

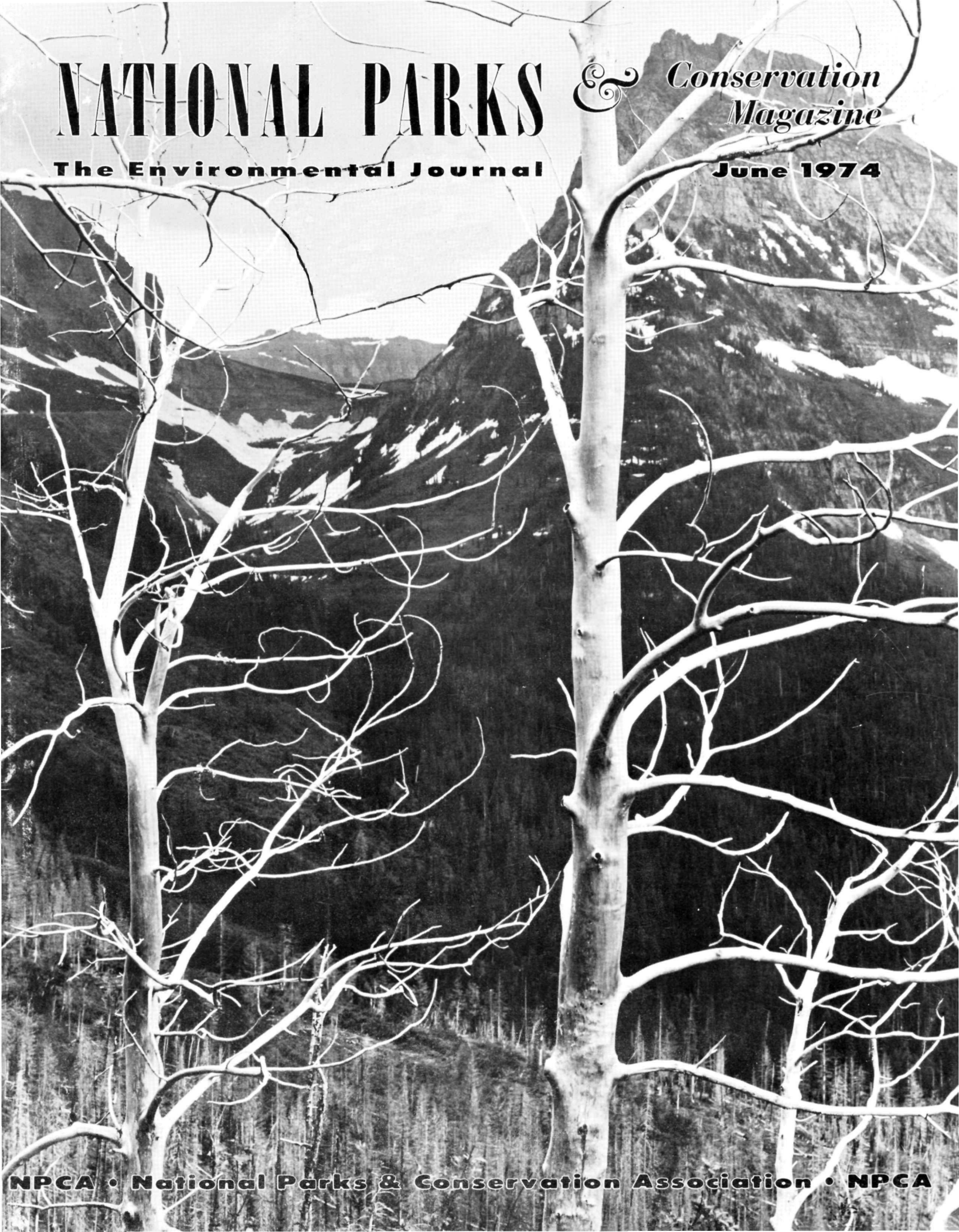
NATIONAL PARKS



*Conservation
Magazine*

The Environmental Journal

June 1974



NPCA • National Parks & Conservation Association • NPCA

Space for Life

IN ITS HISTORICAL PERSPECTIVE, the American experience has been one of great spaciousness.

The ancestral memories of most of us begin with the arrival in the new world. The personal memories of parents and grandparents, as a general thing, are the last remnants of the life which was put behind.

The eyes of the immigrants looked ahead and gazed out into continental space. The opening of the seaboard and the piedmont was an exploration of limitless forests. The crossing of the Appalachians was a passage through mountain gaps which opened like great windows upon the vast mid-continent.

The prairies were unending. Even today after farms and towns and cities have come, the North American prairie confers a sense of unbounded spaciousness and freedom.

The North American prairie is like the Russian Steppe in that respect. The coming of dawn across the prairie is like the coming of dawn across the Steppe. The sense of the dawn on the prairie and the Steppe is one of unlimited space, limitless freedom.

WITH the fascinating knowledge anthropology has brought us in recent decades, we can reach back in imagination toward the experiences of our earliest ancestors, far back beyond our family memories or written history. As hunters, and later as herdsmen, we seem to have been wanderers, crossing long distances in pursuit of game, or of green pasture for our flocks, returning, for the most part, to points of origin for the rains or winter, and yet perhaps drifting onward.

With agriculture, of course, came settlement. Yet large numbers of men remained travelers. We think of European herdsmen moving along the lush pastures of interlocking river systems and across the high ground of the verdured divides as they migrated, over the lapse of generations, into India. We think of the villagers of the Himalayas even today crossing the high mountain passes on foot for trade, perhaps also merely for communication.

The agile foot and leg of *Homo sapiens* may well have been developed for escape, but certainly also for pursuit; the endurance of men at a walk or a jog, following game in organized deployment, was an early token of survival.

AS THE domestication of the grains brought storable surpluses, and as tax collectors gathered them for the kings, the great cities grew, and a fraction of mankind, but yet a very small portion, was gathered into the large urban conglomerations. And within these concentrations, spaciousness for the first time was lost.

With the horse came mobility over great distances. Messengers carried the decrees of rulers across empires. Few indeed are the men of the great modern city who know what it is to ride like the wind on horseback across unbroken plains or high mountain grasslands.

ONE CAN put these factors into a precise perspective in American history. The Homestead Act of 1861 gave every man an opportunity to acquire 160 acres of new land by the single process of claiming it and erecting a residence upon it. If one thinks of the normal family in those days as consisting of two parents, perhaps two grandparents, and something like eight children surviving and remaining at home at any one time, the homestead may have supported a mere dozen people or more. We have been accustomed to ample room for living.

And the towns that served the farms as market centers and as the source of manufactured goods and professional services opened out to the fields and woods. So did the cities for a long time. Only recently has it become well-nigh impossible for the denizens of our central cities to escape into the countryside.

WE ARE OBLIGED by the stern requirements of survival to rethink the value judgments upon which we organized the social system which has failed. Values are frail things, thoughts, feelings, fruit of the mind and spirit. Yet as we select them, recognizing both necessity and choice, we elect the course of the future. We have referred in these pages to darkness and silence as values denied by the glare and cacophony of the urban industrial world. We have written of the ecological imperative, the need to relate human conduct to the present day understanding of the interdependence of all life.

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FRONT COVER Tree patterns, by Ed Cooper
Lying astride the Continental Divide adjoining Canada in northwestern Montana, Glacier National Park offers nearly 1,600 square miles of spectacular and primitive Rocky Mountain scenery. But the great park offers the student of nature intimate pleasures as well as grandiose and awesome ones. (See page 4.)

BACK COVER Sand patterns, by Ed Cooper
Tidal flats on Pamlico Sound at Cape Hatteras National Seashore catch the sun at low tide. Cape Hatteras has its way of adapting to fierce Atlantic storms—by yielding and rebuilding elsewhere. Not understanding this interaction, man was destined to fail in his efforts to protect the land from the sea. Now the National Park Service has adopted a new policy of managing the national seashores. (See page 9.)

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article & photographs by CHRISTOPHER J. NYERGES

GLACIER NATIONAL PARK

a lifetime of memories

I EXCITEDLY FOCUSED on the beautiful oyster mushrooms before me at our first stop in Glacier National Park, Montana. The mushrooms greeted me to the park as a man would stretch out his hand to welcome guests to his home. I had discovered them on a beautiful trail, dark and moist from the minutes-old rain. The low sun cast shadows through thick and shimmering leaves. The trail beckoned me, and I followed while the sound of the running river invited me even farther down the path.

During the summer of 1973 I traveled cross-country, from California to Ohio, with my brother Richard and our friend John Lindhurst. Glacier Park was by far the most breathtaking segment of our trip. We first journeyed up the California coast, visiting fantastic Yosemite and traveling through the forested backroads of Oregon and Washington. We spent the nights at the ends of dirt roads that led us to cold, rushing rivers, not in crowded campgrounds. In these isolated areas, we relaxed by a cozy fire after a day of driving. We supplemented store-bought provisions with various wild foods I collected and with the trout that Rick and John never failed to catch. After our visit to Oregon and Washington we headed for Montana and Glacier National Park.

We reached Glacier about 9:30 at night. The high, snow-peaked mountains and slow, drifting clouds kept me spellbound. It was strange to see the sun still shining, for I was not used to northerly latitudes where the summer sun sets late in the day.

After our first stop, where I encountered the friendly mushrooms, we pushed on to find a spot to spend the night. We camped at Avalanche Creek campground, next to roaring McDonald Creek, and ate our dinner next to the river as the sun set. Our dinner included fresh trout; fried *Boletus* mushrooms; the young leaves of nettle, dock, and fireweed, boiled and seasoned; fresh mint tea; and canned beans. (Fishing is legal within the national parks, and no permit is needed. Foraging is also permitted as long as entire plants are not destroyed. Wild nuts, berries, mushrooms, and greens may be picked as long as they are eaten within the park boundaries and are not picked for consumption outside the park or to sell.)

Glacier National Park is the United States section of the Waterton-Glacier International Peace Park in the Northern Rockies. Waterton Lakes Park is Glacier's Canadian sister park. The Peace Park was established in 1932 by presidential proclamation, as authorized by the U.S. Congress and the Canadian

Three enthusiastic young men
experience the natural wonders
of Montana's Glacier National Park



Parliament, in honor of the friendship between Canada and the United States.

Glacier is a land of high peaks, sharp ridges, and evergreen forests. A thousand miles of trails offer breathtaking views unattainable by car. Its natural wonders include more than two hundred lakes, sixty living glaciers, and a thousand miles of trout streams flowing northward to Hudson Bay, eastward to the Gulf of Mexico, and westward to the Pacific.

Colorful wildflower displays carpet meadows and mountainsides. Beautiful fireweed, bear grass, shooting star, Indian paintbrush, geraniums, and asters proudly show their colors during their few summer months of growth. Hawks and eagles circle overhead. Sparrows, bluebirds, warblers, kinglets, chickadees, and nuthatches bless the park with their song and beauty. The bighorn, mountain goat, moose, American elk, grizzly and black bears, mule deer, and other wildlife abound in Glacier. This was the beauty and wildness I felt close to and part of as I nodded off to sleep that first night in my gently swaying hammock.

Our second day gave me a chance to explore the area while Rick and John went fishing. I found the area rich in wild foods, herbs, and mushrooms. On the sandy river bank I came across large patches of wild onions easily identified by their smell.

In a thick forest of underbrush, humid and sticky, I strolled along a trail in search of other botanical wonders. There I found catnip, the narcotic of the cat family, and wormwood, an herb used in making absinthe, an illegal alcoholic beverage. Nettles grew in abundance, and patches of curly dock made their presence known by conspicuous, beautiful coffee-brown seed stalks.

Although the leaves and stalks of nettles will sting the unwary who brush against them, the young leaves, boiled a few minutes in a small amount of water and seasoned with salt, pepper, and butter are a delicious and nutritious vegetable. Young curly dock leaves, when well cooked and seasoned, also are nutritious as well as tasty, being rich in vitamins C and A, potassium, and calcium.

Mushrooms of many colors and shapes grew on and around dead tree trunks, flourishing with plants I had never seen before. Most of the mushrooms were of small strains and hard to identify, but I did notice that some were of the *Collybia*, *Psilocybe*, and *Marasmius* genera.

Where the brush was not so thick, I noticed self-heal, chamomile, and asters displaying their beauty. Old mullein stalks dotted the scenery. And the most majestic of all was the proud magenta fireweed, a magnificent northwestern wildflower. An infusion of the whole self-heal plant has been used extensively to heal internal and external wounds. The flower-heads of chamomile made into a tea have been used widely to relieve upset stomach and to calm the nerves. Asthma sufferers obtain relief by smoking dried mullein leaves or drinking a tea made from mullein.

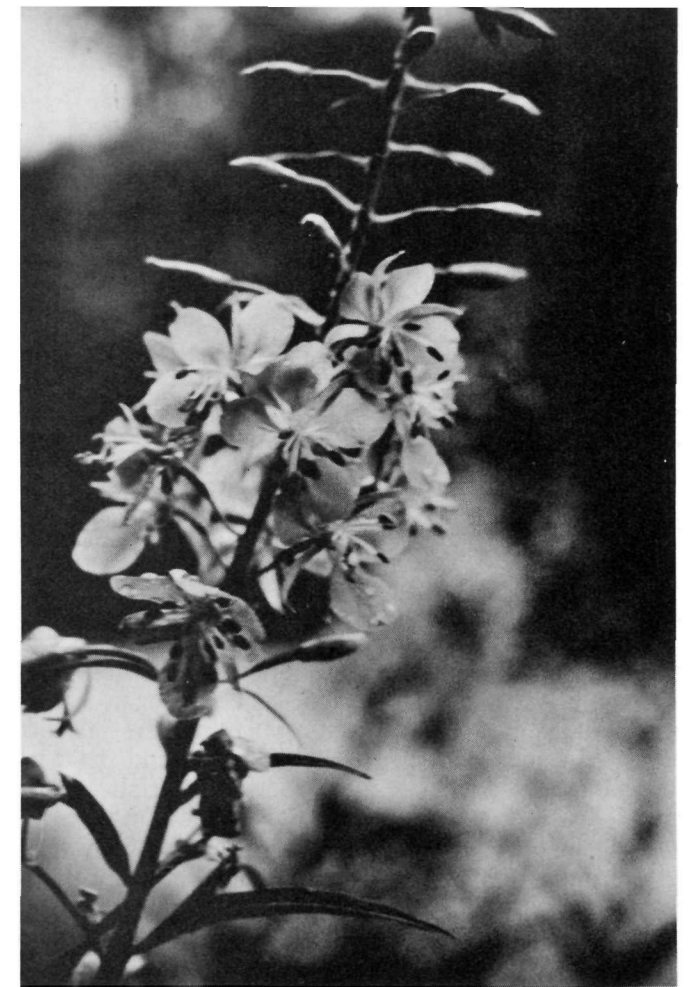
When I went back to camp, Rick and John introduced me to a new friend, Terry, a fellow fisherman.



Collybia



Shooting star



Fireweed

Terry, a native of Florida, proved to be a pleasant companion, in both ability and conversation. Unfortunately, we never asked for his address, but possibly someday our paths will cross again.

The fishing trio informed me that they had spotted antlers across the water downstream. Thus our day's activity became finding a way across the river to retrieve the antlers. The river was too wide and too fast to swim across, so we hiked upstream and found a trail on the side of the river that led us across sandbars and through evergreen forests.

We hiked for about two miles upstream. Along the way we saw the high purple mountains where waterfalls splashed from the melting snow through rock and crevice far to the rivers below. We finally found a crossing point: a huge tree trunk stretched over the river in a narrow canyon of brownish-red rock. I looked down the river while sitting in the middle of the log; the water roaring downstream and splashing on the steep cliffs was a powerful sight.

When we all got across the log, we started downstream to our destination about three miles distant. Actually we followed no trail but stayed as close to the river as possible. We passed through dense forests and over rocky cliffs, moss-covered slippery stones, and sandy beaches. During one stretch we walked on logs that had been heaped together in the water, apparently by a flood. Some logs were slippery and

rolled a bit as we crossed. Both Terry and I partially fell in, getting our legs wet and muddy. We observed traces of deer, bear, and elk along the way by means of tracks in the sand and dung.

The antlers proved to be well worth the effort we had exerted in reaching them. The undamaged set of seven-pointed elk antlers had a span of at least four feet and weighed close to fifty pounds. Terry laid claim to the antlers because he had been the first to spot them, so he carried them out—on his back. We took our time hiking back, relishing the magnificent beauty of our surroundings.

Later the next afternoon as we drove on, we visited Terry's camp. We bade our goodbyes and made our way on the Going-to-the-Sun Road. The only road through the park, Going-to-the-Sun is quickly traveled but long remembered. It takes you up and through the Rockies, giving you an almost aerial view of the park.

The various stop points let you get out of your car and see the alpine meadows, the living glaciers, the verdant forests, and the river-carved canyons. The road winds up to Logan Pass, the point marking the Continental Divide. There the visitor's center offers pamphlets and pictures so you may learn more about the natural beauties of the park.

Near the Logan Pass lodge I saw spring beauty for the first time—a delicate member of the purslane



WILD FOODS ENHANCE A CAMPING TRIP

A lone Collybia mushroom is beautiful and simple—but tasting is not for the novice. Shooting star, a member of the primrose family, has rose-purple flowers, each with a basal zone of black and an upper zone of yellow—and edible roots and leaves; but no plants should be dug up for any reason in national parks. Beautiful magenta fireweed often grows on burned-over or cut-over areas. The young shoots and leaves, in addition to being excellent cooking greens, render a fair tea when dried. And what can compare with trout, fresh from the stream, sizzling over a campfire. . . .

High on Going-to-the-Sun Road we look west—toward clouds, mountains, and shimmering, silvery river.

family whose tuber is edible. Nearby, at the base of a rocky cliff, I found alpine sorrel, another wild edible whose leaves are tender and succulent in salads.

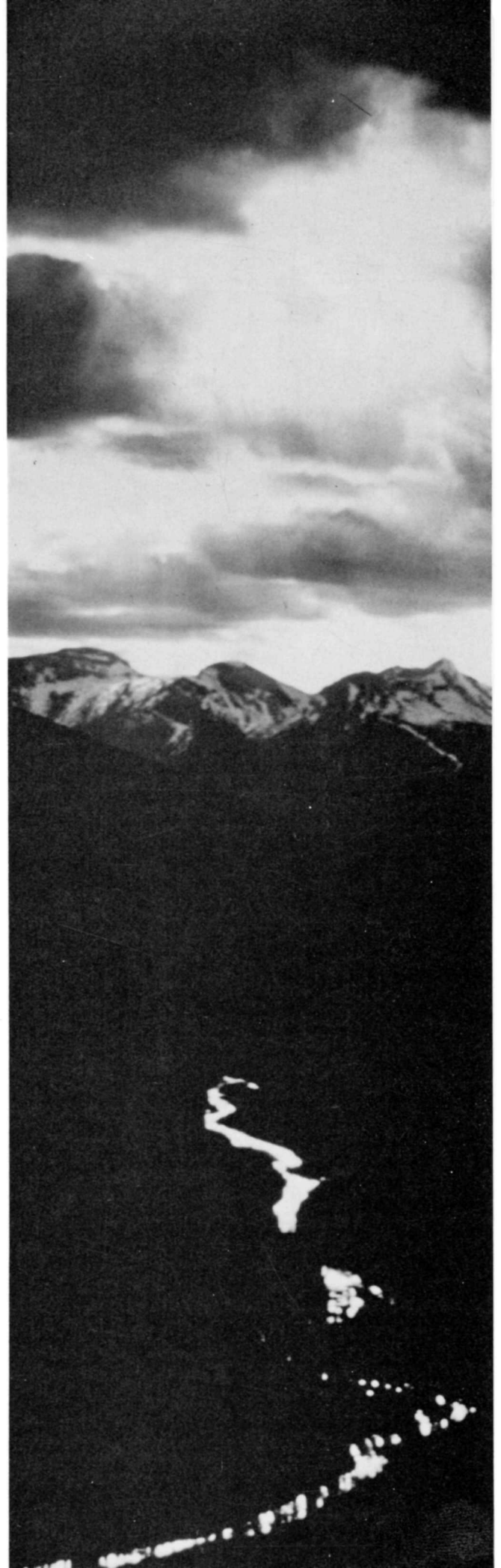
While traveling on Going-to-the-Sun Road, we pulled over to the side of the road where a few others had stopped. We noticed the people out of their cars were looking up to the high northern mountain slopes. They were watching a lone mountain goat slowly making its way across the hillside. I looked west and saw the long road we had traveled. The sun was turning the rivers to silver and the glaciers to gold.

Going-to-the-Sun Mountain, east of Logan Pass, and Going-to-the-Sun Road immortalize the tale of Napi, Old Man of the Blackfeet. Legend has it that he created the forests, the rocks, the fishes, the birds, and all the animals. He molded man and woman of clay and gave them life. He made them wise in the arts, and he taught them to hunt and farm. His mission completed, Napi set out to his home in the sun. He journeyed to the mountain, climbed the awesome rocks, and disappeared in the midst of bright flashes of lightning and swirling blinding snows. When the sun finally shone forth, the Indians saw his profile in the rock and snow. This mountain, where you can still see Napi's face, is named after his journey—Going-to-the-Sun. It is a rich sight to see Napi watching over his land, and you wonder if and when he will return.

In the days to follow we traveled through the Blackfoot Indian Reservation, through Canada, and across the plains to Minnesota where John's journey ended. Rick and I went on to the Great Lakes region, finally reaching our destination in northern Ohio where we spent the remainder of our summer.

AND NOW, although I am hundreds of miles from Glacier National Park, I am already planning my next visit. I imagine the day when I can once again journey through the land of high, purple, snow-peaked mountains; of inspiring wildflower displays; abundant wildlife; clear skies; and cold, rushing rivers. I dream of the days when I can walk under Napi's steady gaze to explore, to learn, and to enjoy. I will return with my earth friends to walk the land that Napi has blessed. Possibly I will see you in a patch of wildflowers or in a thicket searching for mushrooms, and together we can share the awesome beauty of this great natural paradise. ■

Christopher J. Nyerges—a mere 20 years old—studies botany at the Los Angeles County Arboretum in Arcadia and herbalism at the Institute of Herbal Philosophy in Glendora, California. Soon he will be majoring in botany at the University of California at Humboldt.



Adjusting to Nature in Our National Seashores

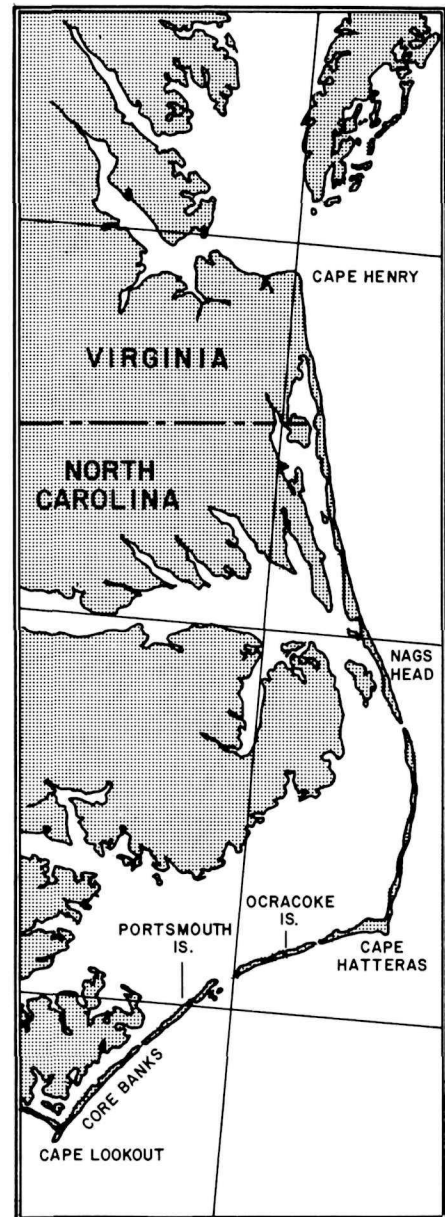
A new Park Service management policy
is to adjust to, not try to control,
the forces of nature
that affect national seashores and lakeshores

by ROBERT DOLAN & BRUCE HAYDEN

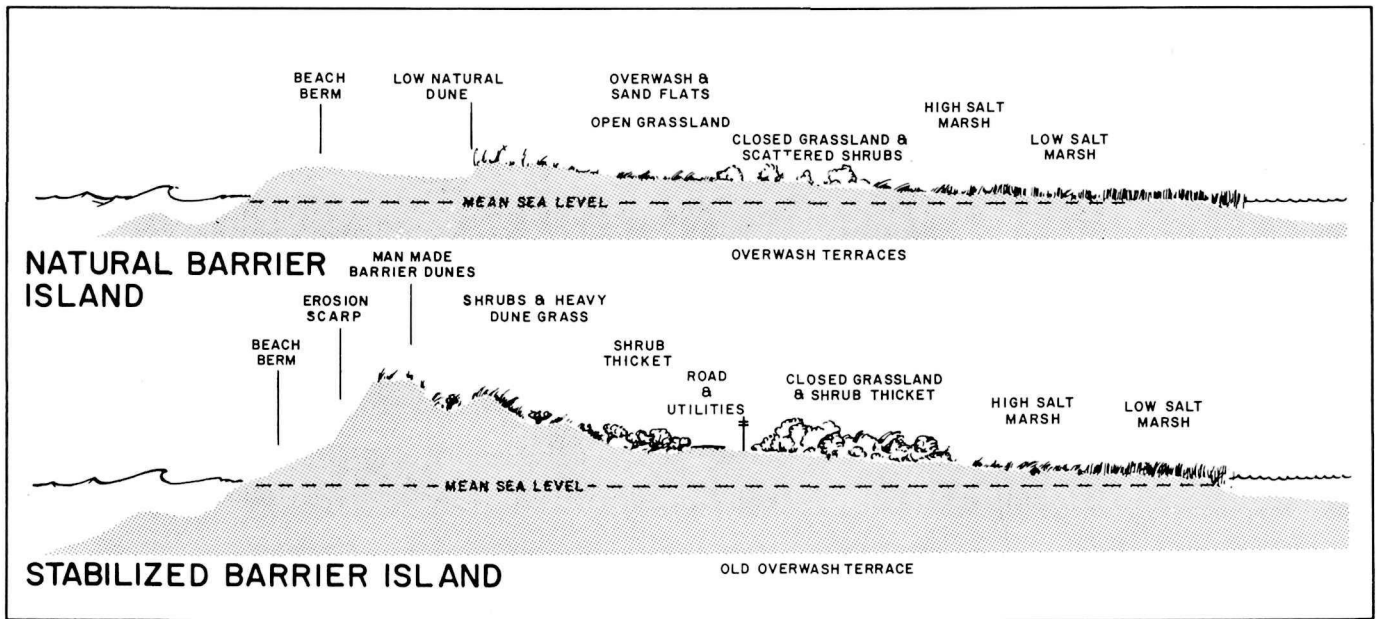
FOR THE PAST several decades the policy of some of our major land-management agencies has been to control or prevent natural events that were considered to be harmful or destructive. Through experience with sea walls, groins, beach nourishment, and breakwaters, we are now beginning to realize that natural changes are often essential to the geologic and ecologic health of our coastal systems. However, it is also obvious that the uncontrolled natural system, undergoing periodic changes, creates major land-management problems.

Since the 1930s many millions of dollars have been invested in measures designed to stabilize the Outer Banks of North Carolina. In 1972 Congress authorized the National Park Service to spend an additional \$4.5 million for beach restoration work in the Cape Hatteras National Seashore area. On September 28, 1973, Ronald H. Walker, Director of the National Park Service, announced that in the future national seashore policy will reflect an effort to live with and adjust to the natural marine and atmospheric forces shaping these rapidly changing landscapes rather than to try to control coastal processes. Although this decision constitutes a policy of considerable conservation significance, it neither was a spur-of-the-moment decision nor was the decision made without careful consideration of the nature of these environments and of the alternative actions available. The decision to reassess our massive efforts to control marine processes is based on more than thirty years of management experience and more than ten years of intensive study and research.

Currently, National Park Service management is responsible for more than two thousand miles of shoreline under the national seashore and lakeshore program. At Cape Hatteras alone roughly \$20 million have been expended to stabilize and control the landscape, beginning during the 1930s when fences were erected to trap wind-blown sands and form protective barrier dunes. The resulting margin of protection has accelerated the development of communities, roads, and tourist facilities dangerously close to the shoreline. Before these modifications, such development was wisely restricted to the sound side of the barrier island. The commitments implicit in the shoreside development resulted in ever-increasing demands for widening the protective margin.



The Outer Banks of North Carolina from Nags Head to Cape Hatteras have been the objects of shoreline management for more than three decades. In the past ten years management of these islands has shifted from a passive dune-management program to an active shoreline engineering program at great cost.



The natural barrier island is comprised of broad beaches, low natural dunes, overwash sand flats with open grassland and scattered shrub component, and high and low salt marshes. In the stabilized barrier island, narrow beaches and man-made barrier dunes dominate. The margin of protection thus afforded stimulated the construction of settlements and transportation and utilities networks paralleling the dunes. In the absence of periodic overwash the grassland communities have changed to shrub thickets.

Grasses were planted on the dunes and fertilized periodically to further stabilize these man-induced barriers. These barriers also provided protection for native shrubs, causing them to advance into the grassland communities behind the dunes.

The margin of protection afforded by the barrier dunes has nevertheless narrowed over the years because of a continuing rise in sea level. The Ash Wednesday storm of 1962 marked the high-water point of this protective margin. The erosion of the dune face during that storm left the dunes exposed to the wave and surge attacks of subsequent storms. The road paralleling the dunes has been washed away on three separate occasions, requiring expensive replacement. The beaches have narrowed, and buildings are washed into the sea each year. Dredging sands, groins, sandbags, and bulldozed sands have been applied to check the narrowing of the islands. Each measure has left the landscape littered with the weapons of man's war with the sea, and the recreational and esthetic values for which these areas were set aside have diminished proportionately. The continuance of a general policy of stabilizing these highly dynamic seashore areas, in direct conflict with natural processes, was clearly at odds with the missions of the national seashore program.

During the more than thirty years in which the National Park Service has been managing coastal park areas, two basic generalizations have become obvious:

Management actions designed to control and stabilize the natural modifications of the landscape by

marine forces usually result in unexpected side effects that in turn require additional management action.

Management actions to control the landscape have been found to be site-specific. Therefore procedures that were successful in one location neither are necessarily successful nor do they result in the same side effects when applied elsewhere.

THE recognition over ten years ago of these inherent management difficulties resulted in the development of intensive study and a program of research on behalf of the National Park Service. These investigations of the physical, ecological, and economic effects of the barrier island stabilization policy provided a core of knowledge upon which a reconsideration of the general policy of stabilization and examination of alternate strategies were based. In 1972 the Office of the Chief Scientist of the National Park Service asked those of us who conducted these research investigations to summarize the findings and to propose guidelines for management. The following statements are fundamental to the new management strategy we recommended if future confrontations are to be avoided.

BACKGROUND. *The policy of managing the seashores should be to preserve and, where necessary, to permit the evolution of a dominance of the natural forces and the resulting landscapes and ecological scenes. Although the national seashores were established principally for the purpose of recreation, the*



During the 1930s sand fences were erected on the broad beaches of Hatteras Island to trap wind-blown sands, thus forming the barrier-dune system characterizing these modified systems. The impact of this management action became evident only in the 1960s when remedial measures were undertaken.

Shoreline engineering measures have resulted in a littered landscape. The recreation potential for which these natural resources were set aside is the first casualty of this man-over-nature management posture.



Roadways paralleling the ocean have in large part determined the priorities of management resources. Demands for protection of access routes by private developments have historically been management problems. The position of these roadways parallel to the energy gradient ensures a high vulnerability to storm environments. Alternatives are needed.



Changes in the shoreline are an ongoing process along much of the barrier islands. The longevity of recreational facilities must be commensurate with these changes. Investments in facilities must be matched with the exposure of the landscape to extreme events. In the case of Coquina Beach, Cape Hatteras National Seashore area, facilities once at a safe distance from the shoreline are now vulnerable to even modest storms and are scheduled for relocation.





Historic sites of national significance may require protective measures not commensurate with the strategy for natural areas. However, these measures must be viewed as temporary actions. In the long run, relocation may be the only viable action to ensure their preservation.

basic goals of recreation and preservation are mutually dependent within these systems. Diversity, complexity, and change should abound as a part of this natural environment. Stability, which has been part of the National Park Service seashore management policy for many years, is not consistent with this goal. The transient processes of shoreline erosion and deposition, the successional advances and disruptions of vegetation forms, and the impending demise of the artificial barrier dunes at the Cape Hatteras National Seashore should be viewed as natural events of a positive significance that will maximize the recreational values within the seashore areas. This view should not be construed as a policy of neglect but understood as a position of living with nature as opposed to one of man attempting to control nature.

MANAGEMENT PHILOSOPHY. *The key to seashore management is the recognition of the changing forms, the ecological responses, and their transient character within the context of significant natural and historical landscapes.* The barrier islands from Cape Cod to Texas have a similar physical history, a common current state, and will have a common management strategy, the heart of which would be the philosophy of living with and adjusting to natural events. Any concessions to this philosophy should be viewed as major departures in principle, merited only when irreplaceable features of national significance are in question.

MANAGEMENT IMPLICATIONS. The coastal environment has long been viewed as a hostile environment when man's use has focused on his economic pursuits. However, the esthetic and recreational experiences for which the National Park Service marine landscapes are set aside lead to the translation of this concept of hostility to positive and necessary values. This translation ensures the physical and biological health of the seashores as well as their preservation. Nevertheless, park developments require facilities that, like other economic pursuits, may at times result in confrontations with nature. Management guidelines thus require specific policies in five areas:

Visitor Access. *The constant changes that occur within the seashore areas should preclude, as a policy standard, the construction of facilities and roadways that parallel the shoreline.* Such developments inevitably lead to demands for protection and stabilization inconsistent with management policy. Alternative access and transportation systems should be encouraged.

National Park Service Developments. It should be the responsibility of the planning team that creates and updates master plans to be knowledgeable about marine processes in general and coastal systems in particular, so that they are able to *design facilities that are appropriate to the transient nature of these environments.*

Historic Sites. Numerous artifacts of man's experience in the coastal zone are found within the national seashore areas. *Some of these historic sites constitute*

resources of national significance that require management flexibility to assure their preservation for future generations. Features in highly dynamic seashore environments may require special engineering measures that are untenable in the natural areas. However, even these measures may not assure their continued existence; therefore, contingency plans for their relocation should be developed.

Private Inholdings. A management policy of adjustment to the forces of nature requires a wider control zone consistent with the dynamics of the shoreline systems. Inholdings in national seashore areas are currently exposed to and threatened by the periodic changes in the shoreline. The penetrations of storm surge and waves create a set of zones perpendicular to the shoreline. The 500-foot control zone at Cape Hatteras, for example, was predicted on a management posture dependent on stabilization; however, failure of stabilization as a viable policy has led to confrontation with private landholders.

Public Acceptance. Interpretive programs administered by informed personnel are essential to successful application of this management policy. The public has long considered that artificial barrier dunes are the natural or desired configuration and that the erosion of the shoreline is detrimental. Application of the philosophy of adjusting to and living with the forces of nature will require new efforts to inform the public of the constructive nature of an ever-changing landscape where erosion of the coast plays a significant role in maintaining the environmental health of these areas.

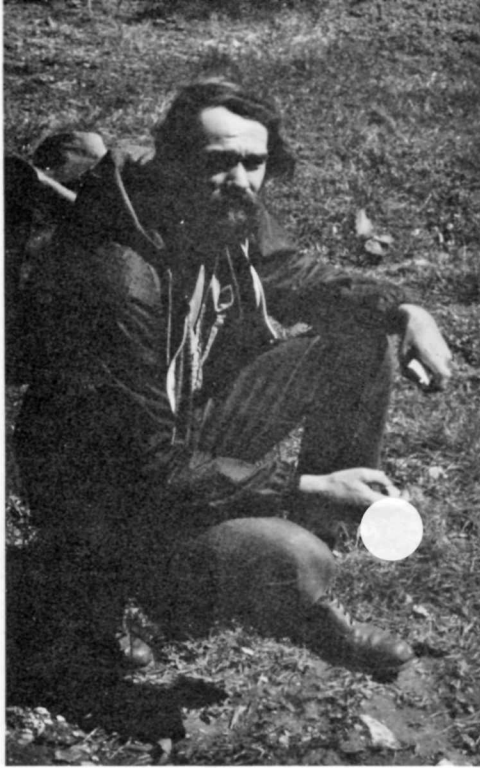
WITHIN the past two decades, the National Park Service has become the public's manager of most of the nation's remaining natural barrier islands. If the present trend of acquisition continues, this responsibility will increase significantly. The seashore and lakeshore areas under the jurisdiction of the National Park Service may be classified as high-stress environments, but the barrier islands are the most delicately balanced of these systems.

It is particularly noteworthy that most of the water-oriented landholdings of the National Park Service are classified as recreation areas rather than national parks or wilderness areas and, as such, are subject to the additional stresses of development, heavy visitation, and a wide range of recreational uses. Under the visitation constraints imposed by the energy crisis, these areas may experience greatly increased visitation due to their proximity to the nation's urban centers. It is particularly important that the National Park Service be supported for cautiously charting the course of development and land use within the newly acquired national seashore and lakeshore areas. ■

Robert Dolan, Professor of Environmental Sciences at the University of Virginia, has conducted investigations of the mid-Atlantic coast barrier islands for more than a decade. Bruce Hayden, Assistant Professor of Environmental Sciences at the University of Virginia, is a climatologist and ecologist. Both authors have been working with the National Park Service through the office of the Chief Scientist, Washington, D.C.

Private properties within and adjacent to the national seashores are dangerously close to the sea. The rise in sea level and the prevailing erosional trend in the shore renders concepts such as setback lines ineffective. The time purchased by previous engineering measures has nearly run out. Subsequent planning must clearly be in harmony with the dynamics of these areas.





Lee Nading, by Peter Gold

NOAMTRAC

a proposed continental trail system

A network of hiking trails to interconnect all regions of the continent could make natural areas more accessible to all people

by LEE NADING

IN THE PAST FEW YEARS hiking and backpacking have become major forms of outdoor recreation. Their sudden popularity coincided with the growth of environmental awareness that began in the late 1960s, which is not surprising inasmuch as the trail provides one of the best means of experiencing nature for people living in our industrial, urban society.

The foot trail stands alone in its simplicity compared with the mechanized, luxurious sources of outdoor recreation that many people have learned to depend on. A hiker who dons a sixty-pound backpack will not set any speed record, and he will have to forego some of our modern creature comforts for a time; but he will gain the opportunity to observe and experience the natural environment at close range. A network of hiking trails that would interconnect rural and urban areas, state, federal, and private land could play a unique role in providing opportunities for direct contact with nature for those people whose only relationship with the land has been by means of an infrequent motor trip.

It is feasible to design such a network of primary trails, interconnecting secondary trails, and shorter "out-routes" from metropolitan areas so that conceivably one could hike from any area of the country to any other. With as many as two or three major trails passing through each state, extending throughout Canada and Mexico, the trail system would make the natural environment more accessible to everyone regardless of his geographic location.

The presence of a dashed trail line on a map could suggest far more than the political boundaries, highways, cities, and the smattering of forest and park areas that are shown on a road map. A network of foot trails could lead us through lushly vegetated farmlands, rainbow canyons, primeval forests, and desert ranges, past springs and perennial streams. The

trail might follow banks of rivers as wild as in the days of Custer and Sitting Bull, rivers flowing through millions of acres of farmland from Saskatchewan to the Rio Grande. The trail might pass still-visible Indian encampments, deteriorating log cabin communities, and the corroded bedsteads and cast iron stoves discarded from overladen Conestoga wagons on the Oregon Trail. It could cross the badlands of the Southwest and of northern Mexico, where the weather is warm all year, and it could travel the mountain crest trails of the Blue Ridge, the Ozarks, and the Rockies. If established, a network of trails could pass by trappers' rendezvous, coach taverns, buffalo traces, and Indian strongholds to places, sights, scents, and sounds not hinted at by road maps or recreation brochures. The trail could illustrate that, contrary to various forms of propaganda, the world has not shrunk—our continent is still 3,000 miles from coast to coast, and nature has not been entirely rounded up and fenced into a handful of public parks and forests.

How many people would ever contemplate hiking from Louisiana to South Carolina; from New York City to the coast of Labrador; from Nebraska to Texas; from Chicago to the Ozarks; from Tucson to Mexico City; from Kentucky to Kansas; from Iowa to Lake Winnipeg? Many people would if they knew which paths to take and that the land is worth the effort. The Appalachian Trail, Florida Hiking Trail, Pacific Crest Trail, Buckeye Trail, and Bruce Trail are established trails that are opening up new areas to both urban and rural hikers.

How does one approach the problem of designing and implementing a comprehensive network of hiking trails? The two major obstacles are funding and coordination of participating agencies and organizations. Maximum involvement of public agencies

and private groups would be ideal, but differences in funding capabilities, organizational structure, philosophy, and manpower priorities would make coordination of the project impractical and time-consuming. A conference or council made up of public and private groups requires too much time spent in symposiums and for communications and would be economically prohibitive. An alternative to this type of conference is for each agency and group to work independently, with some liaison, developing trail proposals according to each group's authority and resources. However, the absence of a common plan would eventually necessitate an organizing conference or council. The conference method works well for planning single trails on a local and regional basis but is inefficient on a larger scale.

A workable approach might be for a few experienced people to devise a new and unified trail plan. This could be done with the use of U.S. Geological Survey maps that show woodland cover, special park and forest maps, and land ownership status maps. The patterns that the trail system would take according to these maps could then be coordinated with abandoned rail grades, ferry crossings, "open" military reservations, and existing primitive roads and hiking routes. The routes could then be drawn up in greater detail with the aid of topographic maps and with the advice of local field experts and agencies and groups affected. As the plan for each trail segment is finalized, provisional guide maps could be drawn up and released for use, thereby encouraging immediate utilization of the proposed routes and spearheading public support for their formal establishment.

Ideally, the chief criterion for determining the location of a major trail is undeveloped, sparsely populated, unspoiled land. These conditions usually occur along waterways and rugged landforms that have presented natural impediments to development of the land. In the plains and prairie states prime trail land is located along major rivers, escarpments, sand dunes, and badlands; in the Southeast and Northeast it is found in the wetlands and Appalachian uplifts; in the Ohio River Valley of the interior East it coincides with forested, rugged hills; in the central North it occurs as glacial moraines and lake country; and in the western sections of the United States, Canada, and Mexico the possibilities for trail placement are nearly unlimited.

In populated areas where a good hiking route cannot be selected without crossing private property, the provisional guide maps can show a "temporary route" or detour that follows dirt roads and other legal rights-of-way.

Urban "out-routes" could be established to provide a link between a city and a major trail. Because these routes are merely access routes, they could follow any combinations of alleys, suburban sidewalks, and streets if better alternatives could not be found.

Strict guidelines would have to be established to control the impact that heavy trail use would have on designated wilderness areas—a growing concern

to environmentalists and conservationists. If a trail section were being overused, a detour could be designated until the path could restore itself, or the trail could be rerouted permanently. Because the purpose of this trail system would be primarily to encourage and provide for hiking interest and nonmotorized recreation in general, preservation of wilderness areas could be an important operating factor in such decisions.

The design and initiation of such a trail system can be accomplished by very few people on a small budget by adhering to a master plan and an efficient research procedure. With immediate release of provisional guide maps as the key factor, a complex trail system would be well on its way toward realization. It could serve as a core around which any agency or organization could plan local trails with the possibility of linking together in a unified system. It would bring attention to many new wilderness areas and promote interest in their preservation, as well as protect a corridor of sufficient width along every trail as a kind of linear park system. The more celebrated a trail becomes, the more important the areas through which it passes become. Each contributes to the survival of the other, and together they form a strong catalyst for public support of wilderness and preservation principles.

Eventually such a trail effort could be formally organized on an international scale with memberships and chapters. These local and regional groups could have management and maintenance responsibilities for the trails; through cooperative arrangements with local, state, and federal land management agencies could work toward the acquisition of easements; could direct the construction of new trail segments; could study proposals for additional trails; and could work toward preservation of the wild areas traversed by the trails. But with or without the successful development of an organization, because maps would be in circulation, people would still be able to hike the trails.

The ethic would be to ensure wilderness experience throughout the length of every trail, discouraging such developments as shelters and directional signs, and emphasizing the values of extended, nomadic hiking adventures.

With a dedicated philosophy and diligent approach, this North American trail complex could expand and embrace every corner of the continent, initiating a new era in our country's legacy of outdoor experience and close relationship with the land. ■

Lee Nading has devoted all his time for the past three years backpacking, traveling, and researching possible trail routes in an attempt to initiate an interconnecting continental trail system. As a sculptor turned trail planner and wilderness proponent, he originated the Nebo Ridge Wilderness Area proposal (included in the Eastern Wilderness Bill) in southern Indiana, has published guide maps for an 800-mile segment of his coast-to-coast Zenith Trail, and is preparing to organize the North America Trail Complex as a private nonprofit association.



Habitat decimation and commercial exploitation have made the rare bog turtle and the term "extinction" almost synonymous

The Bog Turtle: Synonym for extinction?



by KENNETH T. NEMURAS & JAMES A. WEAVER

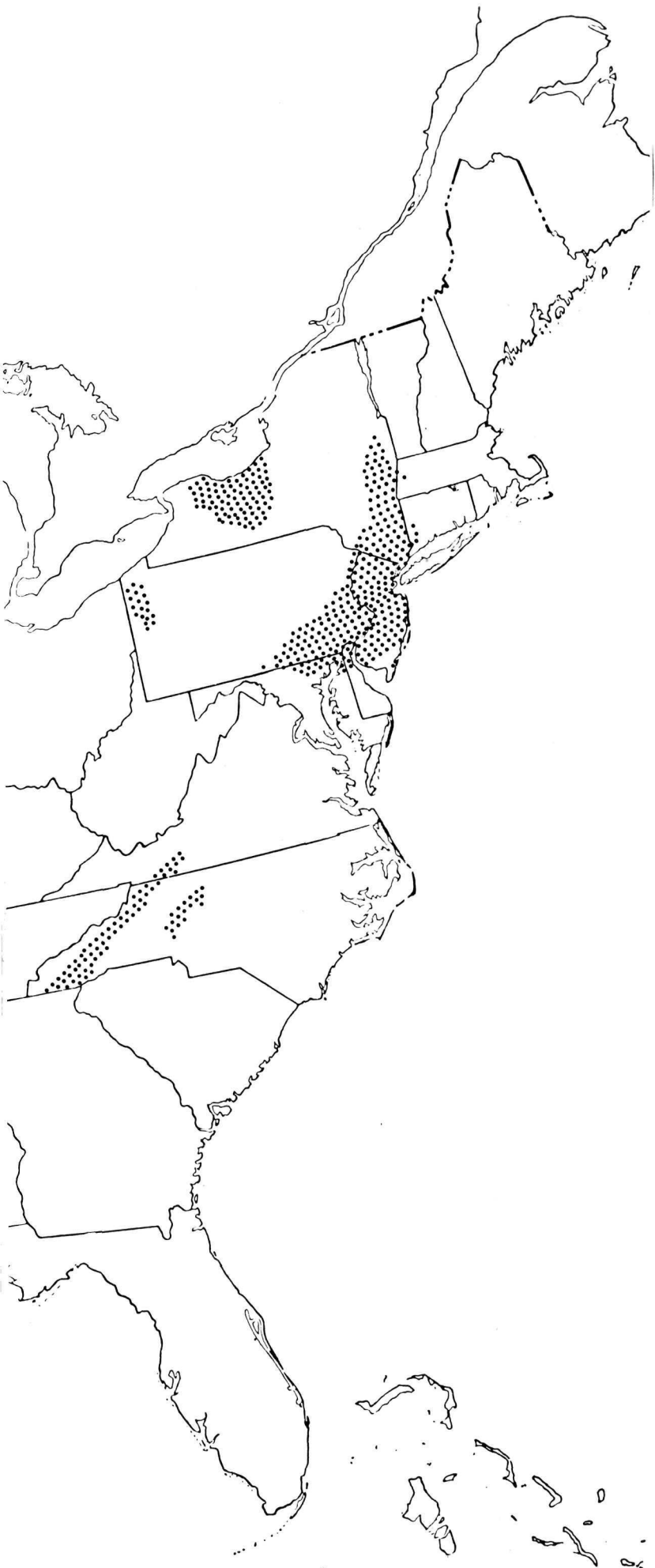
WHEN the bog turtle (*Clemmys muhlenbergi*) was first discovered by the early botanist Heinrich Muhlenberg in 1778, it was appropriately recognized as one of North America's rarest turtles. Today, nearly two hundred years later, not only does the bog turtle continue to carry the label of "rare," but it is increasingly described as "endangered" and "threatened with extinction." If the bog turtle is indeed in the twilight of its existence, then what forces have propelled a reptile that may once have inhabited Pleistocene (Ice Age) swamps in abundance into its presently vulnerable status? And, more importantly, what can be done to save this small turtle?

Richard Busch, who grew up around Reading, Pennsylvania, and is now preparator of the North Museum at Franklin and Marshall College in Lancaster, recently pointed out a half dozen sites that once supported extensive bog turtle populations in West Reading's Wyomissing Valley. But such developments as a playground, museum, sewage disposal plant, and city park have supplanted the natural habitats. This example typifies the bog turtle's fate throughout much of its range. Over the years we have seen *Clemmys muhlenbergi* disappear from many

areas; to those of us who share a concern for conserving our endangered species, the bog turtle and the term "extinction" have become almost synonymous.

The reason for the decline of bog turtle populations in recent times is threefold: elimination or shrinkage of natural habitats by changing physiological conditions (i.e. bogs drying up as a result of a warmer postglacial climate, open swamps being strangled by the invasion of hardwood trees); unnatural destruction of habitats by mankind; and commercial exploitation of the species by dealers and collectors. All these factors have taken their toll of bog turtle populations, but habitat decimation is undoubtedly the most imminent threat to the turtle's survival. Unlike most other species, the bog turtle is usually restricted to small and sometimes isolated colonies in characteristically mucky areas. People generally consider these miniature bogs useless, and they gradually convert many into other land types, either by draining them or by covering them with landfills. These alterations give little or no consideration to the bog turtle and other wildlife.

The bog turtle is easily recognized when spotted in its natural surroundings by conspicuous, orange-



KENNETH T. NEMURAS

DISTRIBUTION AND HABITAT OF THE RARE BOG TURTLE

The known range of the bog turtle (*Clemmys muhlenbergi*) is extremely erratic. Isolated populations are sometimes separated by wide gaps. Bog turtles often make their homes in soggy pastures like the one in southeastern Pennsylvania shown here, but many of these habitats have been drained or destroyed in recent times. For example, the Pennsylvania swamp shown below is being drained in preparation for a new shopping center. Each year similar construction activities further reduce the number of remaining bog turtle populations.



KENNETH T. NEMURAS

colored blotches on the sides of its head. The normally dark brown shell may be unblemished or, on occasion, streaked with lighter markings. On some turtles the carapace is worn smooth from years of burrowing into the muddy substrate; others have prominent concentric grooves. It is not a very large species, and most bog turtles barely reach four inches.

The present distribution of the bog turtle along the Atlantic seaboard states is fragmentary, and existing populations are sometimes separated by tremendous gaps. It occurs in northern Maryland and Delaware, southeastern Pennsylvania, New Jersey, and parts of eastern New York, and dips mildly into the fringes of Connecticut and Massachusetts. In western New York its remnant descendants are sprinkled lightly throughout the Finger Lakes region, and western Pennsylvania harbors a few others. The turtle appears again in extreme southwestern Virginia, where it hugs the Blue Ridge crest, and is scattered among the higher elevations of western North Carolina and a few isolated pockets along the adjacent piedmont.

One theory on the bog turtle's erratic distributional pattern, according to Dr. M. Graham Netting of the Carnegie Museum in Pittsburgh, is that the species evolved in a primitive habitat of sphagnum and tamarack, and now it is left as a relict in places where such plant associations once occurred or still occur.

We do not know exactly when the bog turtle emerged among its Chelonian (turtle/tortoise) relatives, but we do know that its *Clemmys* genus originated in the Tertiary Period. The earliest known fossils of now extinct *Clemmys* date back approximately 65 to 75 million years to the Paleocene epoch of that period. Its evolution, like that of all turtles, can be traced back to the first fully developed turtles, which are thought to be derived from the "stem reptiles," or cotylosaurs, which roamed the earth over 250 million years ago. Today four species of *Clemmys* are still extant in North America: the bog turtle, *Clemmys muhlenbergi*; the spotted turtle, *Clemmys guttata*; the wood turtle, *Clemmys insculpta*; and the western pond turtle, *Clemmys marmorata*.

BOG TURTLES usually emerge from hibernation sometime in April and spend much of the early spring sunning on grass tussocks or crawling along shallow rivulets in search of food. They are omnivorous and feed on such items as carrion, earthworms, tadpoles, various insects, beetle and butterfly larvae, berries, pondweed, and sedge seeds. Bog turtles (especially the eggs and young) are in turn the prey of various small animals such as skunks, foxes, and raccoons.

Much of the bog turtle's life history still remains

unknown. Alexander J. Barton of the National Science Foundation studied these turtles in one Pennsylvania bog and found that turtles migrated a considerable distance to hibernation sites. In some shallow swamps after midsummer, bog turtles seemingly disappear when the water level becomes low or almost nonexistent during extremely dry periods, then reappear the following spring. Even more mysteriously, this little reptile often will inhabit one swamp but will not occur in other identical swamps nearby.

One thing that is certain, however, is that many of the mucky or swampy situations for which bog turtles show a preference are becoming increasingly vulnerable to man's activities. Tom J. Bloomer, a New Jersey conservationist, has seen four large colonies destroyed in his state since November 1972. His observations confirm that the bog turtle is disappearing at an alarming rate with the draining and development of watershed acreage, and he believes that the habitat must be saved in order to save the species. The pressure for more land for more people is dooming this reptile, he says, and the future looks bleak.

The concern of Tom and other individuals like him has led to the formation of "The Muhlenberg Group," which privately owns and administers 635 acres of land in two New Jersey counties where the bog turtle

and other forms of wildlife can roam freely. "Without any preserves set aside," reasons Tom, "we estimate that 90 percent of today's [bog turtle] population in New Jersey will be eliminated within twenty-five years."

In New York bog turtles supposedly could be found on Staten Island at one time, but they have been completely expelled by rapid growth and urbanization during this century. Their existence near some of our larger cities has been thwarted by suburban expansion, and part of their previous range in the Finger Lakes region is now, according to Dr. Edgar M. Reilly, Curator of Zoology at the New York State Museum, "a conglomerate of shopping centers. . . ."

Loss of habitat, as well as pollution, could eventually have an effect not only on the bog turtle, but on other species of freshwater and marsh-dwelling turtles as well. At Michigan State University, Professor J. Alan Holman foresees a gloomy day in the distant future when the only turtles in the north-eastern United States might be those capable of thriving in polluted bodies of water, such as the painted turtle (*Chrysemys picta*) and the common snapping turtle (*Chelydra serpentina*). "This may sound like a wild idea now," explains Professor Holman, "however, in central Illinois in the 1880s *Emydoidea blandingii* used to be common, but now, since the drainage of the area, they are extinct in this region." (*Emydoidea blandingii*, a semiaquatic marsh turtle known as Blanding's turtle, is the only representative of its genus.)

WHETHER the bog turtle can be saved may depend largely on what steps are taken at the present time. Although this species now has some degree of state protection throughout much of its range, it would be a serious delusion to believe that such legal prohibitions are always sufficient for the purpose of bog-turtle conservation, because more insidious forms of population destruction do exist. For instance, even though killing bog turtles is illegal in some states, how many land developers have been prosecuted for killing entire colonies by direct alteration of the habitat or indirect modification of adjacent land?

The Endangered Species Conservation Act of 1973 is a significant improvement over previous endangered species legislation because it provides for some moderation of the destruction and alteration of essential habitat. A provision requires that all federal departments and agencies shall ensure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of endangered species and "threatened species" or result in destruction or modification of habitat. However, an endangered species is still protected only on *federal* lands, when federal money or permits are involved, or when it is covered by other state or federal laws.

Another provision of the new law will make money from the Land and Water Conservation Fund available for the acquisition of habitat of endangered species.

Although the bog turtle has not been listed as "endangered" by the Department of the Interior, the new legislation protects not only the listed endangered species but also those *likely to be threatened with extinction in the foreseeable future*. The Interior Department is currently reviewing the bog turtle's status. The bog turtle should be included in this new category. The Department of the Interior would then be able to take remedial steps to protect species such as *Clemmys muhlenbergi* while thriving populations still exist, rather than wait until they become hopelessly endangered.

At present the states of New York, Connecticut, New Jersey, Maryland, and Pennsylvania either consider the bog turtle as an endangered species or have some form of protection within their boundaries. In most cases the taking, transportation, possession, or sale of this turtle without a permit is subject to fines ranging from minimal amounts to \$1,000.

We would like to think that protective legislation is an important step in prolonging the existence of *Clemmys muhlenbergi*. However, because such laws have been ignored in the past, and because of uncontrolled land development in other cases, the danger to this species has not by any means been eliminated.

Current government trends toward planning and management of land usage could offer some hope of conserving not only bog turtle habitats, but also those of other endangered forms of wildlife as well. Preservation is essential, because the leniency that has allowed unabated destruction of the earth's resources can no longer be tolerated. Observing the bog turtle's acceleration into extinction is only one warning to us of our poor "housekeeping." We *must* create a safer environment, or the time of the bog turtle's demise will certainly approach. ■

Ken Nemuras is a turtle enthusiast who has been compiling data on the threatened bog turtle for nearly a decade. His articles have appeared in a number of herpetological and wildlife publications.

Jim Weaver, an amateur herpetologist with a particular interest in turtles, occasionally lectures on turtles, and is editor of a semiformal bulletin on bog turtle conservation.

HELP THE BOG TURTLE

Under the terms of the new Endangered Species Act of 1973, the federal government has the authority and duty to protect the critical habitat of native endangered species. Readers who feel that the bog turtle should receive classification and protection as an endangered species are urged to write:

Mr. Keith M. Schreiner, Chief
Office of Endangered Species
Bureau of Sport Fisheries and Wildlife
Department of the Interior
Washington, D.C. 20240

NEW CAVE: A NEW LOOK

A tour through primitive New Cave
in Carlsbad Caverns National Park
offers the park visitor
a new kind of cave experience

by EDWARDS HAY

PRIMITIVE New Cave in Carlsbad Caverns National Park, New Mexico, has only recently been opened to the public. Until now the only tours through Carlsbad Caverns were conducted with the aid of elevators, underground lunchrooms, and artificial lighting. To supplement these tours the National Park Service offers a new look to its cave excursions for park visitors seeking a more primitive, more rugged experience. The opening of New Cave is a move in this direction.

Pictographs and pottery shards dating back 1,000 years reveal that the entrance of New Cave was used for shelter by primitive groups of Indians in times long past, but it is doubtful that these early people ventured far into the cave.

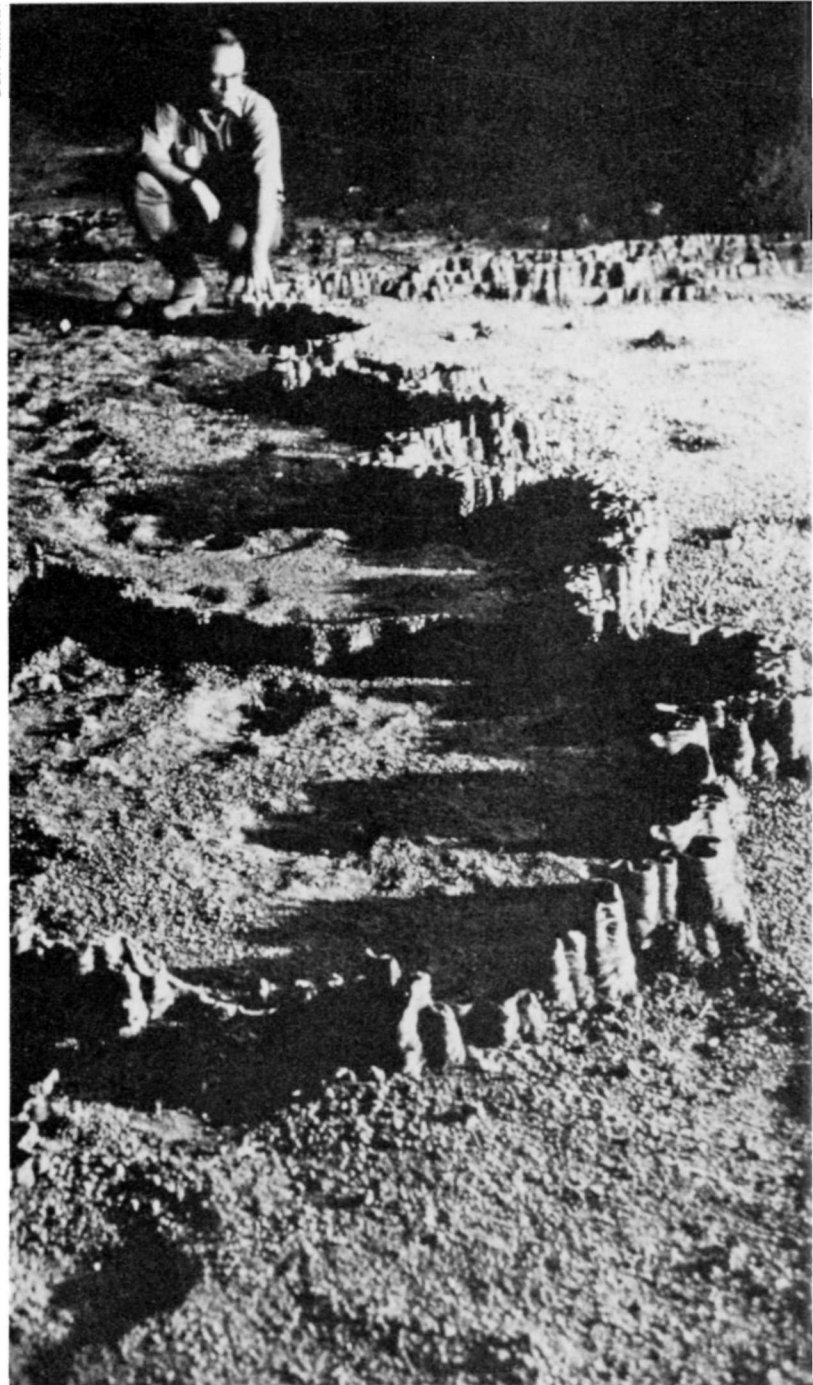
The first white man to see the cave, despite many claims to the contrary, was Tom Tucker, a goatherd. On July 26, 1937, while searching for some stray goats, he discovered the mouth of the cave and found the goats on the talus just inside the cave opening. He drove the herd before him to the top of the mountain and thought no more about the cave.

Soon after this incident Tucker met Mr. C. J. Cavender, who was looking for caves with large deposits of bat droppings, or guano. In the Southwest, guano was mined primarily as a nitrogen-rich fertilizer for agricultural purposes. Tucker told him about the cave he had discovered but said he had not gone far enough into it to know if there were guano deposits. The next day Cavender explored the cave equipped with his gasoline lantern. He found large and beautiful cave formations as well as the guano he was looking for. The next day he rushed to town and filed a mining claim. The bat guano found a ready market, and the mining operation continued in New Cave until the National Park Service terminated it in 1957.

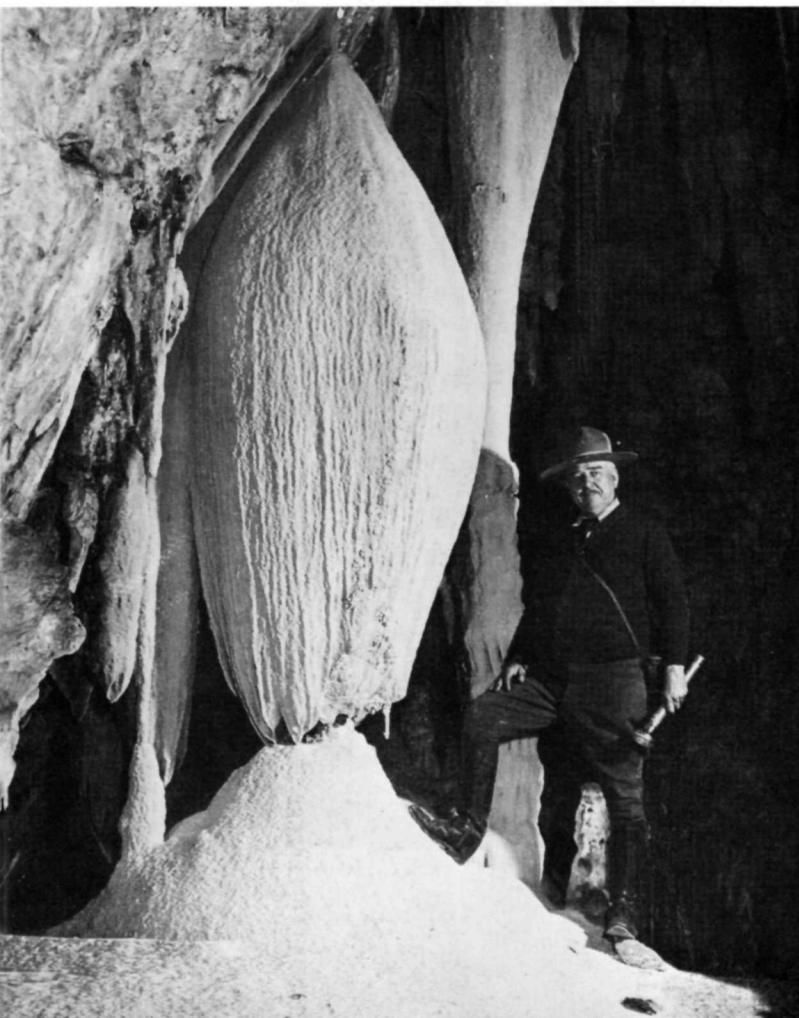
This cave was formed in the same way as the main Carlsbad Caverns and the many other smaller caves

The Chinese Wall, only three-quarters of an inch thick and less than a foot high, meanders over about a thousand square feet of coal black floor in New Cave, Carlsbad Caverns Park.

DON MARTIN



The Christmas Tree seems covered by new snow, and the Tear Drop hangs from an incredibly frail attachment.



NATIONAL PARK SERVICE

in the park. The limestone in which the caverns formed was deposited near the edge of an inland arm of the sea during Permian times, about 250 million years ago. Its core is a fossil barrier reef built by lime-secreting algae and other marine organisms. To the north are layered rocks that formed a lagoon behind the reef, and to the south are exposures of talus, or rock fragments, broken from the reef's crest by storms on the ancient sea.

In time, growth of the massive reef was halted, and it became buried under layers of sediment. A pattern of cracks then appeared in the rocks, which set the stage for the formation of the caverns.

Rainwater, converted to a weak carbonic acid by absorption of carbon dioxide in the soil and decaying matter above, seeped into the cracks to the permanently saturated zone—the water table. It then slowly dissolved the rock to create immense underground galleries. As mountain-building forces lowered the water table, air filled the cavern chambers, and mineral-laden water filtering in from the surface and flowing over the rock began to decorate the rooms with stalactite and stalagmite formations. (Stalagmites extend upward, stalactites hang from the roof and sides of a cavern.)

In the autumn of 1973 about five hundred "deep breathers" descended into New Cave when it was first opened to the public for a trial excursion.

After we had responded to a newspaper announcement with a request to be included in the first public tour of New Cave, we received a letter of welcome and instructions from James W. Todd, Chief of Visitor and Protection Services at Carlsbad Caverns National Park. The letter advised each of us to carry a canteen and to bring a strong flashlight or lantern because water and interior lighting would not be available in the cave. We were told to wear sturdy hiking boots, long pants, a hat, and a jacket. Cameras with flash would be permitted; tripods would not. The letter warned of a steep, one-mile climb from the parking lot to the cave entrance, rising five hundred feet and requiring about an hour on the twisting trail. The letter promised that the trip would be most rewarding because of its primitive nature but that these conditions could present a problem to people who have difficulty walking.

As the crow flies, New Cave is eleven miles southwest of Carlsbad Caverns National Park Visitor Center, in Slaughter Canyon. The road between New Cave and the Visitor Center is twenty-three miles long; all but the last five miles are paved. The visitor must provide his own transportation between the two points. The narrow trail from parking lot to cave entrance is 1 mile, the walk through the caverns is 1¼ mile, as is the return trail to the parking lot. The view at the cave entrance is spectacular: El Capitan escarpment stretching off to the northeast and southwest and a panorama of the valley below.

New Cave is comprised of a series of corridors radiating from the entrance. Most of the cave was occupied by bats more than 17,000 years ago, and a considerable portion of the floor is covered with old

guano. As much as three to six inches of flowstone (mineral matter deposited by water flowing over rocks) cover the guano, indicating that many, many years have passed since bat habitation. Guano that was carbon-dated in 1954 showed it to be older than 17,800 years. The cavern temperature is 58°F and remains relatively constant deep within the cave regardless of outside temperatures. Humidity averages about 90 percent.

The general effect at the cave's entrance is of two caves with a common central corridor. One side slopes down steeply for about fifty feet, revealing the immense size of this part of the cave. On the other side a fifty-foot column extends from the floor to the ceiling. Its great size dwarfs a human being. To the left of the column are many stalagmites, which seem small until approached; then you realize that you have lost all sense of proportion.

The floor, ever sloping downward, now turns to the right. I have never beheld a more astonishing sight than that which greets the eye—dimly it is true, for the vast space absorbs much of the lantern light, and the glow of light no longer can be seen from the cave entrance.

This corridor is completely filled by two large stalagmites. They rise from a common base and look like twins. The base itself is a steplike formation. At the top of the steps the twins tower on up toward the true Gothic arch that is the cave dome at this point.

The Chinese Wall is a delicate formation that looks like ribbon candy winding its way in various directions over a coal-black floor. The height of this unusual formation is from four to twelve inches, and it covers an area of about one thousand square feet. The floor and the outer side of this formation are coal black, whereas in the center of the wall is a thin layer of creamy white.

The Christmas Tree, a towering stalagmite, is composed of creamy yellow rock covered by a later deposit of snow-white formation that gives the effect of new-fallen snow. It does bear a striking resemblance to the yuletide symbol.

The Tear Drop is an amazing and beautiful cream-colored stalactite that hangs suspended from the ceiling by a narrow, frail-looking connection. It seems impossible for this example of nature's handiwork to remain suspended, but there it hangs, a challenge to engineering science.

The Klansman is a grotesque stalagmite that could terrify the fainthearted. A dark yellow and brown deposit shrouded by a white mantle creates the effect of a huge, cruel face beneath a white robe. Small stalactites hang from the bestial upper lip, giving the appearance of monstrous fangs. The jutting chin hangs slack, and stains at the sides of the mouth make the figure seem to drool.

To climax this underground tour of surprises and wonders, you are overwhelmed by what may be the largest stalagmite in the United States—the Monarch. Some say it is larger than the famed Rock of Ages in Carlsbad Caverns. It towers eighty feet into

NATIONAL PARK SERVICE



The Klansman could terrify the fainthearted.

Perhaps the largest stalagmite in the United States, the Monarch dwarfs the men at its base.

the darkness of the cave's dome. At the base are fold after fold of draped onyx, translucent when lights are shone between the folds, which are large enough for a person to step between.

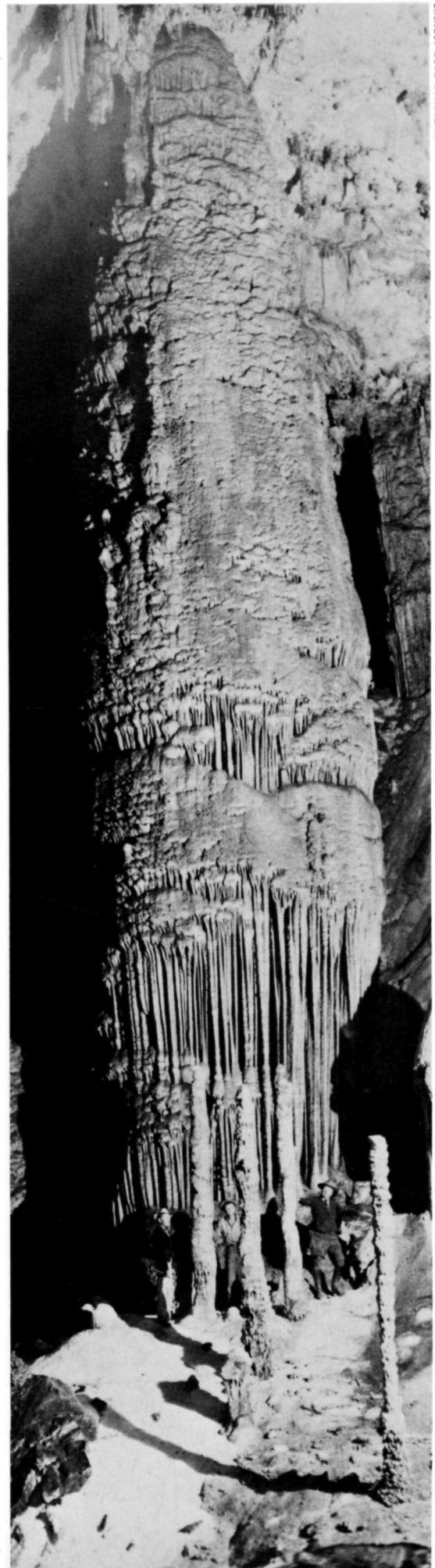
After viewing this breathtaking sight, you climb the talus slope to the welcome patch of daylight at the cavern's mouth. Emerging into the warm sun of late afternoon, you are sure that this rugged and primitive lantern trip through New Cave was worth many times the effort of climbing the mountain and following the rough paths inside the cavern.

THE Carlsbad Caverns Park Master Plan envisions retaining New Cave in its present primitive state. To some people the potential excitement offered by the strange environment of a cave is diluted by the elaborate lighting and the many people present in the other caves of Carlsbad Caverns. New Cave was opened for guided tours to provide a cave experience second only to spelunking in a wild cave. Visitors will continue to carry lights, canteens, and lunches; and tour groups will be of limited size. The five hundred feet of vertical climb required to reach the mouth of the cave will help ensure that the visitors who come here are truly interested in exploring New Cave and have the physical stamina required for the cave tour.

Visitors must register for the trip at least one day in advance. The regular entrance fee of \$2 per day per noncommercial vehicle, as well as the annual Golden Eagle and Golden Age passports, covers the New Cave tour. Tour groups through the cave are limited to twenty-five visitors per tour, and two Park Service guides accompany each group. The 1974 season opens June 9, and six trips will be conducted daily. Reservations may be made at the Visitor Center or at the National Park Service office, 3225 National Parks Highway, Carlsbad, New Mexico 88220. The NPS telephone number is (505) 785-2233. Visitors should write to the Park Service address for advance reservations. Starting times for cave trips are 8:00 am, 9:30 am, 11:00 am, 12:30 pm, 1:30 pm, and 3:00 pm. Visitors are to be at the mouth of the cave at the designated time. Tour participants should allow an hour for the strenuous hike up from the parking lot.

Some years ago I made the remark that many people make: "All caves are alike; if you've seen one, you've seen them all." As I visited more caves, I learned how wrong I had been. No two caves and no two formations are alike in color, texture, or form. The trip through New Cave bears this out, and I'm glad the National Park Service is giving the public this new look at primitive New Cave. ■

Edwards Hay is a free-lance writer and public relations consultant residing in San Juan Capistrano, California. He has published articles in a number of different conservation, forestry, and outdoor magazines.



NATIONAL PARK SERVICE

NPCA at work



Big Cypress preservation NPCA President A. W. Smith recently testified on invitation in favor of adoption by the U.S. Congress of urgently needed legislation for acquisition of the Big Cypress Swamp in Florida. President Smith, speaking before the Senate Subcommittee on Parks and Recreation, stressed that such legislation could well put the firm seal of protection not only on Big Cypress, but also on the adjacent Everglades National Park.

Several proposals now before the Congress provide for public acquisition of 570,000 acres of significant land and water in the Big Cypress watershed, a vast section of Everglades that collects and passes along to the northwestern part of Everglades National Park the slow southward flow of fresh water vital to all plant and animal life there. Indeed, it has been determined that the Big Cypress basin contributes between 55 and 60 percent of the surface water

endangered, or otherwise in jeopardy. (Many of these species are not found in Everglades National Park.) Endangered species include the Everglades mink, the otter, the Florida panther, and the Southern bald eagle.

These proposals would set up a Big Cypress National Fresh Water Reserve that would be administered as a new type of unit in the national park system. The purpose of the new classification is to exclude any developments that would impede the movement of water (such as oversettling, dredging, draining, and filling), at the same time allowing a broad spectrum of recreational uses. Hunting, trapping, and fishing would be allowed; several versions specifically protect the traditional hunting, fishing, and ceremonial uses of the area by the Miccosukee and Seminole Indian tribes. Regulated use of motorized vehicles (swamp buggies) would be allowed.

Mr. Smith noted that provisions for the protection of existing permanent residential properties within Big Cypress are important and should be retained in the Senate bill, because legislation should not drive the present year-round occupants of Big Cypress away. However, Mr. Smith noted that the version of the bill passed last fall by the House is preferable because it contains a legislative declaration in taking. This provision would mean that title to lands in question would pass to the federal government on enactment, freeing the project from many cumbersome restrictions. At the same time, the bill would ensure and expedite receipt of fair market value by owners and would exempt up to three acres of private residential land surrounding permanent homes from public acquisition through legislative taking. Mr. Smith added that the Senate bills contain an objectionable provision authorizing the Secretary of the Interior to enter into an agreement with the state of Florida or a political subdivision thereof for management and administration of the preserve. This would establish a completely unacceptable precedent for the administration of a unit of the national park system by a state, and could lead to a

breakdown of federal control over federally owned lands.

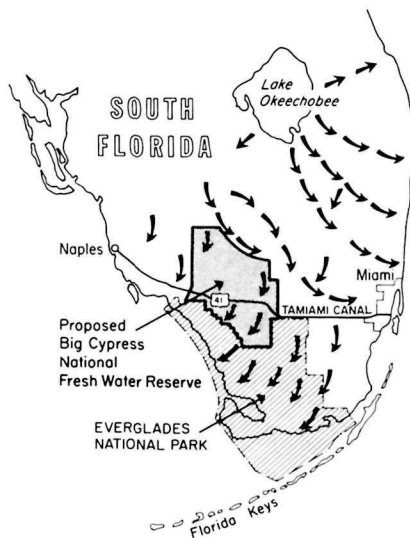
In addition to representing NPCA at the hearings, Mr. Smith appeared as Co-Chairman of the Everglades Coalition and as Chairman of the Environmental Coalition for North America.

Deep sea mining NPCA recently was invited to testify before the Oceanography Subcommittee of the House Merchant Marine and Fisheries Committee concerning the Deep Sea Hard Minerals Act, HR 12233. Members may recall several previous occasions on which NPCA reported about and testified on matters relating to development of the so-called manganese nodules found on the deep seabed. The nodules, once they become commercially recoverable, will provide significant quantities of nickel, copper, cobalt, and manganese to ease domestic shortages. Although the metals are essential for an industrialized nation such as the United States, we have only very limited domestic supplies, forcing reliance on importation. A dependable domestic source (such as the deep seabed in those areas authorized to be mined by U.S. corporations) would greatly improve our balance of trade deficit.

However, NPCA stated, neither action nor inaction on the proposed legislation would enhance the development of deep seabed mining. At present the United States has more advanced technology in this new field than any other nation; yet our own state of the art is barely emerging from the experimental stages. Only one U.S. company, the Howard Hughes Summa Corporation, now has a vessel at sea actually conducting preliminary recovery operations. Commercial recovery of these minerals will not be possible for several years with or without the legislation.

Problems arise in regard to legislative action at this time, moreover, because of the bill's effect on the upcom-

Continued on page 27



WATER FLOW IN THE EVERGLADES ECOSYSTEM

received by the entire park. Big Cypress is an important source of domestic fresh water for Florida's southwestern coastal cities. The region is also important as a wildlife sanctuary utilized by thousands of migrating birds and provides habitat for unique plant species and more than twenty animals whose status has been listed as rare,

Clarence Cottam

Nationally Acclaimed Conservationist

NPCA mourns the loss of Clarence Cottam, one of its staunchest supporters for many years, who died in a Corpus Christi, Texas, hospital on March 30. He had been ill for some time and had recently undergone surgery but never fully recovered. He was buried at Orem, Utah. He is survived by his wife Margery, four daughters, two sisters, two brothers, twenty-four grandchildren, and four great-grandchildren. Dr. Cottam was president of this Association from 1960 to 1963, when he became chairman of the Board of Trustees, which post he held until 1973.

Growing up as a Utah farm boy, Clarence Cottam's love for wild creatures led him to devote his life to work in wildlife research and conservation and earned him national recognition, respect, and honors. Born on New Year's Day in 1899, Clarence Cottam was reared in the rural agricultural and stock-raising community of St. George, Utah, where he worked as a farm and ranch hand for most of his early youth.

In 1926 Clarence Cottam graduated from Brigham Young University with a B.S. degree in biology. He earned a master's degree there in 1927 while also serving as an instructor. In 1929 he joined the research staff of the U.S. Biological Survey in Washington, D.C., as a junior biologist. By 1934 he was senior biologist in charge of food habits research, and in 1936 he earned his Ph.D. at George Washington University. In 1939 the U.S. Biological Survey became known as the U.S. Fish and Wildlife Service, and Dr. Cottam became chief of the Section on Economic Investigations of Vertebrates. In 1945 he was promoted to assistant director.

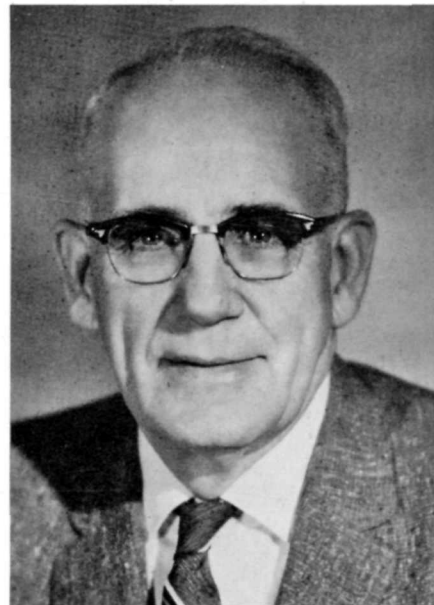
In 1954 Dr. Cottam resigned his 25-year government career to become dean of the College of Biology and Agriculture and professor of biology at Brigham Young University. After a year there, he agreed to organize and become director of the Rob and Bessie Welder Wildlife Refuge at Sinton, Texas, which job he performed until his death.

During his long and distinguished career, Clarence Cottam served at various times as consultant to the U.S.


Public Health Service, to the Federal Water Pollution Control Administration, to the Secretary of the Interior, and to the National Park Service. The list of his conservation and humanitarian affiliations, with most of which he served as an officer or a committee member, includes the Audubon Naturalist Society, National Audubon Society, National Wildlife Federation, the Rachel Carson Trust, Sierra Club, Wilderness Society, Wildlife Management Institute, The Wildlife Society, and many others. He was a fellow of the American Association for the Advancement of Science, the American Ornithological Union, and the Utah and Texas academies of science. He was active in work with the Boy Scouts and with the Church of Christ of Latter-Day Saints.

Dr. Cottam's assignments and study took him to every state in the union, most of the Canadian provinces, and many of the Mexican states. He spoke out against shell dredging and fought to save bay islands as habitat for wild birds. He championed the cause to save such vanishing species as the whooping crane, bald eagle, and brown pelican. He campaigned for the creation of Padre Island National Seashore, worked for expansion of the Aransas National Wildlife Refuge, and worked to rid the Hawaiian national parks of destructive feral goats. He was a leader in the fight to control the use of DDT and related chlorinated hydrocarbons. "Technology," he said, "has but one justification: To serve man's needs for food, shelter, and clothing so that he can be free to develop his unique assets—mind and spirit. Technology whose end result is an impoverished setting for the human mind, let alone that which kills people, is worthless, a total failure."

Dr. Cottam's quest to learn more about wildlife habits, management, and preservation was recognized by many scientific, academic, and conservation groups, which bestowed upon him their highest honors. In 1948 he was cited by the Utah Academy of Science for outstanding achievement in biological sciences. He received the French-Canadian Academy of Science



Award in 1952. In 1955 he was awarded the coveted Aldo Leopold Award by the Wildlife Society. In 1961 the National Audubon Society awarded him its distinguished service award for conservation. He was honored in 1962 by The Garden Clubs of America and the Audubon Naturalist Society. The National Wildlife Federation cited him in 1964 for his work in conservation. In 1964 Brigham Young University honored Dr. Cottam with its distinguished alumni award, and in 1971 BYU again cited him for his lifetime work of distinguished service. In 1965 the Department of the Interior honored Dr. Cottam with its conservation service award. In 1973 NPCA awarded a conservation service citation to Dr. Cottam for his long and distinguished service to the Association as member of the Board of Trustees (1956–1973), and as president and chairman of the Board of Trustees and Executive Committee (1960–1973).

The man behind these astounding lists of accomplishments and honors was a warm and gracious human being. We cherish our memory of him as a gentle, kindly man with sparkling, lively eyes and a quick smile—as well as a concerned environmentalist. He was empathetic and encouraging, caring about individuals as well as about the great issues that concerned him. Patient in adversity, courageous in the face of death, Clarence Cottam inspired respect, devotion, and love. The world is a better place for Clarence Cottam having lived. 

Continued from page 25

ing Law of the Sea (LOS) Conference negotiation. If the United States were to take unilateral action asserting jurisdiction over high seas areas before conclusion of the LOS treaty governing the peaceful uses of the oceans, many other nations would doubt the sincerity of the United States for enacting a truly workable order for sharing the wealth of the oceans as originally espoused by the United States. At worst, these nations might withdraw from the conference; at the minimum, they would certainly be much more difficult to negotiate with on other LOS matters of great importance to the United States, such as fisheries, territorial seas, scientific research, dispute settlement, and rights of free passage.

At present it seems that the bill will be held in committee until after the first LOS Conference session in Caracas, Venezuela, this summer. NPCA presented similar testimony to the Interior Committee's Subcommittee on Minerals, Materials, and Fuels in the Senate.

Nuclear fusion/nuclear fission NPCA President A. W. Smith recently recommended that the Council on Environmental Quality (CEQ) make an independent appraisal of the available technology for long-lived radioactive waste disposal. Participating at a meeting of an advisory group to the CEQ, Mr. Smith said that it is doubtful that adequate technology exists to deal with the large quantities of radioactive wastes produced by nonbreeder and breeder nuclear fission-engendered power. Nevertheless, the United States is pressing ahead with fission programs, and the Atomic Energy Commission is not making facts that concern public health and welfare available to the American people.

Mr. Smith has suggested to CEQ Chairman Russell W. Peterson that the council undertake an objective inquiry into the desirability of larger funding for research and development with respect to nuclear fusion, which holds some promise of one day providing clean power without present dangers associated with radioactive wastes. Funds for nuclear fusion research in the 1975 fiscal year budget are minuscule compared to funds for fission; current administration plans rely heavily on nuclear fission and devel-

opment of fossil fuels. Mr. Smith stated that it seems desirable to invest a larger proportion of funds in both solar energy and nuclear fusion as power sources.

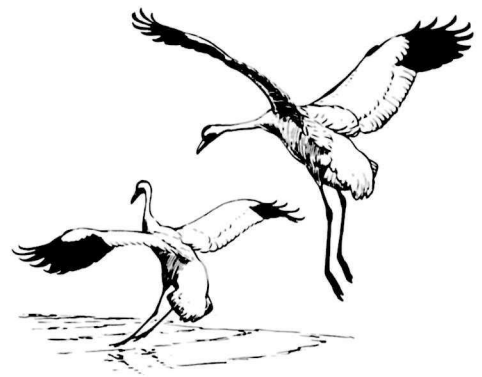
1974 Omnibus Wilderness Bill, National Park System The U.S. House of Representatives Subcommittee on National Parks and Recreation recently conducted hearings on HR 13562, a bill to designate lands within the National Park System as wilderness areas. NPCA testified on invitation.

The National Park Service proposed adding a total of 1,951,353 acres in eleven national parks and monuments to the National Wilderness Preservation System. Another 113,491 acres were classed as "Potential Wilderness," to be added to the wilderness system when issues of ownership and nonconforming uses [e.g., grazing] were settled. National Park System units involved in this bill are the Black Canyon of Gunnison National Monument, Colorado; Great Sand Dunes National Monument, Colorado; Mesa Verde National Monument, Colorado; Bandelier National Monument, New Mexico; Chiricahua National Monument,



Arizona; Haleakala National Park, Hawaii; Joshua Tree National Monument, California; Sequoia and Kings Canyon National Parks, California; Pinnacles National Monument, California; Saguaro National Monument, Arizona; and Yosemite National Park, California. NPCA stated that wilderness designation for national park lands was an important and positive goal for the Park Service, but it was stressed that all national park lands should be managed as wilderness resources, with or without classification under the Wilderness Preservation Act of 1964.

The wilderness proposals for each natural area resulted from several revisions. NPCA was pleased with most of



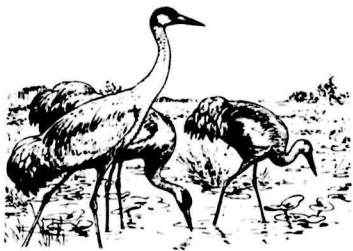
the proposals, noting that buffer zones had been eliminated in every case, and that wilderness boundaries had been redrawn closer to park roads. We recommended that Congress change HR 13562 to include all the "Potential Wilderness" areas for wilderness designation at this time. This would help to eliminate nonconforming land use practices and would avoid future repetition of the legislative process. Our proposals would increase the total wilderness allotment under this legislation to over 2.1 million acres.

In view of stated opposition at the hearings to subsidies for public transit systems for the parks, NPCA restated its support of mass transit programs to benefit the environments of Yosemite and other national parks.

Following hearings and revisions by the committee, the bill should reach the floor of Congress this summer.

Eastern wilderness wanted Sixty-five percent of the people in this country make their homes east of the hundredth meridian. Nevertheless, only a limited number of national forest areas in the eastern United States have been designated as wilderness since the Wilderness Act of 1964 set the review process in motion. Citizen demand for legal protection of many eastern environments is greater than ever because wilderness designation ensures not only the protection of natural resources, but also the availability of a valuable recreation experience.

Testifying on invitation before the House of Representatives Interior Subcommittee on Public Lands on April 2, 1974, NPCA supported the Eastern Wilderness Areas Act (HR 13455). This bill would designate nineteen national forest areas in the East for immediate inclusion into the National Wilderness Preservation System and would require the Forest Service to conduct reviews and hold hearings on thirty-nine other areas for possible future inclusion. The



Forest Service would have ten years to make recommendations about the study areas to Congress. During that period, these areas would receive wilderness protection. HR 13455 and its companion bill in the Senate, S 316, contain protective measures in addition to those in the 1964 law.

NPCA approved of the fact that the wilderness areas and the study areas are geographically well dispersed in twenty-two eastern states and Puerto Rico. They are also representative of natural ecosystems and topography not characteristic of existing and proposed wilderness areas in the western United States. Included are tropical and subtropical ecosystems in Florida and Puerto Rico; caves, sinks, and underground streams characteristic of limestone regions such as that of the proposed Irish Wilderness in Missouri's Mark Twain National Forest; the waterfalls and rugged mountainous terrain of the proposed Lye Brook Wilderness Area in Vermont's Green Mountain National Forest; and various deciduous and coniferous forest types in other eastern areas.

NPCA urged that the "Proposed Laurel Fork Wilderness," which is located in the George Washington and Monongahela National Forests in Virginia and West Virginia, be added to the bill for further study as a wilderness candidate.

Certain acreages in the following national forests would be immediately designated as wilderness areas:

- Alabama:** Bankhead National Forest (NF)
- Arkansas:** one area in Ouachita NF; one in Ozark NF
- Florida:** Appalachianicola NF
- Georgia and Tennessee:** area in Chattahoochee NF and Cherokee NF
- Kentucky:** Daniel Boone NF
- Michigan:** Hiawatha NF
- Missouri:** Mark Twain NF (two areas)
- New Hampshire:** White Mountain NF
- North Carolina and Tennessee:** area in Nantahala NF and Cherokee NF
- South Carolina, North Carolina, and Georgia:** area in Sumter NF, Nantahala NF, and Chattahoochee NF

- Tennessee:** Cherokee NF
- Vermont:** Green Mountain NF (two areas)
- Virginia:** Jefferson NF
- West Virginia:** Monongahela NF (two areas)
- Wisconsin:** Chequamegon NF

Certain acreages in the following national forests would be designated as wilderness study areas:

- Arkansas:** two areas in Ouachita NF; one in Ozark NF
- Florida:** one area in Ocala NF; one in Appalachianicola NF
- Illinois:** Shawnee NF (two areas)
- Indiana:** Hoosier NF
- Louisiana:** Kisatchie NF (two areas)
- Maine:** White Mountain NF
- Michigan:** one area in Hiawatha NF; one in Ottawa NF
- Missouri:** Clark NF (two areas)
- New Hampshire:** White Mountain NF (four areas)
- North Carolina:** one area in Pisgah NF; one in Croatan NF
- Ohio:** Wayne NF
- Pennsylvania:** Allegheny NF (two areas)
- South Carolina:** Francis Marion NF
- Tennessee:** Cherokee NF (two areas)
- Texas:** one area in Davy Crockett NF; one in Sabine NF
- Virginia:** three areas in Jefferson NF; one in George Washington NF
- West Virginia:** Monongahela NF
- Wisconsin:** two areas in Nicolet NF; two in Chequamegon NF
- Puerto Rico:** Caribbean NF

Brigantine wilderness Approximately ten miles north of the boardwalk of Atlantic City, New Jersey, is a 19,388-acre oasis of unspoiled salt marsh and tidal bays, the Brigantine National Wildlife Refuge.

Vital as a marine nursery and nutrient pool, the refuge supports up to 80 percent of the total Atlantic brant population and is a major wintering and migration area of the black duck. The endangered osprey nests here in solitude, and many other species of wildlife are abundant. However, the rapidly growing population in eastern New Jersey is likely to cause pressures for commercial intrusions that are not prohibited in wildlife refuges, but are prohibited in wilderness areas.

In testimony presented on invitation recently before the Senate Interior Subcommittee on Public Lands, NPCA supported the bulk of a proposal to designate 16,800 acres of the refuge as wilderness. We also rejected an administration proposal that would designate fewer acres on the basis of the existence of mosquito ditches and of a desire by the Bureau of Sport Fisheries and Wildlife to build additional freshwater impoundments for waterfowl.

NPCA does not consider the latter as valid reasons for limiting acreage. We have provided the committee with documentation showing that the narrow mosquito ditches, which are located in lush salt marsh vegetation protected by barrier beaches, are similar to ditches of natural origin. They can be maintained by hand tools. Although NPCA does not necessarily endorse ditching, in this case ditching does not alter wilderness quality. In regard to freshwater impoundments, the proposal we support allows land for one small impoundment; moreover, additional freshwater impoundments are unnecessary and perhaps detrimental. Estuaries, not freshwater impoundments, are necessary for waterfowl, and the estuarine environment of the refuge must be preserved.

Our testimony was presented by John Grandy IV, PhD, NPCA Program Coordinator, who has conducted extensive research on Atlantic salt marsh and waterfowl ecology.

Red River Dam—again Once again the Army Corps of Engineers is advancing a plan for the construction of a dam on the Red River of Kentucky. If constructed, the reservoir area created by the dam will flood major portions of the scenic Red River Gorge in Daniel Boone National Forest, Powell County, Kentucky.

The dam was authorized by Congress as long ago as 1962 for water supply and flood control purposes. After several years of intense opposition, led primarily by former Senator John Sherman Cooper, the dam seemed to have been defeated. However, as is often the case with Corps dam projects, the Corps merely filed the project away temporarily and now, several years later, has come up with a reformulated plan to justify the dam.

Apparently the Corps would again justify the dam for the future water needs of the city of Lexington and for flood control downstream, with the additional benefit of new recreational opportunities; the project comes with a price tag of \$25.2 million.

NPCA President A. W. Smith has contacted Kentucky Governor Wendell Ford asking that the proposed project be terminated once and for all. According to Mr. Smith not one of the Corps so-called project benefits is justifiable. From its once prominent place among

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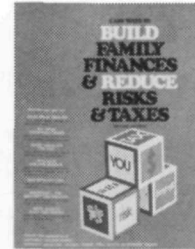
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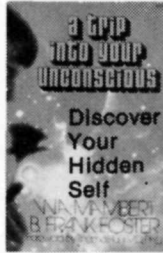
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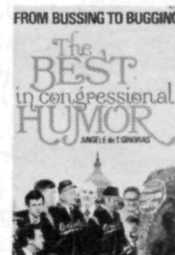
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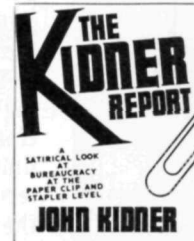
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the project's supposed economic benefits, water supply now represents less than 10 percent of these benefits; however, even this 10 percent is unwarrantable, particularly because the city of Lexington has indicated that its water supply can be better derived from other sources.

Citing both the Water Resources Development Act of 1973 and the Flood Disaster Protection Act of 1973; Mr. Smith argued that not only is investigation of nonstructural alternatives to the use of dams for flood control mandated by law, but these alternatives would be much cheaper and much less destructive.

Furthermore, the project's recreational benefits (47 percent in the reformulated plan) are unwarrantable for several reasons. The primary reason is that the Corps, in attempting to balance costs with benefits to justify the project, fails to take into account the unavoidable loss of pre-existing recreation values in the area that will be destroyed by the dam construction and its resulting reservoir. Nearly one million visitors per year are attracted to the Red River Gorge in its natural state. Many of these visitors might no longer desire to visit the area if major portions of the gorge were inundated. NPCA hopes to continue the fight against the Red River Dam until the project is stopped. Members who wish to express their own views about this matter should write to:

The Honorable Wendell H. Ford
Governor of Kentucky
Frankfort, Kentucky 40601

NPCA Notes NPCA recently contacted Nathaniel P. Reed, Assistant Interior Secretary for Fish, Wildlife, and Parks, to urge a ban on the use of lead shot for waterfowl hunting on all National Wildlife Refuges during the 1974-1975 season. . . . The Association has urged Nebraska Governor James J. Exon to continue his support of the proposed Platte River National Wildlife Refuge in that state; the river is an important spring feeding and courting area for thousands of lesser sandhill cranes. . . . The Park Service released a final environmental impact statement recommending against extension of the airport runway at Grand Teton National Park, Wyoming. NPCA has publicly voiced strong opposition to the extension for some time.

news notes

Save Our Red River Save Our Red River (SORR) official Nellie Skidmore is pictured presenting part of a group of over 17,000 petitions against the proposed Red River Dam to a representative of Kentucky Governor Wendell Ford. The petitions were presented on April 20 at the Kentucky State Capitol Building in Frankfort while about 2,000 peaceful demonstrators looked on. The crowd was demonstrating against a Corps of Engineers



ALTON K. MARSH

dam proposal. (Refer to "Red River Dam—again" beginning on page 28.) Governor Ford's aide, Gene Peter, read a statement from the governor, who promised to send copies of the petitions to congressional representatives and Corps of Engineers officials. Ford acknowledged that "environmental protection must be a top priority" and revealed that he has had some difficulty in obtaining "factual and conclusive reports" from the Corps. The crowd included college students and older persons; many of the latter will lose their land if the dam is constructed.

National park for Brazil Brazilian President Emilio Garrastazu Medici has decreed the creation of a 2½-million-acre Amazonia National Park in the scenic jungle region of the northern state of Para. This territory of waterfalls and rapids is already owned

by the government. It will be skirted by the new Transamazon Highway.

Wildlife protection vs. the criminal
To deal with new kinds of wildlife violations, including offenses against endangered species laws by an organized criminal underworld, the Law Enforcement Division of the Interior Department's Fish and Wildlife Service has adopted a new structure.

The department is attempting to strengthen its capability to protect waterfowl and other migratory birds and is also responding to new responsibilities. New legislation and amendments to existing laws are providing both broader protection and increased restrictions on the taking, transportation, sale, import, and export of wildlife. The Law Enforcement Division, therefore, must be organized for its responsibilities in enforcing the Endangered Species Act of 1973, the Marine Mammal Protection Act of 1972, and a 1972 law that regulates hunting of wildlife from aircraft, as well as a 1973 international treaty, the "Convention on International Trade in Endangered Species of Wild Fauna and Flora."

Fish and Wildlife officials say that an unfortunate aberration of the renewed public interest in the environment has been a greater demand for endangered species (in zoos, collections, etc.) and an increase in the use of their parts in jewelry, furs, wearing apparel, and curios. The value of some species has skyrocketed. Leopard skin coats, now prohibited from importation, sell for as much as \$30,000. Americans apparently provide the biggest market—a multimillion dollar business—for furs from animals such as the leopard, ocelot, otter, jaguar, cheetah, puma, and margay, which are all endangered species. To traffic in cat pelts, alligator skins, and the shells of an endangered sea turtle, criminals reportedly use some of the same techniques, and even some of the same middlemen, that the international rings use. The products of their trade—fur coats, skin shoes, and tortoise shell items—can be found on display in American stores. Many commercial outlets also sell carved ivory (scrimshaw) decorative pieces made from walrus, whale, and other animals.

As an example of the problems encountered in protecting migratory

birds, a few months ago Fish and Wildlife Service special agents uncovered a ring of more than two dozen traffickers in illegal eagle and other migratory bird parts and feathers. The group had killed literally thousands of birds to manufacture Indian artifacts that they passed off as authentic antiques.

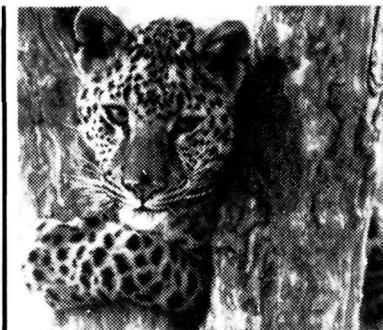
To deal with the new breed of wildlife violators, which includes seemingly reputable importers, mobile and

sophisticated poachers for the black market, wild animal dealers, and even corporations, the Law Enforcement Division recently has been restructured on a regional basis to provide modest strike force capability. Staff has been supplemented to include personnel with legal backgrounds and with experience in criminal investigation, public administration, criminology, and police science.

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reader comment

Lodges in the national parks

I strongly disagree with your policy of phasing out the lodges in the national parks. The result of this program would be to reduce all visitors, except campers, to the level of "viewing-from-the-car (or bus) tourists." Over the past seven years I have become something of a national parks "buff," having spent my two weeks' vacations visiting them, not as a quickie, drive-through tourist, but in depth. I always stayed at the lodges several days and took some of the ranger hikes and horseback trips. I visited the three canyon parks in 1968. From Zion lodge I took the Sinawava Narrows ranger hike and shorter ones from the lodge. From Bryce I took the Navajo Loop trail down into the canyon. From the depths of "Wall Street" we looked back up at the switchbacks on the trail—huge trees grew from the bottom. And from North Rim of the Grand Canyon I took the mule trip . . . a thrilling

experience. All this would have been impossible if I had been forced to stay outside the park.

The lodge at Zion is quite new, the old one having burned, and it has a lovely swimming pool. And it is utter nonsense to say that a visitor would have as fine a park experience seeing Grand Canyon from two or three 15-minute viewpoint stops as staying at Grand Canyon Lodge. I remember vividly the short walk to Bright Angel Point, and dusk falling over the Canyon, with the San Francisco Mountains and the lights of South Rim across the Canyon. Also one of the joys of staying at the lodges was meeting all those fine young college students who found summer employment there. I still hear from some of them. Often they put on lively entertainments in the evenings (particularly at Glacier). . . .

*Elizabeth W. Friedmann
Foxboro, Massachusetts*

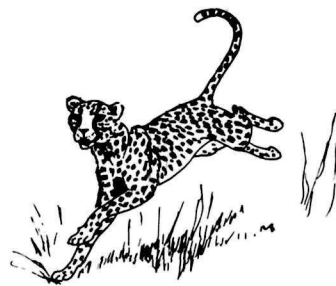
Our position on this question at NPCA has settled down more and more to the notion of freezing facilities in the parks, including lodges, roads, etc. We have never pressed very insistently for

the elimination of lodges, and we would have to go back over some of our statements to make sure that we had ever done so to the extent of urging the elimination of all overnight accommodations. Your statement of the justification for keeping lodges in the parks is a very good one. Our focus has been on the reduction of traffic, particularly the overcrowding by the private automobile, which is basically a question of people against the traffic. To cope with this problem, we have recommended the development of public transit systems within the parks, into the parks, and out to park regions.

Experience with the poison apple

I thought to drop a line after reading your fascinating story of the poison apples [February 1974]. I wondered on seeing the title if you would be writing about the manzanillo. My experience with the manzanillo was in 1950 when I was working as a "ship surgeon" for the Grace Line, sailing on the old *Santa Rosa*, into Curaçao. Three crewmen (one was a woman as I remember it) were on shore leave and attracted by

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some apples, which they partially ate. They apparently got such immediate and severe swelling of the tongue and lips that they did not eat whole apples. They reported rapidly to my dispensary on the *Rosa*. Though I found them extremely uncomfortable, I found it necessary to do nothing for them since none were in real respiratory danger (as you might fear from such exposure). However, I checked with the local health authorities to determine possible systemic effects. I was told by the health officials that manzanillos contain coumadin (or dicoumarol), a potent anticoagulant. I consequently drew blood from each of the victims and put it in a test tube, which I fixed with tape to the dispensary wall. About a week later, when we got to New York, the blood had yet to clot! Meanwhile I gave the patients large doses of intravenous vitamin K, a fairly good antidote to coumadin; because of or in spite of my therapy, all recovered uneventfully.

From the sound of your article I can count my patients among the lucky ones—who either were relatively insensitive to the toxins, or else got into a tree with relatively low toxicity.

*Charles Long II, MD
Cuyahoga County, Ohio*

conservation docket

Upcoming Congressional hearings of interest to NPCA members include those on Piscataway Park and Meeting Houses legislation.

Piscataway Park: On June 4 the Senate Parks and Recreation Subcommittee will hold a public hearing on HR 4861, introduced by the late Congressman John P. Saylor, to expand the Piscataway Park in Maryland. Many conservationists in the Capital vicinity consider this acquisition essential to preserve the natural areas and the view across the Potomac River from Mount Vernon, George Washington's home. HR 4861, which was passed by the House on February 4, 1974, would authorize fee title acquisition of an additional 630 acres. Nearly 200 acres of the proposed acquisition are now zoned for commercial development. The bill also increases the appropriation level from \$5.6 million to \$10.5 million to enhance acquisition capability.

Meeting Houses: On June 5 at 10:00 a.m. in Room 3110 of the Dirksen Senate Office Building, the Senate

ery in Hawaii, a theater in North Carolina, and a casino in Puerto Rico.

Senator Scott, elaborating on the bill's purpose and its applicability to Pennsylvania, said that sites established by the act would be used as meeting places for citizens concerned with the preservation of cultural heritage and environmental quality. He suggested that Pennsylvania's prospective site for a meeting house was Lafayette Farm adjacent to Valley Forge State Park.

Members wishing to express their views for either of these hearings should address them soon to the Subcommittee on Parks and Recreation, Committee on Interior and Insular Affairs, 3106 Dirksen Senate Office Building, Washington, D.C. 20510. Letters received after the hearing will still be included in the hearing record.

Other legislative matters of interest to NPCA members include:

Recreation Fees: Early in the first session of the 93rd Congress, considerable effort went into passing HR 6717 and S 1381, to amend the Land and Water Conservation Fund to eliminate user fees charged by each federal agency developing, administering, or providing specialized sites, facilities, equipment, or services related to outdoor recreation. This bill became law on August 1, 1973 (PL 93-81). Originally the authors of the bill intended that it apply only to a relatively small number of recreation areas administered by the Army Corps of Engineers, which apparently was overcharging for providing limited facilities. However, because the language of the act is so general in its applicability and because it is so specific in listing the types of user facilities that must be provided before charging any fee, upon implementation the act was interpreted to apply to all recreation areas on public lands that did not provide the minimum facilities necessary for compliance. As much as \$8 million per year in fees that might otherwise go into the Land and Water Conservation Fund could be lost.

Consequently, Congress apparently has decided to amend the act. On March 29, 1974, the Senate passed S 2844; the House has held hearings on this and a similar measure, HR 13913. Both of these new bills would allow user fees to be reintroduced for recreation areas with the exceptions of picnic

Parks and Recreation Subcommittee will hold a hearing on S 2877, the Meeting House Preservation Act, introduced by Senators John Tower (R-Tex), Hugh Scott (R-Pa), and others. The bill would establish a "meeting house" program by making grants available to all the states for acquiring and restoring historic sites and preserving them for use as meeting houses. Specifically, the program is being organized as a part of the American Revolutionary Bicentennial celebration. At the time of the bill's introduction in January 1974, Senator Tower said that many states had already suggested sites. A wide variety of suggested sites included an opera house in Texas, a fort in North Dakota, a tavern in Connecticut, a royal brew-



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areas, boat ramps without specialized facilities or services, drinking water, wayside exhibits, roads, trails, overlook sites, visitors' centers, scenic drives, and toilet facilities.

BLM Organic Act: After several months of field hearings held in Montana, Colorado, Nevada, New Mexico, California, Oregon, and Utah in consideration of the so-called Organic Act for the Bureau of Land Management (HR 5441), the House Public Lands Subcommittee held seven days of hearings on the measure in Washington during April. The bill sets forth basic policy for administering the public lands. It proposes "balanced use" of the "wide variety of resource values" contained on public land in the multiple use, sustained-yield tradition. Environmentalists, who strongly support most provisions of the bill, are particularly concerned about issues regarding grazing and range management practices, adequate funding for administration of the act, off-road vehicle use, wildlife management policies such as protection of wild horses and burros, and BLM resistance to including in the Organic Act provision for wilderness designation of BLM lands. The Senate has previously held hearings on its version of the BLM Act, S 424.

Committee Reorganization: As reported in this column in March, the House Select Committee on Committees has prepared a reorganization plan for committee jurisdictions that, as presently written, would establish an Energy and Environment Committee, an Agriculture and Forestry Committee, a Commerce and Health Committee, and a Public Works and Transportation Committee. In the future these new jurisdictional alignments would handle much of the legislation of interest to conservationists. As the next step, the final plan, H. Res. 988, was scheduled at press time to go to the House Rules Committee in early May and therefore may reach the House floor for debate and amendment early this month. One alternative to the Select Committee's division of environmental jurisdictions that has been put forward by Rep. Donald G. Brotzman (R-Colo) would be to form a standing Committee on the Environment. Rep. Brotzman has continually pushed for this separate status since early in the 91st Congress. Although

the proposal has yet to see favorable final action, there seems to be strong support among other Congressmen, with over fifty cosponsors already on the bill (H. Res. 964). This separate Committee on the Environment will apparently be offered on the floor of the House as an amendment to the Select Committee bill, H. Res. 988.

Clean Air Act: With the energy crisis still fresh on everyone's mind, the administration has again proposed substantial amendments to the Clean Air Act of 1970. Although these are not as bad as many environmentalists had feared, primarily due to the efforts of EPA Administrator Russell Train, the amendments would have the overall effect of delaying the cleanup of air quality for several years beyond the

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period originally envisioned. Auto emission standards would be frozen for two additional years. Coal conversion for fuel burning sources would be facilitated through exemption from NEPA impact statements for one year, and through suspension of emission limitations. In addition, the amendments would have Congress reinterpret the hard-fought court decision that EPA cannot permit the "significant deterioration" of air quality in areas having air cleaner than the primary and secondary ambient air quality standards. Extensive hearings will be held on these proposals during the spring and summer.



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Continued from page 2

Among the values which must govern the shaping of the future will be spaciousness, space for living, space for life.

To affirm the value of spaciousness does not deny the values of settlement and community. The village and the town are quite as important as countryside, forests, and wilderness. Both components, the near and the far, are needed in the setting of a genuine civilization. But contemporary life has yielded to crowding, a function of development, of expansion, false values both when overstressed, and we must now emphasize an amplitude of space as basic to an expansive life of the spirit.

SPACE for life means space for people. It means room for children to run in freedom, to cross open fields into deep woods. Space for life means room for the animals, the restoration of human security within a living environment where plant and animal species are safe from extinction and where a relationship of interest, sympathy, and companionship can be restored with the birds and the beasts of the streams and the woods.

Space for life means a farm and factory system which does not befoul the winds and streams; fresh air and clear water are functions, in one aspect, of an abundance of open space. Space for life means generous cities with inner courtyards for quietude and leisure, where fountains play amidst flowers in beds and rustling trees. Space for life means clear skies and complete darkness at night where men can live once more beneath the stars and the planets, recalling the songs of the shepherds of the hills of Judea.

The handiwork of the skilled mason and carpenter, built into the houses and churches of the old American town reflected leisureliness, a fullness of time comparable to amplitude of space; the future will treasure the work of the past, reaching great distances into history.

FAMINE CONFRONTS US on a scale we have never known before, induced by the failure of agricultural and industrial productivity to keep abreast of mounting populations. The failure has been compounded by drought and flood resulting in part from human mismanagement. The shortfall in productivity results in serious measure from the burden of overpopulation.

The provision of enough food will require

greatly increased agricultural and industrial production. Such production, if it can be achieved, will aid in the demographic transition, with a tendency toward lower birth rates and the stabilization of population. And yet that very productivity can hardly be achieved without stabilization and eventual reduction of population, making the necessary capital formation possible.

THE BASIC energy problem will be even more serious than the exhaustion of nonrenewable resources and rising pollution. Together they will place sharp limits on industrial expansion.

The immediate crisis with petroleum is but symptomatic. The ecological and economic cost of coal mining will continue to rise; the same costs may be prohibitive for shale. Fission threatens to inter us beneath fatal residues of long-lived radioactive wastes. The thermal pollution of fusion may trigger catastrophic meteorological change.

In the long run, for purposes of a permanent civilization, world population must be brought into balance with the amount of energy which can be captured from the sun. As the metals, though conserved by recycling, are eventually exhausted, materials derived from the plants of field and forest, dependent on solar energy, must take their place.

STABILIZATION of civilization on a solar energy basis for energy and materials will probably require population levels lower than at present, surely lower than those to be reached when present growth has been halted.

The widest possible dissemination of an ethic of not more than 2 children may lead to a family size of perhaps 1.6 children and will bring about stabilization and eventual decline. Within the world of reason and abundance which might result from such adjustments, family size could be increased again to an average of about 2 eventually when optimum levels had been achieved.

Decades, generations, will be required to reach equilibrium, worldwide; reduction to optimum levels will take longer. The change will be imperative for economic and ecological reasons, and indeed, for political democracy and stability, but one consequence will be that such environmental spaciousness as we now enjoy in some parts of the world can be retained and recaptured again for everyone.

—Anthony Wayne Smith



For many years, NPCA's main interest has been in protecting national parks from destruction of natural values by excessive roads, off-road vehicles, mining, airport construction, overt commercialism, and traffic abuse. Now we are advocating wilderness and other natural preserva-

tion in the national parks, methods of preventing destructive impacts of mass recreation, and additional funding for Park Service interpretive programs. The support of you and your friends through membership and contributions will go far in helping us accomplish these goals.

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