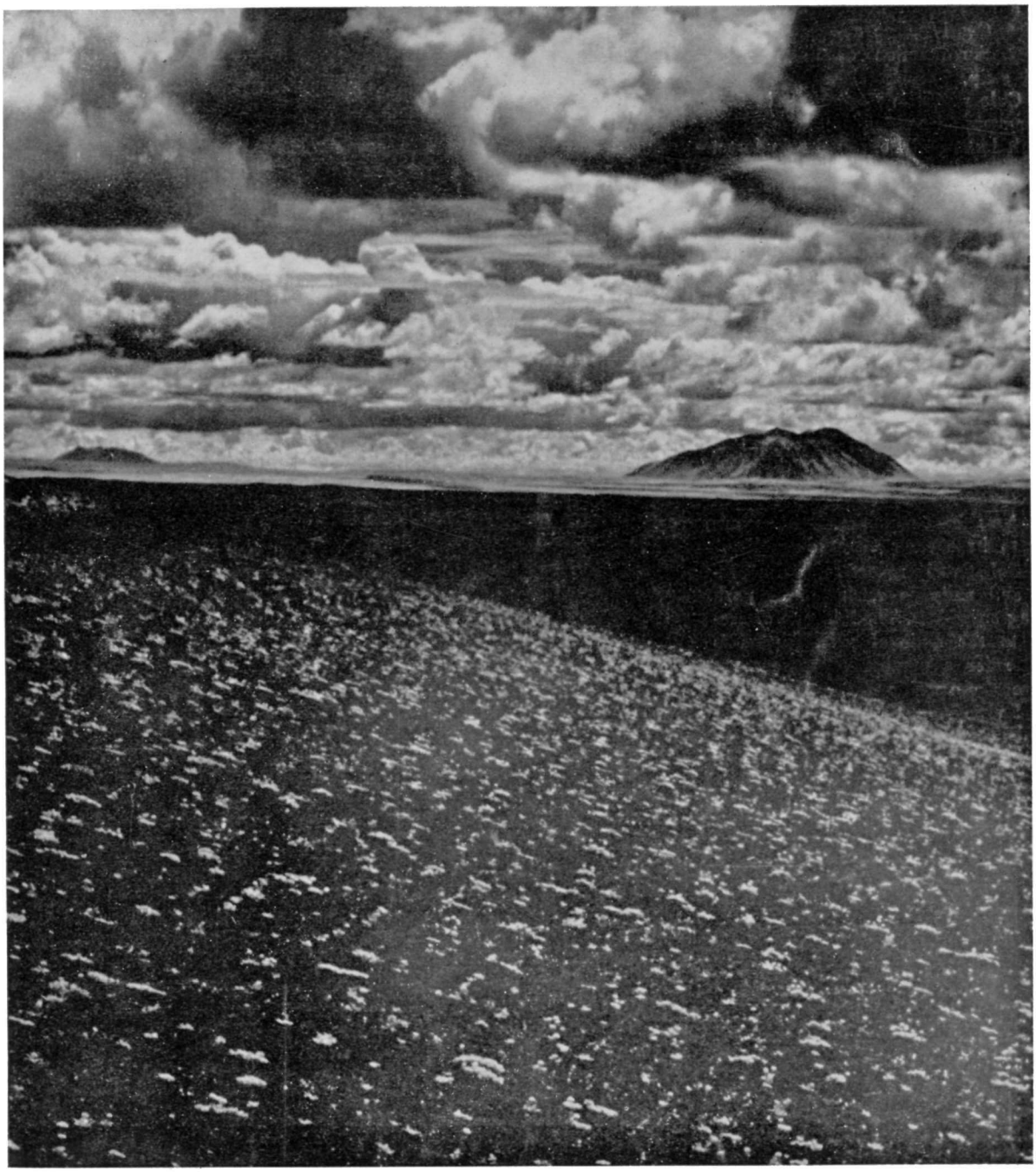
NATIONAL PARKS *Magazine*



Dwarf buckwheat flourishes on the desolate
cinder slopes of Idaho's Craters of the Moon National Monument

November 1966

Hands Off Olympic Park!

THE PERPETUALLY RENEWED ATTACKS on Olympic National Park, aided and abetted by the government agencies responsible for the protection of the park, are becoming a public nuisance.

The grave of the Overly[1] proposal, recommending deletions of large areas of the Rain Forests and other portions of the park for logging, is hardly green; yet now we have the Gale[2] report, to which a number of notable signatures, including Overly's, are attached, recommending the deletion of the famous coastal strip.

The Gale report is meritorious in that it recommends retention of the disputed Quinault Lake and Bogachiel rain forest areas within the park, and in other respects, but it is vitiated by the proposal to convert the coastal strip into a national seashore, open to high-density visitation by new lengthwise roads.

Spokesmen for the National Park Service have protested that the Gale-Overly report is nothing but an internal study document; however, the Secretary of the Interior announced on July 3, 1966, that the study would be made; the Regional Director of the National Park Service announced the appointment and membership of the Committee on July 12, 1966.

There was nothing confidential about the undertaking, and the findings are bound to have their effect on policy.

The Gale-Overly report reflects a profound and ominous confusion of park planning objectives. The addition of seashores to the national park system is desirable for a number of reasons: to preserve the specific areas for public use and enjoyment; to protect them in as nearly a pristine condition as possible; and to enlarge the system in order to help accommodate increasing visitation. None of these purposes can be served by the transfer of land already protected in parks into the seashore classification.

The large primeval parks like Olympic are included officially in the category of natural areas, while seashores are included in the category of recreational areas. The stated policy governing recreational areas looks toward "comparatively high recreation carrying capacity."

The southern portion of the coastal strip now carries a highway. The report proposes that a new commercial highway be constructed farther from the shore, and that the present road be retired to recreational access status; this idea may have merit.

But recommendations are also made for a long road parallel to the beach through the middle portion of the area and another access road at the northern end; it is clear that they are intended to be mass recreation facilities.

Opening the Olympic coastal strip to crowd visitation, which will effectively destroy it, is not mitigated by the recommendation for a relatively small wilderness area in the center; this proposal merely accentuates the surrender; park protection must not be bought from the enemies of park wilderness by such compromises; else the parks will be compromised out of existence.

We need more national seashores and national riverways. We need to protect them as they are. We need them for public access in reasonable density. We need them so that portions can be preserved in wilderness condition.

The last thing in the world we need in respect to seashores or riverways is to remove them from the protection of established park units, and to destroy their natural condition by roads.

The American people are interested in the kind of recreation which can be provided at Jones Beach, or for that matter Atlantic City. But they are also interested, great and increasing numbers of them, in the kind of recreation which can be afforded only by a few remaining windswept wild beaches like the Olympic coastal strip.

Of what avail the tremendous outpouring of protest recently against the Overly proposals for deletion of Quinault and Bogachiel? Of what avail the arduous marches of protectionists, led by Justice William O. Douglas, down the spectacular Pacific shores? Do the administrators in Interior and the Service fail to grasp the point as yet that a powerful public opinion stands ready to fight for the defense of Olympic Park?

A number of the proposals in the Gale report are good. The boundary changes to accord with hydrographic lines may be desirable; but if they stir up raids on the park, they are too perilous, and not worth the candle. The proposals to retain the Quinault and Bogachiel areas, with minor modifications, are for the most part good; if they lay the ghost of the Overly Report with finality, they will have served the nation well.

Stabilization and protection of the settled area north of Quinault Lake, perhaps in a manner suggesting Cade's Cove in Great Smoky Mountains Park, is attractive. The Park Service has the statutory power: the Forest Service, to which the jurisdiction might otherwise be transferred, does not. Recommendations for minor land acquisition in places like Hoh Valley are commendable, and long overdue.

One of the difficulties with studies like this is their minuscule nature. Both wilderness protection and heavy-duty recreational facilities must be planned for in any rational and comprehensive program for a sizable region like the Olympic Peninsula in the State of Washington. If the plans are big enough, there is no reason why they cannot satisfy a very broad spectrum of public needs.

A good program for the peninsula could make ample provision for moderate-duty campground facilities in the public lands outside Olympic Park; the coastal strip should remain inviolate within the park. These facilities could be located to a large extent in the state and national forests, assuming timber management on an ecological basis, which would preserve the environment. Such a program would make provision for heavier holiday and vacation use at privately owned and operated resorts of high quality on private land in the immediate vicinity of communities like Port Angeles.

The new Gale-Overly proposals, in respect to the ocean shore, should meet the fate of the earlier destructive Overly plan. They should be filed and forgotten. The accumulation of dead plans in the archives will soon call for a thorough house-cleaning; not only, perhaps, of plans, but personnel.

A more appropriate study, which Americans may soon demand, might examine the question of why the nation must tolerate these repeated assaults on the integrity of one of its finest national parks. —*A.W.S.*

Help Save the Olympic Park Beach! Readers who think the Ocean Strip of Olympic National Park should be protected as a wild, roadless beach, as a permanent part of the Park, can help by writing to the President, The White House, Washington, D.C., and expressing their views.

[1] Fred J. Overly, member of the Olympic National Park Boundary Study Committee, is Regional Director, Pacific Northwest Region, Bureau of Outdoor Recreation.

[2] Bennett T. Gale, chairman of the Olympic National Park Boundary Study Committee, is Superintendent of Olympic National Park.

NATIONAL PARKS *Magazine*

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

VOLUME 40 NOVEMBER 1966 NUMBER 230

Front cover photograph courtesy Idaho State Board of Publicity

"If there were rocket excursions to the moon I would not buy a ticket, even if the return trip were guaranteed. . . At less expense, and with much more pleasure, I can visit Craters of the Moon National Monument in Idaho, not far from the town of Arco, and see much of what the moon has to offer; and that same night I can get back among sweet forests and verdure such as the moon never had." So wrote a noted American conservationist a number of years ago. The monument, of a little more than 83 square miles, was established in 1924 primarily to protect the many geologic features associated with a number of relatively recent flows of lava, most recent of which may well have taken place within historic time. Among such relics are many cinder and spatter cones, lava tubes and bombs, molds of trees overwhelmed in the red-hot floods of molten rock, and an incredibly rough terrain of frozen lava which does, indeed, fit popular notions of the surface of the moon.

The Association and the Magazine

The National Parks Association is a completely independent, private, non-profit, public-service organization, educational and scientific in character, with over 32,000 members throughout the United States and abroad. It was established in 1919 by Stephen T. Mather, the first Director of the National Park Service. It publishes the monthly *National Parks Magazine*, received by all members.

The responsibilities of the Association relate primarily to the protection of the great national parks and monuments of America, in which it endeavors to cooperate with the Service, while functioning also as a constructive critic; and secondarily to the protection and restoration of the natural environment generally.

Dues are $6.50 annual, $10.50 supporting, $20 sustaining, $35 contributing, $200 life with no further dues, and $1000 patron with no further dues. Contributions and bequests are also needed. Dues in excess of $6.50 and contributions are deductible for Federal taxable income, and gifts and bequests are deductible for Federal gift and estate tax purposes. As an organization receiving such gifts, the Association is precluded by law and regulations from advocating or opposing legislation to any substantial extent; insofar as our authors may touch on legislation, they write as individuals.

Membership in the Association carries with it subscription to *National Parks Magazine*. School and library subscriptions are $5 a year; individual copies 50 cents. Letters and contributed manuscripts and photographs should be addressed to the Editor at Association headquarters. The Association is not responsible for loss or injury to manuscripts and photographs in transit. Return postage should accompany contributions.

Title Registered U.S. Patent Office. Indexed in the *Reader's Guide to Periodical Literature*. Printed in the U.S.A. Second-class postage paid at Washington, D. C.

NATIONAL PARKS ASSOCIATION, 1300 NEW HAMPSHIRE AVENUE, N. W., WASHINGTON, D. C. 20036

Photograph courtesy National Park Service

Outstanding in its own desolate and often grotesque way, Craters of the Moon National Monument in south-central Idaho protects a tract of semi-arid land which was overwhelmed in very recent geologic time by flows of basaltic lava. Volcanism here was largely non-violent, the lava issuing from various points along a zone of weakness in the earth's crust called the Great Rift to create vast fields of rough dark stone. Scene above was taken near monument's North Crater.

A WILDERNESS PLAN FOR CRATERS OF THE MOON NATIONAL MONUMENT AND THE SURROUNDING REGION

Prepared by the National Parks Association:
Anthony Wayne Smith, President and General Counsel
William J. Hart, Consultant in Land Use Planning

The National Park Service Act and related statutes contemplate the protection of animals, plants, and scenery in the parks and monuments to the maximum feasible extent, subject to compatible visitation. This means that while national parks and monuments are for people, they were created by the people primarily to preserve the plants, animals, streams, rocks, mountains, and scenery for their esthetic, scientific, and cultural values.

Such protection cannot be accorded if park and monument planning is carried on within the narrow confines of the park or monument itself. Planning must be extended to very large regions around each unit. In this way visitation and participation in various kinds of recreation activities can be distributed throughout the region instead of being concentrated within the park or monument.

This broad distribution of visitation must be the fundamental principle of park and monument planning if the visitors are to enjoy the features for which the parks and monuments were established and if the units are to be protected against overwhelming crowding and traffic.

The regional planning approach intended to distribute visitation over wide areas in accord with the capabilities and management objectives of different land areas, is the only solution to the problem of crowding in parks. Therefore the National Parks Association advances the following proposals for planning within Craters of the Moon National Monument and in a broad area surrounding the monument:

1) A Wilderness Plan for Craters of the Moon National Monument;
2) A Regional Plan for the area around the national monument.

The relevance of the proceeding to consider wilderness proposals for Craters of the Moon National Monument extends beyond this single unit of the National Park System. The principles and concepts finally enunciated for this situation will perforce apply throughout the system. The natural phenomena contained in the monument are as important in their own right as the wonders of Yellowstone or any of the other great parks.

The primary objective of management for Craters of the Moon National Monument ought to be to reserve as large an area as possible in wilderness status. There is more than adequate room in the extensive region surrounding the monument as well as abundant outdoor recreation facilities provided by the federal, state, and local levels of government, and by private individuals and organizations, to accommodate persons coming to the region seeking varied, active, interesting outdoor recreation release from their work-a-day life. In fact, the region offers a remarkably diverse array of high quality recreation resources.

The volcanic origins of the Snake River Plain have resulted in a weirdly convoluted landscape that is startling to behold. The monument presents a marvelous opportunity for people to come face to face with the awesome forces of volcanism. In addition, the volcanic activity has caused many unusual ecological relationships worthy of scientific investigation. Both func-

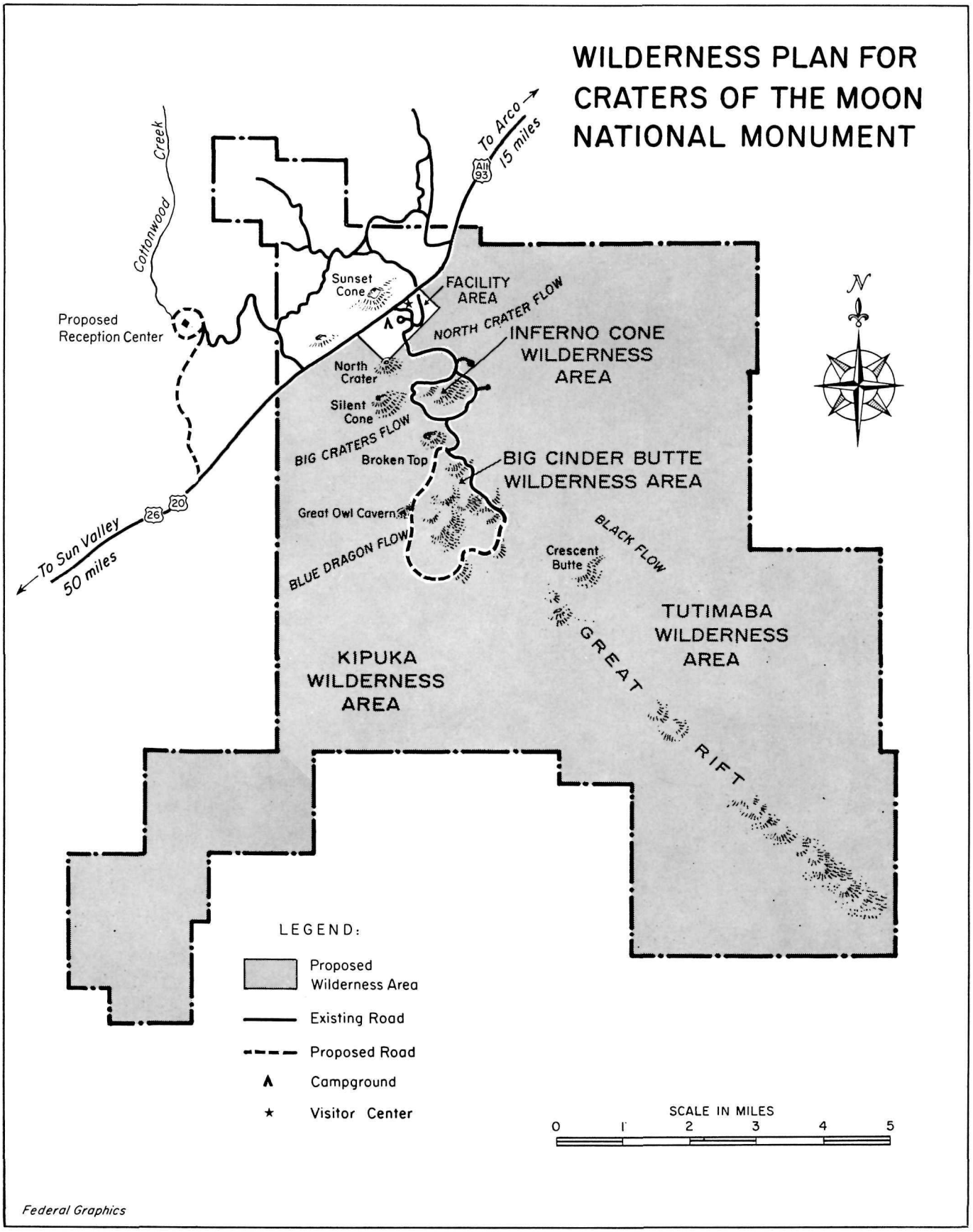

WILDERNESS PLAN FOR
CRATERS OF THE MOON
NATIONAL MONUMENT
To Arco
15 miles
US 93
Cottonwood Creek
Sunset Cone
FACILITY AREA
NORTH CRATER FLOW
INFERNO CONE WILDERNESS AREA
Proposed Reception Center
North Crater
Silent Cone
BIG CRATERS FLOW
Broken Top
BIG CINDER BUTTE WILDERNESS AREA
Great Owl Cavern
BLUE DRAGON FLOW
BLACK FLOW
Crescent Butte
TUTIMABA WILDERNESS AREA
GREAT RIFT
KIPUKA WILDERNESS AREA
US 26
US 20
To Sun Valley
50 miles
N
LEGEND:
Proposed Wilderness Area
Existing Road
Proposed Road
Campground
Visitor Center
SCALE IN MILES
0 1 2 3 4 5
Federal Graphics

PLATE I

tions are enhanced by wilderness conditions.

The raw surface of lava and cinders, coupled with semi-arid climatic conditions, present special wilderness problems. The nature of lava and the prevailing semi-arid climate preclude lush vegetative cover. Structures which rise above the surface, roadways, and even parked vehicles have tremendous visual impact over long distances in any area devoid of vegetative growth which rises high enough to offer visual relief. Under such conditions, the concept of providing strips of land between the edge of the highway and the beginning of wilderness is unreasonable. We believe that wilderness should begin at the roadside.

NPA Recommendations

It is proposed that four wilderness areas be established. They are shown in general terms on Plate 1, page 6. The proposed wilderness units are: Kipuka, Tutimaba, Inferno Cone and Big Cinder Butte. The area of the monument north of Highways 20, 26, 93-A is not recommended for inclusion because it is more representative of the foothills of the Pioneer Mountains than the volcanic phenomena of the Plain, is crisscrossed by roads, and has evidence of former mining activity.

Each of the four wilderness areas proposed meets the principle of commencing at the edge of the road. A major separation between the proposed Kipuka and Tutimaba Wilderness Areas is along the spine of the Great Rift—the major fissure through which the bulk of the lava, cinder, and ash issued—a discernible physiographic feature. The separation of the two proposed wilderness areas was made necessary by the existing roadway extending south from Inferno Cone to the north edge of Big Cinder Butte. The exterior boundaries for these major wilderness units are artificial. Both could be extended as such into the comparable surrounding landscape which is administered as part of the public domain by the Bureau of Land Management under existing statutory provisions.

The smaller Inferno Cone and Big Cinder Butte Wilderness Areas are enclosed by parts of the present or proposed loop road system.

An enclave of 320 acres is set aside as a facility area to accommodate the present visitor center and the present campground. Facilities in such an area should focus largely on the equipment required to interpret the natural features of the wilderness area for visitors. Provision should be made for water supply, educational displays and exhibits, and sanitary facilities.

The facility area raises the issue of Bureau of Outdoor Recreation classifications. The issue of placing different areas in one class or another as a statement of management objectives must consider first the category of the park or monument according to the Secretary of the Interior's memorandum of July 10, 1964. We believe Craters of the Moon would be categorized as a "natural" area; that is, the inclusion of the area in the national park system is based upon the public judgment that the natural phenomena are unique and must be given primary consideration. BOR classifications can be applied to such units of the national park system only if the areas to be selected for management different than "primitive" (Class V) are extremely small or if the natural state of the area is such that Class V designation is not physically possible.

The facility area in Craters of the Moon ought to be devoted exclusively to educational purposes. The area should be developed to educate a flow of visitors to the natural values of the monument but not to serve accumulations of visitors in private automobiles bent on a wide array of recreation activities. Campgrounds are not necessary for the purposes of a facility area, and the present 45-family campsites should be phased out of the monument area. Twenty acres, adequate for the visitor center in the facility area, might be Class I (high density recreation); the remainder of the facility area, that part of the monument north of U.S. 20, 26, 93-A, and the corridors separating the wilderness areas could be Class III (natural environment areas). The remainder of the monument—approximately 49,740 acres—will be Class V. An additional 69,000 acres of adjoining BLM lands have little or no topographic differentiation from the landscape within the monument and contain several large kipukas, or "islands" of pre-eruption terrain surrounded by recent lava. The area should be carefully examined with a view to establishing comparable Class V management on these lands under terms of the Classification and Multiple Use Act of 1964.

The Regional Plan

Before considering Craters of the Moon National Monument as part of a recreation region, we should observe that there are several discernible characteristics demonstrated by visitors to any region which serve as useful groupings in planning for recreation development.

One group resides in or immediately adjacent to the recreation region. The visitation generated by this group ordinarily does not involve overnight stays within the recreation region. Persons tend to set out to participate in one recreation activity per day's trip: for example, family boating, fishing, or gem collecting. Another major group originates within four or five hours' driving time from the recreation region. People in this group usually have a set destination where one or two nights will be spent. They may participate in several recreation activities in the region, but usually close to their overnight stopping place. A third major group resides some distance away from the recreation region and may spend one or two nights at different locations in the recreation region, or parties may spend many nights at a single location within the recreation region. A distinction between those people arriving in a recreation region during different seasons of the year should also be noted. This is particularly relevant to consideration of Craters of the Moon National Monument because of the topography and climatic conditions. During the summer season, when the bulk of inter-regional recreation visitation takes place, temperatures on the treeless Snake River Plain—especially where aggravated by black lava—are high, and broad, flat plains are not overly attractive for recreation purposes. Visitors to the region during the summer are likely to make their stay at Craters of the Moon National Monument relatively short in comparison to the length of stay in the nearby mountainous areas. Likewise, winter temperatures are cold, and lingering snow on the ground is not uncommon. However, a rising number of people in the total population who are able to

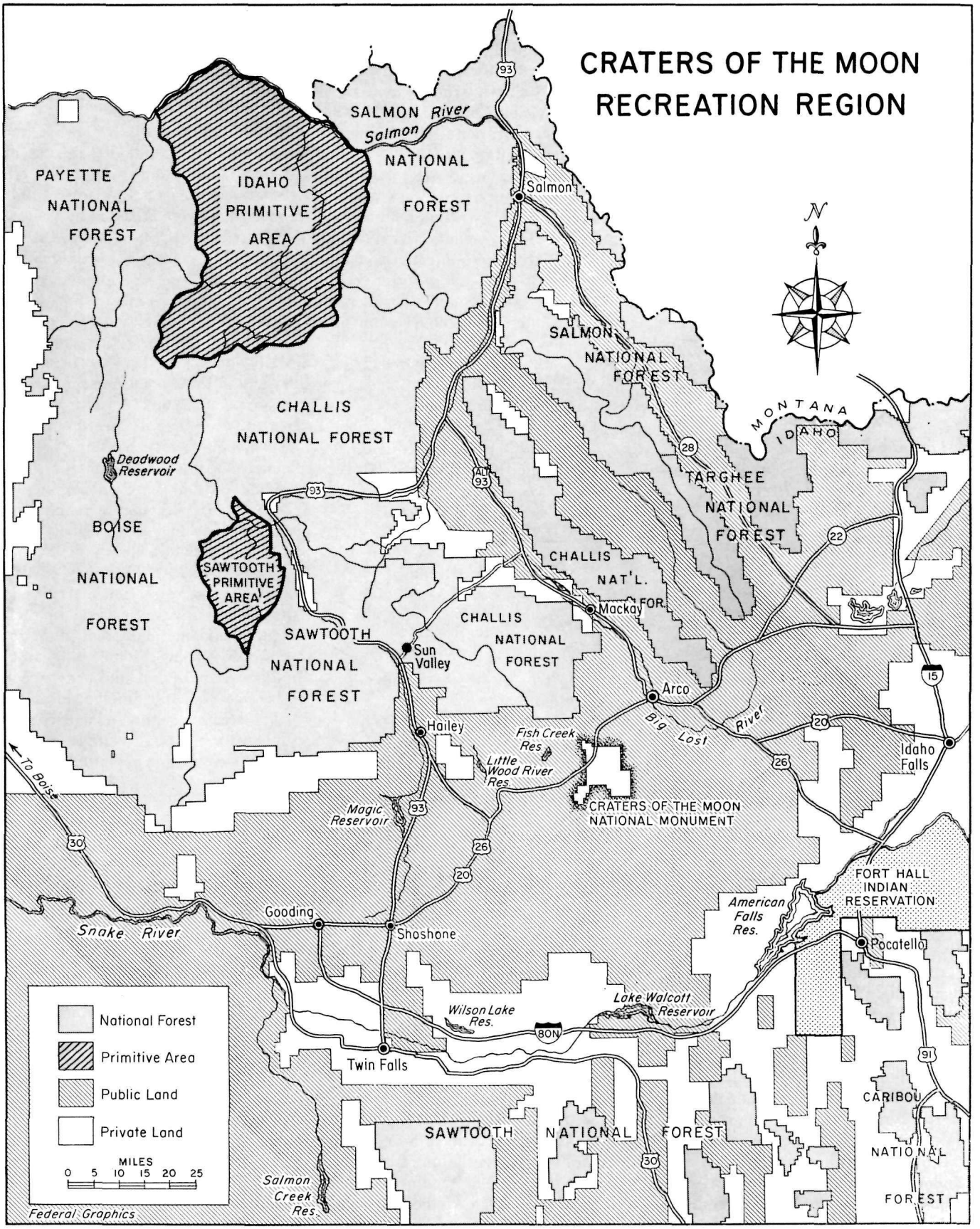

CRATERS OF THE MOON
RECREATION REGION
SALMON River
Salmon
NATIONAL
FOREST
PAYETTE
NATIONAL
FOREST
IDAHO
PRIMITIVE
AREA
Salmon
N
SALMON
NATIONAL
FOREST
MONTANA
IDAHO
CHALLIS
NATIONAL FOREST
Deadwood
Reservoir
93
Alt
93
28
TARGHEE
NATIONAL
FOREST
22
BOISE
NATIONAL
FOREST
SAWTOOTH
PRIMITIVE
AREA
CHALLIS
NAT'L.
FOR
Mackay
CHALLIS
NATIONAL
FOREST
SAWTOOTH
NATIONAL
FOREST
Sun
Valley
Arco
15
Hailey
Fish Creek
Res.
Big Lost River
20
Idaho
Falls
To Boise
Little
Wood River
Res.
26
Magic
Reservoir
93
CRATERS OF THE MOON
NATIONAL MONUMENT
30
26
20
FORT HALL
INDIAN
RESERVATION
American
Falls
Res.
Gooding
Snake River
Shoshone
Pocatello
Lake Walcott
Reservoir
Wilson Lake
Res.
80N
Twin Falls
91
CARIBOU
NATIONAL
FOREST
SAWTOOTH
NATIONAL
FOREST
30
Salmon
Creek
Res.
National Forest
Primitive Area
Public Land
Private Land
MILES
0 5 10 15 20 25
Federal Graphics

PLATE 2

travel during the spring-fall periods of the year are attracted to semi-arid areas. Many of these visitors move more slowly than peak season visitors and are much interested in the natural history of any area through which they pass. The location and quantity of visitor facilities may vary widely according to the proportions of visitors found in each group, and should be the subject of much study.

Visitation Analyzed

There were approximately 147,000 visitors to Craters of the Moon National Monument in 1965 and the total may rise to 157,000 by 1973. These figures may be far more a result of facility availability than an indication of total demand on the part of people wishing a national monument wilderness experience. The real issue is the nature of the facilities constructed to accommodate visitors, and the effect of the facilities—both in terms of their own impact and in terms of likely increases in visitation—on the wilderness areas. It is at this point that deliberate management must take a hand and direct streams of visitation by the provision of alternative facility supplies designed to achieve the socially chosen goals in designated wilderness areas.

Within a radius of a two-hour drive of Craters of the Moon National Monument there are: the Boise-Sawtooth National Forest, the Challis National Forest, and a portion of the Targhee National Forest; four major Bureau of Reclamation reservoirs, with associated intensive facility development, within the administrative responsibility of these national forests; all or portions of two primitive areas totaling 1,450,000 acres; one state park and four state recreation areas; one national wildlife refuge (administered by the Bureau of Sport Fisheries and Wildlife on a Bureau of Reclamation reservoir); several smaller reservoirs developed by private landowners in cooperation with federal agencies; and the extensive privately developed recreation facilities and visitor capacities at Sun Valley and in the several communities adjacent to the great lava plains. At least two other major reservoirs surrounded by land suitable for the development of recreation facilities supplement the water-based supply. The bulk of the land immediately adjacent to the monument is administered by the Bureau of Land Management. While no facilities have been constructed by this agency within the region, there are areas of significant recreation potential which could be developed to serve the needs of visitors to the Craters of the Moon National Monument region.

Available within the recreation region are 1800 family campsites, five public boat-launching facilities, 26 rental cabin developments, at least 50 private campsites, and there is expansion planned for more than 1100 additional family campsites by 1973. There are more than 100 motel units available for rent in towns like Arco, MacKay, Shoshone, Hailey and Gooding, within one hour's driving distance of the national monument, plus the capacity of the Sun Valley complex, which has 520 rental units available.

Each of these areas can provide visitor accommodations for those people coming to the Craters of the Moon recreation region to enjoy the strange, lava wilderness of the Snake River Plain. Each of these visitors would be able to drive—or the private establishment where they were housed would provide transportation—to a reception center immediately adjacent to the national monument on the west (near the outflow of Cottonwood Creek). Parking areas, restaurant, sanitary facilities, book and curio sales, and administration of the monument would be located here.

The low foothills which dominate this area support a scattered stand of ponderosa pine, a setting ideal for campground establishment. If demand for such capacity, especially in view of an extended spring-fall season, rose high enough, a privately operated campground could well be encouraged as part of the reception area. In this way direct governmental provision of overnight facilities would not operate to the detriment of existing private operators.

Monument Transportation

From the reception center, visitors would be loaded in specially designed, multi-passenger vehicles for the trip to the visitor center in the national monument. The visitor center would be devoted to the advance of scientific knowledge in the monument and the display and explanation of that knowledge to the visiting public. Other specially designed vehicles would leave the visitor center at regular, short intervals for the convenience of visitors wishing to move through the corridors separating the wilderness areas. These vehicles would make frequent stops at the heads of foot-trails leading into the wilderness areas and at points of special attraction.

There is no physical reason why resort complexes cannot be established at other locations within the recreation region—especially near established communities. In such locations the attraction of shopping centers, golf courses, swimming pools, air conditioning, and other modern conveniences would tend to draw many vacationers who might be expected to make Craters of the Moon National Monument one of their stops, thus satisfying visitor wants without danger of serious overcrowding or impairment of the wilderness environment. Such complexes would be likely in the recreation region only as the economic feasibility proved they could become viable operations. The present shortage of spring-fall visitor facilities could also be alleviated in the context of existing private areas near the national monument.

The facilities at a reception area need not be extensive or expensive. This is simply because there will not be large numbers of diverse visitors requiring overnight accommodations in close proximity to the national monument. Neither will the transporting vehicles have to be of gigantic proportion. Only minimal design problems are expected in dealing with the nature of the facilities and the working of the transportation system.

This proposal illustrates an alternative approach to the planning of a national park or monument unit. It first of all focuses on a primary management objective for the park or monument. It then relates that management objective to the characteristics of the land and resource patterns in the surrounding region and the nature and magnitude of the present and anticipated visitation to the region as well as the economic development objectives of the residents of the region itself. ■

The Wolf

Both red and gray species of a valuable North American predator stand on the verge of extinction

By Richard J. Aulerich

WITHIN THE PAST FEW DECADES one of nature's most interesting and intelligent creatures, the wolf, has been driven to the brink of extinction by the encroachment of civilization and man's relentless persecution. Because of its predatory nature the wolf has, throughout its history, been in constant conflict with the endeavors of man and has thus become an object of his wrath. For over three centuries the battle has raged, but the persistence and ingenuity of man may have finally defeated this once feared, yet admired, carnivore. Within this country the wolf no longer presents an economic problem.

Photograph courtesy Fish and Wildlife Service

The red wolf, former occupant of a large habitat in the south-central United States, is now found only in a few wild areas of Louisiana, Mississippi, Texas and perhaps Arkansas.

It has been extirpated from thirty-nine of the forty-nine States it previously inhabited and is presently making its last stand in the most remote, uninhabited regions of the country.

Prior to the colonization of North America the wolf had a greater geographic distribution on this continent than any other land mammal. Its range was transcontinental, covering more than seven million square miles of land which extended from central Mexico to the northermost islands of the Arctic Ocean. The wolf found habitat in the mountains, the forests, and on the vast prairies; it fared well in the semi-tropics as well as on the ice-covered islands of the far north. Probably no other land mammal possessed a greater ability to survive in the many diversified environments of the continent.

Two species of true wolves inhabited this vast area. The gray or timber wolf, *Canis lupus*, originally ranged to the four corners of the continent, while the distribution of the red wolf, *Canis niger*, a smaller species, was limited primarily to the south-central United States.

It has been estimated that before the colonization of North America the continent supported a population of

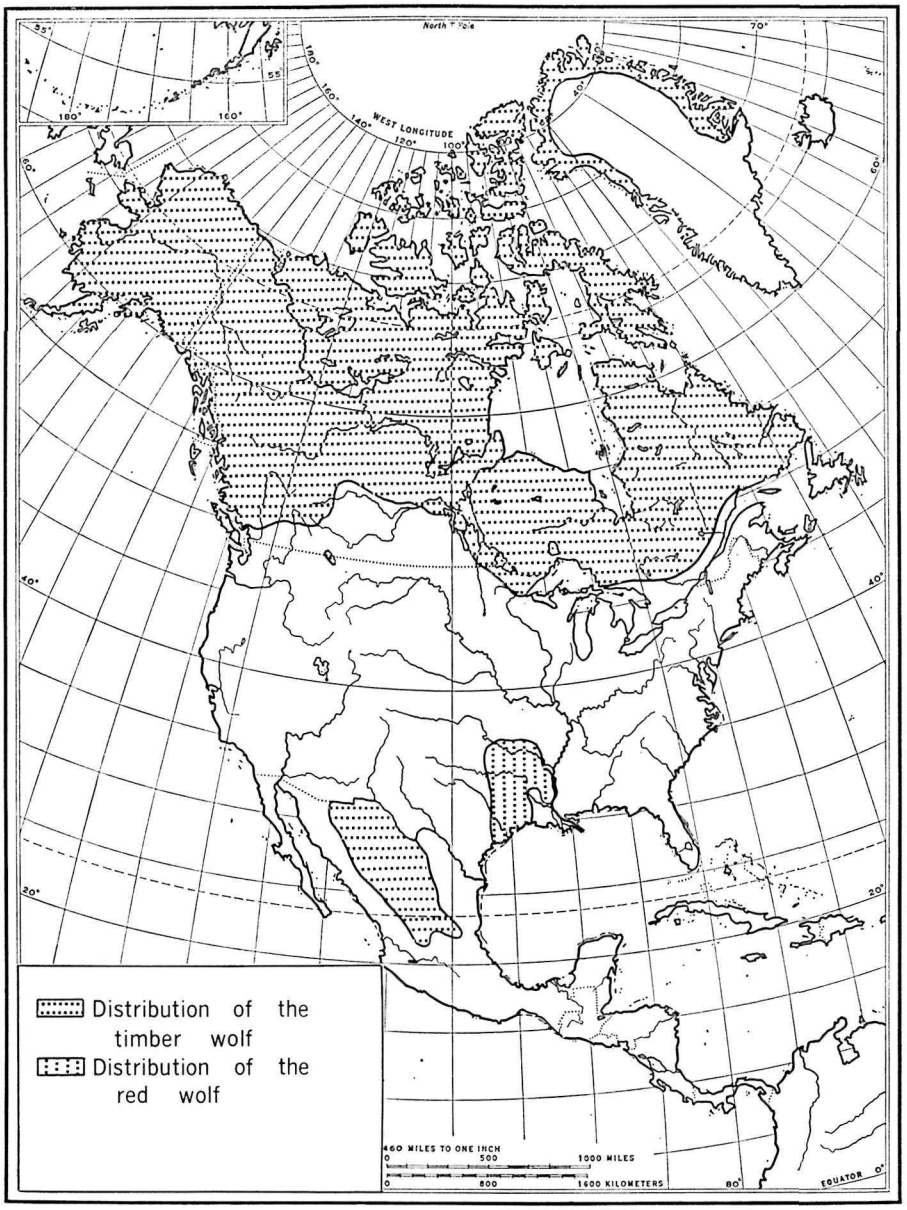
over two million wolves. But, as colonies sprang up and man dominated the land, his interests soon conflicted with those of the wolf and other large predators, which found domestic livestock easier prey than the wild game that abounded in the wilderness. Accounts of wolf depredations on livestock date back to the days when the first colonies were established. History books are filled with tales of the pioneers' continual war against the wolves and how they employed almost every means possible in an effort to annihilate the elusive predator. In 1642, wolves were reported to be so numerous in Rhode Island that men were hired by the day to hunt them. Wolf drives were also frequently organized, and long fences erected by the colonists in an effort to curtail the depredations of the "master predator."

The payment of bounty on wolves, an early attempt at control, was initiated by Massachusetts in 1630 and by Virginia in 1632. Pennsylvania established a wolf bounty in 1682, New York in 1683, and by 1700 a similar system was in operation in almost every settlement. The steel trap came into prominence as a means of control during the early 1700's, and for many years played a very important role in the warfare against the wolf.

Eastern Extermination

In spite of intensive campaigns to eradicate it, the wolf appeared to keep pace with the expanding livestock industry and survived in New England and along the coastal States until around the end of the nineteenth century. The last known wolf in New Jersey was killed in 1887. The remnants of Pennsylvania's wolf population were extirpated about 1892, and in New York the wolf, which was once abundant throughout the State, was considered extinct by 1900. The last were taken from the northern part of the State between 1895 and 1897.

Wolves were also said to be troublesome in the southeastern States, but were exterminated from Tennessee, North Carolina, and West Virginia shortly after the beginning of the present century. They survived in the Okefenokee Swamp of southeastern Georgia until the late 1920's, and held out slightly longer in the rugged terrain of northwestern Alabama.



Shown above are the present ranges of the gray or timber wolf, Canis lupus, *and the smaller red wolf,* Canis niger, *both of which are listed by U. S. Fish and Wildlife Service as endangered species. Map was constructed by author on the basis of survey conducted among biologists throughout North America; sightings of mammals thought transient are not shown.*

Simultaneous with the extirpation of the wolf in eastern United States was its departure from the populated areas in southeastern Canada. It disappeared south of the St. Lawrence Valley and from Nova Scotia, New Brunswick and southern Ontario around 1880.

As the forests gradually yielded to the ax and plow and the pioneers pushed westward over the vast prairies, the slaughter of the bison and other hoofed animals deprived the wolf of its natural prey and led to increased depredations on domestic stock rather than a decline in the number of wolves. For a time it seemed that the wolf thrived upon domestic stock, but stockmen soon united against it and retaliated with firearms, traps, and poison. Guards were placed with the stock, and thickets, where wolves often hid, were burned. Large hounds were used

Among gray wolves the average size of a litter is seven, although litters may not be annual in frequency. The wolf pup in the picture below is fording the cold waters of a stream in Alaska's Mount McKinley National Park, where there is still a substantial gray wolf population.

Photograph courtesy Fish and Wildlife Service: Ira N. Gabrielson

to hunt down the most troublesome wolves, and whenever possible whelps were dug from dens and destroyed. State and local governments, livestock associations, and other interested groups often provided financial assistance in the form of sizable bounties, which tempted many outsiders to join in the campaign to exterminate the predators.

By the turn of the present century the wolf had become a very rare animal in eastern and north-central United States and southeastern Canada. And, according to the late Ernest Thompson Seton, only a quarter of the original number persisted throughout the remainder of its range. So rapid and intense was the extirpation of the wolf that by 1908 Seton estimated that only 200,000 wolves remained in the United States and Canada.

Bureau Is Established

Although its numbers had been greatly reduced, the wolf was still troublesome, and in 1915 the stockmen persuaded the Federal Government to place the control of wolves, and other animals classed as injurious to agriculture and animal husbandry, under the direction of the Bureau of Biological Survey, later the Bureau of Predator and Rodent Control, and more lately renamed the Branch of Wildlife Services. The intensive controls initiated by this organization and its cooperators during the following years proved too formidable for the wolf and it soon ceased to be an economic problem. By 1920 the wolf was making its last stand in the West. The last resident wolves of Wyoming were killed around 1923. They have been considered extinct in Grand Teton Park since the park was established in 1929, and none have been reported in Yellowstone National Park since 1923. In Colorado the last remaining wolves were killed around 1930. In some of the western States, local populations of wolves survived slightly longer; but by 1940, the few wolves that remained in this country were found primarily in the national forests.

Within the United States this intelligent carnivore is presently found as a resident population in only a few States. Except for Alaska, the only substantial timber-wolf population occurs in and around the Superior National Forest in northern Minnesota. Scattered remnants of once-sizable populations can still be found in the northern parts of Wisconsin, Michigan, and possibly Montana, but except for a small pack of about twenty animals that inhabits Isle Royale National Park in Lake Superior, these wolves are in immediate danger of extinction. Even though the wolf bounty has been repealed in Michigan, and the wolf placed on the protected list in Wisconsin, it is doubtful that the animals can survive in the presence of civilization. Timber wolves are also occasionally reported from North Dakota, Arizona and New Mexico, but it is doubtful that resident populations now exist in these areas, and it is the opinion of most biologists that the reports are of stragglers that have entered this country from north or south. Wolves are considered an "endangered" species in the United States, according to the recent report *Rare and Endangered Fish and Wildlife of the United States*, compiled by a special committee of the Bureau of Sport Fisheries and Wildlife of the Department of the Interior. The reason for their decline is given as "heavy hunting and trapping pressures for bounty; destruction of large areas of suitable habitat by commercial interests; and encroachment of civilization."

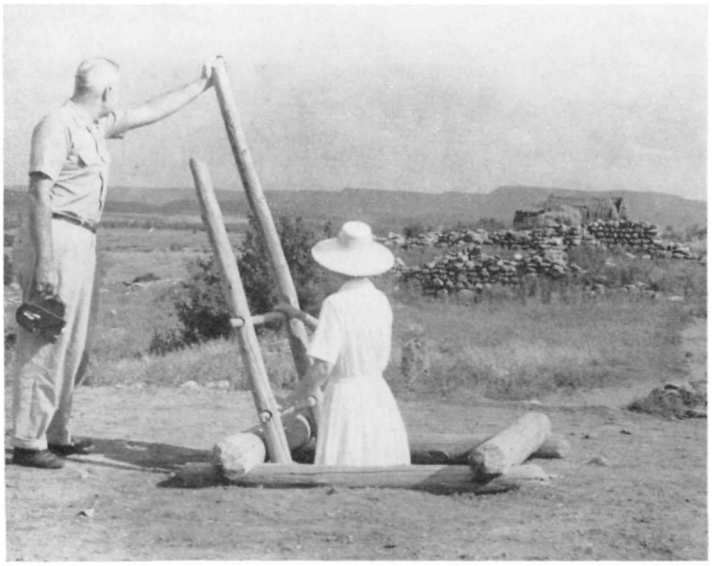
Even in the vast wilderness areas of Canada and Mexico there has been a marked reduction in the wolf's abundance during the last decade, and in many areas extensive poisoning campaigns are still employed. Although in the Far North the wolf has not yet been persecuted by the systematic campaigns of extermination that have extirpated it from the more settled areas of the continent, they are nevertheless killed by local residents at every opportunity. In these uninhabited areas poison baits dropped by airplane have proven to be an especially effective means of control, and it appears that unless a concerted effort is exerted to retard the needless destruction, it will only be a matter of time before these animals are also threatened with extinction.

Mr. Aulerich is Fur Animal Technician in the College of Agriculture at Michigan State University. He is author of the thesis "Status of the Wolf in North America," published by the University in 1964.

Cousin of Gray Wolf

The red wolf, a small, slender animal which resembles the coyote, formerly ranged throughout south-central United States, but is presently restricted to the most remote parts of Texas, Oklahoma, Louisiana, Arkansas, and possibly Missouri. And throughout this limited range, it appears that the coyote has adapted to existing conditions more readily than this smaller species of true wolf and is gradually replacing it. Recent evidence also suggests that, because of cross-breeding with the coyote, the red wolf may in the near future occur only as a population of natural hybrids between the coyote and red wolf rather than as a true taxonomic entity.

It has long been known that wolves and livestock are often incompatible, but now that the wolf has been forced to retreat to the most remote regions of the continent it is seldom a threat to the endeavors of man. In many of the unsettled areas of North America, big game like deer and antelope has become so plentiful that in places it has destroyed its own range. Surely in these areas a carefully managed wolf population would be an aid in the control of big-game numbers, especially in those regions that are inaccessible to hunters. Furthermore, it would appear that this carnivore could be successfully reintroduced into certain suitable areas of the national park system where it once flourished, as has been recommended in a recent report on wildlife management in the national parks, prepared by the Secretary of the Interior's Advisory Board on Wildlife Management. All bounties on the wolf ought to be dropped immediately, and in protected habitat like Mount McKinley Park and other preservations surrounded by Federal lands the goals of management ought to include strict provisions for wolf protection. Restoration of the wolf in reasonable numbers would certainly impart a more primitive atmosphere to such areas and also help in preserving an endangered native species for both its own sake and for the enjoyment of future Americans. ■



From the roof of a restored kiva, visitors to Pecos National Monument look toward the old Spanish mission ruin, walls of which are visible over the remains of partly-excavated pueblo.

Pecos National Monument

By Natt N. Dodge

Photographs by the author

New Mexico's Pecos National Monument, which was added to the national park system only a little more than a year ago, protects and preserves evidence of the life and activities of a prehistoric Southwestern people, and also tells part of the story of the Spanish exploration and occupation of the Southwest in later years.

Located in pinyon-juniper country near the emergence of the Pecos River from a steep-walled canyon at the southern tip of the Sangre de Cristo Mountains of the State's northern sector, Cicuye village was, in 1540, a large quadrangular pueblo, home of more than 2000 farmer Indians. These people raised crops of corn, beans, and squash; gathered native seeds and fruits; made pottery, hunted deer, bear, and turkey and, undoubtedly, were able occasionally to kill one of the burly bison which roamed the plains to the east.

House-building and occupation of the site began between 1200 and 1300 A.D., the small village being replaced by the large pueblo during the 1400's. Cicuye was a thriving community when its inhabitants were surprised by the arrival of Coronado and his Conquistadores in 1540. At that time Cicuye was probably the largest of the pueblos in the Rio Grande watershed. Coronado's chronicler, Castañeda, described it as "a very strong village, four stories high, a village of 500 warriors who are feared throughout the country. The houses are all alike, four stories high. One can go over the top of the whole village without there being a street to hinder. The houses do not have doors below, but they use ladders which can be lifted up like a drawbridge."

The name "Pecos" probably represents a Spanish corruption of the Keresan Pueblo Indian name for the Cicuye community. One speculator suggests that the word was derived from the Spanish "pecoso," meaning freckled. What might have been freckled about the village or its inhabitants is really anybody's guess, but the name has become permanently established and has been applied to the nearby river and to two towns, one at the canyon mouth about two miles from the pueblo and another in West Texas. The name has also been applied to a cattle drive route, to a national forest wilderness reserve, and to Pecos Baldy, a 12,000-foot peak in the Sangre de Cristo Mountains.

The arrival, in 1540, of one of Coronado's lieutenants with his following of conquistadores did not create a furor among the people of Cicuye, since a few of them had previously seen Coronado and his following at Zuni Pueblo. Although they welcomed the Spaniards and gave them free access to the village on this occasion,

hostility developed later when, on a second visit, the same officer attempted to take several Indians as hostages. Some historians believe that the Indians executed Fray Luis Escalona, who was left behind to Christianize the villagers when Coronado returned to Mexico in 1541.

The several Spanish expeditions, including that of Espejo in 1583, visited the pueblo during the latter half of the 16th century, but made no report of actual fighting. However, Castaño de Sosa in 1590 met armed opposition and, with only 19 men, captured the village. In 1598 Oñate, first governor of the vast province of New Mexico, assigned a priest to live in the pueblo and to convert the inhabitants to Christianity. A small church was built, soon to be superseded by a much larger structure completed in the early 1620's and named "La Mission de Nuestra Senora de Los Angeles de Porciuncula." At some time during this early period the villagers built a small pueblo quite close to the church.

All went well in the thriving village of Pecos until 1680, when the Pueblo Indians of the Southwest drove all the Spaniards out of the Province southward into Mexico. The residents of Pecos burned the church, killed Fray Fernando de Velasco, the priest, and sent 500 warriors to help in the conquest of Santa Fe. The victory was short lived, for 12 years later Don Diego de Vargas, followed by a small army of Spanish soldiers, recaptured Santa Fe without a fight. Many of the pueblos, including Pecos, submitted peacefully. A larger church, incorporating the remains of the former, was built of sun-dried adobe bricks on the site of the present mission ruin.

During the following century serious epidemics and frequent raids by marauding Comanches gradually reduced the population of the pueblo, which began to fall into disrepair. Lack of communicants caused the removal of the resident priest; but the mission was visited periodically by priests from neighboring villages. By 1788 only 180 inhabitants remained in the pueblo. Time and storms contributed to the gradual deterioration of the high-walled village and impressive church. Finally, completely disheartened, the seventeen remaining Indians in 1838 left the crumbling pueblo with its weed-grown mission and joined their kinsmen living in Jemez Pueblo west of the Rio Grande.

In 1841 the plaza in the center of the abandoned village was used by Armijo as a temporary prison for the Texans captured in the ill-fated Texas-Santa Fe Expedition.

Even in ruin the thick-walled church within the present monument—named by the Spanish La Mission de Nuestra Senora de Los Angeles de Porciuncula—retains the dignity acquired during its many years of service to mankind.

As walls of the houses collapsed and roof-beams decayed, or were hauled away by people living in the vicinity, the great pueblo gradually buried itself in its own debris, creating massive mounds that covered the lower rooms of the homes. The church, too, fell into decay. Its heavy roof-beams were removed about 1860 by nearby settlers for corral posts.

The Gross Kelly Company of Las Vegas, New Mexico, acquired title to the 17th-century land grant which included the ridge on which the village mounds and mission ruin stood. In the belief that the Catholic Church should retain possession of the site, H. W. Kelly in 1912 presented the 63 acres of land containing the remains of the pueblo and church to Archbishop Albert T. Daeger of the Archdiocese of Santa Fe. Unable to provide proper care for the deteriorating ruins and realizing the importance of protecting the historical and archeological values of the mission and pueblo, the Archbishop in 1921 conveyed the property to the School of American Research and its affiliate, the Museum of New Mexico. Later, the University of New Mexico became a co-owner.

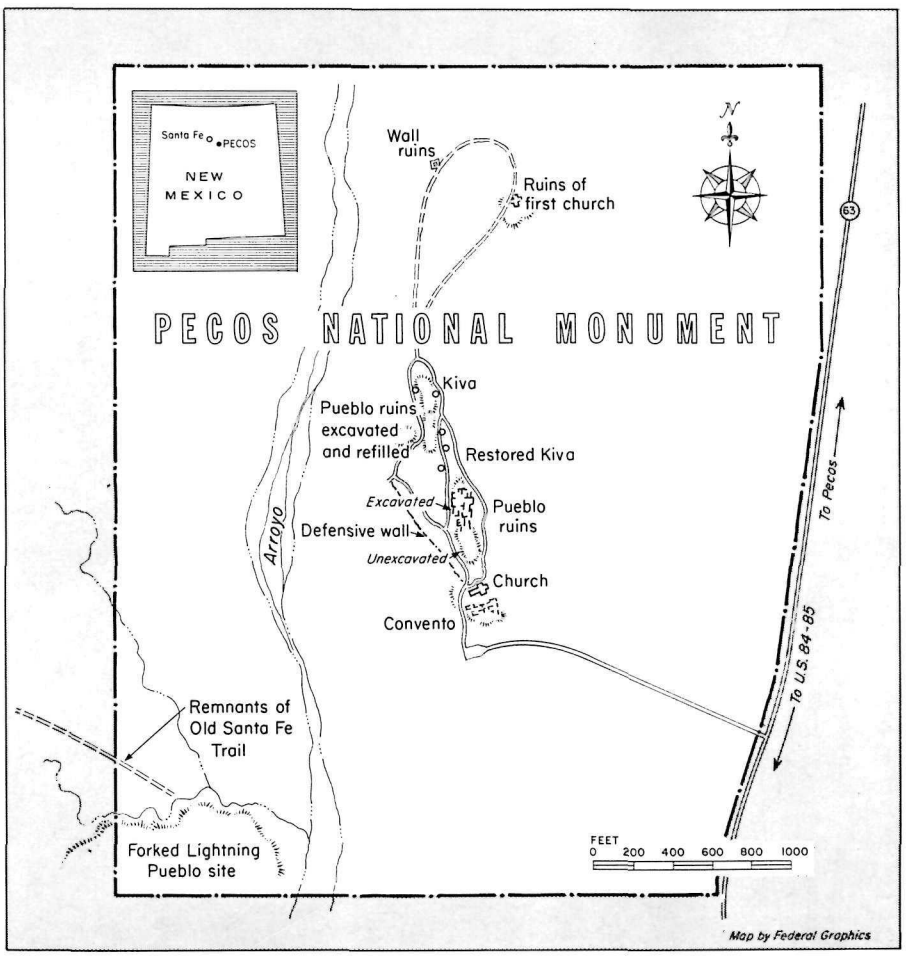
In 1880 the famous Swiss archeologist, Adolph F. Bandelier, made a study of the site, and in 1904 Dr. E. L. Hewitt, of the School of American Research, published a paper that aroused keen interest among archeologists and historians. Beginning in 1915, under the direction of Dr. Alfred D. Kedder, the Robert S. Peabody Foundation for Archeology undertook excavation and study of the site. The work continued, with a break during World War I, until 1929. The slow and painstaking research project uncovered only a portion of the mounds, and more remains had to be discovered before the whole story of the Pecos site would be made known. In February, 1935, the site was proclaimed a State Monument.

Although the Museum of New Mexico maintained a superintendent on the premises to interpret the ruins, to protect them from vandalism and to perform periodic maintenance of the still-standing walls of the aged mission church, lack of funds prevented such development as was needed to care for the property and to serve the more than 14,000 visitors who annually visited the monument. Consequently, in 1947 the State of New Mexico offered to donate the site as an addition to the national park system. The National Park Service declined the offer, which the State made again in 1961. In 1963 the Service was informed that full title to the property had been consolidated in the Museum of New Mexico, thus facilitating conveyance to the Federal Government.

Acting on this information and the assurance that the 1961 offer still stood, the Park Service made a thorough study of the Pecos site and its significance in the historical and archeological background of the Southwest. Upon completion of its study the Service recommended to its Advisory Board that Pecos State Monument be accepted as a donation, and that it be established as a national monument. The recommendation was concurred in by the Board, and approved by the Secretary of the Interior on August 9, 1963.

Although the study group considered that the 63-acre site was reasonably adequate, the need for additional land for construction of employee housing and utility buildings away from the ruins area was apparent. This need was mentioned to E. E. Fogelson, owner of the adjacent property, the Forked Lightning Ranch. Without hesitation Fogelson and his wife (actress Greer Garson) donated about 279 acres surrounding the state monument boundaries, thereby providing a "buffer zone" to the ridge on which the ruins are located.

Following the Park Service's acceptance of the Fogelson land, together with a deed from the Museum of New Mexico, President Johnson signed a bill establishing Pecos National Monument on June 28, 1965. In early 1966 Thomas F. Giles was named Superintendent. Mrs. Jean Pinkley, park archeologist of Mesa Verde National Park, has been assigned to Pecos to supervise excavations leading to an expanded knowledge of the long-gone people of Cicuye and of the padres who brought them a European religion. ■



Sun and fog in Prairie Creek Redwoods State Park. A photograph by Philip Hyde from the book "The Last Redwoods," by Philip Hyde and François Leydet.

RAISING THE SIGHTS FOR THE REDWOODS:

A Big National Park and a National Forest

A statement by Anthony Wayne Smith, President and General Counsel, National Parks Association, in regard to S. 2962 and proposed amendment in the nature of a substitute, and related bills, submitted on invitation at hearings of the Subcommittee on Interior and Insular Affairs of the Senate of the United States on or about August 17, 1966.

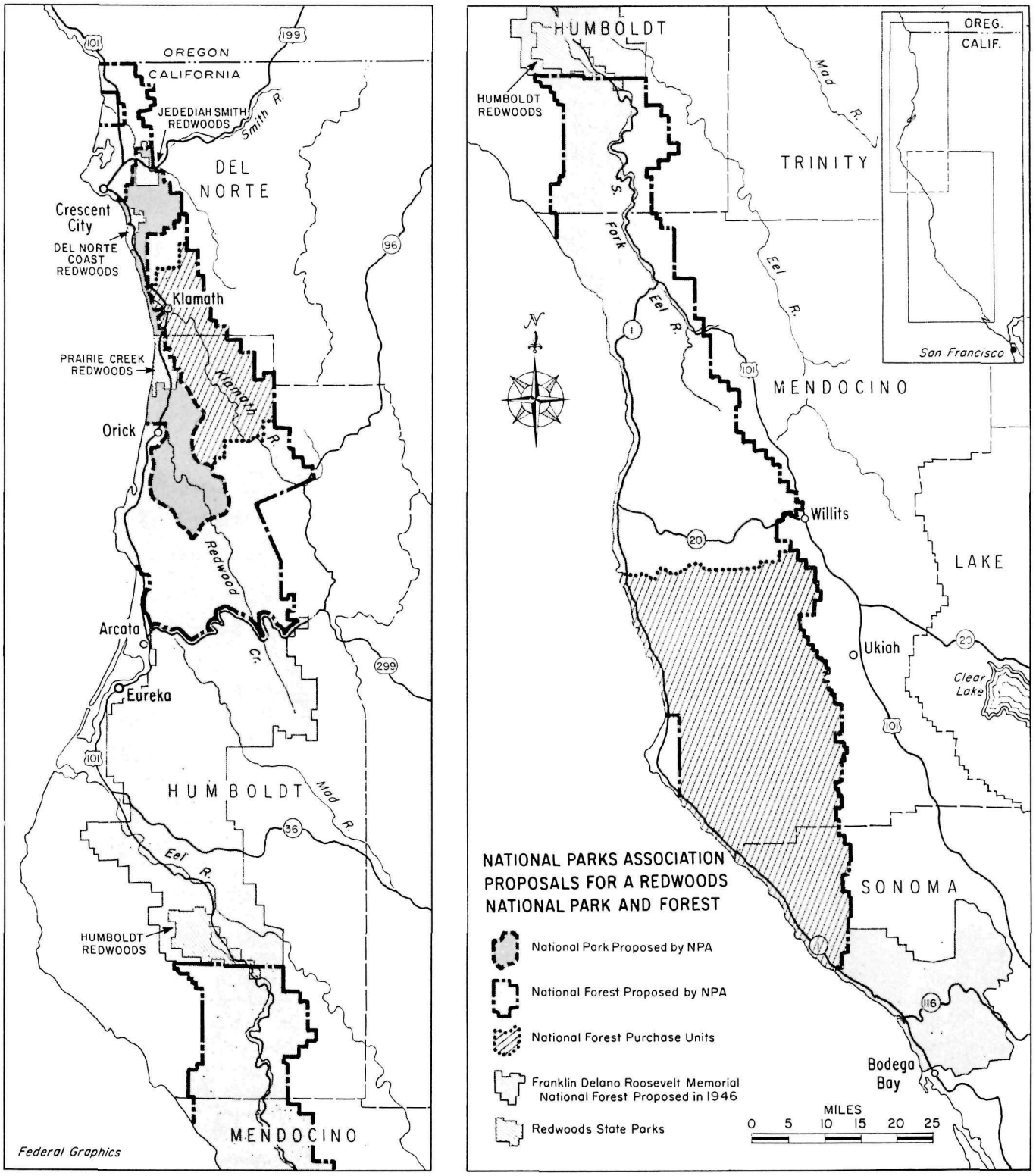
My name is Anthony Wayne Smith. I am President and General Counsel to the National Parks Association, 1300 New Hampshire Avenue, N.W., Washington, D.C. I am an attorney admitted to practice in New York, the District of Columbia, and all appellate courts, and actively engaged in such practice at the present time. I am a specialist in natural resources management.

The National Parks Association is a private, non-profit, educational and scientific institution, with over 33,000 dues-paying members. It publishes the monthly *National Parks Magazine* received by all members. It undertakes objective investigations in the biological and social sciences, and publishes the results. Its primary concern is with the national park system, but its interests extend to the protection of natural beauty and the natural environment generally.

The establishment of a large Redwoods National Park is very definitely in the public interest. The sub-committee has two principal proposals before it, that embraced by the original S. 2962 which would create a national park comprising the Jedediah Smith Redwoods State Park, the Del Norte Coast Redwoods State Park and the Mill Creek Basin between them; and the proposed amendment in the nature of a substitute for S. 2962 which would create a national park comprising the Prairie Creek Redwoods State Park and the Redwood Creek Basin to the south.

There has been much controversy as to the relative merits of these two proposals. The National Park Service recommended the Redwood Creek region originally and then changed its position to favor the Mill Creek region. The fact is that both areas are of national park caliber and should be included in the project. The two areas should be joined by a substantial corridor along the coast between the Del Norte Park and the Prairie Creek Park. This combination would give the American Nation a Redwoods National Park worthy of the name; nothing less will do so.

The timberlands within the boundaries set forth in S. 2962 and its amendment in the nature of a substitute should be acquired in fee simple by the Federal Government either by purchase or the acceptance of donations from private owners or the State of California. There would be only one limitation on such acquisition policy: where the Secretary of the Interior finds that fee simple acquisition in any locality would seriously impair the stability of the economy there, he should have the power to acquire conservation easements instead of the fee. Such easements would require timber


OREGON
CALIFORNIA
JEDEDIAH SMITH REDWOODS
Smith R.
DEL NORTE
Crescent City
DEL NORTE COAST REDWOODS
Klamath
PRAIRIE CREEK REDWOODS
Klamath R.
Orick
Redwood Cr.
Arcata
Eureka
HUMBOLDT
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San Francisco
MENDOCINO
Willits
LAKE
Ukiah
Clear Lake
SONOMA
Bodega Bay
NATIONAL PARKS ASSOCIATION PROPOSALS FOR A REDWOODS NATIONAL PARK AND FOREST
National Park Proposed by NPA
National Forest Proposed by NPA
National Forest Purchase Units
Franklin Delano Roosevelt Memorial National Forest Proposed in 1946
Redwoods State Parks
MILES
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harvesting on a light individual-tree selective cutting system, with short cycles, and with long rotations (500 years.) The easements would be exercised toward the objective of the ecological management of those portions of the forest comprised therein, toward the stabilization of watersheds in the forest, particularly those affecting park-type holdings, and toward the stabilization of the industries and communities of the locality. Such easements should be acquired by eminent domain if necessary.

It seems probable that the price which would be paid for such easements would be sufficient to give substantial assistance to the timberland owners and operators, permitting the reorganization of the financial structures of their enterprises, the replanning of their working circles, and the modification of their industrial plant, to such an extent as to avoid undue hardship. Operators who now employ ecological forestry methods to some extent would be aided in stabilizing their businesses as against cut-out and get-out operators. The Anti-Trust Division of the Department of Justice should be empowered if necessary to establish policies permitting such corporate reorganizations and mergers and such pooling of commercial timberlands as would be in the interests of the industry, the communities, and the public.

As background and framework for the magnificent national park which would thus be created, a Redwoods National Forest should be established, comprising the entire coast redwoods belt. The areas within the boundaries of the proposed national park with respect to which conservation easements instead of fee simple might be acquired would be incorporated into the national forest instead of the national park. The United States should be empowered to accept donations and to acquire by purchase, but without the exercise of eminent domain, conservation easements or fee simple to any timberlands within this national forest boundary. Cut-over lands could be accepted for this purpose from willing donors or sellers, and the Government could assume responsibility for the regeneration of the entire forest as a stupendous national estate. Such regeneration could be undertaken for purposes of scenic and ecological protection and in multiple-use areas for production of saw timber and structural timber in the main, with other wood products merely as by-products. Regeneration should be planned on a 100-year recovery period with a view to 500-year rotation as indicated above. Harvesting in tracts donated and sold to the Government for multiple-use management would continue to be conducted by private timber operators on a competitive bidding basis, as in the case of other national forests. Payments in lieu of taxes should be made to the counties in respect to timberlands acquired in fee simple for addition to the multiple-use areas of the forest, the industries and communities would thus be stabilized on a prosperous foundation in perpetuity.

Twenty years ago Gifford Pinchot and I initiated legislation for the establishment of a Redwoods National Forest and related park units. The present proposal follows the general outlines of that plan. The people of the redwoods region, the nation as a whole, and certainly the parks and the forest have suffered a great loss as a result of the failure to enact the earlier legislation. History emphasizes the imperious necessity of such basic preservation and management policies now.

There are two fundamental principles which should guide our national policy formulations in respect to the redwoods; first, that the monumental groves have a beauty and a majesty which must be protected and if need be restored for all time as an irreplaceable spiritual resource for mankind; these are the proposed park lands, which must be protected completely untouched; and secondly, that *Sequoia sempervirens* is a species ideally suited to the individual-tree selective management system, which in turn is ideally suited to the practice of ecological forestry. On lands outside the park units, this principle of management should be established permanently as in the present and long-range economic interests of the communities in the region and the United States as a whole; within the parks there must be an inviolable rule of complete protection against logging, commercialization, and over-development.

I appreciate the invitation to submit this statement to the Committee. ■

Regional Study Needed

The suggestions of the National Parks Association for a large national park and a national forest in the redwood region of California point up the need for a comprehensive regional study of the area's resources, economic trends, and social conditions.

Proposals for the preservation of substantial areas of old-growth redwoods in state and national parks in the northern portion of the region remind us of other aspects of long-range planning in the public interest, particularly in the southern portion of the region. In addition to providing outside of the parks for greatly increased needs for outdoor recreation, large areas of burned forest land require regeneration, and most of the second growth will not be effectively managed on long rotations for future timber needs unless it is in public ownership.

President Smith of the National Parks Association referred in his testimony, printed here, to a 1946 proposal for a Redwoods National Forest to embrace, along with related park units, the entire redwood belt from the Oregon State line to the Russian River in Sonoma County. This is shown as background shading on the accompanying map. A cursory consideration of the current situation suggests that a Redwoods National Forest might be in two units. These are outlined on the map. The northern unit, surrounding the proposed large national park, would perhaps extend south to Highway 299. The southern unit would extend from the southern edge of the Humboldt State Park to the northwestern corner of Sonoma County. The map suggests that its southern tip conform to the boundary of the southern national forest purchase unit authorized in 1938.

The National Parks Association believes that after decisions have been made on a Redwoods National Park, a comprehensive study by the President's Council on Recreation and Natural Beauty to establish a long-range plan for the entire region would have wide support. Such a study would, among other things, refine our suggestions of lands to be included in a national forest.

News and Commentary

Some Thoughts on Future Park Policy

As conservationists, government officials and Congressmen gathered at the Statler-Hilton Hotel in Washington last August 25 to help commemorate, under principal sponsorship of the National Parks Association, the 50th Anniversary of the National Park Service, a group had also gathered at Mammoth Hot Springs in Yellowstone National Park, some 2000 miles to the west, for the same purpose.

One of the principal speakers at the Mammoth gathering was Dr. Stanley A. Cain, Assistant Secretary of the Interior for Fish and Wildlife and Parks, who briefly reviewed the formative days of the park system, touched on the present-day diversity of park system units and purposes, and then presented his listeners with some personal park philosophy which we think is well worth the earnest consideration of people who are concerned with the future of their great natural reserves. Some of Dr. Cain's more provocative thoughts in the matter are printed here.

"Many persons have hoped that the new emphasis on recreation areas would make it easier to preserve the original qualities and purposes of the great national parks and monuments by deflecting to the recreation areas and away from the parks the tourists who seek opportunities for activities that are not directly derived from the pristine conditions of nature.

"This hope, if it is to be realized, will require firm policy on the part of the National Park Service, The great parks cannot be protected for the pleasures that people take in their natural values if we administrators respond to every demand made by the public. It is all too easy to measure "success" by counting visitors and to respond to demand by adding some developments here and some more there until what was sought to be preserved has been irrevocably lost. There is a saturation point beyond which the wilderness experience cannot be had, beyond which a campground is no longer a pleasant place. Parks need to apply the familiar rangeland concept of carrying capacity. Innumerable people cannot enjoy solitude together. The parks cannot provide something for everyone everywhere. That could dim the prospects of future celebrations as proud as this one. . .

"The National Park Service itself must be the militant protector of the original concept. It cannot afford to delegate this role by default to outside groups. All of its powerful means of communication should be involved in making its intentions clear—brochures, news releases, and speeches, interpretation programs in the parks, and museum displays—and beyond that, its actions must speak for themselves. The confidence of the public is at stake.

"During the next several years as the Park Service moves toward its centennial, the purity of the national park concept can be maintained while meeting the new needs of new decades. The important present opportunity lies, in my opinion, in the potentiality for relief of pressures on the parks that lies in the national recreation areas which are a proper but separate part of the total system.

"Other chances to save the older, great parks lies in the developments for recreation that are taking place on lands administered by the Bureau of Reclamation, the Bureau of Indian Affairs, and the Bureau of Sport Fisheries and Wildlife, all in the Department of the Interior. In addition, the very fine work of Agriculture's Forest Service and the potentialities on lands administered by the Department of Defense should provide ample Federal opportunities for active recreation. . .

"The great challenge to the National Park Service today is for it to retain and renew its concern for the protection of nature at the same time that it is acquiring the land and jurisdiction to serve a variety of other, diversified functions."

Pine Mountain Wilderness Hearing Date Announced

The U. S. Forest Service has announced that a public hearing will be held November 15 on its proposal for establishment of a Pine Mountain Wilderness in the Prescott and Tonto National Forests of Arizona. The hearing will commence at 9:00 a.m. at Goett Auditorium, 2005 East Indian School Road in Phonix, on the Service's plan to create a 28,307-acre Wilderness from the existing Pine Mountain Primitive Area and adjacent lands in Yavapai County. A brochure with map and other information about the proposed Wilderness may be obtained from the Forest Supervisor, Prescott National Forest, 344 South Cortez, Prescott, Arizona 86301, or the Forest Supervisor, Tonto National Forest, 230 North First Avenue, Room 6208, Federal Building, Phoenix, Arizona 85025. Individuals or organizations wishing to express their views, but unable to appear at the hearing, may submit written comment for inclusion in the hearing record by sending views to the Regional Forester, 517 Gold Avenue S.W., Albuquerque, New Mexico 87101; testimony for inclusion in the record should reach the Regional Forester by December 15 of this year.

NPS Reorganization Continues

Realignment of top-level administrative responsibilities in the National Park Service was announced in late September by Secretary of the Interior Stewart L. Udall. Upon recommendation of Director George B. Hartzog, Jr., former Associate Director A. Clark Stratton was promoted

Statement of Ownership, Management and Circulation
required by the Act of October 23, 1962; Section 4369, Title 39, United States Code.

Date of filing: October 14, 1966.
Title of publication: *National Parks Magazine*
Frequency of issue: Monthly
Location of known office of publication: 1300 New Hampshire Avenue, Washington, D.C. 20036.
Location of the headquarters or general business office of the publishers (not printers): 1300 New Hampshire Avenue, N.W., Washington, D. C. 20036.
Publisher: National Parks Association, 1300 New Hampshire Avenue, N.W., Washington, D.C. 20036
Editor: Paul M. Tilden, 1300 New Hampshire Avenue, N.W., Washington, D.C. 20036.
Owner (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given): National Parks Association, a non-stock corporation.
Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities (if there are none, so state): None.

	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	SINGLE ISSUE NEAREST TO FILING DATE
A. TOTAL NO. COPIES PRINTED (*Net Press Run*)	33,168	34,500
B. PAID CIRCULATION		
1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	None	None
2. MAIL SUBSCRIPTIONS	33,035	34,350
C. TOTAL PAID CIRCULATION	32,434	33,792
D. FREE DISTRIBUTION (*including samples*) BY MAIL, CARRIER OR OTHER MEANS	601	558
E. TOTAL DISTRIBUTION (*Sum of C and D*)	33,035	34,350
F. OFFICE USE, LEFT-OVER, UNACCOUNTED, SPOILED AFTER PRINTING	133	150
G. TOTAL (*Sum of E & F—should equal net press run shown in A*)	33,168	34,500

I certify that the statements made by me above are correct and complete: Paul M. Tilden, editor.

to Deputy Director. Howard W. Baker, former Assistant Director for Operations, was elevated to Associate Director. Harthon L. Bill was named to fill Mr. Baker's former position. A new position of Assistant Director for Policy and Programs was established and Edward A. Hummel was selected for this job. Mr. Hummel was formerly regional director for the Service in San Francisco. Howard Stagner, who was Assistant Director for Resource Studies, was given a new assignment as Assistant to the Director. Other assistant directors—Jackson E. Price, J. E. N. Jensen, and C. P. Montgomery—are retained in their positions.

Electrically Powered Autos and the Pollution War

Recently the Ford Motor Company demonstrated a new battery system which could be an integral part of a practical electric car for city and suburban driving. The car, a six-foot model with a top speed of 60 mph and a cruising range of about 80 miles, may be in production within five to ten years. The battery system could be recharged nightly through a direct-current converter attached to normal home outlets. The development of such a vehicle is of interest to conservationists because, as Ford claims, the electric car "would help alleviate the problems of both congestion and air pollution in some metropolitan areas."

Industry sources report that both Chrysler Corporation and General Motors are also developing automobiles which would be powered by electric fuel cells. Unlike batteries, electric fuel cells do not need recharging. Extra fuel would be picked up at service stations, as at present with gasoline-powered cars, but fuel cells generate power without giving off air pollutants.

(Shortly after the above was written, Gulton Industries, Inc., of Metuchen, New Jersey, announced that it has developed a new lithium battery that may have use in electric automobiles. Its experimental battery is thought to allow a range of 150 miles without recharge; the company is currently conducting research on a lithium battery of lighter weight, and it is believed that the lighter lithium battery may be developed within the next two years.)

The Salt Lake Monument

Establishment of a Great Salt Lake National Monument in Utah, comprising 29,000 acres on Antelope Island and 15,300 acres of related land and water area at the south end of Great Salt Lake, has been recommended to the Congress by the Department of the Interior. Secretary of the Interior Stewart L. Udall said that the bill was designed to protect and interpret an important aspect of the nation's natural and historic heritage. Great Salt Lake, today a "dead sea" covering 1500 square miles, was both a magnet for and a barrier to westward expansion; the lake is the remnant of the huge inland sea—Lake Bonneville—which once covered most of western Utah during the most recent Ice Age.

Against Colorado Dams

A group of Tucson citizens has organized *Arizonans for Water Without Waste*. Specifically directed against the construction of additional dams on the Colorado River, the initial group of 200 has taken as a motto "Unnecessary Dams Waste Water"—that is, through evaporation from reservoirs—and "Unnecessary Dams Waste Money." The group states that Bridge Canyon and Marble Canyon dams would waste ¾ billion dollars, and that there are alternative sources of power and revenues to bring water to Arizona lands. Chairman of the new organization is Juel Rodack. AWWW is headquartered at 2116 East Helen Street, Tucson, Arizona 85719.

A Fatal Affection

People like people. People like Yosemite National Park, too, and their determination to combine the two passions has been making trouble for the park. Although Yosemite is roughly the size of Rhode Island, ninety percent of the park's campers insist on jamming themselves, their tents, cars, trailers and other gear into the seven square miles of Yosemite Valley, although uncrowded campgrounds are available elsewhere in the park. The herd instinct is drowning the Valley's meadows and forests in sewage and smog, and is causing auto accidents, traffic jams, and even juvenile delinquency in the park.

But people like people. On a hot summer day, when the Valley is as

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crowded as a New York rush-hour subway, a camper will tell you that he chose the Valley camping spot because it is "close to conveniences, the stores, the hospital, and there's a good garage." His neighbor, who is usually camped about four feet away, will tell you that she prefers Yosemite Valley because "I'm afraid of animals—and I like crowds."

Do parks like people? Of course, but not in such concentrated numbers. Strict measures to ease the pressure of crowds in Yosemite Valley will obviously be necessary in the near future, and Park Superintendent John Davis has speculated that one such measure might be a ban on privately-owned automobiles in the Valley and reliance on public transportation. A larger measure of dependence on public transportation in the parks is, of course, one of the facets of NPA's park and monument regional planning proposal, which has been designed to slacken the pressure of people and traffic on our great preservations. The plan has been viewed with approval on the part of governmental agencies which would be involved, but has as yet failed to produce a visible sign of motion. Superintendent Davis apparently feels that this part of the plan will need to be implemented, in Yosemite at least, in the fairly near future if the character of the park is to be retained.

End to Unwanted Algae?

The tiny plants which thrive in the nation's polluted waters—and contribute to that pollution—may now be eliminated in watercourses where they are unwanted. A recent discovery by Department of the Interior scientists could sift phosphates from treated sewage and thereby starve the algae which rob the water of oxygen. At night, and on cloudy days, algae consume the oxygen of the water; when the algae die the bacteria which feed on them also use oxygen, thus increasing potential damage to fish and other aquatic life. The new discovery may help in cleaning up some of the nation's long-polluted rivers.

Man and the Waterfront

Governor Warren P. Knowles of Wisconsin has issued a report on waterfront blight to help correct what he calls "two of society's principal problems: decay in our cities, and man's use, or misuse, of his water resources." On the waterfront, says the Governor, "we see evidence of the toll that water pollution exacts from society by its limiting the range and quality of reuses to which renewed waterfront areas can be put."

The well-written, illustrated, sixty-eight page report examines causes of waterfront blight and recommends a range of renewal treatments to apply to deteriorated waterfronts. It is pointed out in the report that waterfront clearance inside cities can reduce pressures to develop shoreline areas on the fringes of cities which should be used for recreation and for fish and wildlife habitat.

Single copies of the report are available from the Wisconsin Department of Resource Development, Madison, Wisconsin 53702.

Reviews

THE WOLVES OF ISLE ROYALE. By L. David Mech. Number 7 in the Fauna Series of the National Park Service. U.S. Government Printing Office, Washington, D.C. 1966. xiii + 210 pages, with 105 figs. Paper bound. $1.00.

The findings reported in this publication illustrate one of the important reasons for having national parks, namely that natural areas are essential for research of the kind that is most productive for resource husbandry. The best of such areas remaining are the 30 national parks. It is both natural and commendable that the National Park Service entered into cooperative agreement with a university (Purdue) in order to have this study made.

Predator-prey relationship, wolf to moose, is the principal theme. This relationship is clarified beyond reasonable expectation principally by use of an airplane, permitting essentially continuous daylight observation in good weather for seven weeks each winter. The 71 instances of actual pursuit of moose, principally by a pack of 15-16 wolves, and many of the related details could have been discovered only from the air. Of 160 moose within range of the hunting wolves while the latter were under observation, only 131 moose were detected by the wolves. Of these, 77 were chased or held at bay, and 6 of the 77 were killed, yielding a hunting efficiency of 7.8%. "Of the 36 that stood at bay until the wolves gave up, none were killed, but 5 of the 41 that ran were dispatched."

The accounts are fascinating as well as factual. The information is well organized. The illustrations were carefully selected.

Most of the illustrations are photographs and their reproduction, in general, is terrible, owing to a poor job of offset printing, which also produced a text so murky that it is a real challenge to any reader having slightly tired eyes. In this most recent effort of the National Park Service to produce results of research, after a lapse in publishing material of this kind, such a mistake can be condoned, as perhaps can also the lack of a date of publication, and the lack of a meaningful title. Infelicities that are inadmissible in first-class scientific literature are few, and the lack of typographical errors is commendable.

In a year, a biomass of 5,823,300 pounds of browse nourishes a herd of 600 moose. Of these, 142 calves and 83 adults, practically all 6 to 15 years old, were killed and eaten by wolves. This annual toll, having a biomass of 89,425 pounds, nourishes a population of 22 wolves having a biomass of 1,512 pounds. No moose 1 to 5 years old was among those identified as eaten by the wolves. Trees are fast growing out of reach of the moose in previously burned areas. It "appears that in the next decade the moose population will decrease significantly, with a corresponding decline in wolf numbers" if each forest fire is put out as soon as possible after it starts.

Mech stopped short of making the obvious recommendation that certain lightning-set fires be permitted to burn over a few square miles instead of being immediately extinguished or that controlled burning be instituted as a preservation technique in order to fulfill the National Park Service's obligation to preserve unimpaired the flora and fauna of Isle Royale National Park.

The findings by Dr. Mech will have to be consulted for a long time by naturalists generally and particularly by ecologists and wildlife managers. Professor Durward L. Allen and other sponsors (institutional and personal) and associates of the investigator should be proud of the continuing project that has so greatly advanced our knowledge of the predator-prey relationship of a large carnivore and a large artiodactyl.

E. Raymond Hall
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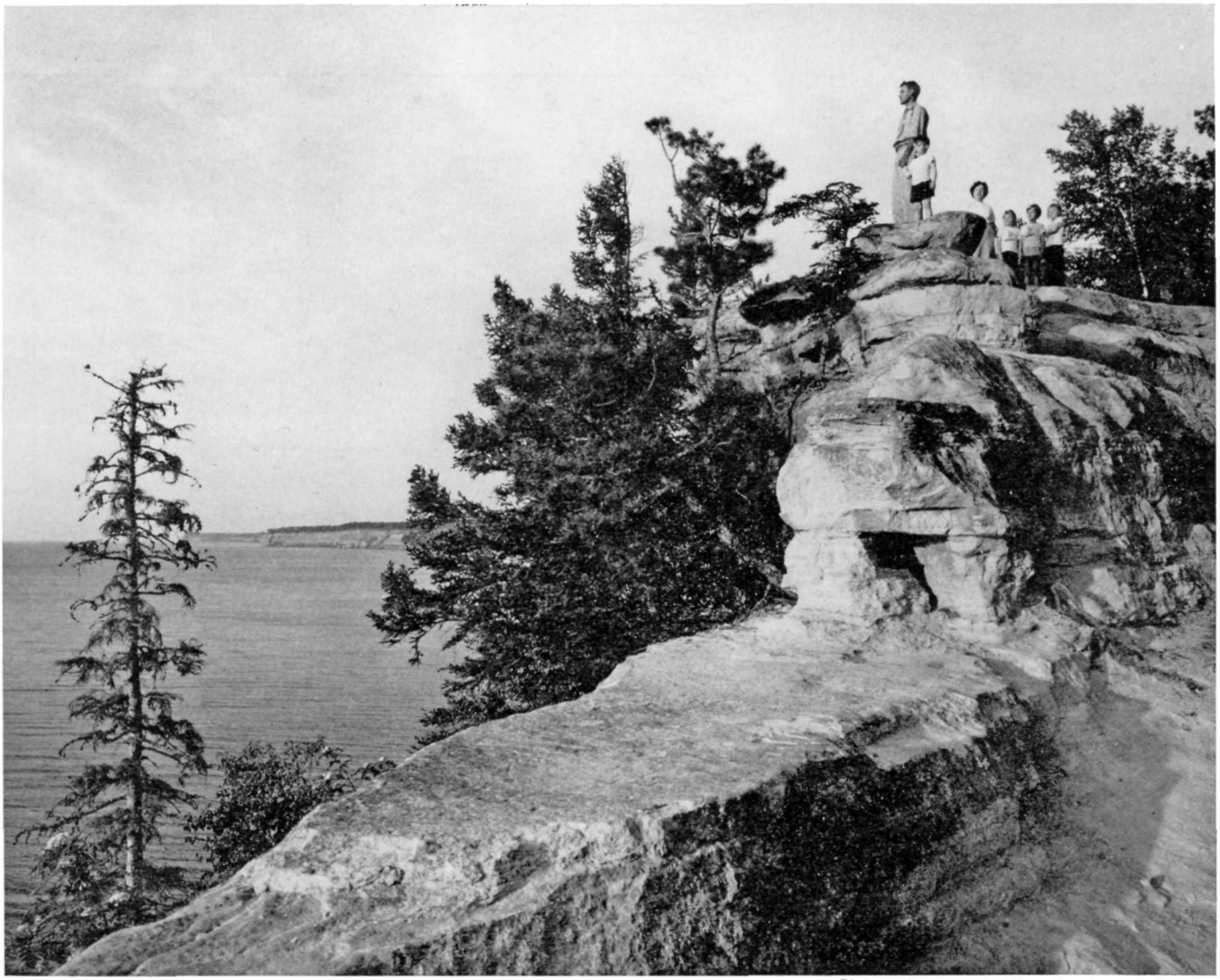
University of Kansas

THE LEWIS AND CLARK TRAIL. By Calvin Tomkins. Introduction by Stewart L. Udall. Harper & Row, New York City. 1965. 117 pages, illustrated. $5.95.



Photograph courtesy Michigan Tourist Council

The south shore of Lake Superior in the proposed Pictured Rocks National Lakeshore, Michigan.

SOUTH AND EAST of the fabled Keweenaw Peninsula of Upper Michigan the cold waters of Lake Superior have over the ages lapped and pounded sandstone cliffs into a scenic shoreline scarcely equalled for sheer beauty on any American lake. Indeed, more than a hundred years ago the geologists Foster and Whitney wrote that "The range of cliffs, to which the name Pictured Rocks has been given, may be regarded as among the most striking and beautiful features of the scenery of the northwest . . ." Today many Americans are thinking about preservation for a large segment of the shore in a Pictured Rocks National Lakeshore.

AS AMERICA'S LEADING conservation organization devoted primarily to the welfare of the national park system the National Parks Association evaluates the nature and quality of proposed preservations like Pictured Rocks and keeps its members informed through timely articles. You can assist in this work in any of several ways: by contributions to the Association's general funds over and above regular dues; by renewing membership promptly; by remembering the Association in your will; by helping to secure new members. All dues over and above basic annual dues, and all contributions, are deductible for Federal income taxation; gifts and bequests are deductible for Federal gift and estate tax purposes.

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