

# Mediterranean Turtle (*Mauremys leprosa*)

## Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, February 2022  
Revised, February 2022  
Web Version, 6/16/2023

Organism Type: Reptile  
Overall Risk Assessment Category: Uncertain



Photo: Bernard Dupont. Licensed under CC BY-SA 2.0. Available: [https://commons.wikimedia.org/wiki/File:Mediterranean\\_Pond\\_Turtle\\_\(Mauremys\\_leprosa\)\\_\(Captive\\_specimen\)\\_43048107740.jpg](https://commons.wikimedia.org/wiki/File:Mediterranean_Pond_Turtle_(Mauremys_leprosa)_(Captive_specimen)_43048107740.jpg) (January 2022).

## 1 Native Range and Status in the United States

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### Native Range

From Bertolero et al. (2017):

“Algeria, France, Libya, Mauritania, Morocco, Niger, Portugal, Spain, Tunisia. Occurs widely across northwestern Africa and the Iberian Peninsula into southern France; [...]”

From Franch et al. (2015):

“The European distribution of the Mediterranean stripe-necked terrapin (*Mauremys leprosa*) is restricted to the Iberian Peninsula and a small area in southern France. The species is considered

common in Spain and Portugal but has shown a decrease in its distribution and population density though most of the Iberian Peninsula, other than the Catalonia region in the northeast.”

## Status in the United States

According to GBIF-US (2022), there is one record of *Mauremys leprosa* from northwest Washington. However, the status of this potential occurrence is unknown as no additional details were found. Although individuals were not in stock during this assessment, *M. leprosa* may be for sale in the United States (e.g., Turtle Source 2022).

From Turtle Source (2022):

“In the 1960s and 1970s this species was brought into the US in very small numbers. Today, they are not collected for food, zoos, the pet trade or even science - essentially, no one has them [...]”

*Mauremys leprosa* is on Hawaii’s Conditional Animal List (Hawaii Department of Agriculture 2019). It is also classified as a Prohibited Level 3 species in Washington as part of the genus *Mauremys* (Washington State Senate 2019).

## Means of Introductions in the United States

No records of *Mauremys leprosa* in the wild in the United States were found.

## Remarks

From Bertolero et al. (2017):

“The Mediterranean Pond Turtle is considered Vulnerable in the European Red List of Reptiles (Cox and Temple 2009), and is included in Appendix II of the Bern Convention (European Wildlife and Natural Habitats), and in Annexes II (conservation requires special area designation) and IV (in need of strict protection) of the European Union Habitat Directive (92/43/CEE). *Mauremys leprosa* inhabiting wetlands in National Parks, Natural Parks, Reserves, or within the Natura 2000 network, are partially protected. Specific conservation-related actions for populations inhabiting France, Portugal, Spain, Morocco, and Algeria exist as well.”

From Sancho et al. (2020):

“The global exponential growth in the number of exotic turtle species exploited in the pet trade market facilitates hybridization events between distantly related species. [...] The importation of the Chinese stripe-necked pond turtle, *Mauremys sinensis*, via the pet trade market resulted in its release into natural environments across Europe, including the Iberian Peninsula where it co-occurs with the Western Mediterranean pond turtle, *Mauremys leprosa*. We maintained three *M. leprosa* females and two *M. sinensis* males in captivity, and analysed the obtained offspring (two hatchlings) with mito-chondrial (cytochrome b) and nuclear (R35) genetic markers. Both morphological (i.e. with inter-mediate morphological characters) and genetic (heterozygous hatchlings) results confirmed the hybridization between these two species and raise concern about the negative effects of acclimatised *Mauremys sinensis* across the *Mauremys leprosa* range.”

“As *M. sinensis* is increasingly present in pet shops and owners often release them in the wild, the conservation of *M. leprosa* populations may be compromised if the sale of these exotic taxa continues.”

Additional information for *M. leprosa* was found during this assessment in languages other than English.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2022):

“Taxonomic Status:

Current Standing: valid”

Kingdom Animalia

Subkingdom Bilateria

Infrakingdom Deuterostomia

Phylum Chordata

Subphylum Vertebrata

Infraphylum Gnathostomata

Superclass Tetrapoda

Class Reptilia

Order Testudines

Superorder Cryptodira

Superfamily Testudinoidea

Family Geoemydidae

Subfamily Geoemydinae

Genus *Mauremys*

Species *Mauremys leprosa* (Schweigger, 1812)

### Size, Weight, and Age Range

From Bertolero et al. (2017):

“In Spain, CL [carapace length] ranges, on average, between 99–167 mm in males and 114–182 mm in females; in Portugal males average 141 and females 162 mm; in Morocco turtles are generally smaller, between 82–134 in males and 97–196 mm in females (Meek 1987; da Silva 1995; Muñoz and Nicolau 2006; Alarcos Izquierdo et al. 2009; Benejam and Saura-Mas 2009; Lovich et al. 2010; Naimi 2015). The largest known female (CL 239.5 mm) was observed in the Llobregat Delta, Spain (Franch Quintana et al. 2007), and the largest male (CL 210.0 mm) in Huelva, Spain (Pérez-Santigosa 2007).”

“Meek (1987) suggested that females grew faster than males in southern Morocco; his sample contained mostly individuals aged 4–7 yrs, with the oldest male being >23 yrs of age, and the largest female >20 yrs of age. In a terrapin sample from the Parque Natural de los Arribes del

Duero (Salamanca Province, Spain), secondary sexual characteristics became noticeable at a CL of 73 mm for males and 79 mm for females (Alarcos Izquierdo et al. 2009).”

## Environment

From Bertolero et al. (2017):

“*Mauremys leprosa* can withstand an ambient temperature of 47°C for up to two hours without harm (Pagés et al. 1991).”

“*Mauremys leprosa* tolerates salt water, and has a high tolerance for polluted freshwater habitats, reduced water levels, and elevated ambient temperatures; [...]”

“*Mauremys leprosa* tolerates eutrophic waters well, and may be found in heavily polluted waters. West of Marrakech in a segment of the Oued Tensift (32.019997°N, 9.340001°W, ca. 15 m above sea level) polluted by raw domestic and industrial wastewater discharges, *M. leprosa* appears as the most common aquatic vertebrate (Naimi et al. 2012).”

From Franch et al. (2015):

“*M. leprosa* frequently inhabits a priori suboptimal environments such as eutrophic water systems, with considerable salt concentrations (Da Silva, 1995; Franch et al., 2007; Naimi et al., 2012), and occupies anthropogenic microhabitats and freshwater ecosystems (Da Silva, 2002; Romero et al., 2010, 2011, 2014) [...]”

## Climate

From Franch et al. (2015):

“The range and importance of the variables in the models denote the Mediterranean characteristics of *M. leprosa*: preference for lowlands, average annual temperature between 13 and 17°C, short diurnal temperature variation and warm temperatures during the drier period. Preferences for average annual temperatures for all three models are consistent with the description of the species as strictly Mediterranean and thermophilic (Da Silva & Blasco, 1997). In this sense, the species occupies thermo and meso-Mediterranean bioclimatic stages (Da Silva & Blasco, 1997), characterised by average temperatures of 13–19°C, minimum between 1 and 10 and a maximum of 8–18 (Rivas-Martínez, 1983). Consequently, *M. leprosa* seems to select areas with relatively short variations in daily temperature (maximum–minimum), indicating a tendency for thermal stability.”

## Distribution Outside the United States

Native

From Bertolero et al. (2017):

“Algeria, France, Libya, Mauritania, Morocco, Niger, Portugal, Spain, Tunisia. Occurs widely across northwestern Africa and the Iberian Peninsula into southern France; [...]”

From Franch et al. (2015):

“The European distribution of the Mediterranean stripe-necked terrapin (*Mauremys leprosa*) is restricted to the Iberian Peninsula and a small area in southern France. The species is considered common in Spain and Portugal but has shown a decrease in its distribution and population density though most of the Iberian Peninsula, other than the Catalonia region in the northeast.”

## Introduced

From Bertolero et al. (2017):

“The species is localized in southwestern France, with small populations in the Rivers Basse, Baillaury and the stream Tech (Département des Pyrénées-Orientales), and the River Agly (Département de l’Aude) (Franck 1998; Palacios et al. 2015); individuals observed in other French localities are considered introductions (Palacios et al. 2015). Introduced individuals have been reported in the Balearic Islands where it has been seen on Mallorca in S’Albufera Natural Park and Sineu (Pinya et al. 2008). Several introduced specimens without species designation have been reported from Italy, but positively identified *M. leprosa* specimens from Gabellino (Grosseto Province) likely represent escaped captives (Panzeri et al. 2014).”

“[...] scattered populations across the Saharan region may represent prehistoric introductions.”

From Panzeri et al. (2014):

“A photograph of a single adult *Mauremys cf. leprosa* was taken in spring 2012 near Florence, northern Tuscany (Locality “La Querciola”), during spring of 2012 (G. Bruni, pers. comm.).”

“A group of six adult *Mauremys* has been found by the owner of a private pond, in the surroundings of the wetland of Gabellino (Grosseto, southern Tuscany). In October 2013, two *Mauremys* were collected as road kills (samples currently stored in 100% ethanol at the Maremma Natural History Museum, Grosseto: L131020 and L131027) in the surroundings of the same pond, an adult female (length of carapace: 19.2 cm) and a young individual (length of carapace: 5.7 cm); the skull of a third adult was collected on the bank of an irrigation canal. DNA barcoding analysis confirmed that these individuals represent *Mauremys leprosa* (cf. photos in Appendix 1 [in source material]).”

According to GBIF Secretariat (2022), *Mauremys leprosa* is reported as introduced to Colombia. However, no supporting information was found for this potential record of introduction.

## Means of Introduction Outside the United States

From Panzeri et al. (2014):

“Six *M. leprosa* were observed in a temporary pond located at the end of an irrigation canal, within an alfalfa field. We suggest that these terrapins originate from the “Carapax Center”, which was closed in 2009 as a result of penal actions. This centre was located about 15 km distant from the observation site and there, *M. leprosa* were kept (R. Capecchi, pers. comm.). The record of a road-kill of a juvenile *M. leprosa* suggests reproduction in the wild.”

From Bertolero et al. (2017):

“Individuals or populations found outside of French Catalonia are suspected to have arrived there by uncontrolled release of captives from as far south as Morocco (Palacios et al. 2015).”

## **Short Description**

From Bertolero et al. (2017):

“The carapace is depressed, anterior and posterior margins are neither expanded nor serrated; a vertebral keel, distinct in young specimens, is generally absent in adults. The nuchal region is not emarginated and the posterior edge of the cervical scute is wider than the anterior portion. There are five (rarely six) vertebrals, wider than long, and generally wider than the pleurals in young individuals, but variable in adults. Four paired pleurals with generally interrupted and indistinct keels are present, along with 12 paired marginal.”

“Carapace color in adults is generally tan to olive. Large, black-bordered, yellow to orange blotches adorn each scute in some populations, and a series of longitudinal bars forming a broken mid-dorsal stripe is usually present. In young individuals the carapace is pale to dark olive-brown and the center of each pleural may be adorned with black-bordered yellowish spots, or with orange-yellow or red longitudinal streaks. Vertebrals in younger individuals may have narrow or broad median streaks of orange-yellow or red, and marginals are frequently edged with yellow, but these may be uniform in color, or each may be marbled with yellow. When any pattern is present, each epidermal scute is often edged with narrow black lines.”

“Plastron ground color is yellowish-brown. An elongate egg-shaped black patch is visible on either side of the seam between the pectoral and abdominal scutes in some individuals. Plastron and inferior marginals are more or less uniform in color in most adults, without definite pattern. Some adults, however, may have scattered and irregularly shaped dark brown blotches, nearly continuous, or with soft faded margins, throughout, and the plastron is sometimes heavily pigmented. A narrow yellow midseam stripe is sometimes present. Specimens with plastron length less than 110 mm often have dark blotches surrounded by narrow yellow borders in the center of the plastron. Truncate and not notched anteriorly, the plastron is broadly or deeply notched posteriorly; its gulars are paired, the pectorals are wide, and there is one pair of moderately-sized axillary scutes. The single inguinal on each side, also of moderate size, is not in contact with the femoral, and the anals are pointed. The plastron is slightly concave in males, and flat or convex in females.”

“The head is short and broad, becoming massive with age. Jaw margins are never denticulated; mandible width at the symphysis is nearly equal to the horizontal diameter of the orbit. The head is olive to olive-gray in color (see Hinckley et al. [2015] for description of an aberrant facial pattern), and also has an ocellus of yellow or orange located between the tympanum and orbit and sometimes connected to the tympanic ring. Four or five yellow (orange) longitudinal stripes extend anteriorly from the neck, passing above the tympanum to the orbit, and there is a yellow line extending to the corner of the mouth and continuing along the border of the maxilla to its medial tip. Limbs are olive, with yellow or orange stripes and markings become subdued with

age. Variation in limb stripe color is related to body size and immune response in females, and in females limb stripe color is brighter, with more orange and less UV saturated coloration, than in males (Ibáñez et al. 2013a).”

## Biology

From Bertolero et al. (2017):

“*Mauremys leprosa* mates in April and May in North Africa (Lortet 1887; Combescot 1954a,b, 1955; Combescot and Guyon 1955), but Naimi (2015) observed courtship and mating behavior most often between January and March at Oued Tensift, Morocco. In Doñana National Park courtship was observed during spring (March to May), and from late summer into autumn (late August into November) (Díaz-Paniagua et al. 2015). Nesting, dependent upon local conditions, has been recorded from May to August; [...]”

“Clutch size ranges from 1–13 eggs, with means ranging from 3.8 to 9.6 eggs per clutch, [...] Females normally lay only one clutch annually, but two clutches have been reported from Andalusian populations (Andreu and Villamor 1989; Keller 1997b; Díaz-Paniagua et al. 2014).”

“Incubation periods of 25 to 30 days have been reported for North Africa (Lortet 1887; Tarrajat 1962) but these periods seem somewhat brief in that southern European populations require between 55 and 108 days (González de la Vega 1989; Maran 1996; Segurado et al. 2005). Deposition to hatching required 92 days under a constant incubation temperature of 27°C (Pérez-Santigosa 2007).”

“Upon emerging, hatchlings hasten to the water where they dig several millimeters into the mud; few remain near the surface. The carapace becomes flat and almost circular a few days after the turtle has left the egg (Lortet 1887). Hatchlings can overwinter in the nest (Gadow 1901; Díaz-Paniagua et al. 2014).”

“The diet of *M. leprosa* appears both opportunistic and omnivorous. [...] Among aquatic plants associated with its diet are algae, grass (*Glyceria* sp.), starwort (*Callitriche* sp.), water crowfoot (*Ranunculus* sp.), and duckweed (*Lemna gibba*) (Labouysse 1857; Alarcos et al. 2008).”

“Vertebrate food sources include fish (*Cyprinus carpio*?), frogs (*Pelophylax perezi*), newts (*Triturus marmoratus*), anuran larvae (*Pelobates cultripes*, *Hyla meridionalis*, *Epidalea calamita*), anuran eggs (*Bufo bufo*), snakes (*Natrix maura*), and duck eggs (*Anas platyrhynchos*) (Gómez-Mestre and Keller 2003; Pérez-Bote et al. 2005; Alarcos et al. 2008; de Vries and Marco 2008; Domínguez and Villarán 2008; Pérez-Santigosa et al. 2011).”

“Among invertebrate prey, coleopterans represented 20%, while introduced crayfish (*Procambarus clarkii*) represented 80% of animal prey at El Acebuche. Crayfish were substantially less important as prey at El Portil, but midge larvae (Chironomidae, Diptera) were found in 43.7% of individuals (Pérez-Santigosa et al. 2011). Other crustaceans (Branchiopoda; *Cyzicus grubei* [ca. 12–13 mm carapace length]), insects (Heteroptera, Odonata, Hymenoptera, Ephemeroptera [Mayflies; *Ecdyonorus venosus*]), gastropods, and worms are also consumed (Pérez-Bote et al. 2005; Alarcos et al. 2008; Pérez-Santigosa et al. 2011).”

“*Mauremys leprosa* is thermophilic.”

“In rivers it demonstrates a preference for deep, stony areas (Segurado and Figueiredo 2007; Segurado et al. 2012), but it inhabits moderately swift streams bordered by trees, as well as potholes in brooks and swampy meadows, perennial and temporary water bodies with rocky, sandy, or muddy bottoms, with or without vegetation, and anthropogenic habitats, including irrigation systems for agriculture (rice paddies), watering sites for cattle, and village ponds, but it may be absent from areas of intense agriculture. Basking sites include rock and soil terraces, roots, mud banks, solidified flotsam, and items protruding from, or overhanging the water (boulders, tree trunks, structural elements of bridges and dams). Absence of salt glands, coupled with the inability to use urea as an osmoregulatory effector, prevent long-term adaptation to sea water (Gilles-Baillien 1970), but temporary tolerance of sea water has been demonstrated experimentally (Schoeffeniels and Tercafs 1965), and the species has been reported in the brackish water of estuaries (Ria Formosa/ Faro, Ria Mira, Ribeira de Aljezur) within Portugal (Malkmus 2004).”

“This species generally spends the night in the water and the cold season in the mud (Gadow 1901); activity patterns depend upon climatic conditions and hibernation can be intermittent during mild winters (Lortet 1887; Doumergue 1901; Aellen 1951).”

“Males compete for females, and the sound of male carapaces colliding may reverberate during mating season. Courtship behavior involves the male swimming in a circle around the female; at each passage the couple reportedly touch noses, and horizontal movements and oscillations of the head are common (Tarrajat 1962). Copulation may take place on the ground or in the water with the male’s gripping the female’s carapace with all four feet (Tarrajat 1962). If in the water, copulation usually occurs on the surface, but mated pairs sometimes descend to the bottom where they may remain immobile (Lortet 1887).”

## Human Uses

From Bertolero et al. (2017):

“Once marketed in Spain as food and pets, sale of terrapins is currently illegal. Hundreds were once sold at the Algiers fish market (Strauch 1865) and in Morocco the species is sometimes fashioned into objects sold to tourists. Other threats include killing by fishermen; north of Bonanza (Cádiz Province, Spain) in late June 1970, Busack (unpubl. data) recorded many (ca. 160) dead juvenile and large adult *M. leprosa* (and 3 *Natrix maura*) in trash piles along access roads next to the Guadalquivir River (see also Honegger 1981).”

From Turtle Source (2022):

“In the 1960s and 1970s this species was brought into the US in very small numbers. Today, they are not collected for food, zoos, the pet trade or even science - essentially, no one has them.”



From Highfield (2002):

“In Morocco *Mauremys leprosa* is also killed in order to manufacture grisly 'souvenirs' destined for sale to foreign tourists. The eggs of *M. caspica* and *M. leprosa* are also used in Arabic medicinal lore as treatments for a range of conditions from upset stomachs to poor sight. Fortunately awareness of these problems is also growing and a number of important habitats are now designated as protected areas.”

## Diseases

**No records of OIE-reportable diseases (OIE 2021) were found for *Mauremys leprosa*.**

According to Poelen et al. (2014), *Camallanus microcephalus* is a parasites of *Mauremys leprosa*.

According to Bertolero et al. (2017), *Mauremys leprosa* is a host of the following parasites: *Entamoeba invadens*, *Haemogregarina bagensis*, *Haemogregarina stepanovi*, *Hepatozoon* sp., *Neopolystoma elisabethae*, *Neopolystoma euzeti*, *Neopolystoma orbiculare*, *Neopolystoma* sp. nov. 3, *Neopolystoma* sp. nov. 4, *Neopolystoma* sp. nov. 6, *Polystomoides tunisiensis*, *Polystomoides orys*, *Polystomoides* sp. nov. 1, *Telorchis temimi*, *Telorchis qabensis*, *Telorchis solivagus*, *Patagium pellucidum*, *Falcaustra* sp., *Falcaustra donanaensis*, *Falcaustra lambdiensis*, *Physaloptera* sp., *Spiroxys* sp., *Spiroxys contortus*, and *Placobdella costata*.

## Threat to Humans

No information on threats to humans was found for *Mauremys leprosa*.

## 3 Impacts of Introductions

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Although there are records of introductions for *Mauremys leprosa* in western Europe and northern Africa outside of its native range, no information on impacts from those introductions was found.

The importation, possession, or trade of *M. leprosa* is restricted in the following States (see Section 1 for detailed information): Hawaii (Hawaii Department of Agriculture 2019) and Washington (Washington State Senate 2019).

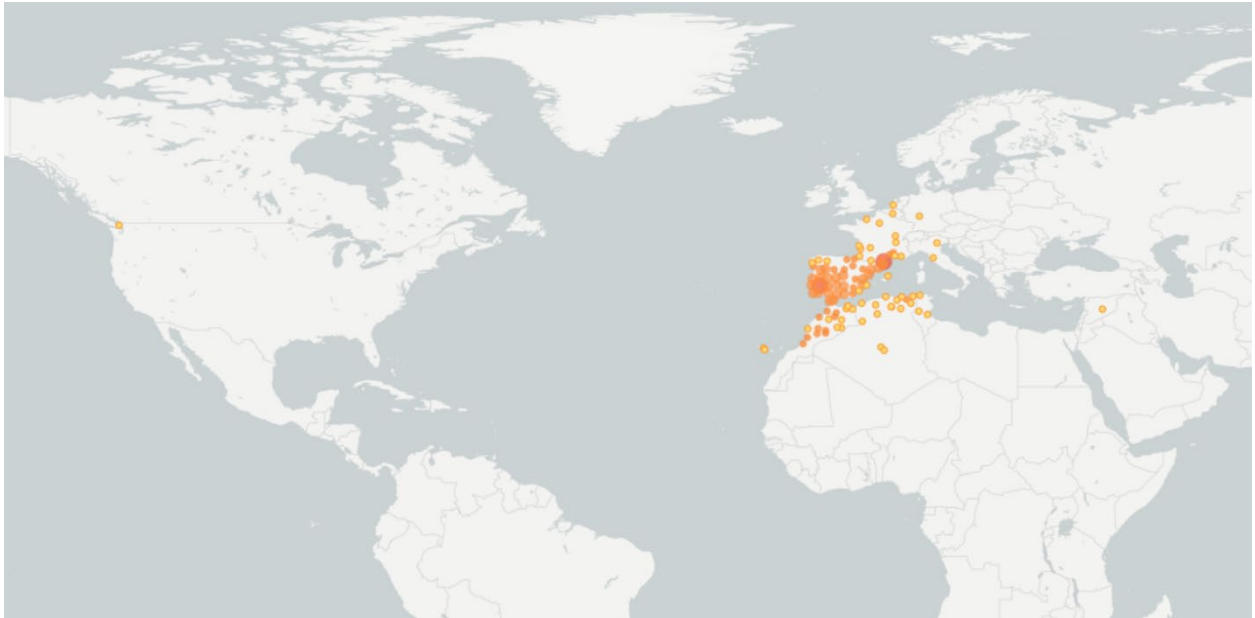
## 4 History of Invasiveness

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The History of Invasiveness for *Mauremys leprosa* is classified as Data Deficient. *M. leprosa* has been reported as introduced and established beyond its native range in France, Italy, Spain (i.e., the Balearic Islands), and potentially Saharan Africa. In Europe the means of introduction is thought be escapees and intentional releases associated with the pet trade. In Saharan Africa the origin of *M. leprosa* is unknown and may be the result of prehistoric introductions. No information was found regarding the impacts for introduced populations of *M. leprosa*. This species is found in trade but volume and duration are unknown.

## 5 Global Distribution

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**Figure 1.** Known global distribution of *Mauremys leprosa*. Observations are reported from western Europe, northern Africa, the United States, and Syria. Map from GBIF Secretariat (2022). Locations in the United States, Syria, northern France, Belgium, the Netherlands, and Germany were not used in the climate matching analysis as they were not found to represent established populations of *M. leprosa*.

No georeferenced observations were found for portions of the species' native range in Libya, Mauritania, or Niger.

## 6 Distribution Within the United States

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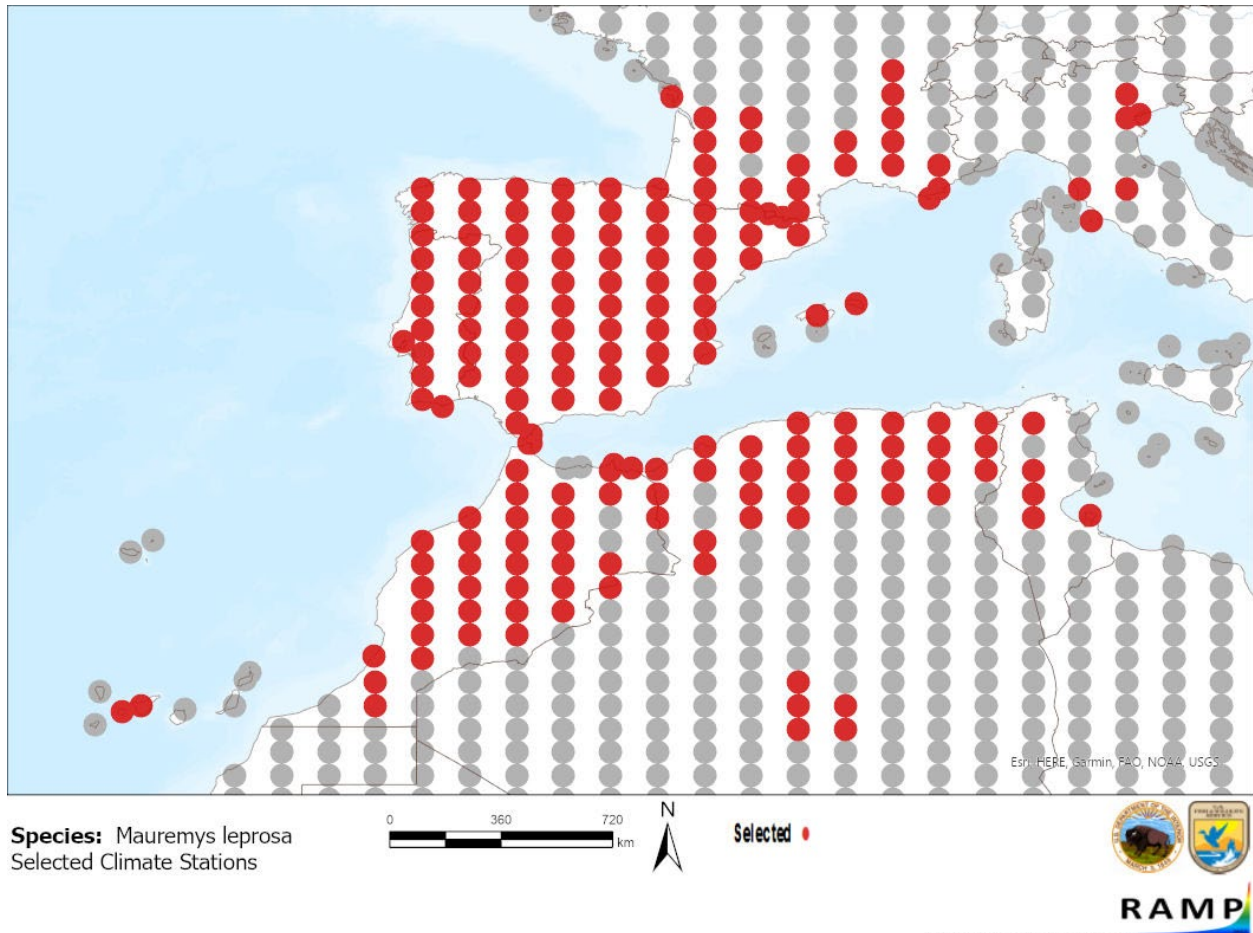
**Figure 2.** Known distribution of *Mauremys leprosa* in the contiguous United States. One location is reported from northwest Washington. Map adapted from GBIF-US (2022). This location was not used in the climate matching analysis as it was not found to represent an established population of *M. leprosa*.

## 7 Climate Matching

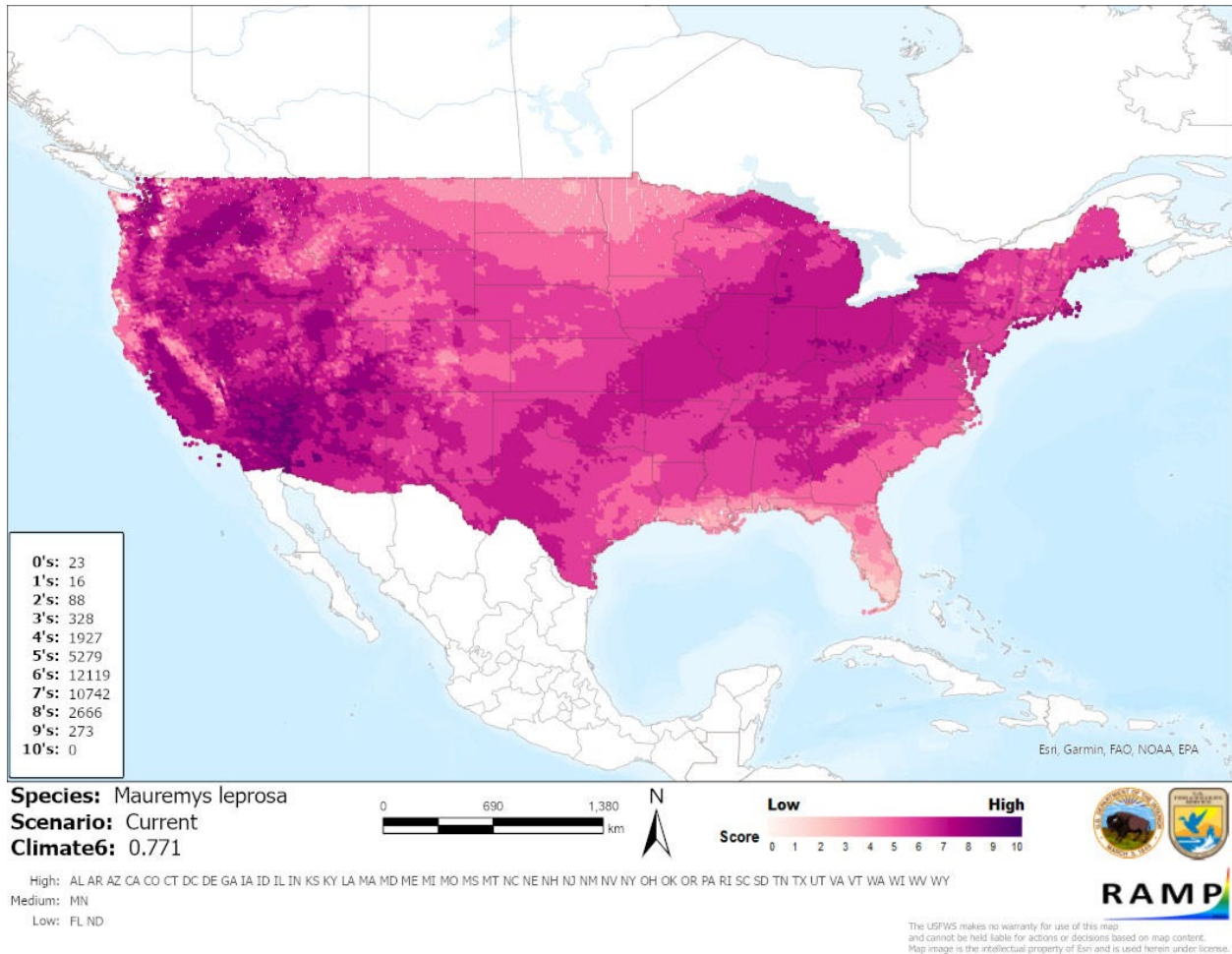
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### Summary of Climate Matching Analysis

The climate match for *Mauremys leprosa* in the contiguous United States was generally medium to high. The areas of high match were found west of the continental divide, in western Texas, the Midwest, Great Lakes basin, Appalachia, and coastal New England. Large portions of the Great Plains, Southeast, and Northeast had medium matches. Low matches were restricted to isolated portions of Florida, Louisiana, North Dakota, and the Pacific Northwest, mainly the Olympic Peninsula. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.771, High (scores equal to or greater than 0.103 are classified as High). Most States had High individual Climate 6 scores except for Minnesota which had a Medium score; Florida and North Dakota had Low individual scores.



**Figure 3.** RAMP (Sanders et al. 2021) source map showing weather stations in western Europe and northern Africa selected as source locations (red; Spain, Portugal, France, Italy, Morocco, Algeria, Tunisia, and Gibraltar) and non-source locations (gray) for *Mauremys leprosa* climate matching. Source locations from GBIF Secretariat (2022). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.



**Figure 4.** Map of RAMP (Sanders et al. 2021) climate matches for *Mauremys leprosa* in the contiguous United States based on source locations reported by GBIF Secretariat (2022). Counts of climate match scores are tabulated on the left. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 8 Certainty of Assessment

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The Certainty of Assessment is Low. There is reasonably complete information regarding the distribution and ecology of *Mauremys leprosa*. However, *M. leprosa* has been introduced beyond its native range but no information was found regarding the impacts of these introduced populations. Additionally, this species is found in the pet trade but no data on duration or volume was found during this assessment.

## 9 Risk Assessment

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### Summary of Risk to the Contiguous United States

The Mediterranean turtle (*Mauremys leprosa*) is a reptile native to the Mediterranean regions of Spain, Portugal, southern France, and northwest Africa. *M. leprosa* can inhabit a wide variety of environmental conditions, including anthropogenically altered areas. *M. leprosa* is available in the pet trade but information regarding volume and duration of trade is unknown. In the United States possession of this species is regulated in Hawaii and Washington. *M. leprosa* has been introduced beyond its native range and established populations have been reported from France, Italy, Spain, and potentially Saharan Africa. However, the History of Invasiveness is classified as Data Deficient as no information was found regarding the impacts of introduced populations. The Overall Climate Match for the contiguous United States is High. The Certainty of Assessment is Low due to a lack of information regarding this species' history of invasiveness. The Overall Risk Assessment Category for *M. leprosa* is Uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 4): Data Deficient**
- **Overall Climate Match Category (Sec. 7): High**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information: No additional remarks.**
- **Overall Risk Assessment Category: Uncertain**

## 10 Literature Cited

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.**

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- Sancho V, Lacomba I, Bataller JV, Verissimo J, Velo-Anton G. 2020. First report of hybridization between *Mauremys leprosa* and *Mauremys sinensis* highlights the risk of exotic *Mauremys* spp. pet trade. *Basic and Applied Herpetology* 34:75–81.
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## 11 Literature Cited in Quoted Material

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**Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.**

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