 m (2625-11,650 feet). Typically, these communities occur in areas of abundant snowfall where snowmelt saturates soils from late spring through early summer. In the alpine tundra, this association is commonly found in snowmelt basins and around the edges of alpine wetlands. At lower elevations, the communities are typically wetlands, requiring wet or moist soils throughout most of the growing season. Soils are variable. Fine-textured soils retain soil moisture longer in areas of seasonal drought, and coarse substrates allow aeration in areas with perennial high water tables. This vegetation is characterized by a moderately dense to dense herbaceous layer dominated by the perennial bunchgrass *Deschampsia caespitosa*. Commonly associated graminoid species include *Agrostis scabra*, *Carex aquatilis*, *Carex nebrascensis*, *Carex microptera*, *Carex utriculata*, *Carex vesicaria*, *Danthonia intermedia*, *Elymus trachycaulus*, *Juncus balticus*, *Juncus alpinoarticulatus*, *Phleum alpinum*, *Poa* spp., *Trisetum spicatum*, and *Trisetum wolfii*. Common forbs include *Geum rossii*, *Ligusticum tenuifolium*, *Polygonum bistortoides*, *Ranunculus flammula*, and low cover of *Caltha leptosepala*. Diagnostic of this herbaceous association is the dominance or codominance of *Deschampsia caespitosa* and the presence of surface water for extended periods during the growing season.

[Captured 2008-02-15]

References: Bonham and Ward 1970, Bourgeron and Engelking 1994, Briggs and MacMahon

1983, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Cooper et al. 1999, Crowe and Clausnitzer 1997, Daubenmire and Daubenmire 1968, Driscoll et al. 1984, Franklin and Dyrness 1973, Hall 1971, Hall 1973, Hall and Hansen 1997, Hamann 1972, Hansen et al. 1995, IDCDC 2005, Johnson and Simon 1985, Johnson and Simon 1987, Kagan et al. 2000, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1987, MTNHP 2002b, Manning and Padgett 1995, Mutz and Queiroz 1983, Padgett et al. 1988b, Padgett et al. 1989, Richard et al. 1996, Sanderson and Kettler 1996, Tiedemann 1972, Tuhy and Jensen 1982, WNHP unpubl. data, Western Ecology Working Group n.d., Youngblood et al. 1985a, Youngblood et al. 1985b
NNHP Plots: (0 plots identified)

***Distichlis spicata* Intermittently Flooded Herbaceous Alliance**

Saltgrass Intermittently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1332

Summary: This alliance occurs throughout much of the semi-arid and arid western U.S. on saline or alkaline soils in lowland sites such as playas, swales and terraces along washes that are intermittently flooded. The flooding is usually the result of highly localized thunderstorms. The unpredictable nature of the flooding is the key environmental factor separating this alliance from similar alliances with more predictable flooding regimes. Soils are deep, saline, alkaline and fine-textured. They generally have an impermeable layer and therefore are poorly drained. When the soil is dry, the surface usually has salt accumulations. This intermittently flooded grassland of playas and ephemeral streams has a sparse to dense herbaceous layer that is dominated by *Distichlis spicata*, sometimes occurring in nearly pure stands. The level of salinity in the soil may restrict associated species. Associated graminoids may include *Puccinellia nuttalliana*, *Hordeum jubatum*, *Pascopyrum smithii*, *Sporobolus airoides*, *Carex filifolia*, and *Juncus balticus*. Forb cover is generally low and may include *Salicornia rubra*, *Triglochin maritima*, *Suaeda calceoliformis* (= *Suaeda depressa*), *Helianthus* spp., and Asteraceae spp. Diagnostic of this alliance is the *Distichlis spicata*-dominated herbaceous layer and the presence of surface water for brief periods at unpredictable times during the growing season. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Distichlis spicata* - *Leymus triticoides* Herbaceous Vegetation**

Saltgrass - creeping wild rye Herbaceous Vegetation

Association Code: NNHP015

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4?

Summary: This intermittently flooded community has an abundance of both *Distichlis spicata* and *Leymus triticoides*, with marginally saline soils.

References:

NNHP Plots: p0205151 (1 plots identified)

***Distichlis spicata* - (*Scirpus nevadensis*) Herbaceous Vegetation**

Saltgrass - (Nevada Bulrush) Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001773

Distribution (Nations/Subnations): US / CA?, CO, ID, NV?, OR, WA?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Copeland 1979, Daubenmire 1970, Driscoll et al. 1984, Griffiths 1902, IDCDC 2005, Kagan et al. 2000, Saul 1974, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Distichlis spicata - Juncus balticus* Herbaceous Vegetation**

Distichlis spicata - Juncus balticus Herbaceous Vegetation

Association Code: NNHP063

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5?

Summary: Paraphrased from Morefield (2000):

Known primarily from the northern Mojave Desert (though observed elsewhere in Nevada) where it occurs in the moister sites of the saltgrass alliance, either adjacent to, or in drainages and depressions, in either case where surface soil conditions are moist to wet for all or part of the year. Soils are generally silty-clay to silty loam; salt crusts may be present but not highly conspicuous on the surface.

References: Morefield 2000

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Distichlis spicata - Nitrophila occidentalis* Herbaceous Vegetation**

Saltgrass - Western Niterwort Herbaceous Vegetation

Association Code: NNHP062

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G?

Summary: Paraphrased from Morefield (2000):

Known primarily from the northern Mojave Desert where it occurs in drier sites of the saltgrass alliance, in areas away from water sources, drainages, or depressions, where surface soil conditions are moist to occasionally wet for parts of the year, and almost completely dry at other times. Soils are generally silty-clay, with conspicuous surface salt crusts. The exotic Polypogon monspeliensis (rabbitfoot grass) may occasionally dominate or co-dominate in small patches within these associations.

References: Morefield 2000

NNHP Plots: (0 plots identified)

***Distichlis spicata* Herbaceous Vegetation**

Saltgrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001770

Distribution (Nations/Subnations): CA, MX?, US / AZ, CA, CO, ID, MT, NM, NV, OR, SK, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: These grasslands occur in semi-arid and arid western North America from southern Saskatchewan, Canada, to Mexico. Stands are found in lowland habitats such as playas, swales, and terraces along washes that are typically intermittently to seasonally flooded. The flooding is usually the result of highly localized thunderstorms or winter rains which can flood one basin and leave the

next dry. However, this association may also occur in other flood regimes (temporarily and semipermanently). Soil texture ranges from clay loam, silty loam, to sandy clay. These soils are often deep, saline and alkaline. They generally have an impermeable layer and therefore are poorly drained. When the soil is dry, the surface usually has salt accumulations. Salinity is likely more important than flooding as an environmental factor. Vegetation cover is sparse to dense and is dominated by *Distichlis spicata*, occurring in nearly pure stands. Minor cover of associated graminoids may include *Muhlenbergia asperifolia*, *Hordeum jubatum*, *Pascopyrum smithii*, *Sporobolus airoides*, *Carex filifolia*, *Eleocharis palustris*, *Puccinellia nuttalliana*, and *Juncus balticus*. Associated forbs, such as *Iva axillaris*, *Helianthus* spp., Asteraceae spp. (from lower salinity sites), *Salicornia rubra*, *Triglochin maritima*, and *Suaeda* spp., may also be present. Shrubs are rare, but scattered *Atriplex canescens* and *Sarcobatus vermiculatus* may be present.

[Captured 2008-02-15]

References: Baker 1984a, Beatley 1976, Bourgeron and Engelking 1994, Brotherson 1987, Bunin 1985, CONHP unpubl. data 2003, Carsey et al. 2003a, Costello 1944b, Crouch 1961a, Daniels 1911, Daubenmire 1970, Dodd and Coupland 1966, Driscoll et al. 1984, Franklin and Dyrness 1973, Graham 1937, Hansen et al. 1991, Hansen et al. 1995, Hyder et al. 1966, IDCDC 2005, Johnston 1987, Jones and Walford 1995, Kagan et al. 2000, Keeler-Wolf and Vaghti 2000, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1999a, Kittel et al. 1999b, Klipple and Costello 1960, MTNHP 2002b, Muldavin et al. 2000a, Osborn 1974, Pickart 2006, Ralston 1969, Ramaley 1942, Rogers 1953, Sawyer and Keeler-Wolf 1995, Shanks 1977, Shupe et al. 1986, Soil Conservation Service 1978, Stearns-Roger, Inc. 1978, Tuhy and Jensen 1982, Ungar 1967, Ungar 1968, Ungar 1970, Ungar et al. 1969, Vestal 1914, WNHP unpubl. data, Weaver and Albertson 1956, Western Ecology Working Group n.d.

NNHP comments: This association might best be split into two - with and without significant salt crusting.

NNHP Plots: p030605f, p050407d, p050422-6 (3 plots identified)

Representative Images:



p030605f.JPG



p050407d.JPG



p050422-6.JPG



p050422-6_11-59-31.jpg

***Distichlis spicata* Mixed Herb Herbaceous Vegetation**

Saltgrass Mixed Herb Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001771

Distribution (Nations/Subnations): US / NV?, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G3G5

Summary: Flooding is often from groundwater wicking to the surface. The most 'typical' playa in inland saltgrass communities; forb diversity is high. Includes *Salicornia rubra*, *Suaeda calceoliformis* (= *Suaeda depressa*), *Crepis* spp., *Iva* spp., *Triglochin maritima*, *Puccinellia nuttalliana*, *Juncus balticus*. *Hordeum jubatum* increases with grazing. These are short grasslands. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Brotherson 1987, Driscoll et al. 1984, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Dodecatheon redolens* Saturated Herbaceous Alliance**

Scented Shootingstar Saturated Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2510

Summary: [no summary available] [Captured 2008-02-18]

***Dodecatheon redolens* - *Aquilegia formosa* Herbaceous Vegetation**

Scented Shootingstar - Western Columbine Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002709

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2?

Summary: This herbaceous association is restricted to minimally disturbed springs and seeps on the eastern slopes of the Spring Mountains of southern Nevada between 2015 and 3160 m (6611-10,367 feet) elevation. Sites occupy moderate slopes (average 18 degrees) on sedimentary substrates, on every aspect except west. The association is limited to seeps that are not associated with streams, with soils that are moist to saturated at the surface. Most occurrences are dominated by a high cover of herbaceous species, but several examples included in this association have an

open canopy of either *Abies lasiocarpa* or *Juniperus scopulorum*. Moderate to high cover of *Dodecatheon redolens* (= *Dodecatheon jeffreyi* var. *redolens*) and *Aquilegia formosa* are consistent indicators of this association, although other species may be codominant to dominant. Other commonly associated herbaceous species include *Carex aurea*, *Deschampsia caespitosa*, *Platanthera sparsiflora*, *Angelica kingii*, and *Maianthemum stellatum* (= *Smilacina stellata*). Moss provides significant cover in several sites. If a shrub layer is present, it will include *Rosa woodsii* var. *ultramontana* or, less often, *Ribes montigenum*.

[Captured 2008-02-15]

References: Manning and Padgett 1995, Nachlinger and Reese 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

Eleocharis (montevidensis, palustris, quinqueflora) **Seasonally Flooded Herbaceous Alliance**

(Sand Spikerush, Marsh Spikerush, Few-flower Spikerush) Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1371

Summary: Stands of this widespread western grassland alliance require seasonally to permanently saturated soils. Stands cannot tolerate permanent standing water, but often grow on the saturated soils surrounding a permanent water body, or on depressions subject to seasonal flooding. Stands are found from sea level to 2500 m elevation in meadows, seeps, swales, and shorelines. Water chemistry is fresh. Precipitation averages from 50-250 cm per year, and falls mostly from November to May. Stands of this western wetland herbaceous alliance are dominated by one or more species of *Eleocharis*. Species may include *Eleocharis quinqueflora* (= *Eleocharis pauciflora*), *Eleocharis palustris*, *Eleocharis montevidensis*, and/or *Eleocharis rostellata*. Other species present may include *Muhlenbergia asperifolia*, *Oreostemma alpigenum* (= *Aster alpigenus*), *Carex utriculata*, *Carex* spp., *Schoenoplectus americanus* (= *Scirpus americanus*), *Scirpus* spp., *Oxypolis occidentalis*, *Triglochin palustris*, *Phleum alpinum*, *Juncus nevadensis*, *Mimulus primuloides*, *Crassula aquatica*, and *Callitriche hermaphroditica*. [Captured 2008-02-18]

***Eleocharis (montevidensis, palustris, quinqueflora)* Seasonally Flooded Herbaceous Vegetation [Placeholder]**

(Sand Spikerush, Marsh Spikerush, Few-flower Spikerush) Seasonally Flooded Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG003050

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Manning and Padgett 1995, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Eleocharis (palustris, macrostachya)* Seasonally Flooded Herbaceous Alliance**

(Marsh Spikerush, Page Spikerush) Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1422

Summary: This herbaceous wetland alliance occurs in shallow, mostly still water throughout much of the western United States and central Great Plains, from sea level to alpine. Stands occur on a variety of landforms, including lake margins, stream terraces, floodplains, gravel bars, and wet basins (ciénegas). Sites are flat to gently sloping on any aspect. Soils and parent materials are variable, but often highly organic and derived from alluvium. Surface water is typically present for an extended period during the growing season, and the high water table remains high most of the year. The vegetation is characterized by a sparse to dense herbaceous layer that is dominated or codominated by *Eleocharis palustris* and/or *Eleocharis macrostachya*, facultative wetland species. Because of the variety of habitats where this alliance occurs, associated species are diverse. Characteristic associates include several species of *Carex*, *Juncus*, and *Scirpus*, most notably *Carex praegracilis* and *Juncus balticus*. Other important graminoids are *Phalaris arundinacea* (= *Phalaroides arundinacea*), *Spartina pectinata*, *Panicum virgatum*, *Deschampsia caespitosa*, *Distichlis spicata*, and *Muhlenbergia asperifolia*. Forb cover is also variable and may include *Sparganium angustifolium*, *Lemna* spp., *Potamogeton* spp., *Berula erecta*, *Rorippa nasturtium-aquaticum*, *Pedicularis groenlandica*, *Rhodiola integrifolia*, *Caltha leptosepala*, *Mentha arvensis*, *Rumex crispus*, *Iris missouriensis*, and *Ranunculus cymbalaria*. Diagnostic of this herbaceous wetland alliance is the dominance or codominance of *Eleocharis palustris* and/or *Eleocharis macrostachya* and the presence of surface water for extended periods during the growing season. [Captured 2008-02-18]

***Eleocharis palustris* Herbaceous Vegetation**

Marsh Spikerush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001833

Distribution (Nations/Subnations): CA, US / AB, AK?, AZ, BC, CA?, CO, ID, MT, NE, NM, NV?, OR, SD, SK, UT, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This spikerush wet meadow community is found in the central Great Plains of the United States and Canada and in the western United States. Elevations range from near sea level to 3050 m (0-10,000 feet). Stands occur in small depressions in intermittent streambeds or depression ponds that flood early in the season and may dry out by summer. Soils are generally fine-textured. Stands are composed of submersed and emergent rooted vegetation under 1 m tall that is dominated by *Eleocharis palustris*, often in nearly pure stands. Vegetative cover can be sparse to dense (10-90%), but *Eleocharis palustris* is the dominant species, and the only species with 100% constancy. Other species, when present, can contribute as much as 40% cover, but never exceed that of the *Eleocharis palustris* cover.

[Captured 2008-02-15]

References: Baker 1983c, Baker and Kennedy 1985, Billings 1945, Boggs 2000, Bork 1978, Boss 1983, Bourgeron and Engelking 1994, Brotherson and Barnes 1984, Bunin 1985, CONHP unpubl. data 2003, Carsey et al. 2003a, Christy 2004, Cooper 1993, Cooper and Severn 1992, Crow 1968, Crow 1977, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Durkin et al. 1995a, Easterday and Mamone 1980, Ellis et al. 1979, Evans 1989b, Evenden 1990, Flowers 1962, Hall and Hansen 1997, Hansen et al. 1988a, Hansen et al. 1988b, Hansen et al. 1991, Hansen et al. 1995, Harris 1954, Henderson and McAllister 1983, Heusser 1960, IDCDC 2005, Jankovskyy-Jones

et al. 1999, Jankovsky-Jones et al. 2001, Johnston 1987, Kagan et al. 2000, Kettler and McMullen 1996, Kierstead and Pogson 1976, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1987, Kovalchik 1993, Kovalchik 2001, Kunze 1994, MTNHP 2002b, Manning and Padgett 1991, Manning and Padgett 1995, Marriott 1985, Marriott pers. comm., Moseley 1998, Murray 2000, Mutel 1973, Mutel and Marr 1973, Padgett 1981, Padgett et al. 1988b, Padgett et al. 1989, Penfound 1953, Ramaley 1919a, Ramaley 1942, Seyer 1981, Shephard 1995, Stearns-Roger, Inc. 1978, Steinauer and Rolfsmeier 2000, Stewart 1940, Titus and Christy 1996a, Titus and Christy 1999, Von Loh 2000, WNHP unpubl. data, Western Ecology Working Group n.d., Youngblood et al. 1985a
NNHP Plots: (0 plots identified)

Eleocharis (quinqueflora, rostellata) Saturated Herbaceous Alliance

(Few-flower Spikerush, Beaked Spikerush) Saturated Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1423

Summary: This alliance forms uniform peatland communities and is found from the plains to upper subalpine and lower alpine in the western U.S. Sites can occur in wet basins, stream terraces, ponds, cirque basins, and marshy meadows associated with seeps. Soils are always organic and wet or saturated throughout the summer. The vegetation is characterized by a moderately dense to dense herbaceous layer that is dominated by *Eleocharis quinqueflora*. Common codominants are *Carex scopulorum* or *Carex aquatilis*. Other graminoids can include *Carex buxbaumii*, *Carex utriculata*, *Deschampsia caespitosa*, and *Eleocharis rostellata*. Forb cover is low, but can include *Caltha leptosepala*, *Pedicularis groenlandica*, *Oreostemma alpigenum* (= *Aster alpigenus*), *Dodecatheon alpinum*, and *Polygonum bistortoides*. Diagnostic of this herbaceous wetland alliance is the dominance or codominance of *Eleocharis quinqueflora* and the presence of surface water for extended periods during the growing season. [Captured 2008-02-18]

Eleocharis quinqueflora - Carex scopulorum Herbaceous Vegetation

Few-flower Spikerush - Holm's Rocky Mountain Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001837

Distribution (Nations/Subnations): US / CA, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This association has been described from the Sierra Nevada in the vicinity of Lake Tahoe and Yosemite National Park. Stands of this association are found along streams or in the wetter parts of meadows between 2100 and 3200 m (6900-10,500 feet) elevation. Aspect is not diagnostic for the type as slopes are very gentle to flat. Soils are poorly drained and have high organic content. Vegetation cover often exceeds 80% and is dominated by graminoid species. Either *Eleocharis quinqueflora* or *Carex scopulorum* may be dominant, or they may be codominant. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Carsey et al. 2003a, Driscoll et al. 1984, Kagan et al. 2004, Nachlinger 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Eleocharis quinqueflora* Herbaceous Vegetation**

Few-flower Spikerush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001836

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV?, OR, UT, WA, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4

Summary: This wetland association is found in the upper subalpine and lower alpine in the western United States and forms uniform peatland communities. Sites can occur in wet basins, stream terraces, ponds, cirque basins, and marshy meadows associated with seeps. Substrates are typically poorly drained, nutrient-poor, organic soils that are wet or saturated throughout the summer. Surface layers may dry out in late summer on some sites. Peat layers range from thin peat over quartzite sands to deep peat occasionally as deep as 2 m. The vegetation is characterized by a moderately dense to dense herbaceous layer that is strongly dominated by *Eleocharis quinqueflora*. *Carex aquatilis* is a common graminoid associate that may codominate some stands. Vegetation growth is relatively sparse compared to other wetlands, especially in higher elevation stands. Other graminoids may include *Carex buxbaumii*, *Carex illota*, *Carex jonesii*, *Carex lachenalii* (on extremely nutrient-poor sites), *Carex scopulorum*, *Carex utriculata*, *Deschampsia caespitosa*, and *Eleocharis rostellata*. Forb cover is generally low but often includes *Caltha leptosepala*, *Dodecatheon alpinum*, *Oreostemma alpigenum* (= *Aster alpigenus*), *Pedicularis groenlandica*, and *Polygonum bistortoides*. Scattered shrubs may also be present, such as *Betula nana* (= *Betula glandulosa*) or *Salix planifolia*. Diagnostic of this herbaceous wetland community is the dominance or codominance of *Eleocharis quinqueflora* and the presence of surface water for extended periods during the growing season.

[Captured 2008-02-15]

References: Boggs 2000, Bourgeron and Engelking 1994, Briggs and MacMahon 1983, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Christy 2004, Cole 1977b, Cole 1982, Cooper 1990, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Hansen et al. 1988b, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 1999, Jensen and Tuhy 1981, Johnston 1987, Kagan et al. 2000, Kittel et al. 1999b, Komarkova 1976, Komarkova 1979, Kovalchik 1987, Kovalchik 1993, Kovalchik 2001, MTNHP 2002b, Manning and Padgett 1992, Manning and Padgett 1995, Mattson 1984, Murray 2000, Padgett et al. 1989, Richard et al. 1996, Rosgen 1996, Seyer 1979, Titus unpubl. data 1995, Western Ecology Working Group n.d., NNHP

Plots: (0 plots identified)

***Eleocharis acicularis* Seasonally Flooded Herbaceous Alliance**

Needle Spikerush Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1421

Summary: Vegetation types within this seasonally flooded, temperate or subpolar grassland alliance occur in marshes, muddy shores, and other wet places from the lowlands to high elevations in the western United States (specific information on elevation range is not available). Types typically occur in wet basins, exposed pond bottoms, or concave areas in meadows. Sites have water during the first third of the growing season but eventually dry out. Widely fluctuating water tables are typical. Soils are often fine-textured mineral soils. Texture ranges from silt loam to sandy clay loam with thick, dark soil profiles. Soil pH is strongly acidic, 5.4. *Eleocharis acicularis*, an obligate wetland plant, dominates the graminoid stratum with dense tufts. Percent cover ranges from 25-99%. *Muhlenbergia filiformis* and

Equisetum fluviatile can occur occasionally in the graminoid layer. The forb layer can include *Trifolium longipes* and *Sagittaria cuneata*. This plant association's species diversity is normally low. Adjacent drier communities are typically *Deschampsia caespitosa* or *Poa palustris* grasslands. [Captured 2008-02-18]

***Eleocharis acicularis* Herbaceous Vegetation**

Needle Spikerush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001832

Distribution (Nations/Subnations): US / CA, CO, ID, NV, OR, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This is a small-statured, small-patch herbaceous wetland community that is common but rarely sampled and is generally overlooked. Stands occur on edges of marshes, on muddy shores, wet basins, exposed pond bottoms or concave areas in meadows or grasslands. This description is based on 14 plots from California, Colorado and Wyoming. Known occurrences are found at elevations between 1460 and 3350 m (4800-11,000 feet). Soils are fine silty clay, loam to sandy loam, and even muck, often over alluvium. Soils are generally saturated throughout the growing season, but the water table may drop to 36 cm by late August. It is typically a low-diversity herbaceous association. The diminutive, rhizomatous, slender perennial graminoid *Eleocharis acicularis* characterizes sites with its dense tufts. The canopy can be open (10%) or nearly closed (85%). Stands are low in species richness (average of 7 in both California and in Colorado plots). Other graminoid species that may be present include *Eleocharis palustris*, *Pascopyrum smithii*, *Muhlenbergia filiformis*, *Carex vesicaria*, *Bromus japonicus*, *Echinochloa crus-galli*, and *Glyceria borealis*. Forbs may also be present and include *Rorippa sinuata*, *Marsilea vestita*, *Ambrosia tomentosa*, *Trifolium longipes*, *Sium suave*, and *Ranunculus flammula*.

[Captured 2008-02-15]

References: Boss 1983, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Christy 2004, Christy and Cornelius 1980, Crowe et al. 2004, Driscoll et al. 1984, IDCDC 2005, Jankovsky-Jones et al. 1999, Kagan et al. 2000, Nachlinger 1985, Sanville et al. 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Festuca idahoensis* Herbaceous Alliance**

Idaho Fescue Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1251

Summary: These grasslands are characteristic of the Palouse Prairie on the Columbia Plateau but extend east into the Rocky Mountains and south into the Great Basin. Stands are found on undulating prairie, valley bottoms, canyon benches, and expansive park meadow openings in montane and subalpine forests, on ridges above subalpine forests in the Rocky Mountains, on coastal terraces and inland bald hills, and glacial outwash plains. Stands also occur in coastal and inland prairies on the western side of the Cascade Range. Soils are moderately to well-drained, loams or silt loams or silty clays, that are generally deep, and derived from alluvium, colluvium, or loess. Vegetation included in this alliance is characterized by the dominance or codominance of *Festuca idahoensis*. Other important species may include *Sericocarpus rigidus* (= *Aster curtus*), *Carex filifolia*, *Carex inops* ssp. *heliophila*, *Carex obtusata*, *Danthonia intermedia*, *Elymus caninus*, *Elymus trachycaulus*, *Eriogonum caespitosum*, *Eriogonum heracleoides*, *Festuca thurberi*, *Geranium caespitosum*, *Koeleria macrantha*, *Pascopyrum smithii*, *Poa secunda*, *Pseudoroegneria spicata*, or *Achnatherum richardsonii* (= *Stipa*

richardsonii). Scattered shrubs and dwarf-shrubs, such as species of *Symphoricarpos* and *Rosa*, are present in some stands. Diagnostic of this widespread grassland alliance is the dominance or codominance of *Festuca idahoensis*. [Captured 2008-02-18]

***Festuca idahoensis* - *Carex hoodii* Herbaceous Vegetation**

Idaho Fescue - Hood's Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001609

Distribution (Nations/Subnations): US / NV, OR?, UT?

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Lewis 1971, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Geum rossii* Herbaceous Alliance**

Ross' Avens Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1645

Summary: This alliance occurs in the alpine tundra throughout the Rocky Mountains. In winter, strong westerly winds deposit snow on the leeward side of the mountains, resulting in areas of deep snow that melt relatively late in the summer. Stands are found in these snowbed habitats on frost-patterned ground, and in depressions where fine soil particles concentrate. Sites occur on all aspects of gentle to moderate-gradient slopes. The soils are wet, poorly developed, and may have a high organic matter content. Vegetation included in this alliance is characterized by the perennial forb *Geum rossii* dominating the herbaceous layer. Common associates include *Polygonum bistortoides*, *Trifolium parryi*, *Trifolium nanum*, *Artemisia scopulorum*, *Erigeron simplex*, *Potentilla diversifolia*, *Deschampsia caespitosa*, and *Festuca brachyphylla*. The moss layer is sparse due to the dense herbaceous cover and *Geum rossii* litter that covers the ground. Diagnostic of this alpine alliance is the dominance of *Geum rossii* in the herbaceous layer. [Captured 2008-02-18]

***Geum rossii* Herbaceous Vegetation**

Ross' Avens Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001964

Distribution (Nations/Subnations): US / ID, NV, UT, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G4G5Q

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Lewis 1970, Loope 1969, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

*** * * New Vegetation Type - with plot data:**

***Halogeton glomeratus* Semi-natural Herbaceous Vegetation Alliance**

Halogeton Semi-natural Herbaceous Vegetation Alliance

Alliance Code: B.009

Summary: This alliance describes areas so invaded by *Halogeton glomeratus* that a native vegetation

type cannot be applied. Other invasive species are often present, including *Lepidium perfoliatum*, *Bromus tectorum*, and *Sisymbrium altissimum*. Although, *H. glomeratus* is a very widespread invasive, it typically does not significantly displace native species. However, a site in Utah has been documented where it displaced *Krascheninnikovia lanata* after flooding. A number of sites have been observed where it dominates in Nevada, usually with dozens of hoof prints per square meter suggesting that intensive grazing may be relevant to its dominance.

***** New Vegetation Type - with plot data:**

***Halogeton glomeratus* Semi-natural Herbaceous Vegetation**

Halogeton Semi-natural Herbaceous Vegetation

Association Code: NNHP029

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This association describes areas so invaded by *Halogeton glomeratus* that a native vegetation type cannot be applied. Sites are typically highly disturbed, occurring in areas of intensive grazing, particularly around water sources, or in narrow strips along roadsides. Other invasive species are often present, including *Lepidium perfoliatum*, *Bromus tectorum*, and *Sisymbrium altissimum*. These may lead to splitting of this association into several invasive vegetation types.

References:

NNHP Plots: p050714f, p050711c, p050711b, p050604i (4 plots identified)

Representative Images:



p050711c_12-13-53.JPG



p050711b_11-43-20.JPG

*** New to Nevada - with plot data:**

***Hesperostipa comata* Bunch Herbaceous Alliance**

Needle-and-Thread Bunch Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1270

Summary: This grassland alliance is found on sandy soils in the intermountain steppe, Wyoming Basin, Colorado Plateau, Great Basin and Columbia Plateau. Stands typically occur on upland sites with coarse-textured soils such as sandstone outcrop ridges in the plains, dry-sandy sites in the Columbia Basin, and parks on dissected alluvial fans below sandstone plateaus, but not dunes. Sites are on flat to moderately steep, often south-facing slopes, but can occur on any aspect. Soils are shallow to moderately deep, well-drained, coarse-textured, and non-saline. Grasslands included in this alliance are characterized by a moderately dense herbaceous layer dominated by *Hesperostipa comata* (= *Stipa*

comata), but cover ranges from sparse to dense. *Achnatherum hymenoides* (= *Oryzopsis hymenoides*) or *Poa secunda* codominate some stands. Other graminoids may include *Aristida purpurea*, *Bouteloua gracilis*, *Carex filifolia*, *Koeleria macrantha*, *Pleuraphis jamesii* (= *Hilaria jamesii*), or *Sporobolus cryptandrus*. Shrubs and dwarf-shrubs are sparse (<10%) and may include scattered *Artemisia cana*, *Artemisia frigida*, *Artemisia tridentata*, or *Ericameria nauseosa* (= *Chrysothamnus nauseosus*). Forb cover is also sparse, but can be relatively diverse. Common forbs are *Gaura coccinea*, *Lappula occidentalis* (= *Lappula redowskii*), *Lithophragma glabrum*, *Lupinus pusillus*, *Opuntia aurea* (= *Opuntia basilaris* var. *aurea*), *Opuntia polyacantha*, *Plantago patagonica*, or *Pediomelum argophyllum* (= *Psoralea argophylla*). Cryptogams are important in some stands with up to 40% ground cover on sites in the Colorado Plateau. Diagnostic of this grassland alliance is the dominance of *Hesperostipa comata* in the herbaceous layer and the lack of significant cover of *Bouteloua gracilis* or *Nassella viridula*. [Captured 2008-02-27]

* New to Nevada - with plot data:

***Hesperostipa comata* - *Poa secunda* Herbaceous Vegetation**

Needle-and-Thread - Curly Bluegrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001704

Distribution (Nations/Subnations): CA?, US / BC?, MT, OR, WA

Status: 1 Active Confidence: 1 (Strong) Global Rank: G1

Summary: This association is endemic to the Palouse Prairie region of Oregon and Washington. Similar sandy soil sites support sparse shrub cover of *Purshia tridentata*, *Artemisia tridentata*, or *Artemisia tripartita* in the Columbia Basin. Sandy to gravelly soils or certain low fertility soils (old weathered volcanic ash) are associated with this type. This community occurs in more climatically moist areas than sites of *Artemisia tridentata* ssp. *wyomingensis* / *Hesperostipa comata* Shrubland (CEGL001051). This is an open to closed vegetation type with most of its total cover found in only the mid-tall bunchgrass lifeform. *Ericameria* spp. (= *Chrysothamnus* spp.) can be present or codominant especially on disturbed sites. The general aspect is of a bunchgrass community with *Hesperostipa comata* (= *Stipa comata*) dominating the midgrass layer. Some stands have a short bunchgrass layer of *Poa secunda*. Broad-leaved herbs typically contribute little to composition of individual sites. Annual grasses and forbs are common and can be diverse. In disturbed sites *Bromus tectorum* and *Plantago patagonica* are common. A diverse ground moss and lichen layer can cover much of the space between vascular plants, although it can be displaced with ground disturbance.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Cooper 2003, Daubenmire 1970, Driscoll et al. 1984, Easterly and Salstrom 1997, Kagan 1989b, Kagan et al. 2000, Poulton 1955, WNHP unpubl. data, Western Ecology Working Group n.d., Wildermann 1994, Youtie 1990

NNHP Plots: p050628j, p050621g, p050621h (3 plots identified)

Representative Images:



p050628j_12-40-34.JPG



p050621h_11-41-55.JPG



p050621g_11-17-46.JPG

*** New to Nevada - with plot data:**

***Hesperostipa comata* Great Basin Herbaceous Vegetation**

Needle-and-Thread Great Basin Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001705

Distribution (Nations/Subnations): US / CO, UT

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G4

Summary: This grassland occurs on the Great Basin and Colorado Plateau east into the western slope of the southern Rocky Mountains. Stands are found on plains, gentle hillslopes, knolls and bluffs, mesatops, and plateau parks. Substrates are variable and include sand, cobbles, clay loams and silty clay. This association is characterized by a relatively sparse to moderate herbaceous layer (10-40% cover) that is strongly dominated by the cool-season bunchgrass *Hesperostipa comata*. Low cover of other grasses, such as *Achnatherum hymenoides*, *Achnatherum lettermanii*, *Aristida purpurea*, *Elymus elymoides*, *Pleuraphis jamesii*, *Poa fendleriana*, or *Sporobolus cryptandrus*, may be present. However, *Bouteloua eriopoda* is not present. Forb cover ranges from sparse to moderate and may be diverse. Associated species may be diverse and include species of *Artemisia*, *Balsamorhiza*, *Cirsium*, *Gilia*, *Hymenopappus*, *Lappula*, *Machaeranthera*, and *Vicia*. Scattered shrubs and dwarf-shrubs may be present with less than 5% total cover. The widespread introduced annual grass *Bromus tectorum* often contributes significant cover in disturbed stands. Some stands have high cover of cryptogams on the soil.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cogan et al. 2004, Coles pers. comm., Daubenmire 1970, Driscoll et al. 1984, FEIS 1998, Kleiner 1968, Kleiner 1983, Kleiner and Harper 1977, Thilenius et al. 1995, Western Ecology Working Group n.d.

NNHP comments: Association description seems like a bit of a grab-bag in need of work. A lot of post-fire seedings may fit into this. Although the NNHP plot p050628a did not record signs of fire at the site, it is possible that the site had burned some years previously and was successfully seeded. In Nevada, stands with such a diversity of grasses do not often occur naturally.

NNHP Plots: p050629g, p050628a (2 plots identified)

Representative Images:



p050629g_08-46-32.JPG



p050628a_05-15-35.JPG

***Hordeum brachyantherum* Temporarily Flooded Herbaceous Alliance**

Meadow Barley Temporarily Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2585

Summary: This alliance is found at 348-2684 m (1141-8800 feet) elevation in widely scattered mountain, basin, and foothill and valley locations ranging from the Central Coast Ranges of California, Central Valley, central Sierra Nevada foothills, northwestern California, the northern half of the Great Basin in Nevada, on through the southern one-third of Idaho. Stands are found along both intermittent and perennial streams, but most commonly occur in ephemerally moist to semipermanently saturated, often spring-fed, meadows and swales. They occur in low- to moderate-gradient valley bottoms that range from very narrow to very wide with clayey, silty, or fine loamy soil. These are small-patch communities, generally occupying 0.1 to 1 acres.

In the eastern Sierra Nevada and into the Great Basin of Nevada, *Hordeum brachyantherum* typically forms a continuous layer with cover ranging from 25 to nearly 100%. Cover of graminoid associates varies and may include *Carex athrostachya*, *Carex microptera*, *Danthonia californica*, *Deschampsia caespitosa*, *Eleocharis palustris*, *Elymus trachycaulus*, *Poa secunda* (= *Poa nevadensis*), which is occasionally codominant, and/or *Poa pratensis*. Forb cover is sparse and is characterized by *Camassia quamash*, *Epilobium* spp., *Mimulus guttatus*, *Iris missouriensis*, *Rumex crispus*, *Symphotrichum* spp., and various vernal annuals.

In cismontane California, *Hordeum brachyantherum* forms an intermittent to continuous layer with

variable cover. Other graminoid associates may include *Carex* spp., *Holcus lanatus*, *Lolium perenne* ssp. *multiflorum* (= *Lolium multiflorum*), *Juncus balticus*, *Juncus oxymeres*, *Leymus triticoides*, *Polypogon monspeliensis*, and *Vulpia myuros*. Forb cover is open to intermittent and includes *Epilobium* spp., *Erodium* spp., *Hemizonia congesta*, *Lasthenia californica*, *Lotus* spp., *Ranunculus californicus*, *Rumex* spp., *Sisyrinchium bellum*, and *Trifolium* spp. Stands at Pinnacles National Monument can have many introduced herbaceous species (sometimes more than 30% relative cover). They typically occur in seasonal wetland meadows and adjacent to streams, with clay or silt loam soils that include serpentine or other poor-nutrient soils. [Captured 2008-02-18]

***Hordeum brachyantherum* Herbaceous Vegetation**

Meadow Barley Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003430

Distribution (Nations/Subnations): US / CA, ID, NV, WY

Status: 1 Active Confidence: 3 (Weak) Global Rank: G2

Summary: This association is found at 348-2684 m (1141-8800 feet) elevation in widely scattered mountain, basin, foothill, and valley locations ranging from the Central Coast Ranges of California, Central Valley, northwestern California, the northern half of the Great Basin in Nevada, on through the southern one-third of Idaho. The association is found along both intermittent and perennial streams, but most commonly occurs in ephemerally moist to semipermanently saturated, often spring-fed, meadows and swales. It occurs in low- to moderate-gradient valley bottoms that range from very narrow to very wide with clayey, silty, or fine loamy soil. It is a small-patch community, generally occupying 0.1 to 1 acres. *Hordeum brachyantherum* typically forms a continuous layer with cover ranging from 25 to nearly 100%. Cover of graminoid associates varies and may include *Carex athrostachya*, *Carex microptera*, *Danthonia californica*, *Deschampsia caespitosa*, *Eleocharis palustris*, *Elymus trachycaulus*, *Poa secunda* (= *Poa nevadensis*), which is occasionally codominant, and/or *Poa pratensis*. Forb cover is sparse and is characterized by *Camassia quamash*, *Epilobium* spp., *Mimulus guttatus*, *Iris missouriensis*, *Rumex crispus*, *Symphotrichum* spp., and various vernal annuals. At Pinnacles National Monument, stands can have many introduced herbaceous species (sometimes more than 30% relative cover) and typically occur in seasonal wetland meadows and adjacent to streams, with clay or silt loam soils that include serpentine or other poor-nutrient soils.

[Captured 2008-02-15]

References: Evens and San 2004, Hansen and Hall 2002, IDCDC 2005, IDCDC unpubl. data 2002, Jankovsky-Jones et al. 2001, Manning and Padgett 1995, Smith 1998b, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Juncus balticus* Seasonally Flooded Herbaceous Alliance**

Baltic Rush Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1374

Summary: This alliance often occupies seasonally flooded swales and wet, low- to mid-elevation sites. Habitats are often alkaline meadows and may have long-term grazing disturbance. It is a wide-ranging alliance, occurring from the plains to montane regions to boreal regions, and has much variability. Elevations range from sea level in California to 3500 m in Colorado. Montane plant associations can occur on alluvial terraces, floodplains, overflow channels, seeps, meadows, and near springs. Sites are typically gently sloping (1-3%) on all aspects. An association was documented in northern California

coastal salt marshes. Soils are mineral with dark surface horizons containing large amounts of well-decomposed organic matter. Soils are Mollisols or rarely Entisols. Soil texture ranges from silt to sandy loam. Water tables are often at or near the soil surface in early summer but may drop below 50 cm by late August. Soil reaction ranges from neutral to mildly alkaline (pH 7.0-8.0).

The graminoid layer is dense with up to 98% cover and dominated by *Juncus balticus*, a creeping, often sod-forming, rhizomatous perennial. Other graminoid cover is minor but can include *Carex pellita* (= *Carex lanuginosa*), *Carex aquatilis*, *Carex canescens*, *Leymus cinereus*, *Deschampsia caespitosa*, *Hordeum jubatum*, or *Sporobolus airoides*. Forb cover is typically minor and may include *Achillea millefolium*, *Iris missouriensis*, or *Geum macrophyllum*. The plant associations from California are composed of various forbs and the graminoids *Bromus* spp., *Distichlis spicata*, *Carex lynghyei*, *Carex obnupta*, *Hordeum brachyantherum*, *Leymus triticoides*, *Lolium perenne* ssp. *multiflorum*, and *Schoenoplectus robustus* (= *Scirpus robustus*). Occasionally, a few tree or shrub seedlings are present, including *Populus angustifolia*, *Dasiphora fruticosa* ssp. *floribunda* (= *Pentaphylloides floribunda*), and *Salix exigua*. *Salix exigua* shrublands, *Distichlis spicata* marshes, or *Carex* spp. meadows may occur in adjacent riparian areas. *Abies lasiocarpa* - *Picea engelmannii*, *Pseudotsuga menziesii*, and *Populus tremuloides* forests, *Pinus edulis* - *Juniperus* spp. woodlands, and *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Sarcobatus vermiculatus*, and *Artemisia tridentata* shrublands may occur on adjacent hillslopes.

In low-disturbance areas, *Juncus balticus* plant associations appear to be a stable, climax community. However, in some areas, this association is considered to be grazing-induced. *Juncus balticus* is considered an increaser due to its low forage value and high tolerance to grazing. It usually increases in abundance on sites formerly dominated by *Deschampsia caespitosa* or *Calamagrostis canadensis*. Nearly pure stands of *Juncus balticus* indicate that the site may have been heavily grazed in the past. *Juncus balticus* is listed as a facultative wetland species. [Captured 2008-02-18]

***** New Vegetation Type - based on field observation:**

***Juncus balticus* - *Anemopsis californica* Herbaceous Vegetation**

Juncus balticus - *Anemopsis californica* Herbaceous Vegetation

Association Code: NNHP067

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G?

Summary: Paraphrased from Morefield (2000):

Known primarily from the northern Mojave Desert where it occurs in slightly drier sites than many *Juncus balticus* sites, and differs from *Juncus balticus* - *Leymus triticoides* Herbaceous Vegetation mainly in the absence of *Leymus triticoides* and its replacement by co-dominant *Nitrophila occidentalis* (western niterwort). Sites sampled by Morefield included subdominant *Carex praegracilis* (meadow sedge). Stands were 0.51 and 7.10 acres (0.21 and 2.87 ha).

References: Morefield 2000

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Juncus balticus* - *Leymus triticoides* Herbaceous Vegetation**

Juncus balticus - *Leymus triticoides* Herbaceous Vegetation

Association Code: NNHP066

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G?

Summary: Paraphrased from Morefield (2000):

Known primarily from the northern Mojave Desert (though observed elsewhere) where it often occurs in border areas around bulrush marshes where the soil is continually moist to saturated. It is co-dominated by dense mixed or mosaicked stands of *Juncus balticus* (Baltic rush) and *Leymus triticoides* (creeping wildrye), often with *Anemopsis californica* co-dominating in the understory. Where sampled by Morefield, *Heliotropium curassavicum* and an annual *Atriplex* of the *A. argentea* group were present in subdominant amounts, and other significant components included *Muhlenbergia asperifolia* (occasionally dominant), *Polypogon monspeliensis* (an exotic), *Aster pauciflorus*, and *Bassia hyssopifolia* (another exotic). Stands ranged from 0.051 to 7.28 acres (0.021 to 2.94 ha). This association might also be assignable to the *Leymus triticoides* Temporarily Flooded Herbaceous Alliance.

References: Morefield 2000

NNHP Plots: (0 plots identified)

***Juncus balticus* Herbaceous Vegetation**

Baltic Rush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001838

Distribution (Nations/Subnations): CA, US / AB, BC, CA, CO, ID, MT, NE, NM, NV, OR, SD, UT, WA, WY

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This Baltic rush community is found widely throughout the western United States and into western Canada. This wet meadow vegetation occurs as small to extensive, open to typically dense patches on flat stream benches, along overflow channels, and near springs. Habitats are often alkaline meadows and may have long-term grazing disturbance. Soils are variable and range from poorly to well-drained, sandy clay loam to fine sand-textured and are usually mottled or gleyed. Stands are characterized by a dense sward of *Juncus balticus*. In montane zones and the Great Basin, minor cover of *Carex* species, including *Carex aquatilis*, *Carex praegracilis*, *Carex nebrascensis*, or *Carex utriculata*, is often present; other common species include *Deschampsia caespitosa*, *Distichlis spicata*, *Glyceria striata*, *Hordeum jubatum*, *Muhlenbergia asperifolia*, *Pascopyrum smithii*, *Phleum alpinum*, and *Sporobolus airoides*. The introduced perennial sod grasses *Poa pratensis* or *Agrostis stolonifera* codominate some stands. Forb cover is generally low and includes wetland species such as *Caltha leptosepala*, *Rumex aquaticus*, and *Dodecatheon pulchellum*. *Iris missouriensis* can be common in heavily grazed stands. Shrubs are not common. This association is often considered to be a grazing-induced community since it increases with disturbance, though it can be a stable late-seral community.

[Captured 2008-02-15]

References: ANHIC 2005, Baker 1984a, Bourgeron and Engelking 1994, Brotherson and Barnes 1984, Bunin 1985, Butler et al. 2002, CONHP unpubl. data 2003, Carsey et al. 2003a, Carsey et al. 2003b, Christy 2004, Cogan et al. 2004, Cowardin et al. 1979, Crowe and Clausnitzer 1997, Crowe et al. 2004, Donnelly et al. 2006, Driscoll et al. 1984, Evans 1989b, Evenden 1990, Faber-Langendoen 2001, Flowers 1962, Hall and Hansen 1997, Hansen et al. 1995, Henderson and McAllister 1983, Hess 1981, IDCDC 2005, Jankovsky-Jones et al. 1999, Jankovsky-Jones et al. 2001, Johnston 1987, Jones 1992b, Jones and Walford 1995, Kagan et al. 2000, Kartesz 1994a, Kierstead and Pogson 1976, Kittel and Lederer 1993, Kittel et al. 1997a, Kittel et al. 1999a, Kittel et al. 1999b, Klein et al. 2007, Komarkova 1986, Kovalchik 1987, Kunze 1994, MTNHP 2002b, Manning 1988, Manning and Padgett 1991, Manning and Padgett 1992, Muldavin et al. 2000a, Murray 2000, Mutel 1973, Mutz and Graham 1982, Olson and Gerhart 1982, Padgett 1981, Padgett 1982, Padgett et al. 1989, Rector 1979, Richard et al. 1996, Shupe et al. 1986, Stewart 1940, Taylor

1980, Taylor and Teare 1979a, Thompson and Hansen 2002, Titus and Christy 1996a, Tuhy and Jensen 1982, Volland 1976, WNHP unpubl. data, Wasser and Hess 1982, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: p020601g (1 plots identified)

Representative Images:



p020601g_1.JPG

***Juniperus occidentalis* Wooded Herbaceous Alliance**

Western Juniper Wooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1500

Summary: Stands of this alliance are widely distributed along the northern and western margins of the Great Basin, from southwestern Idaho to northeastern California, from 200 m to over 1500 m elevation. Throughout the range the climate is semi-arid, with 23-36 cm of precipitation annually. Most of the precipitation is winter rain. The temperature regime is cool summer-continental, with a wide range in diurnal temperatures and night frosts through most of the year. Summer lightning storms and associated fires are common in the environments where this type occurs and are presumably important in structuring the vegetation. Generally soils are medium-textured, with abundant coarse fragments, and derived from volcanic parent materials. In central Oregon, the center of its range, vegetation of this alliance is found on all aspects and slope positions. Vegetation within this alliance is usually characterized by a sparse overstory of *Juniperus occidentalis*. *Cercocarpus ledifolius*, a tall shrub or small tree, may also be common. Other shrubs which commonly occur in these woodlands are *Purshia tridentata*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Chrysothamnus viscidiflorus*, *Ribes cereum*, and *Artemisia rigida*, *Artemisia arbuscula* or *Artemisia tridentata*. The herbaceous layer is usually comprised of annual and perennial grasses such as *Pseudoroegneria spicata*, *Festuca idahoensis*, *Poa secunda*, *Koeleria macrantha*, and *Stipa* spp. Common forbs include *Achillea millefolium*, *Balsamorhiza* spp., and *Trifolium macrocephalum*. Adjacent vegetation is most commonly *Pinus ponderosa* forests, *Juniperus occidentalis* woodlands, or *Artemisia* steppe. [Captured 2008-02-18]

***Juniperus occidentalis* / *Pseudoroegneria spicata* Wooded Herbaceous Vegetation**

Western Juniper / Bluebunch Wheatgrass Wooded Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001728

Distribution (Nations/Subnations): US / CA?, ID, NV?, OR, WA?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This association is a broadly defined open steppe community which is widespread in eastern Oregon, somewhat restricted in Idaho, and may occur in California, Washington, and Nevada. Stands occur at elevations of 1070-1680 m (3500-5500 feet) on all aspects and slopes. Soils are loams, clay loams, and silt loams that are shallow and stony. About 55% of the surface is bare of vegetation. Vegetation is typically dominated by a graminoid layer with *Juniperus occidentalis* presence varying from as little as 2 individuals per acre to 32% canopy cover. The sparse to moderately dense graminoid layer is composed of *Pseudoroegneria spicata*, *Festuca idahoensis*, and *Poa secunda* with 3-30%, 0-20%, and 0-28% cover, respectively. Bare ground can occupy as much as 51% of the ground cover. Shrubs are sparse with *Artemisia tridentata* accounting for less than 4% cover. This association is distinguished from similar associations by the dominance of *Pseudoroegneria spicata* in the grass layer and by the lack of *Artemisia tridentata* or *Purshia tridentata* which are present in most *Juniperus occidentalis* stands.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll 1964a, Driscoll et al. 1984, Hall 1973, Johnson and Clausnitzer 1992, Johnson and Simon 1987, Kagan et al. 2000, Western Ecology Working Group n.d., Winward and Youtie 1976

NNHP Plots: (0 plots identified)

Lemna spp. Permanently Flooded Herbaceous Alliance

Duckweed species Permanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1747

Summary: This widespread wetland herbaceous alliance occurs in permanently to seasonally flooded freshwater habitats with still water and saturated soils. Stands occur in ditches, rivers, streams, channels, and ponds from sea level to 2300 m elevation. Examples of this alliance are dominated by any one or mix of several species of the genus *Lemna* floating on the water's surface. The composition of examples varies across the wide range of this alliance. Other species present may include *Spirodela* spp., *Azolla caroliniana*, *Azolla mexicana*, *Azolla filiculoides*, *Wolffiella* spp., *Wolffia borealis*, and other *Wolffia* spp., as well as *Riccia* spp. (an aquatic liverwort). Emergent plants may be present, including *Potamogeton* spp., *Sagittaria* spp., or *Persicaria* spp, but stands dominated by these emergent species probably belong in other, different alliances. Total cover may be continuous, intermittent, or open. These small floating plants may float on the water's surface or become stranded and possibly rooted during drawdown periods. [Captured 2008-02-18]

Lemna spp. Permanently Flooded Herbaceous Vegetation

Duckweed species Permanently Flooded Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003059

Distribution (Nations/Subnations): CA, US / AK, AL, AR, AZ, CA, CO, CT, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WV, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This aquatic association of floating vegetation is known to occur throughout North America. *Lemna* spp. typically dominate but may be mixed with other plant taxa floating on the water surface. *Lemna*-dominated aquatic vegetation occupies wetlands that are permanently, semipermanently or seasonally flooded. These small plants may float on the water's surface or become stranded and possibly rooted during drawdown periods. Water chemistry is fresh. The standing water habitat is relatively shallow, generally less than 2-4 m (6.6-13.1 feet) and occurs as

ponds, lakes, ditches, stock ponds, and backwater sloughs of river and stream channels. Standing water for much or most of the growing season is characteristic. Depth of the water is of no consequence to floating plants; they occur where the wind pushes them. The composition of examples varies across this wide distributional range. *Lemna* taxa that may be present include *Lemna aequinoctialis*, *Lemna gibba*, *Lemna minor*, *Lemna minuta*, *Lemna obscura*, *Lemna perpusilla*, *Lemna trisulca*, *Lemna turionifera*, and *Lemna valdiviana*. Other species present may include *Spirodela* spp., *Azolla mexicana*, *Azolla filiculoides*, *Wolffiella* spp., and *Wolffia* spp., as well as *Riccia* spp. (aquatic liverworts). *Potamogeton* spp., *Sagittaria* spp., or *Polygonum* spp. (= *Persicaria* spp.) may also be present in Rocky Mountain ponds. While these latter species are rooted submerged species, and technically not part of the strictly floating community, they do intermingle. Community composition may change hour to hour, yet the environment (only the top few centimeters of water) is homogeneous. Biomass can be abundant under eutrophic conditions. [Captured 2008-02-15]

References: Fuller 1930, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d., Windell et al. 1986

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Lepidium latifolium* Semi-natural Herbaceous Alliance**

Perennial Pepperweed Semi-natural Herbaceous Alliance

Alliance Code: B.015

Summary: This type represents vegetation at sites where *Lepidium latifolium* has displaced all, or most, native vegetation. The species is a particularly aggressive invader of riparian zones, wetlands, and lake margins in arid cool-deserts, but is capable of invading some upland sites and is known from many non-desert regions.

***** New Vegetation Type - based on field observation:**

***Lepidium latifolium* Semi-natural Herbaceous Vegetation**

Perennial Pepperweed Semi-natural Herbaceous Vegetation

Association Code: NNHP048

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: [see alliance]

References:

NNHP Plots: (0 plots identified)

*** New to Nevada - with plot data:**

***Leymus cinereus* Herbaceous Alliance**

Great Basin Lyme Grass Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1204

Summary: This grassland alliance occurs in the Intermountain West of the U.S. Sites are often gentle to moderate slopes on any aspect. Stands are found on relatively mesic, non-flooded sites such as terraces above the seasonal floodplain, uplands from toeslopes to the shoulder of the slope, broad valleys, mesic patches in semi-arid shrublands and seepage sites. Sites are relatively mesic; some have soils saturated with snowmelt, while others are subirrigated. Soils are typically deep, fine-textured, alkaline, and sometimes saline, derived from alluvium and colluvium. Vegetation included in this alliance is characterized by a sparse to dense herbaceous layer that is dominated by the tall bunchgrass

Leymus cinereus. Other plants are found mainly between the clumps of *Leymus cinereus* or on the edges of the stand. Characteristic graminoids include *Festuca idahoensis*, *Pascopyrum smithii*, *Carex praegracilis*, *Poa secunda* (= *Poa juncifolia*), and *Puccinellia distans*. The forb layer is sparse to moderately dense with perennial species such as *Achillea millefolium*, *Antennaria microphylla*, *Aquilegia* spp., *Astragalus* spp., *Cirsium* spp., *Frasera speciosa*, *Pyrrocoma uniflora* (= *Haplopappus uniflorus*), or *Castilleja* spp. Scattered shrubs may also be present. Sparse annual forbs and grasses are seasonally present. *Leymus cinereus* is salt-tolerant, and saline sites include the more salt-tolerant species like *Pascopyrum smithii* or *Puccinellia distans*. Diagnostic of this alliance is the *Leymus cinereus*-dominated grassland. [Captured 2008-02-27]

* New to Nevada - with plot data:

***Leymus cinereus* Herbaceous Vegetation**

Great Basin Lyme Grass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001479

Distribution (Nations/Subnations): US / CA, CO, ID, MT, OR, WA, WY

Status: 1 Active Confidence: 3 (Weak) Global Rank: G2G3Q

Summary: This association is found along lower elevation riparian corridors and some moderately alkaline valley bottomlands. Elevations range between 305 and 780 m (1000-2550 feet) in northeastern and central Oregon, between 915 and 1525 m (3000-5000 feet) in the Great Basin, and from 1830 to 2451 m (6000-8036 feet) in western Colorado. Generally, stands of this type are described as growing on mesic sites with more soil moisture than is available to the surrounding vegetation: mesic swells and seeps, foothill ravines, moist bottomlands, and along streams. In Oregon, sites are usually situated on gentle slopes in canyon bottoms. Soils are deep sandy loams, generally from alluvium, with a shallow water table. Parent materials are alluvium or colluvium derived from a variety of parent materials. Soils are rapidly drained silt loams, sandy clay loams, and loamy sands. The vegetation is characterized by a tall (over 1.5 m) moderately dense to more typically dense grassland dominated by high cover (30-95%) of *Leymus cinereus* (= *Elymus cinereus*). Other plants are found mainly between the clumps of *Leymus cinereus* or on the edges of the dense stands. Scattered shrubs may be present, including *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Rhus trilobata*, *Ribes* spp., *Rosa* spp., and *Symphoricarpos oreophilus*. Associated species occurring at lower cover values include graminoids such as *Achnatherum hymenoides*, *Achnatherum lettermanii*, *Carex douglasii*, *Elymus glaucus*, *Hesperostipa comata*, *Juncus balticus*, *Pascopyrum smithii*, introduced species *Bromus tectorum* and *Poa pratensis*, and forbs such as *Achillea millefolium*, *Agastache urticifolia*, *Castilleja* spp., *Iris missouriensis*, *Potentilla gracilis* var. *flabelliformis* (= *Potentilla flabelliformis*), *Rumex crispus*, *Sidalcea oregana*, *Stephanomeria minor*, and *Vicia americana*. *Claytonia perfoliata* (= *Montia perfoliata*) is always associated in northwestern Oregon, while more alkaline forbs (*Suaeda* spp.) are more important in the northern Great Basin valleys.

[Captured 2008-02-15]

References: Aldous and Shantz 1924, Baker 1982b, Baker 1984a, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Daubenmire 1970, Daubenmire 1988, DeVelice 1992, Dean 1960, Driscoll et al. 1984, Ferchau 1973, IDCDC 2005, Johnson and Simon 1985, Johnson and Simon 1987, Jones and Ogle 2000, Keammerer 1977, Knight et al. 1976, MTNHP 1988, MTNHP 2002b, Mueggler and Stewart 1980, Stoddart 1941, Thilenius et al. 1995, Thorne Ecological Institute 1973a, USFS 1937, Vories 1974, WNHP unpubl. data, Walker and Brotherson 1982, Western NNHP Plots: p020516l, p020621h (2 plots identified)

Representative Images:



p020621h_1.JPG

***Leymus cinereus* Intermittently Flooded Herbaceous Alliance**

Great Basin Lyme Grass Intermittently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1329

Summary: This grassland alliance occurs throughout much of the Great Basin and Columbia River Basin. Elevations range from 1400-3000 m. Climate is semi-arid, temperate and continental. Sites are nearly level to gently sloping occurring on all aspects. Stands are restricted to intermittently flooded habitats such as playas, intermittent streams and dry washes. Flooding is not predictable to a given season and is dependent upon localized rainstorms. Some stands within this alliance are apparently restricted to permanently saturated soils, and saline or alkaline soils with a shallow water table are typical of most stands. Soils are typically moderately deep silts and clays, and the soil surface often has high cover of bare ground. Vegetation is characterized by a sparse to dense herbaceous layer dominated by tall and medium-tall graminoids (<1.5 m tall). The tall bunchgrass *Leymus cinereus* is the sole or dominant grass. Other graminoids may include *Distichlis spicata*, *Pascopyrum smithii*, *Carex praegracilis*, *Elymus elymoides*, *Hordeum jubatum*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Pseudoroegneria spicata*, *Poa secunda*, *Hesperostipa comata* (= *Stipa comata*), or *Achnatherum thurberianum* (= *Stipa thurberiana*). There is often sparse to moderate cover of perennial forbs such as *Achillea millefolium*, *Crepis runcinata*, and *Potentilla gracilis* var. *fastigiata* (= *Potentilla gracilis* var. *nuttallii*). The emergent shrub *Ericameria nauseosa* (= *Chrysothamnus nauseosus*) may be scattered within the stand. *Claytonia perfoliata* (= *Montia perfoliata*) and *Suaeda* sp. are common native annual forbs, but exotics typically make up the majority of annuals present. Diagnostic of this alliance is the medium-tall grassland dominated by *Leymus cinereus* that is restricted to lowland sites that are flooded intermittently. [Captured 2008-02-18]

***Leymus cinereus* - *Distichlis spicata* Herbaceous Vegetation**

Great Basin Lyme Grass - Saltgrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001481

Distribution (Nations/Subnations): US / CA, CO, ID, NV, OR, UT, WA

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3

Summary: This community is located on the Columbia Plateau in Idaho, Oregon, Nevada, Washington and California, as well as the Uinta Basin of northwestern Colorado. This is a small-patch community ranging from 1-1000 acres in size that is restricted to alkaline or saline soils, often

in swales or stream terraces. The water table can be shallow, or soils may have an impermeable layer holding a perched water table or may have a fine texture (e.g., clay loam) that holds water well. The community is composed of *Leymus cinereus* that forms an open 4-foot tall or taller bunchgrass layer and a 2-foot tall or less, dense rhizomatous *Distichlis spicata* grass cover. *Leymus cinereus* and *Distichlis spicata* are always present and can be the only vascular species present. *Carex praegracilis*, *Equisetum laevigatum*, *Pascopyrum smithii*, *Poa fendleriana*, *Poa secunda* (= *Poa juncifolia*), and *Spartina gracilis* may be present, although usually with less cover than the diagnostic species. Patches of exposed ground are common in more saline sites. The exotic annual grass *Bromus tectorum* is present to abundant in disturbed sites. *Achillea millefolium* is found in most sites in the Great Basin, and *Asclepias speciosa* is common in Uinta Basin stands. This is a low-diversity community with 5-17 species per plot. Total vegetative cover is rarely less than 50%. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Daubenmire 1970, Driscoll et al. 1984, Franklin and Dyrness 1973, IDCDC 2005, Kagan et al. 2000, ORNHP unpubl. data, Poulton 1955, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Leymus triticoides* Temporarily Flooded Herbaceous Alliance**

Beardless Lyme Grass Temporarily Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1353

Summary: This alliance is described from the Warner Valley of southeastern Oregon; the Cow Creek Basin in northwestern Nevada; and in the interior Central Coast Ranges, southern coastal Transverse Ranges, and Central Valley and neighboring coastal and Sierra Nevada foothills of California. Once a widespread grassland of California on heavy soils and hillslopes, *Leymus triticoides* grasslands today are restricted to relict places in California's Central Valley and neighboring coastal and Sierra Nevada foothills, as well as Oregon and Nevada. It occurs on clay or loam soil and has been documented along the margins of marshes, along stream terraces, as narrow bands of wetland-upland borders as a natural ecotones, and along levee tops and margins of marshes adjacent to zones of intermittent flooding. In addition, stands have been documented along riparian floodplains. Elevations range from 0-1600 m. The climate is arid, with mostly winter precipitation ranging from 10-25 cm annually. Stands occur in valleys in drainage bottoms, poorly drained floodplains, margins of marshes, and historic lake basins. Sites are typically flat but include moderate slopes (to 18%). Stands are found on the less xeric northeastern and eastern aspects in Nevada. Soils are typically poorly drained, alkaline, and sandy loam to clay loam in texture. The water table is shallow and causes mottles in the soil.

Stands have a moderate herbaceous layer (50-80% cover) codominated by the perennial graminoids *Leymus triticoides* (= *Elymus triticoides*) with *Carex* spp. or *Poa secunda*. Other frequent graminoid species include *Bromus* spp., *Distichlis spicata*, *Hordeum brachyantherum* ssp. *californicum* (= *Hordeum californicum*), *Hordeum jubatum*, *Juncus balticus*, *Lolium perenne* ssp. *multiflorum* (= *Lolium multiflorum*), and *Scirpus* and/or *Schoenoplectus* spp. Forbs include *Achillea millefolium*, *Agoseris glauca*, *Iris missouriensis*, *Lactuca serriola*, *Triglochin maritima*, and *Nitrophila occidentalis*, in saline/alkaline playas. Stands in valley bottoms may have a few emergent oak trees or elderberry giving this grassland a savanna-like appearance. It is rarely without several introduced annual plants such as *Brassica nigra*, *Carduus pycnocephalus*, *Lactuca serriola*, *Lolium perenne* ssp. *multiflorum* (= *Lolium multiflorum*), *Sonchus* spp., *Polypogon monspeliensis*, *Vulpia myuros*, *Bromus diandrus*,

Bromus hordeaceus, or *Avena fatua*.

Adjacent communities in Nevada are shrublands dominated by *Artemisia tridentata*, and in California are dominated by *Baccharis pilularis*, *Quercus lobata*, or other meadow alliances. [Captured 2008-02-18]

***Leymus triticoides* - *Poa secunda* Herbaceous Vegetation**

Beardless Lyme Grass - Curly Bluegrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001572

Distribution (Nations/Subnations): US / CA, NV?, OR

Status: 1 Active Confidence: 3 (Weak) Global Rank: G2

Summary: This is an alkaline grassland described from the Warner Basin of Oregon, but seen in the Guano and Catlow valleys of south-central Oregon, from Inyo County, California, and almost certainly found elsewhere in the northern Basin and Range and likely occurs in Nevada. It is found in flat, alkaline wetlands, associated with playa lakes, or rarely seasonal streams. In Oregon, elevations range from 1220-1525 m (4000-5000 feet) in elevation.

Leymus triticoides is the characteristic plant, with *Poa secunda* (= *Poa juncifolia* and sometimes still considered as *Poa secunda ssp. juncifolia*) usually codominant. In the more alkaline areas, *Distichlis spicata* or *Puccinellia* spp. can be found, although the most alkaline expressions should be considered a different association. These moist, playa grasslands are distinctive in the very high, predominately rhizomatous grass cover, with frequencies of *Leymus triticoides* averaging over 85%.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Easterday and Mamone 1980, Kagan et al. 2000, Odion et al. 1992, Western Ecology Working Group n.d.

NNHP Plots: p050621m (1 plots identified)

Representative Images:



p050621m_14-21-05.JPG

***Leymus triticoides* Herbaceous Vegetation**

Beardless Lyme Grass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001571

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: Once a widespread grassland of California on heavy clay soils, *Leymus triticoides* grasslands today are restricted to relict places in California's Central Valley and neighboring coastal and Sierra Nevada foothills. It has also been documented along riparian areas in Nevada. It occurs on clay or clay loam soils and has been documented along the margins of marshes, as narrow bands of wetland-upland borders as a natural ecotones, and along levee tops and margins of marshes adjacent to zones intermittent flooding. In addition, stands have been documented along riparian floodplains. *Leymus triticoides* dominates the herbaceous layer but is rarely found without several introduced annual plants such as *Sonchus* spp., *Vulpia myuros*, *Polypogon monspeliensis*, *Lactuca serriola*, *Lolium perenne* ssp. *multiflorum* (= *Lolium multiflorum*), *Bromus diandrus*, or *Avena fatua*. Stands in valley bottoms may have a few emergent oak trees or elderberry, giving this grassland a savanna-like appearance.

[Captured 2008-02-15]

References: Blackburn et al. 1969a, Bourgeron and Engelking 1994, Driscoll et al. 1984, Evens and San 2004, Hamilton 1997, Holstein 2001, Keeler-Wolf and Evens 2006, Keeler-Wolf and Vaghti 2000, Peterson pers. comm., Western Ecology Working Group n.d.

NNHP Plots: p030605b, p020601t (2 plots identified)

Representative Images:



p020601t_1.JPG



p030605b.JPG

***** New Vegetation Type - with plot data:**

***Lomatium nudicaule* Herbaceous Vegetation Alliance**

Barestem Biscuitroot Herbaceous Vegetation Alliance

Alliance Code: B.017

Summary: This striking forbland type is dominated by *Lomatium nudicaule* and typically has several grasses present including *Poa secunda*, *Elymus elymoides*, and/or *Pseudoroegneria spicata*. The *L. nudicaule* can be somewhat ephemeral, but in most cases it leaves tall, smooth, hollow stems that may remain for a year or more.

***** New Vegetation Type - with plot data:**

***Lomatium nudicaule* Herbaceous Vegetation**

Barestem Biscuitroot Herbaceous Vegetation

Association Code: NNHP059

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This striking forbland type is dominated by *Lomatium nudicaule* with ca. 25% ground cover. Several grasses are typically present, though with substantially lower cover than *L. nudicaule*, including *Poa secunda*, *Elymus elymoides*, and/or *Pseudoroegneria spicata*. The *L. nudicaule* can be somewhat ephemeral, but in most cases it leaves tall, smooth, hollow stems that may remain for a year or more.

References:

NNHP Plots: p020515q (1 plots identified)

Representative Images:



p020515q_8.JPG



p020515q_6.JPG

***Mimulus primuloides* Temporarily Flooded Herbaceous Alliance**

Yellow Creeping Monkeyflower Temporarily Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1664

Summary: This alliance is found in the Lake Tahoe area of California and Nevada in wet meadows and other moist, mostly open places at moderate to high elevation (2600 to 2700 m). These meadows are found on gentle slopes in areas where the snow may persist late into the season or melt early. Standing water may be present but is uncommon. Generally, the water table lies between 25 and 88 cm below the surface. Plant communities within this alliance are dominated by *Mimulus primuloides*. Typically, *Carex scopulorum* codominates the canopy. *Deschampsia caespitosa*, *Oreostemma alpigenum* var. *andersonii* (= *Aster alpigenuus* ssp. *andersonii*), and *Salix eastwoodiae* are associated species in the Lake Tahoe stands. Species richness is low to moderate with an average of 18 species per stand. Total cover is high, 90-100%, and generally with 0-2% bare ground. [Captured 2008-02-18]

***Mimulus primuloides* - *Carex scopulorum* Herbaceous Vegetation**

Yellow Creeping Monkeyflower - Holm's Rocky Mountain Sedge Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001975

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Nachlinger 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Muhlenbergia asperifolia* Intermittently Flooded Herbaceous Alliance**

Alkali Muhly Intermittently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1334

Summary: This grassland alliance occurs in intermittently flooded areas in the plains, mountain parks and meadows, valleys, canyons, and plateaus in Colorado and Utah. The flooding is usually the result of highly localized thunderstorms. Sites are found in lowland habitats such as playas, swales, terraces along intermittently flooded washes, and alkali flats. Soils are variable, ranging from deep, fine-textured soil to shallow sand deposits. They are alkaline, and may be moderately saline and poorly drained due to an impermeable layer. Vegetation included in this alliance is characterized by a sparse to dense graminoid layer that is dominated by *Muhlenbergia asperifolia* often forming nearly pure stands. Other characteristic grasses may include *Distichlis spicata*, *Pascopyrum smithii*, *Spartina gracilis*, or *Sporobolus airoides* depending on geography. The exotic annual grasses *Bromus tectorum* and *Polypogon monspeliensis* are often abundant on disturbed sites. Forb cover is generally sparse, but may include species of *Atriplex*, *Polygonum*, and *Rumex*. Shrubs are rare, but because of the patchy distribution of these stands, scattered *Atriplex canescens* and *Sarcobatus vermiculatus* may be present from nearby shrublands. Diagnostic of this grassland alliance is a *Muhlenbergia asperifolia*-dominated herbaceous layer that occurs on lowland sites that are intermittently flooded. [Captured 2008-02-18]

***Muhlenbergia asperifolia* Herbaceous Vegetation**

Alkali Muhly Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL001779

Distribution (Nations/Subnations): US / CO, NM, NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GU

Summary: In Colorado, these alkaline meadows are restricted to poorly drained low lands and alkaline soils. Stands are characterized by sparse cover of *Muhlenbergia asperifolia* and *Spartina gracilis*. Information on stands that occur outside Colorado will be added later.

[Captured 2008-02-15]

References: Bolen 1964, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Donnelly et al. 2006, Driscoll et al. 1984, Kittel and Lederer 1993, Kittel et al. 1999b, U.S. Bureau of Reclamation 1976, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Phippsia algida* Saturated Herbaceous Alliance**

Ice Grass Saturated Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2595

Summary: [no summary available] [Captured 2008-02-18]

***Phippsia algida* Herbaceous Vegetation**

Ice Grass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: C EGL002892

Distribution (Nations/Subnations): US / CO, NM, NV
Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GU
Summary: [no summary available] [Captured 2008-02-15]
References: CONHP unpubl. data 2003, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Phleum alpinum* Herbaceous Alliance**

Mountain Timothy Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1310

Summary: Plant associations within this temperate or subpolar grassland alliance are reported from subalpine and alpine areas in Wyoming and Nevada, and possibly California. Elevations range from 2500-3900 m. Associations are found in mesic meadows, seeps, streambanks, and moist woods. Sites are well-drained, typically on gentle slopes of southeast, south, or west aspects. The water table generally is greater than 1 m below the surface. This alliance is characterized by the dominance of *Phleum alpinum*. *Achillea millefolium* or *Elymus trachycaulus* typically codominate. Associates in the forb layer can be *Symphotrichum foliaceum* (= *Aster foliaceus*), *Antennaria corymbosa*, *Agoseris glauca*, and *Epilobium ciliatum* ssp. *glandulosum* (= *Epilobium glandulosum*). [Captured 2008-02-18]

***Phleum alpinum* - *Achillea millefolium* Herbaceous Vegetation**

Mountain Timothy - Common Yarrow Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001920

Distribution (Nations/Subnations): US / CA?, NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Nachlinger 1985, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Phlox pulvinata* Herbaceous Alliance**

Cushion Phlox Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1651

Summary: This vegetation occurs in alpine fell-fields in the Medicine Bow Mountains of Wyoming. Elevation is approximately 3300 m. Stands occur on ridges, and are exposed to extreme, desiccating winds. Snow cover is mostly scoured away by these winds resulting in a very dry habitat. Substrates are rocky, shallow sandy loams derived from parent materials of a complex of gneiss, schist, and granitic rocks. The plants grow in between the exposed surface rocks forming a sparse herbaceous layer dominated by the cushion plants *Phlox pulvinata*, *Paronychia pulvinata*, *Trifolium dasyphyllum*, *Minuartia obtusiloba*, and the graminoids *Carex rupestris* var. *drummondiana* and *Festuca campestris*. [Captured 2008-02-18]

***Phlox pulvinata* Herbaceous Vegetation [Provisional]**

Cushion Phlox Herbaceous Vegetation

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002740

Distribution (Nations/Subnations): US / NV

Status: 3 Depreciated **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1990, Major and Taylor 1977, Pritchett pers. comm., Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Phragmites australis* Semipermanently Flooded Herbaceous Alliance**

Common Reed Semipermanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1431

Summary: This alliance consists of non-tidal *Phragmites* marshes with semipermanently or, rarely, seasonally flooded hydrology, occurring either in depressions or along rivers with seasonal fluctuation in water level throughout the United States and adjacent Canada. This includes semipermanently flooded marshes, ditches, impoundments, etc., which are strongly dominated by essentially monospecific stands of *Phragmites australis*, which is rapidly spreading in disturbed areas and excluding native vegetation. Stands may be composed entirely of *Phragmites australis*, with few or no other vascular plants present. [Captured 2008-02-18]

***Phragmites australis* Western North America Temperate Semi-natural Herbaceous Vegetation**

Common Reed Western North America Temperate Semi-natural Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001475

Distribution (Nations/Subnations): CA, US / CA, CO, ID, MB, MT, ND, NM, NV, OK, ON, OR, SD, SK, TX, UT, WY?

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This reed marsh type is found across the west-temperate regions of the United States and Canada. Stands occur in semipermanently flooded marshes, ditches, impoundments, etc. that have often been disturbed by human activity. The vegetation is often variable, as *Phragmites australis* will often invade into existing natural or semi-natural communities present on the site. Once firmly established, this community is usually strongly dominated by *Phragmites australis*, with few or no other vascular plants present. In Colorado, this reed marsh often occurs in small wet patches in seeps and backwater areas of large floodplains, around the fringes of irrigation ponds, ditches, and along railroad embankments that have poor drainage. Stands have a dense, 1- to 1.5-m tall herbaceous layer dominated by the perennial graminoid *Phragmites australis*. Minor cover of associates such as *Agrostis stolonifera*, *Carex* spp., *Conyza canadensis*, *Glycyrrhiza lepidota*, *Iva axillaris*, *Mentha arvensis*, *Schoenoplectus acutus* (= *Scirpus acutus*), and *Typha latifolia* may be present. [Captured 2008-02-15]

References: Bailey 1997, Bailey 1998, Baker 1982a, Baker 1984a, Bourgeron and Engelking 1994, Butler et al. 2002, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Greenall 1996, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, Hoagland 1998c, Hoagland 2000, IDCDC 2005, Johnston 1987, Kagan et al. 2000, Kittel et al. 1995, Kittel et al. 1999b, MTNHP 2002b, NDNHI n.d., Von Loh 2000, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Pleuraphis jamesii* Herbaceous Alliance**

James' Galleta Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1287

Summary: This alliance occurs in arid and semi-arid regions in the southwestern Great Plains, Colorado Plateau, Great Basin, and throughout the southwestern U.S. on a variety of landforms including plains, mesas, alluvial flats, floodplains, swales, hillslopes, dunes, badlands and bajadas. Soils are variable and range from sand to clay textures. The vegetation is characterized by an herbaceous layer with sparse to moderately dense cover of perennial grasses that is usually dominated by *Pleuraphis jamesii* (= *Hilaria jamesii*), either growing in nearly pure stands or codominated by *Sporobolus airoides*. *Pleuraphis jamesii* typically grows as a bunchgrass, but under favorable conditions produces a sod. Other common perennial grasses such as *Sporobolus cryptandrus*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), and *Bouteloua gracilis* occur in small amounts (less than half the cover of *Pleuraphis jamesii*). The sparse forb layer often includes *Sphaeralcea coccinea* and *Astragalus* spp. Occasional scattered shrubs and dwarf-shrubs species of *Artemisia*, *Atriplex*, *Chrysothamnus*, *Ericameria*, *Ephedra*, and *Yucca*, as well as *Gutierrezia sarothrae* and *Krascheninnikovia lanata*, may occur with less than 10% total cover. [Captured 2008-02-18]

***Pleuraphis jamesii* Herbaceous Vegetation**

James' Galleta Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001777

Distribution (Nations/Subnations): US / AZ, CA, CO, NV, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2G4

Summary: This widespread grassland association is found on alluvial flats, plateau parks, mesas and plains in the Colorado Plateau and elsewhere in the southwestern U.S. Landforms vary from mesatops and slopes to basin floors. Stands may be small woodland parks or more extensive grasslands on the plains. Soils in bottomland stands tend to be fine-textured; however, stands also occur on a variety of substrates. Vegetation is characterized by a relatively sparse to moderately dense (10-60% cover) perennial herbaceous layer that is strongly dominated by the warm-season bunchgrass *Pleuraphis jamesii*. Low cover of other grasses, such as *Achnatherum hymenoides*, *Bouteloua eriopoda*, *Bouteloua gracilis*, *Hesperostipa comata*, *Muhlenbergia porteri*, *Sporobolus airoides*, or *Sporobolus cryptandrus*, may be present. Forb cover is usually sparse and includes species of *Plantago*, *Gilia*, *Lappula*, and prickly pear cacti (*Opuntia* spp.). Many species of shrubs and dwarf-shrubs may be present; however, they are not dense enough to form a shrub layer. Some stands have high cover of cryptogams on the soil surface.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cannon 1960, Cogan et al. 2004, Collins 1984, Driscoll et al. 1984, Francis 1986, Francis and Aldon 1983, Hansen et al. 2004b, Helm 1981, Kleiner 1968, Kleiner 1983, Kleiner and Harper 1972, Kleiner and Harper 1977, Marr et al. 1973a, Nichol 1937, Stewart et al. 1940, USFS 1937, Utah Environmental and Agricultural Consultants 1973, Von Loh et al. 2002, Weaver and Albertson 1956, West et al. 1972, Western Ecology Working Group n.d.

NNHP Plots: p050407o (1 plots identified)

Representative Images:



p050407o.JPG

* New to Nevada - with plot data:

***Pleuraphis rigida* Herbaceous Alliance**

Big Galleta Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1246

Summary: This herbaceous alliance of the Mojave and Colorado deserts occurs on flat ridges, lower slopes, and stabilized sand dunes. It intergrades with stands of *Larrea tridentata* and/or *Yucca brevifolia*, and occurs at elevations ranging from 75-1400 m. Yearly precipitation totals are between 0 and 25 cm. There is much year-to-year variation in precipitation. The summers are extremely hot. Winter temperatures, particularly at higher elevations, can get quite cold. *Pleuraphis rigida* (= *Hilaria rigida*) is the sole or dominant graminoid in the herbaceous layer. Other grasses may include *Bouteloua eriopoda*, *Dasyochloa pulchella* (= *Erioneuron pulchellum*), *Bromus madritensis*, *Pleuraphis jamesii* (= *Hilaria jamesii*), *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), and others. Emergent shrubs may be present at a low percentage of cover, and scattered *Larrea tridentata* and/or *Yucca brevifolia* may be present. [Captured 2008-02-27]

* New to Nevada - with plot data:

***Pleuraphis rigida* Herbaceous Vegetation [Placeholder]**

Big Galleta Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL003051

Distribution (Nations/Subnations): US / AZ?, CA

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: [no summary available] [Captured 2008-02-15]

References: Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: p050510e (1 plots identified)

***Poa cusickii* Herbaceous Alliance**

Cusick's Bluegrass Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1263

Summary: These grasslands have been described from basins and drainages east of the Cascades in central Oregon. Elevations range from 1280-1830 m. Stands occur in floodplains and terraces along low-gradient streams. Sites are flat to gently sloping. Stands in the bottomlands may be seasonally

flooded during the winter. Upland stands in pumice-mantled basin meadows are not flooded except during abnormally wet years. Water tables are a meter below ground by midsummer and are very deep by late summer. Soils are moderately deep alluviums. Soil textures range from sandy loam to silty loam. Soil parent material is pumice. Vegetation included in this grassland alliance has a moderately dense to dense (60% to more than 80% cover) herbaceous layer about 0.5 m tall. Stands are dominated by the midgrass *Poa cusickii* with several other graminoids, including *Carex athrostachya*, *Carex filifolia*, *Carex praegracilis*, *Elymus caninus*, *Koeleria macrantha*, and *Muhlenbergia richardsonis*. Forb cover is relatively sparse (usually less 25%) and consists of *Achillea millefolium* and *Symphotrichum campestre* var. *bloomeri* (= *Aster campestris* var. *bloomeri*). Adjacent stands include upland coniferous forests dominated by *Pinus contorta* and various wetlands dominated by herbaceous and shrub species of *Carex* and *Salix*. [Captured 2008-02-18]

***Poa cusickii* Herbaceous Vegetation**

Cusick's Bluegrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001655

Distribution (Nations/Subnations): US / CA?, NV, OR, WA?

Status: 1 Active Confidence: 1 (Strong) Global Rank: G2

Summary: This association has only been described from the southern edge of the East Cascades ecoregion in south-central Oregon. It tends to occur on relatively flat terrain characterized as inactive floodplains, terraces, and dry basins at moderate elevations of 1280 to 1830 m (4200-6000 feet). Soils are pumice alluvium with surface textures a silty loam to coarse sandy loam grading into gravelly pumice in the C horizon at 102-178 cm (40-70 inches) below the soil surface. This association contains a mixture of grasses with *Poa cusickii* usually dominating with cover from 27-45%. Codominants may include *Elymus caninus* (<15%), *Koeleria macrantha* (<15%), *Muhlenbergia richardsonis* (<15%), and *Carex praegracilis* (<15%). Common forbs include *Achillea millefolium* (<4%) and *Symphotrichum campestre* var. *bloomeri* (= *Aster campestris* var. *bloomeri*) (<7%).

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Driscoll et al. 1984, Kagan et al. 2000, Kartesz 1999, Kovalchik 1987, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Poa secunda* Seasonally Flooded Herbaceous Alliance**

Curly Bluegrass Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1410

Summary: Stands included in this seasonally flooded grassland alliance are found in eastern Oregon's Columbia Basin and northwestern Nevada. The elevational range is from 1900-2400 m. Stands are found in flat, poorly drained floodplains and internally drained basins or historic lake basins (playas). Soils are moderately deep to deep, alkaline loams or clay loams. They are typically flooded in the spring and have a shallow water table that may drop below 1 m by the early summer. Upper soil horizons may be well-drained. Parent material is alluvium that may be derived from volcanic ash, rhyolite or basalt. Stands have moderately dense cover of perennial bunch grasses that are typically less than 0.5 m tall, but may extend up to 1 m. *Poa secunda* dominates or codominates the stands with *Puccinellia lemmonii* or *Elymus elymoides*. Other consistent graminoids may include *Carex microptera*, *Hordeum brachyantherum*, *Muhlenbergia richardsonis*, *Juncus balticus*, *Juncus ensifolius*, and *Pseudoroegneria spicata*. Forbs commonly found include the perennials *Achillea millefolium*,

Arnica longifolia, *Iris missouriensis*, *Stellaria longipes*, and the annuals *Montia linearis* and *Trifolium cyathiferum*. The deciduous, succulent-leaved shrub *Sarcobatus vermiculatus* may occasionally occur in some stands and is typically 1-3 m tall. Estimates of plant species cover were not available. Adjacent vegetation may include fresh or saline wetlands dominated by species of *Carex* or *Juncus*. Uplands are typically shrublands dominated by *Artemisia tridentata ssp. vaseyana*. [Captured 2008-02-18]

***Poa secunda* - *Muhlenbergia richardsonis* Herbaceous Vegetation**

Curly Bluegrass - Mat Muhly Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002755

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: NVNHP 2003, Weixelman et al. 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Poa secunda* Herbaceous Vegetation**

Curly Bluegrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001657

Distribution (Nations/Subnations): US / CA?, CO, ID, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This widespread grassland association occurs across the intermountain western U.S. Elevation ranges from 1550 to 2722 m (5085-8925 feet). Stands occur on uplands in swales, gentle slopes and drainage bottoms, often with easterly facing aspects. Substrates are deep, well-drained loam and clay loam soils. The vegetation is characterized by a somewhat open to dense graminoid canopy dominated by the short bunchgrass *Poa secunda* (up to 50% cover). The herbaceous layer is diverse, with additional graminoids such as *Carex microptera*, *Eleocharis quinqueflora* (= *Eleocharis pauciflora*), *Hordeum brachyantherum ssp. californicum*, *Leymus simplex*, *Juncus* spp., and *Pascopyrum smithii* providing low to moderate cover. Forbs provide moderate cover and include *Achillea millefolium*, *Agoseris glauca*, *Iris missouriensis*, *Iva axillaris*, *Potentilla gracilis*, *Senecio* sp., and *Trifolium* spp. The short shrub *Artemisia tridentata ssp. wyomingensis* may be present with sparse cover. Introduced species may also be common in some stands.

[Captured 2008-02-15]

References: Blackburn et al. 1969a, Bourgeron and Engelking 1994, Driscoll et al. 1984, IDCDC 2005, Kagan et al. 2000, Kagan et al. 2004, Manning 1988, Manning and Padgett 1995, Western Ecology Working Group n.d.

NNHP Plots: p030603h, p050621k, p020602s, p020602v, p050621c, p050622i, p050628o, p060718.1615, p060718.1823, p060719.1236, p060719.1337 (11 plots identified)

Representative Images:



p030603h.JPG



p060718-1615-1.jpg



p060718-1823-1.jpg



p060719-1236-1.jpg



p050622i_12-39-37.JPG



p050621k_13-40-26.JPG

***Primula parryi* Temporarily Flooded Herbaceous Alliance**

Parry's Primrose Temporarily Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1665

Summary: Plant associations within this alliance occur in the subalpine in the central and southern Rocky Mountains. Elevations range from 3300-3600 m. Types are found around springs, along streams, and below snowpatches. Stands occur on both east- and west-facing slopes. The general aspect of

stands is quite similar in that they occupy very wet micro-basins. Soils are clayey with an average pH of 6.2. The composition of the substrate varies from a mineral to humus type. The forb layer is dominated by *Primula parryi*. Other associates in the forb stratum are *Caltha leptosepala* and *Epilobium anagallidifolium*. The graminoid layer typically is composed of *Deschampsia caespitosa* and *Juncus drummondii*. The moss layer is dominated by *Philonotis fontana* var. *pumila* (= *Philonotis tomentella*). [Captured 2008-02-18]

***Primula parryi* Herbaceous Vegetation**

Parry's Primrose Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001983

Distribution (Nations/Subnations): US / AZ, CO, NV?, UT?

Status: 1 Active Confidence: 3 (Weak) Global Rank: GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Komarkova 1976, Komarkova 1986, Loope 1969, Osburn 1963, Simkins 1931, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* New to Nevada - with plot data:

***Pseudoroegneria spicata* Herbaceous Alliance**

Bluebunch Wheatgrass Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1265

Summary: This widespread grassland alliance occurs across the western U.S. from the slopes of the Cascades, extending east to the Rocky Mountains and the northwestern Great Plains, and south to the Great Basin, Uinta Basin and the Colorado Rocky Mountains. Stands are found on valley bottoms, stream terraces, rolling uplands, canyons, hills, plateaus and badlands, expansive park meadow openings in montane forests, and glacial outwash plains. Sites may be xeric or mesic, on nearly level to steep slopes. Stands occur on all aspects, but often on the drier southern and western slopes. Substrates are also variable and range from shallow, lithic soils with a rocky surface to moderately deep soils with little rock. Grasslands included in this alliance are dominated or codominated by *Pseudoroegneria spicata*. There is typically sparse to moderate cover of perennial forbs and widely scattered shrubs and dwarf-shrubs. Annual grasses and forbs are seasonally present. Litter, moss and lichen are important ground cover in some stands. Species composition is variable over the range of this alliance and may include many other important species such as *Bouteloua curtipendula*, *Bouteloua gracilis*, *Carex* spp., *Danthonia intermedia*, *Eriogonum heracleoides*, *Festuca idahoensis*, *Festuca thurberi*, *Koeleria macrantha*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Pascopyrum smithii*, *Poa fendleriana*, *Poa secunda*, and *Hesperostipa comata* (= *Stipa comata*). Scattered shrubs and dwarf-shrubs, including *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Symphoricarpos albus*, *Rosa* spp. *Artemisia frigida*, may be present in some stands. Disturbed stands may be codominated by the exotics *Poa pratensis* and *Bromus tectorum*. Diagnostic of this grassland alliance is the dominance of *Pseudoroegneria spicata*. [Captured 2008-02-27]

* New to Nevada - with plot data:

***Pseudoroegneria spicata* - *Poa secunda* Herbaceous Vegetation**

Bluebunch Wheatgrass - Curly Bluegrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001677

Distribution (Nations/Subnations): CA?, US / BC?, CO, ID, MT, OR, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4?

Summary: This association has been described from lower montane to subalpine elevations in British Columbia, Washington, Oregon, Idaho, Utah, Colorado, Wyoming, and Montana. Stands of this association occupy loamy, rocky, often shallow soils on slopes and ridges, generally around the edges of basins and in the foothills of the mountains. Sites usually are ridges and slopes, sometimes alluvial fans, scree slopes, sloped rocky cliff faces, and bedrock outcrops of any aspect, although southerly and westerly aspects are most common in the Northwest. Throughout its geographic range this is a bunch grassland with minor cover of forbs and, often, sparse shrubs.

Pseudoroegneria spicata dominates or codominates the vegetation; *Poa secunda* and *Koeleria macrantha* usually are present in substantial amounts, and *Festuca idahoensis* is absent or present in very small amounts. The common shrubs are *Ericameria nauseosa* (= *Chrysothamnus nauseosus*), *Chrysothamnus viscidiflorus*, and *Artemisia tridentata* (subspecies unknown).

Associated forbs are highly variable, given the broad geographic and elevational range. This association was at one time common throughout its wide geographic range, but much of it in Washington and Oregon has been converted to agricultural fields. In many of the remaining stands, the cover of *Pseudoroegneria spicata* has decreased and the cover of *Hesperostipa comata* (= *Stipa comata*) and shrubs have increased, and exotics (especially *Bromus tectorum*, *Tragopogon* spp., and *Alyssum* spp.) have become common members of the vegetation; these changes are attributed in large part to livestock grazing.

[Captured 2008-02-15]

References: Achuff et al. 1993, Achuff et al. 1997, Achuff et al. 2002a, Anderson 1956, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Christensen 1963, Christensen and Welsh 1963, Cooper 2003, Cooper et al. 1995, Daubenmire 1970, Daubenmire 1988, Driscoll et al. 1984, Fisser 1964, Fisser et al. 1965, Hall 1973, Hess and Wasser 1982, Johnson and Simon 1985, Johnson and Simon 1987, Johnston 1987, Jones and Ogle 2000, Kagan et al. 2000, Kleiner 1968, MTNHP 2002b, Mueggler and Stewart 1980, Poulton 1955, Price and Brotherson 1987, Stoddart 1941, Terwilliger et al. 1979a, Tisdale 1947, Tisdale 1986, Tweit and Houston 1980, WNHP unpubl. data, Western Ecology Working Group n.d., Williams 1961

NNHP Plots: p030723c, p050621l, p050711h, p060718.1642, p060718.1744, p060726.1600, p060815.1054, p060815.1058, p020620i, p020620m (10 plots identified)

Representative Images:



p020620i_1.JPG



p030723c_2.JPG



p0506211_14-00-44.JPG



p060726-1600-1.jpg



p060726-1600-2.jpg

*** New to Nevada - with plot data:**

***Pseudoroegneria spicata* Herbaceous Vegetation**

Bluebunch Wheatgrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001660

Distribution (Nations/Subnations): US / CO, UT, WY

Status: 1 Active Confidence: 1 (Strong) Global Rank: G2

Summary: This grassland association occurs on rock outcrops, talus, mesas, plateaus, windswept bluffs, ridgetops and mountains in northern Colorado, northeastern Utah and western Wyoming. It frequently occurs on moderately to steep, mid- to high-slope landforms, although gentle slopes are not uncommon. Sites are relatively xeric and are often found on southerly aspects at lower elevations or on harsh or on windswept areas at higher elevation sites. Substrates are typically shallow, often calcareous, rocky soils. Ground surface often has significant cover of bare ground, gravel and/or rock (10-90% cover). Stands are also reported east of the Continental Divide in Rocky Mountain National Park on a windward knoll and at Grand Teton National Park from a very steep northeast-facing high slope. The vegetation is characterized by an open herbaceous layer that is typically dominated by the cool-season, perennial bunchgrass *Pseudoroegneria spicata* with low to moderate cover (5-30%) and low-growing forbs. *Koeleria macrantha* is repeatedly present in low abundance. Other dry grasses may be present with low cover (less than half the cover of *Pseudoroegneria spicata*). A sparse dwarf-shrub layer (<10% cover) occurs with a variety of woody species of *Artemisia*, *Atriplex confertifolia*, *Cercocarpus*, *Eriogonum*, *Gutierrezia*,

Krascheninnikovia or *Tetradymia* depending on elevation and substrate. There are several to many low-growing forbs (cushion plants) present with low cover, such as *Arenaria* spp., *Arenaria hookeri*, *Astragalus* spp., *Paronychia sessiliflora*, *Phlox* spp., *Stenotus acaulis*, *Tetranneuris acaulis* (= *Hymenoxys acaulis*), and *Townsendia incana*. There are no clear dominants in this list, and the percent cover of each species present will vary from site to site. A diverse and abundant forb layer probably indicates a degraded occurrence.

[Captured 2008-02-15]

References: Baker 1982b, Baker and Kennedy 1985, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Hull and Hull 1974, Jones and Ogle 2000, Rondeau pers. comm., Western Ecology Working Group n.d.

NNHP Plots: p060807.1625, p060620.1131, p050614f (3 plots identified)

Representative Images:



p050614f_11-02-04.JPG



p060807-1625-2.jpg

***** New Vegetation Type - based on field observation:**

***Pteridium aquilinum* Herbaceous Alliance**

Bracken Fern Herbaceous Alliance

Alliance Code: B.005

Summary: A single site is known in Nevada that is dominated by *Pteridium aquilinum*. No data has been collected as yet, however NNHP Ecologist Eric Peterson recalls one or more grasses present, and *P aquilinum* occurs as an understory in neighboring sagebrush stands around the periphery. This alliance likely occurs in small patches in several other western states. The site in Nevada borders an ephemeral creek and is probably water-related, but extends far enough upland and in dry enough soils that a claim to wetland status would be very weak.

***** New Vegetation Type - based on field observation:**

***Pteridium aquilinum* Herbaceous Vegetation [PLACEHOLDER]**

Bracken Fern Herbaceous Vegetation [PLACEHOLDER]

Association Code: NNHP007

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G?

Summary: A single site is known in Nevada that is dominated by *Pteridium aquilinum*. No data has been collected as yet, however NNHP Ecologist Eric Peterson recalls one or more graminoids present in the vegetation as well. A number of potential codominant species exist and this association may eventually be split among several.

References:

NNHP Plots: (0 plots identified)

***Puccinellia nuttalliana* Intermittently Flooded Herbaceous Alliance**

Nuttall's Alkali Grass Intermittently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1335

Summary: Plant associations within this alliance are found in saline flats at lower to moderate elevations in the western United States and Canada. This alliance is known from salt flats in a large, high-elevation (2900 m) park in the Colorado Rocky Mountains, and possibly in basins (1500 m) in Nevada and South Dakota. It also occurs in the broad band of solonchic soils that arc from the southeastern corner to central Alberta and may also occur in a disjunct area of solonchic soils in northern Alberta. Topography is generally flat with poor drainage. Soil moisture is augmented in some areas by groundwater. There is a small microtopography of hummocks which affects the water relations and therefore species composition. The soils are moist, saline and alkaline, derived from calcareous shales or saline parent materials. The rain- and groundwater-saturated soils usually dry out during the growing season. These communities form a ring just above the succulent plant communities associated with playas, salt flats, and saline lakes. *Puccinellia nuttalliana* dominates the graminoid stratum with up to 65% cover. *Distichlis spicata* or *Hordeum jubatum* often codominate the graminoid layer. The forb layer is relatively sparse, typically only 30%. It can be composed of *Salicornia rubra* or *Triglochin maritima*. [Captured 2008-02-18]

***Puccinellia nuttalliana* Herbaceous Vegetation**

Nuttall's Alkali Grass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001799

Distribution (Nations/Subnations): CA, US / AB, CO, MT, NV?, SK?, UT?**Status:** 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: This wetland association is described from a high-elevation (2900 m) park in central Colorado and in southwestern and central Montana, as well as stands from central and southern Alberta, Canada. It likely occurs elsewhere across the western and northern Great Plains and the western U.S. and Canada and possibly into the Boreal Plains in Alberta in areas of solonchic soils. While the dominant species occurs over a broad geographic range, it has quite specific habitat needs, requiring moist soils of intermediate salinity in seasonally wet meadow habitats. Site topography is generally flat with poor drainage. In South Park, Colorado, there is often a small microtopography of hummocks which affects the water relations and therefore species composition. The soils are moist, saline and alkaline, derived from calcareous shales or other saline parent material. The snow/rain- and groundwater-saturated soils usually dry out during the growing season. Communities form a ring just above the succulent plant communities associated with playas, salt flats and saline lakes, or may occur as patches along intermittent drainages. They exist in saline soils that range from 0.7-1% total salts. The pH levels are commonly very alkaline. The wetland vegetation is characterized by the dominance of *Puccinellia nuttalliana* in the graminoid layer. *Distichlis spicata* or *Hordeum jubatum* may codominate in some stands. The forb layer is relatively sparse and is often composed of *Salicornia rubra* or *Triglochin maritima*. Diagnostic of this herbaceous wetland association is the dominance of *Puccinellia nuttalliana*.

[Captured 2008-02-15]

References: Allen 2005, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al.

2003a, Cooper et al. 1999, Dodd and Coupland 1966, Driscoll et al. 1984, Gersib and Steinauer 1991, MTNHP 2002b, Thompson and Hansen 2002, Ungar 1970, Ungar 1972, Ungar 1974c, Wallis 1990, Western Ecology Working Group n.d., Young et al. 1986
NNHP Plots: (0 plots identified)

***Purshia tridentata* Shrub Herbaceous Alliance**

Bitterbrush Shrub Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1523

Summary: This shrub steppe alliance occurs throughout the Intermountain West and forms a landscape matrix which occurs over a broad range of landforms and microhabitats. Stands are often found on the margins of *Pinus ponderosa* woodlands or forests, forming the transition into sagebrush vegetation. They also occur on flats to moderate slopes in foothills, on slopes of lakebeds with ash or pumice soils, stabilized dunes and on dry sites within lower forest zones as shrub-steppe inclusions in forest. Soils are generally well-drained, coarse-textured without high salinity or pH. Vegetation included in this alliance is characterized by a sparse shrub canopy of *Purshia tridentata*, often with *Artemisia tridentata* ssp. *vaseyana* or *Artemisia tridentata* ssp. *wyomingensis* as codominants. Other important or occasional shrubs include *Ericameria nauseosa*(= *Chrysothamnus nauseosus*), *Chrysothamnus viscidiflorus*, *Ribes cereum*, and *Ceanothus velutinus*. Scattered trees may form an emergent layer of individual trees; species include *Pinus ponderosa*, *Juniperus occidentalis*, *Juniperus osteosperma*, *Juniperus scopulorum*, or *Cercocarpus ledifolius*. The herbaceous layer is usually strongly dominated by perennial bunch grasses, including *Pseudoroegneria spicata*, *Festuca idahoensis*, *Festuca campestris*, *Carex pensylvanica*, and *Carex geyeri*, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*), *Hesperostipa comata* (= *Stipa comata*), and *Achnatherum occidentale* (= *Stipa occidentalis*). *Balsamorhiza sagittata* is an important forb associate. Other forbs include several species of *Penstemon*, *Erigeron*, *Eriogonum*, *Castilleja*, *Astragalus*, and *Lupinus*. Diagnostic of this shrub steppe alliance is a typically sparse shrub layer (10-25% cover) dominated by *Purshia tridentata* over an herbaceous layer that is typically dominated by perennial bunch grasses. [Captured 2008-02-18]

***Purshia tridentata* / *Festuca idahoensis* Shrub Herbaceous Vegetation**

Bitterbrush / Idaho Fescue Shrub Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG002674

Distribution (Nations/Subnations): US / CA?, ID, MT, NV, OR, WA, WY

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G3G5

Summary: [no summary available] [Captured 2008-02-15]

References: Daubenmire 1970, Hall 1973, Johnson and Simon 1987, Kagan et al. 2000, Lewis 1975a, MTNHP 2002b, Mueggler and Stewart 1980, Tweit and Houston 1980, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Ruppia (cirrhosa, maritima)* Permanently Flooded Herbaceous Alliance**

(Spiral Ditch-grass, Beaked Ditch-grass) Permanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1755

Summary: This alliance occurs in tidal flats and alkali marshes of California and requires seasonally to

permanently flooded areas with hypersaline, mixohaline, or mixosaline water chemistry. Elevations range from sea level to 2100 m. This alliance is dominated by one of two species of *Ruppia*; *Ruppia cirrhosa* at higher elevations and inland stands, and *Ruppia maritima* in the lowlands and coastal zone. Both species form submerged beds. Other species present may include *Utricularia macrorhiza*, *Najas guadalupensis*, *Zannichellia palustris*, *Potamogeton foliosus*, *Myriophyllum* spp., and *Ceratophyllum* spp. [Captured 2008-02-18]

Ruppia (cirrhosa, maritima) Permanently Flooded Herbaceous Vegetation **[Placeholder]**

(Spiral Ditch-grass, Beaked Ditch-grass) Permanently Flooded Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG003119

Distribution (Nations/Subnations): US / CA, NV?

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G1G3

Summary: This association grows in saline, seasonally or permanently flooded marshes, channels, ponds, rivers or coastal wetlands. Inland habitats usually have saline soils and low precipitation.

Ruppia cirrhosa or *Ruppia maritima* is the sole or dominant herb forming submerged beds in the water. *Utricularia macrorhiza* (= *Utricularia vulgaris*), *Najas guadalupensis*, *Zannichellia palustris*, *Potamogeton foliosus*, and/or *Myriophyllum* sp. may be present.

[Captured 2008-02-15]

References: NVNHP 2003, Sawyer and Keeler-Wolf 1995, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Salicornia rubra* Seasonally Flooded Herbaceous Alliance**

Red Saltwort Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1818

Summary: This alliance is found in the northern Great Plains, north into the Boreal Plains. Stands are found in shallow, broad depressions with poor drainage and high salt concentrations and on extensive mudflats of alkaline deltaic sediments. Most soils are clay to silty loam and may have salt encrustations on the surface after drying out in midsummer. The surface soil has an average salt concentration of 4.8%. Water often collects on the surface in the spring or after heavy rains, but by midsummer the soil can be dry to moist. Total vegetation cover is sparse to moderate with exposed soil. The harsh conditions provided by the saline soil, spring flooding, and summer drought limit the number of species capable of growing in this alliance. Stands that have more stable water tables can have moderate diversity. *Salicornia rubra*, an annual forb, dominates this alliance. Other species that are often found are *Chenopodium rubrum*, *Distichlis spicata*, *Hordeum jubatum*, *Puccinellia nuttalliana*, and *Suaeda calceoliformis*. [Captured 2008-02-18]

***Salicornia rubra* Herbaceous Vegetation**

Red Saltwort Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001999

Distribution (Nations/Subnations): CA, US / AB, CA?, CO, MB, MN, MT, ND, NV?, SD, SK

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G3

Summary: This community is associated with highly alkaline wetlands or semipermanent alkaline lakes in the northern Great Plains and Great Basin of the United States and adjacent Canada, north into the Boreal Plains, where it is also found on alkaline deltaic sediments. It often borders

intermittent open water or is found on the exposed mud of alkali flats. *Salicornia rubra* may make up to 100% of the vegetation within these areas. Other species which may be found associated with *Salicornia rubra* include *Puccinellia nuttalliana* (= *Puccinellia airoides*), *Distichlis spicata*, *Hordeum jubatum*, *Triglochin maritima*, *Chenopodium rubrum*, and *Suaeda calceoliformis*. [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Cooper 1990, Dodd and Coupland 1966, Driscoll et al. 1984, Gersib and Steinauer 1991, Greenall 1996, Hansen et al. 1991, Looman 1981a, MTNHP 2002b, NDNHI n.d., Sarr and Sanderson 1998, Stewart and Kantrud 1971, Stewart and Kantrud 1972, Thompson and Hansen 2002, Ungar 1972, Ungar 1974c, Wallis 1990, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

* **New to Nevada - with plot data:**

***Salsola* spp. Semi-natural Herbaceous Alliance** **[Provisional]**

Russian Thistle Semi-natural Herbaceous Alliance [Provisional]

Alliance Code: B.018

Summary: This alliance was added to the NNHP database because the NatureServe 'lookups' database contained a relevant association, yet lacked this parent alliance.

* **New to Nevada - with plot data:**

***Salsola* spp. Herbaceous Vegetation [Provisional]**

Russian-thistle species Herbaceous Vegetation

WARNING: NatureServe Explorer did not return information on this association, so it may no longer be valid.

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL004004

Distribution (Nations/Subnations): US / UT

Status: 3 Depreciated **Confidence:** (Weak) **Global Rank:** GNR

Summary: [no summary available] [Captured 2008-02-15]

References: Western Ecology Working Group n.d.

NNHP comments: The NatureServe lookups database did not have an alliance for this vegetation type. For purposes of outputting this document, an alliance was constructed though it is not listed as a proposed type.

NNHP Plots: p050406c (1 plots identified)

Representative Images:



p050406c.JPG

***Schoenoplectus acutus* - (*Schoenoplectus tabernaemontani*) Semipermanently Flooded**

Hardstem Bulrush - (Softstem Bulrush) Semipermanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1443

Summary: This alliance is found in the midwestern and western United States and central Canada. Stands of this alliance are flooded for most or all of the growing season and can have water from 0 (exposed soil) to approximately 1.5 m deep, but usually is less than 1 m. Within a stand, water levels can vary by up to 1 m during the year. The water can be fresh to mildly saline throughout most of this alliance's range; however, in the Nebraska Sandhills, some stands occur in moderately alkaline water. Across the range of this alliance, soils are deep, poorly drained, muck, peat, or mineral. Vegetation is characterized by medium to tall graminoids which typically range from 1 to over 2 m. The vegetation is moderately dense to dense. Some stands are heavily dominated by one or two *Schoenoplectus* spp. (= *Scirpus* spp.), while others have several graminoids common throughout the stand. The most abundant species are typically *Schoenoplectus acutus* (= *Scirpus acutus*), *Schoenoplectus fluviatilis* (= *Scirpus fluviatilis*), and *Schoenoplectus tabernaemontani* (= *Scirpus tabernaemontani*). Species composition and abundance can vary from year to year depending mostly on water level fluctuations. In most years, typical species include *Lemna* spp., *Phragmites australis*, *Schoenoplectus americanus* (= *Scirpus americanus*) (in alkaline stands), *Triglochin maritima* (in alkaline stands), *Typha latifolia*, and *Utricularia macrorhiza*. *Potamogeton* spp. often occur in the deeper parts of stands of this alliance and where emergent species are not densely packed. Shrubs, such as *Salix* spp., are not common but may become established in shallow water areas. During droughts, species more tolerant of low water, such as *Polygonum amphibium*, may invade and alter the species composition of stands of this alliance. [Captured 2008-02-18]

***Schoenoplectus acutus* Herbaceous Vegetation**

Hardstem Bulrush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001840

Distribution (Nations/Subnations): US / CA, CO, ID, MT, NV, OR, UT, WA

Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This association is a common emergent herbaceous wetland found mostly in the interior western U.S. ranging from the Puget Sound of Washington to Montana south to California, Nevada and Utah. Stands occur along low-gradient, meandering, usually perennial streams, river floodplain basins, and around the margins of ponds and shallow lakes especially in backwater areas. Some sites are flooded most of the year with about 1 m of fresh to somewhat saline or alkaline water. Other sites, however, dry up enough in late summer to where the water table drops below the ground surface, though the soils are still partially saturated. Soils are generally deep, organic, alkaline, poorly drained and fine-textured, but range in soil textures from sand to clay to organic muck. The soils may be normal or saline. Vegetation is characterized by a dense tall herbaceous vegetation layer 1-3 m tall that is dominated by *Schoenoplectus acutus* (= *Scirpus acutus*), often occurring as a near monoculture. Associated species include low cover of *Mentha arvensis*, *Polygonum amphibium*, *Sagittaria latifolia*, and species of *Carex*, *Eleocharis*, *Rumex*, and *Typha*. Early in the growing season or at permanently flooded sites, aquatic species such as *Potamogeton* spp. and *Lemna minor* may be present to abundant. Stands of this association contain no tree or shrub layer, but a few sites have been invaded by the introduced shrub *Tamarix* spp.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bundy et al. 1996, Christy 2004, Christy and Cornelius 1980, Christy et al. 1998, Crowe et al. 2004, Dethier 1990, Driscoll et al. 1984, Evans 1989a, Evans 1989b, Griffiths 1902, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jankovsky-Jones et al. 1999, Jefferson 1975, Kagan et al. 2000, Kierstead and Pogson 1976, Kunze 1994, MTNHP 2002b, Macdonald 1977, Moseley 1998, Padgett et al. 1989, Sawyer and Keeler-Wolf 1995, Thomas 1980, Western Ecology Working Group n.d., Youngblood et al. 1985a
NNHP Plots: (0 plots identified)

***Schoenoplectus americanus* Semipermanently Flooded Herbaceous Alliance**

Chairmaker's Bulrush Semipermanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1432

Summary: This alliance, found in the southern Great Plains and several western states, contains bulrush wetlands dominated by *Schoenoplectus americanus* (= *Scirpus americanus*). This alliance is not well understood across its range. In cienegas in Trans-Pecos Texas (and possibly also in southern New Mexico), *Schoenoplectus americanus* typically dominates the stands, though *Flaveria chlorifolia* or *Helianthus paradoxus* may be locally dominant. Other species include *Samolus ebracteatus* ssp. *cuneatus*, *Limonium limbatum*, and *Distichlis spicata*. Most examples of this community have been hydrologically altered by use of water for irrigation. Elsewhere in Texas it occurs in permanent springs where species may include *Schoenoplectus americanus*, *Eleocharis macrostachya*, *Fuirena simplex*, *Paspalum distichum*, *Potamogeton illinoensis*, and in outer zones, *Andropogon gerardii*. *Schoenoplectus americanus*-dominated marshes occur throughout Oklahoma, but are most common in the central and western portions of the state, and in the panhandle. Further study is needed to characterize this alliance. [Captured 2008-02-18]

***Schoenoplectus americanus* - *Eleocharis palustris* Herbaceous Vegetation**

Chairmaker's Bulrush - Marsh Spikerush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001585

Distribution (Nations/Subnations): US / CO, NM, NV?, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G4

Summary: [no summary available] [Captured 2008-02-15]

References: Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Driscoll et al. 1984, Shupe et al. 1986, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Schoenoplectus maritimus* Semipermanently Flooded Herbaceous Alliance**

Saltmarsh Clubrush Semipermanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1444

Summary: Stands of this saline emergent wetland alliance are scattered from California to New York, mostly in the northern half of the United States and the southern Prairie Provinces of Canada. This description is based on the two communities that occur in the Midwest. The dominant vegetation is medium-tall graminoids with a sparse to complete canopy. Woody species are very rare, and forbs are

common in some eastern stands but rare in most of the Great Plains. Stand-to-stand species variability can be substantial, especially east of the Great Plains, where the stands tend to be smaller and more isolated. The most abundant species across the range of this alliance is *Schoenoplectus maritimus* (= *Scirpus maritimus*), often with smaller amounts of *Schoenoplectus americanus* (= *Scirpus americanus*), *Sium suave*, and *Typha* spp. Species common in the Great Plains include *Juncus balticus*, *Schoenoplectus acutus* (= *Scirpus acutus*), *Scolochloa festucacea*, and *Triglochin maritima*. *Symphyotrichum lanceolatum* (= *Aster lanceolatus*), *Atriplex patula*, *Eleocharis parvula*, and *Hibiscus moscheutos* are found from Illinois eastward.

Stands of this alliance are flooded by shallow saline water for much of the growing season and saturated for nearly all of it. In the Great Plains these sites are typically near shallow marshes, ponds, or lakes, while in Michigan they may also occur near rivers and streams. The soils are fine-textured and vary from fine sandy loams to mucks. [Captured 2008-02-18]

***Schoenoplectus maritimus* Herbaceous Vegetation**

Saltmarsh Clubrush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001843

Distribution (Nations/Subnations): US / CA?, CO, ID, MT, NM, NV, OR, WA

Status: 1 Active Confidence: 1 (Strong) Global Rank: G4

Summary: In Colorado, this wetland often occurs in standing water. The vegetation is characterized by a sparse cover of *Schoenoplectus maritimus* (= *Scirpus maritimus*), few associated species and mostly open water. Livestock grazing is limited in this association due

Information on stands that occur outside Colorado will be added later. to the wet conditions.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Bundy et al. 1996, CONHP unpubl. data 2003, Carsey et al. 2003a, Copeland 1979, Driscoll et al. 1984, Griffiths 1902, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Kagan et al. 2000, Kittel and Lederer 1993, Kittel et al. 1999b, MTNHP 2002b, WNHP unpubl. data, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Schoenoplectus pungens* Semipermanently Flooded Herbaceous Alliance**

Common Threesquare Semipermanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1433

Summary: This alliance, found in the northern Great Plains, Utah, Nevada, and southern British Columbia and Alberta, Canada, is made up of graminoid-dominated communities found in saline or alkaline wetlands. This alliance occurs in depressions and stream or river valleys. The loam to sandy loam soils are deep, poorly drained and formed in alluvium (Steinauer 1989). These soils are slightly to strongly affected by soluble salt. Standing water is at or near the surface for most of the year. Medium-tall and short graminoids predominate. Woody species are very uncommon. *Schoenoplectus pungens* (= *Scirpus pungens*), *Suaeda calceoliformis*, *Distichlis spicata* (on drier margins), and *Ruppia maritima* are all common species. *Chenopodium incanum*, *Monolepis nuttalliana*, and *Picradeniopsis oppositifolia* are sometimes abundant on less saline portions of the alliance. [Captured 2008-02-18]

***Schoenoplectus pungens* Herbaceous Vegetation**

Common Threesquare Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001587

Distribution (Nations/Subnations): CA, US / AB, BC, CO, ID, KS, MT, ND, NM, NV, SD, UT, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This bulrush wet meadow community is found in the western United States in the intermountain basins, as far north as southern British Columbia, as well as in western parts of the Great Plains north into Alberta, Canada. Stands are found along low-gradient, meandering, usually perennial streams and springs and around the margins of ponds and marshes. Substrates are generally dark, organic, fine-textured soils derived from alluvium. *Schoenoplectus pungens* (= *Scirpus pungens*) dominates the dense, 0.3- to 0.6-m tall herbaceous vegetation layer. Other species that often are present include *Schoenoplectus maritimus* (= *Scirpus maritimus*), *Spartina gracilis*, *Hordeum jubatum*, *Pascopyrum smithii*, *Juncus balticus*, *Eleocharis palustris*, *Lemna minor*, *Sagittaria latifolia*, and *Typha* spp. Stands of this association contain no tree or shrub layer, but a few scattered trees and shrubs may be present, most commonly *Populus deltoides*, *Populus fremontii*, *Salix amygdaloides*, *Salix exigua*, *Salix gooddingii*, *Symphoricarpos occidentalis*, or *Sarcobatus vermiculatus*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Brotherson and Barnes 1984, Bundy et al. 1996, Butler et al. 2002, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Gleason and Cronquist 1991, Great Plains Flora Association 1986, Hansen et al. 1991, Hansen et al. 1995, IDCDC 2005, Jones 1992b, Jones and Walford 1995, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1999b, Larson 1993, Lauver et al. 1999, MTNHP 1988, MTNHP 2002b, MacKenzie and Moran 2004, Muldavin et al. 2000a, NDNHI n.d., Thompson and Hansen 2002, Walford 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Sisymbrium altissimum* Semi-natural Herbaceous Vegetation Alliance**

Tumble-mustard Semi-natural Herbaceous Vegetation Alliance

Alliance Code: B.010

Summary: This is an invasive vegetation type for sites that are clearly dominated by a continuous canopy of *Sisymbrium altissimum*, an invasive mustard. *Bromus tectorum* may also be present as an understory. Note that *S. altissimum* often has even greater inter-annual variation depending on precipitation than *B. tectorum*. Sites where *S. altissimum* simply forms clumps scattered about the area should be classified elsewhere.

***** New Vegetation Type - based on field observation:**

***Sisymbrium altissimum* Semi-natural Herbaceous Vegetation**

Tumble-mustard Semi-natural Herbaceous Vegetation

Association Code: NNHP032

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 1 (Strong) **Global Rank:** G5

Summary: See Alliance. Co-dominance with other invasive species may justify future splitting of several associations within this alliance.

References:

NNHP Plots: (0 plots identified)

***Spartina gracilis* Seasonally Flooded Herbaceous Alliance**

Alkali Cordgrass Seasonally Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1407

Summary: This tall grassland alliance is found on scattered low-elevation sites of the northern and western Great Plains, and in northern portions of the Intermountain West. Locations supporting this alliance are moist, poorly drained, often alkaline areas along ephemeral, intermittent or perennial streams, as well as swales, meadows, the margins of marshes and ponds and on moist sandy overflow channels and backwater areas of large rivers. Water tables are typically high, within 1 m of the surface, but the sites are not permanently flooded. Soils are fine-textured, and range from clays to silt-loam, and are usually slightly to moderately alkaline, but non-saline. Vegetation included in this alliance is characterized by a tall perennial graminoid layer that is dominated by *Spartina gracilis*, sometimes forming pure stands. Other graminoids present, and occasionally codominant, include *Schoenoplectus pungens* (= *Scirpus pungens*), *Juncus balticus*, and *Pascopyrum smithii*. Forb species tend to be weedy, such as *Grindelia squarrosa*, *Glycyrrhiza lepidota*, and *Xanthium strumarium*. These forbs can be somewhat abundant in disturbed locations, but otherwise are found in small amounts. Diagnostic of this alliance is the *Spartina gracilis*-dominated tall graminoid layer in a grassland that has a relatively shallow water table and is flooded for an extended period during the growing season. [Captured 2008-02-18]

***Spartina gracilis* Herbaceous Vegetation**

Alkali Cordgrass Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001588

Distribution (Nations/Subnations): US / CA, CO, ID, MT?, NV, OR, UT, WA?, WY

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** GU

Summary: This association has only been described from plots in northern Colorado, Utah and Oregon, but it is likely to occur throughout the western U.S. In Colorado, these wetland meadows occur in small patches in swales and on banks, terraces and overflow channels of gentle-gradient streams and rivers at low to middle elevations. Soils are alkaline, fine-textured silt loams and clay loams. The vegetation is a sparse to thick herbaceous layer of grasses and grasslike plants that is dominated by *Spartina gracilis*. Other herbaceous species that are known to occur include *Equisetum hyemale*, *Distichlis spicata*, *Triglochin maritima*, and *Asclepias speciosa*. Deciduous trees and shrubs occur with minimal cover and are usually restricted to the margins of stands. This association requires a seasonally high water table and alkaline soils in order to persist. Information on stands that occur outside Colorado will be added later as it becomes available.

[Captured 2008-02-15]

References: Baker 1984b, Bourgeron and Engelking 1994, CONHP unpubl. data 2003, Carsey et al. 2003a, Driscoll et al. 1984, Hanson 1929, IDCDC 2005, Jones 1992b, Kagan et al. 2004, MTNHP 2002b, Sawyer and Keeler-Wolf 1995, Ungar 1972, Ungar 1974c, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Sporobolus airoides* Intermittently Flooded Herbaceous Alliance**

Alkali Sacaton Intermittently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1331

Summary: This alliance includes vegetation characterized by *Sporobolus airoides*, typically in saline or alkaline habitats. In western Texas, communities of this alliance are found in depressions among gypsum ridges and on salt flats at elevations around 1100 m (3600 feet). Associates known from western Texas occurrences include *Allenrolfea occidentalis*, *Suaeda suffrutescens*, *Atriplex canescens*, *Tamarix ramosissima*, *Isocoma pluriflora*, *Hoffmannseggia glauca*, *Cressa truxillensis*, *Frankenia jamesii*, *Tiquilia hispidissima*, *Dicranocarpus parviflorus*, *Brickellia eupatorioides* var. *chlorolepis*, *Lepidium montanum*, and *Sphaeralcea hastulata*. The main distribution of this alliance is west of Texas, with associations in Arizona, New Mexico, Colorado, Kansas, Montana, and possibly in California. [Captured 2008-02-18]

*** * * New Vegetation Type - with plot data:**

***Sporobolus airoides* (emergent *Sarcobatus vermiculatus*) Intermittently Flooded Herbaceous Vegetation**

Alkali Sakaton (emergent Big Greasewood) Intermittently Flooded Herbaceous Vegetation

Association Code: NNHP061

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G2G4

Summary: There is some uncertainty on the placement of this vegetation type into the present alliance, since it is distinguished from the other *Sporobolus* types by the presence of emergent shrubs. However, while the shrubs may be a regular component of the community, they are generally quite sparse. Ecologically, the *Sporobolus airoides* Intermittently Flooded Herbaceous Alliance makes most sense, but from the naming conventions of the IVC, perhaps it should be placed in a "*Sarcobatus vermiculatus* Shrub Herbaceous Alliance"? If such an alliance is constructed, then some other associations may also fit, such as *Sarcobatus vermiculatus* / *Distichlis spicata* Shrubland (which is currently, and probably appropriately) placed within the 'Intermittently Flooded' alliance). Clearly *S. vermiculatus* associations and alliances need substantial revision. Perhaps this can be addressed in a future edition of this NNHP document, or perhaps by NatureServe (or ideally in some collaboration between the two).

This type is characterized by *Sporobolus airoides* forming the vast majority of ground cover (generally around 20% ground cover) with a great deal of exposed soil (wet mud or dry hardened mud). Numerous other species are typically present including both grasses and shrubs. *Sarcobatus vermiculatus* is regularly present though with only trace - 5 % ground cover.

References:

NNHP Plots: p050711e, p020620a (2 plots identified)

Representative Images:



p020620a_1.JPG



p050711e_15-41-15.JPG

***** New Vegetation Type - with plot data:**

***Taeniatherum caput-medusae* Semi-natural Herbaceous Alliance**

Medusahead Semi-natural Herbaceous Alliance

Alliance Code: B.004

Summary: This alliance is used to describe vegetation dominated by *Taeniatherum caput-medusae* with very little or no native species remaining, such that sites cannot be identified as a native vegetation type in poor (D-rank) condition. Presently, only one component association will be described, however additional associations may be constructed if other exotic species form distinct communities with *T. caput-medusae*.

***** New Vegetation Type - with plot data:**

***Taeniatherum caput-medusae* Semi-natural Herbaceous Vegetation**

Medusahead Semi-natural Herbaceous Vegetation

Association Code: NNHP006

Distribution (Nations/Subnations): US / ID, NV, OR

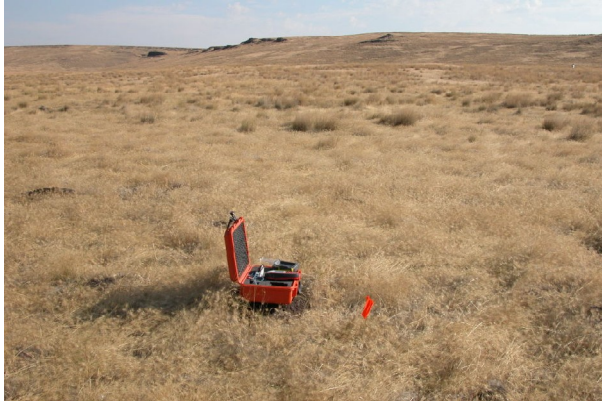
Status: 1 **Active Confidence:** 1 (Strong) **Global Rank:** G5

Summary: This type is for (near-) monocultures of *Taeniatherum caput-medusae*. Other invasive species are commonly present, sometimes even abundant, particularly *Bromus tectorum* or *Sisymbrium altissimum*. Some native species may be present as well but if occurring in adequate quantities to determine a native vegetation type, then the site should be classified as that native type in condition D. Known in NV only in small patches in either the Columbia Basin regions or on the flanks of the Sierra. Forms extensive land cover in Oregon (NNHP has sampled it in Malheur County).

References:

NNHP Plots: p060712.1615, p060815.0851 (2 plots identified)

Representative Images:



p060815-0851-1.jpg



p060815-0851-3.jpg

Typha (angustifolia, latifolia) - (Schoenoplectus spp.) **Semipermanently Flooded Herbaceous**

(Narrowleaf Cattail, Broadleaf Cattail) - (Clubrush species) Semipermanently Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1436

Summary: This alliance, found in virtually every state in the United States and probably most Canadian provinces, contains stands dominated by *Typha angustifolia* and/or *Typha latifolia*, either alone or in combination with other tall emergent marsh species. Associated species vary widely; in the Midwest they include many sedges such as *Carex aquatilis*, *Carex rostrata*, *Carex pellita* (= *Carex lanuginosa*), bulrushes such as *Schoenoplectus americanus* (= *Scirpus americanus*), *Schoenoplectus acutus* (= *Scirpus acutus*), and *Schoenoplectus heterochaetus* (= *Scirpus heterochaetus*), and broad-leaved herbs such as *Thelypteris palustris*, *Asclepias incarnata*, *Impatiens capensis*, *Sagittaria latifolia*, *Scutellaria lateriflora*, *Sparganium eurycarpum*, *Hibiscus moscheutos*, and *Verbena hastata*. Floating aquatics such as *Lemna minor* may predominate in deeper zones.

This alliance is found most commonly along lake margins and in shallow basins, and occasionally in river backwaters. Lacustrine cattail marshes typically have a muck-bottom zone bordering the shoreline, where cattails are rooted in the bottom substrate, and a floating mat zone, where the roots grow suspended in a buoyant peaty mat. *Typha angustifolia* can grow in deeper water compared to *Typha latifolia*, although both species reach maximum growth at a water depth of 50 cm. *Typha* often occurs in pure stands, and can colonize areas recently exposed by either natural or human causes. *Lythrum salicaria*, an exotic species from Europe, has become a common associate of many eastern *Typha* marshes. In the Southeast, this alliance is widespread and currently representative of a wide variety of mixed marshes with no clear dominants. Vegetation in this alliance may be natural or semi-natural and includes mixed stands of the nominal species, as well as essentially monospecific stands of *Typha latifolia*. These monospecific stands occur especially in artificial wetlands, such as borrow pits or ponds. This alliance occurs on hydric soils in wetlands, ditches, ponds, lakes, and rivers, as well as on shorelines and streambanks. Inundation is commonly 3-6 dm (1-2 feet) in depth. These marshes have hydric soils and are flooded with water levels ranging from several centimeters to more than 1 m for a significant part of the growing season. Occurrences may display areas of open water, but emergent vegetation dominates (80% cover). Seasonal flooding during winter and spring or flooding during

heavy rains help maintain these marshes by causing water exchange which replenishes freshwater and circulates nutrients and organic debris. Soils which support this community can be mineral or organic but are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. Vegetative diversity and density is highly variable in response to water depth, water chemistry, and natural forces. [Captured 2008-02-18]

***Typha (latifolia, angustifolia)* Western Herbaceous Vegetation**

(Broadleaf Cattail, Narrowleaf Cattail) Western Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002010

Distribution (Nations/Subnations): CA, US / AB, AZ, BC, CA, CO, ID, MT, NE, NM, NV, OR, UT, WA, WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This association is widespread across the western United States and western Great Plains occurring near streams, rivers, and ponds. The soil is flooded or saturated for at least part of the growing season. The alluvial soils have variable textures ranging from sand to clay and usually with a high organic content. The dominant species, *Typha latifolia* or *Typha angustifolia*, often form dense, almost monotypic stands. Other species typical of wetlands may be found in lesser amounts in this community; among these are shallower water emergents such as *Carex* spp., *Eleocharis macrostachya*, *Eleocharis palustris*, *Glyceria* spp., *Juncus balticus*, *Juncus torreyi*, *Mentha arvensis*, *Schoenoplectus acutus*, and *Veronica* spp. In deeper water, *Lemna minor*, *Potamogeton* spp., *Sagittaria* spp., *Azolla filiculoides*, and other aquatics may be present in trace amounts.

[Captured 2008-02-15]

References: Baker 1984a, Boss 1983, Bourgeron and Engelking 1994, Bundy et al. 1996, Bunin 1985, CONHP unpubl. data 2003, Carsey et al. 2003a, Christy 1973, Christy 2004, Crowe and Clausnitzer 1997, Crowe et al. 2004, Dethier 1990, Driscoll et al. 1984, Hansen et al. 1991, Hansen et al. 1995, Holland 1986b, IDCDC 2005, Jankovsky-Jones et al. 2001, Johnston 1987, Jones 1992b, Jones and Walford 1995, Kagan et al. 2000, Kittel et al. 1996, Kittel et al. 1999a, Kittel et al. 1999b, Kovalchik 1993, Kovalchik 2001, Kunze 1994, Lindauer 1978, Lindauer and Christy 1972, MTNHP 2002b, Marriott and Faber-Langendoen 2000, Masek 1979, McEachern 1979, Muldavin et al. 1993b, Murray 2000, Padgett et al. 1989, Ramaley 1939b, Sanville et al. 1986, Titus et al. 1996, Tolstead 1942, Von Loh 2000, WNHP unpubl. data, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

***Typha domingensis* Seasonally Flooded Temperate Herbaceous Alliance**

Southern Cattail Seasonally Flooded Temperate Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1392

Summary: This alliance includes temperate, non-tidal wetlands dominated by *Typha domingensis*. This includes wet parts of non-tidal interdune ponds with brackish water from hurricane flooding, storm tides, or island overwash. Other characteristic species may include *Setaria magna* and *Cyperus* spp. This alliance can be zonal with other vegetation including *Leptochloa fusca ssp. fascicularis* (= *Leptochloa fascicularis var. maritima*) and alien *Phragmites australis*. This alliance occurs in coastal areas of North Carolina, South Carolina, Florida, Texas, and in scattered localities in the mountains of Colorado and Utah, and the intermountain desert region of California, Arizona and Nevada. [Captured 2008-02-18]

***Typha domingensis* Western Herbaceous Vegetation**

Southern Cattail Western Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001845

Distribution (Nations/Subnations): US / AZ, CA, CO, NV, UT

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G5?

Summary: This wetland association is widespread across the southwestern United States and Great Basin. These marshes occur in bottomlands along drainages, in river floodplain depressions, oxbow lakes, and below seeps. Substrates are variable but are generally fine-textured, alkaline, alluvial soil. Flood regimes range from seasonal inundation with the soils drying out and cracking in late summer to permanently flooded marshes. The vegetation is characterized by a dense, 2- to 4-m tall herbaceous layer of *Typha domingensis* that dominates the site as a monoculture or codominates with *Schoenoplectus acutus* (= *Scirpus acutus*) or species of *Carex*. Associated graminoids include *Carex nebrascensis*, *Eleocharis palustris*, *Eleocharis macrostachya*, *Juncus balticus*, *Schoenoplectus maritimus* (= *Scirpus maritimus*), *Schoenoplectus pungens*, and under drier conditions *Hordeum jubatum* and *Distichlis spicata* may be present. During extended inundation, aquatic plant such as *Stuckenia pectinata* (= *Potamogeton pectinatus*) may flourish. Other forbs such as *Euthamia occidentalis* (= *Solidago occidentalis*), *Polygonum lapathifolium* (= *Persicaria lapathifolium*), *Chenopodium* spp., and *Sagittaria* spp. may also be present.

[Captured 2008-02-15]

References: Baker 1982b, Baker 1983b, Bourgeron and Engelking 1994, Bundy et al. 1996, CONHP unpubl. data 2003, Driscoll et al. 1984, Haase 1972, Western Ecology Working Group n.d.
NNHP Plots: (0 plots identified)

***Veratrum californicum* Temporarily Flooded Herbaceous Alliance**

California False Hellebore Temporarily Flooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1663

Summary: This herbaceous alliance has been reported from temporarily flooded, subalpine meadows in the Sierra Nevada near Lake Tahoe at elevations from 2330-2850 m. Stands occur on nearly flat to gently sloping sites on all aspects, and sites include stream terraces and floodplains. Soils are generally deep, well-drained and slightly acid. These stands are often subirrigated and have a shallow water table, usually >1 m, but occasionally up to 0.5 m below the surface. This alliance typically occurs as small patches within forested landscapes. Total vegetation cover ranges from 80-100%. Stands have a tall herbaceous layer dominated by the rhizomatous, perennial forb *Veratrum californicum*. Other characteristic perennial forbs include *Oreostemma alpigenum* var. *andersonii* (= *Aster alpigenus* ssp. *andersonii*), *Epilobium halleianum*, *Gentiana newberryi*, *Erigeron peregrinus*, and *Mimulus primuloides*. Graminoids, such as *Agrostis variabilis*, *Carex abrupta*, *Deschampsia caespitosa*, *Juncus nevadensis*, and *Phleum alpinum*, are commonly present. [Captured 2008-02-18]

***Veratrum californicum* - *Juncus nevadensis* Herbaceous Vegetation**

California False Hellebore - Sierran Rush Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL001946

Distribution (Nations/Subnations): US / CA, NV, OR

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3G4

Summary: This mesic herbaceous association is described from subalpine meadows in the Sierra Nevada surrounding Lake Tahoe. Most occurrences are on the margins of meadows, and slopes are gentle, not exceeding 15%. Elevations range from 2334 to 2853 m (7658-9360 feet), and snow duration is moderate to long. The water table is usually at least 1m below the surface during most of the growing season. Total vegetation cover ranges from 85-100% and is characterized by a high percentage cover of the tall herbaceous species *Veratrum californicum*. Common associated species include *Juncus nevadensis*, *Oreostemma alpigenum* var. *andersonii*, *Carex scopulorum*, *Deschampsia caespitosa* and *Carex luzulifolia*.

[Captured 2008-02-15]

References: Bourgeron and Engelking 1994, Crowe and Clausnitzer 1997, Crowe et al. 2004, Driscoll et al. 1984, Hemstrom et al. 1987, Kagan et al. 2000, Manning and Padgett 1995, Murray 2000, Nachlinger 1985, Padgett et al. 1989, Western Ecology Working Group n.d., Youngblood et al. 1985a

NNHP Plots: (0 plots identified)

* **New to Nevada - with plot data:**

***Wyethia amplexicaulis* Herbaceous Alliance**

Northern Mule's-ears Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.1607

Summary: This alliance is found in subalpine meadows in northwestern Wyoming. Stands are found between 1970-2500 m on all aspects of gentle to steep slopes. The soils are derived from limestone, sandstone, or shale parent materials and have clay or clay loam textures. *Wyethia amplexicaulis* forms large stands, greater than 1 acre in size, and dominates the herbaceous canopy with 50-75% cover. *Achillea millefolium*, *Bromus carinatus*, *Collomia linearis*, and *Geranium viscosissimum* are common forb and graminoid associates. [Captured 2008-02-27]

* **New to Nevada - with plot data:**

***Wyethia amplexicaulis* Herbaceous Vegetation**

Northern Mule's-ears Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEG001947

Distribution (Nations/Subnations): US / WY

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G3?

Summary: [no summary available] [Captured 2008-02-15]

References: Bissell 1973, Bourgeron and Engelking 1994, Driscoll et al. 1984, Gregory 1983, Western Ecology Working Group n.d.

NNHP Plots: p020621e (1 plots identified)

Representative Images:



p020621e_1.JPG

***Yucca brevifolia* Wooded Herbaceous Alliance**

Joshua Tree Wooded Herbaceous Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2527

Summary: These extremely xeromorphic, succulent wooded grasslands of the Mojave Desert and southeastern Great Basin are found on alluvial fans, gentle to moderate slopes and ridgetops. Soil types and elevation limit the distribution of the vegetation. Soils are derived from colluvial or alluvial deposits and have variable textures, ranging from gravel or coarse sand to fine silt. Some stands have bimodal soils with both coarse- and fine-textured layers. The vegetation is characterized by an emergent (up to 13 m tall) and typically abundant *Yucca brevifolia* layer over a perennial graminoid-dominated understory layer. *Yucca brevifolia* must be evenly distributed with over 1% total cover (Keeler-Wolf and Thomas 2000). Emergent *Pinus monophylla* or *Juniperus* spp. may be present, but have less than 1% cover. Graminoid species may include *Achnatherum hymenoides*, *Achnatherum speciosum*, *Muhlenbergia porteri*, *Pleuraphis jamesii* (above 1400 m), *Pleuraphis rigida*, or *Poa secunda*. Scattered short shrubs and dwarf-shrubs (<2 m tall) are usually present and may form an intermittent canopy. They are usually associated with disturbance and include *Ambrosia dumosa*, *Ericameria* spp., *Eriogonum fasciculatum*, *Gutierrezia microcephala*, *Hymenoclea salsola*, *Krascheninnikovia lanata*, *Lycium andersonii*, *Opuntia acanthocarpa*, *Sphaeralcea ambigua*, or *Yucca baccata*. Forb cover is mostly from seasonal annuals. [Captured 2008-02-18]

***Yucca brevifolia* / *Pleuraphis rigida* Wooded Herbaceous Vegetation**

Joshua Tree / Big Galleta Wooded Herbaceous Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002725

Distribution (Nations/Subnations): US / CA, NV

Status: 1 Active Confidence: 3 (Weak) Global Rank: G2?

Summary: [no summary available] [Captured 2008-02-15]

References: Keeler-Wolf 1997, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

VII . Sparse Vegetation

***Ivesia cryptocaulis* Sparsely Vegetated Alliance**

Hidden Ivesia Sparsely Vegetated Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2513

Summary: [no summary available] [Captured 2008-02-18]

***Ivesia cryptocaulis* Alpine Sparse Vegetation**

Hidden Ivesia Alpine Sparse Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002735

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 2 (Moderate) Global Rank: G1

Summary: This association is restricted to the Spring Mountains National Recreation Area in southern Nevada. Occurrences are limited to gently to moderately sloping limestone ridges and summits above 3450 m (11,319 feet) elevation on most aspects except north. Soils are extremely gravelly and derived primarily from limestone. This pseudoalpine herbaceous community is relatively sparse (average total cover of 10%). There is no woody layer; shrub and tree species (average cover 3%) are dwarfed, typically less than 0.5 m high. The herbaceous layer typically has 7% cover and is characterized by *Ivesia cryptocaulis*, occurring with other cespitose perennial forbs and bunch grasses. Commonly associated species include *Elymus elymoides*, *Lesquerella hitchcockii*, *Oxytropis oreophila*, *Sphaeromeria compacta*, *Erigeron clokeyi*, *Aquilegia scopulorum*, *Festuca brachyphylla* ssp. *coloradensis* (= *Festuca ovina* var. *brevifolia*), *Poa secunda*, and *Astragalus lentiginosus* var. *kernensis*.

[Captured 2008-02-15]

References: Keeler-Wolf 1997, Nachlinger and Reese 1996, Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

Lichen Dominated Rock Alliance

Lichen Dominated Rock Alliance

Alliance Code: B.008

Summary: I'd prefer to keep this as a single alliance, though ICEC rules may require splitting, as component associations will be dominated not just by differing species, but even by differing genera. The alliance should be applied either in high spatial resolution classification situations or where large extents of rock exist with exceptionally few vascular plants (e.g. lava flows), though sporadic plants may be present. Associations may change from one side of a boulder to another - one reason to argue for a single encompassing alliance.

***** New Vegetation Type - based on field observation:**

***Caloplaca trachyphylla* - *Lecanora garovaglii* (group) Sparse Vegetation**

Caloplaca trachyphylla - *Lecanora garovaglii* (group) Sparse Vegetation

Association Code: NNHP010

Distribution (Nations/Subnations): US / NV

Status: 1 Active Confidence: 1 (Strong) Global Rank: G5

Summary: This is a community that is typical of calcareous rock (primarily tufa) in western Nevada. *Caloplaca trachyphylla* is generally quite abundant and its orange rosettes make it quite

obvious. *Lecanora garovaglii* varies in abundance, depending in part on moisture available either from either air humidity or moisture retention by the rock itself.

References:

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Pleopsidium flavum* Sparse Vegetation**

Pleopsidium flavum Sparse Vegetation

Association Code: NNHP011

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: A common lichen-dominated vegetation of non-calcareous rocks with cold and relatively damp (for arid lands) microclimates, typically on north facing rock. Particularly well known from andesite and granite. This vegetation type is characterized by moderate to abundant growth of *Pleopsidium flavum*, a distinctive brilliant yellow-green lichen. In dusty areas, particularly where dust is somewhat calcareous, *Caloplaca trachyphylla* may be abundant or even codominant. Various *Acarospora* species, particularly brown species, may be abundant, along with *Aspicilia caesiocinerea* and its relatives.

References:

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

***Rhizoplaca (chrysoleuca - melanopthalma) / Acarospora thamnina* Sparse Vegetation**

Rhizoplaca (chrysoleuca - melanopthalma) / Acarospora thamnina Sparse Vegetation

Association Code: NNHP012

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G5

Summary: This is a common vegetation type on exposed andesitic rock in the Great Basin and on various non-calcareous rocks elsewhere. Typically occurring on rock faces that endure a substantial amount of solar heat gain, though perhaps not often well developed on the hottest rock faces. A variety of small crustose lichens are associated, but few are visually as notable as the *Rhizoplaca* species or *Acarospora thamnina*.

References:

NNHP Plots: (0 plots identified)

***** New Vegetation Type - based on field observation:**

Microphytic Playa Alliance

Microphytic Playa Alliance

Alliance Code: B.007

Summary: This is not really a new class, rather it is an attempt to give a better biological description to natural playas. These are often classified simply as 'barren', along with strip mines or standard bulldozing. Microphytic Playa should be used only for natural situations where dry lakebeds or other playas formed at the bottom of valleys in arid lands, and which entirely lack vascular plants and even visible biological soil crusts. Seasonal saturation is typical. The ground surface may have visible mineral soil, or may be covered with a salt crust. Microscopic investigation should reveal sparse to abundant microscopic photosynthetic organisms including algae, cyanobacteria, or diatoms.

*** * * New Vegetation Type - based on field observation:**

Microphytic Playa Sparse Vegetation [placeholder]

Microphytic Playa Sparse Vegetation [placeholder]

Association Code: NNHP009

Distribution (Nations/Subnations): US / CA, ID, NV, OR, UT

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G

Summary: See alliance summary.

References:

NNHP Plots: p0306031 (1 plots identified)

Representative Images:



p0306031.JPG

***Pinus (ponderosa, jeffreyi)* Sparsely Vegetated Alliance**

(Ponderosa Pine, Jeffrey Pine) Sparsely Vegetated Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2517

Summary: This poorly known alliance occurs in mountains of the Great Basin and eastern Sierra Nevada at foothill and lower montane elevations. Stands occur at lower elevations locally on exposed acidic parent materials. At higher elevations stands occur on rocky exposed sites. Stands are characterized by an open canopy of scattered conifer trees codominated by *Pinus ponderosa* and *Pinus jeffreyi*. *Pinus monophylla* and *Juniperus osteosperma* may also be present. [Captured 2008-02-18]

***Pinus (ponderosa, jeffreyi)* Sparse Vegetation**

(Ponderosa Pine, Jeffrey Pine) Sparse Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002741

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G2

Summary: [no summary available] [Captured 2008-02-15]

References: Billings 1950, Keeler-Wolf pers. comm., Western Ecology Working Group n.d.

NNHP Plots: (0 plots identified)

***Tetradymia tetrameres* Sparsely Vegetated Alliance**

Cotton-thorn Sparsely Vegetated Alliance

NatureServe Web Page: [\[Click Here\]](#)

Alliance Code: A.2525

Summary: [no summary available] [Captured 2008-02-18]

***** New Vegetation Type - with plot data:**

***Tetradymia tetrameres* - *Atriplex canescens* Dune Shrubland**

Dune Horsebrush - Four-wing Saltbush Dune Shrubland

Association Code: NNHP076

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 2 (Moderate) **Global Rank:** G1G3

Summary: This western Great Basin vegetation occurs on stabilized dunes, or sand deposits on leeward sides of hills in the Lahontan Traugh. Total shrub cover can range upwards to about 20% and composition can be diverse. Dominants and subdominants include *Tetradymia tetrameres* and *Atriplex canescens*, though not necessarily in that order. In fact, the one sample plot of the NNHP has nearly twice as much cover of *A. canescens* than of *T. tetrameres*. However, it is placed in this alliance due to strong condition indication value of *T. tetrameres* and because both associations in the alliance occur on dunes or sand deposits.

References:

NNHP Plots: p050615h (1 plots identified)

Representative Images:



p050615h_13-18-42.JPG

***Tetradymia tetrameres* Dune Sparse Vegetation**

Cotton-thorn Dune Sparse Vegetation

NatureServe Web Page: [\[Click Here\]](#)

Association Code: CEGL002759

Distribution (Nations/Subnations): US / NV

Status: 1 Active **Confidence:** 3 (Weak) **Global Rank:** G3Q **NNHP Proposed State Rank:** S1S3

Summary: [no summary available] [Captured 2008-02-15]

References: Morefield pers. comm., Western Ecology Working Group n.d.

NNHP comments: Although the list output here indicates no plots for this type, the NNHP does have one plot on paper which has not been covered into the current plots database. This association is distinctly dominated by *Tetradymia tetrameres*, while *Tetradymia tetrameres* - *Atriplex canescens* is co-dominated between the two species or *T. tetrameres* may even be subdominant.

Listing either as 'Sparsely' vegetated types is questionable. In Nevada, many associations - possibly even the majority of this document - may 'straddle the line' between 'Sparse' and regular types. The NNHP Vegetation Ecologist, Eric Peterson, recommends placing vegetation types in the 'Sparse' class only in exceptional cases and this alliance would not be exceptional.

NNHP Plots: (0 plots identified)