NATIONAL PARKS *Magazine*

Lower Redwood Creek, Humboldt County, California:
a scene within the proposed Redwood National Park

February 1965

Protection of the Redwoods

An Editorial

AND AGAIN THE RAINS HAVE DESCENDED, and the floods have come; homes have been washed away, towns inundated, and more of the tall trees, which the Nation thought were protected, have been undermined by the swirling waters, and have fallen.

For countless millennia the redwood forest stood on the northern California Coast, washed by the fogs of the Pacific; the clear coastal rivers flowed smoothly to the sea, serene from unbroken watersheds.

When the logging began, the efforts to protect the monumental groves of tall trees also began, and eventuated in the famous state redwood parks of California, representing the patient savings and generous contributions of literally millions of Americans during half a century.

Long years ago it was foreseen, however, that these majestic groves would be in great danger from erosion and siltation if the clear-cutting of the watersheds above them continued. Gifford Pinchot's proposal for the enlargement of the parks and the incorporation of the remainder of the redwood belt into a national forest, which would be managed on a selective-cutting basis, was one response.

Time has passed, the clear-cutting has continued, and the devastating floods have been repeated. Beginning with the catastrophic inundations of the winter of 1955-56, and continuing since that time, more than 500 tall trees in the Rockefeller Forest of the Humbolt Redwoods State Park have been undermined and destroyed; now again the appalling destruction.

The current National Park Service proposal, which President Johnson has encouraged, for a new national park in the redwoods and Federal assistance to California for the enlargement of the state parks and the protection of the watersheds, now becomes in many respects increasingly relevant and attractive.

The redwood logging industry has been contending that no more protection for these vital scenic and cultural resources is necessary; enough land, it has said, is already in public ownership. The recent events, in our considered judgment, prove the contrary; publicly-owned parkland in the redwoods needs to be enlarged, it now seems clear, and the surrounding watersheds should certainly be protected, if the existing parks are to be secure against grave injury and destruction.

The vital interests of the communities along the redwood coasts are at stake. Their recreational business depends on the parks. Their wood-products business depends on the permanent sustained-yield management of the commercial forests outside the parks by methods compatible with complete watershed protection; that is, long-rotation individual-tree selective logging.

Even the physical existence of these communities, as the new floods have shown, is dependent on watershed restoration. These communities, and California as a State, have everything to gain by supporting the enlargement of the area protected in parks.

The industry is making a serious mistake in public relations, it seems to us, in opposing such enlargement. According to industry sources, there are 1,596,000 acres of productive timberlands in commercial redwood forests, most of them privately owned [1]; the National Park Service has suggested that 52,110 acres (about 3¼%) be acquired for a national park or added to the existing state parks [2]; hardly, if dispassionately considered, a grievous interference with private ownership and profit. No one is suggesting, and no one has ever suggested, that all or any major part of the commercial redwood forest be placed in parks; the pretense that such action is impending [3] will convince no one acquainted with the facts.

But control of the watersheds above the existing parks is another matter; this, we suspect, looking at the matter objectively, the public is going to have and to get, partly perhaps by creating a national park and enlarging the state parks; partly, perhaps, if possible, by binding agreements, or by the acquisition of easements, for ecological forestry; but in any case protection, one way or another, will almost certainly be insisted upon.

The small segment of the industry which may face hardship from acquisition for the parks, or from measures for watershed protection, is in our opinion entitled to proper public assistance. The handsome prices which can be expected for any land which may be acquired by the public in fee simple by purchase will no doubt help.

The sale of conservation easements by the companies to the public at fair market value, or to non-profit associations where land is not bought outright, might be another way to provide sizable financial aid to ease any problem of transition, and to stabilize production benefiting the industry and the communities, over the long future.

The industry has recently called attention to the cooperation it has given in the past to the state park program, including gifts of land for the parks and a policy of withholding harvest on tracts of superlative scenic value in anticipation that funds could be raised to acquire them for parks.[4]

This might be the time to consummate any further land gifts the industry may have in mind. The additional tracts of superlative value which have been withheld from harvest might now be offered if additional private or public funds become available. A program of cooperation between producers and protectionists might thus be set in motion, with great benefit to the locality and the nation. —*A.W.S.*

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[1] *Our Growing Redwoods*, American Forest Products Industries, Inc., 1964, pp. 5, 6.

[2] *The Redwoods*, National Park Service, 1964, p. 42.

[3] See *Logger & Lumberman*, July 25, 1964, p. 10.

[4] *Our Growing Redwoods*, note 1, p. 5.

NATIONAL PARKS *Magazine*

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Front cover photograph courtesy the Sierra Club

Still largely untouched by the ax is the redwood forest of lower Redwood Creek in northern California's Humboldt County. Under the National Park Service's recently released interim report on the California coastal redwood, *Sequoia sempervirens*, some eight miles of pristine Redwood Creek might be included in a Redwood National Park. (Map of maximum park plan, page 11).

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 28,000 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.

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A Redwood National Park

By Russell D. Butcher

Photographs courtesy the Sierra Club *Map by Allan MacDonald*

RARELY HAS OUR COUNTRY WITnessed a battle over establishment of a park on the scale now raging in the California Coast redwoods. And rarely has there been so direct a confrontation between public interest in a park and private interest in land ownership. The few remaining areas of primeval redwoods in Humboldt and Del Norte Counties, California, are treasured by both park proponents for their world-famous scenic-inspirational qualities and timber firms for the price the trees bring as lumber.

The history of saving exceptional portions of the virgin-growth redwood forest began in earnest with formation of the non-profit Save-the-Redwoods League in 1918. Gradually private funds were raised, at first to save a string of groves along the South Fork of the Eel River. In 1921, the first memorial redwood grove was dedicated, thus setting in motion a continuing pattern of grove-by-grove park expansion. There are now nearly two hundred officially designated groves which comprise a major part of California's system of Redwoods State Parks. More than $10 million in private funds has been contributed during the 47-year fund-raising program of the League, and most of this amount has been matched by the State.

These Redwoods State Parks, now totaling just over 100,000 acres of land with about 48,000 acres of virgin redwoods, stand as a living tribute to the initiative and foresight of people everywhere who, often never having seen a redwood tree, have given generously to this unique park program.

As beautiful and priceless as these parks are, however, they are of insufficient size to protect adequately the units of forest from such forces of destruction as floods resulting from severely logged-off lands adjacent to or upstream from the parks. The devastating flood of 1955-56, for instance, initiated the destruction of 500 irreplaceable giant redwoods in the Rockefeller Forest and completely altered the natural course of once-beautiful Bull Creek in Humboldt Redwoods State Park. Denudation of upstream slopes outside the park by repeated logging during the years previous to the torrential winter rains permitted rapid run-off of water, which carried with it literally tons of rocks, gravel, and other debris. The even more disastrous flood of this past December, which caused loss of lives and destruction of millions of dollars in property, demonstrated again the problem that follows the stripping of forest from the land and the exposing of topsoil to the force of run-off water. The all-too-small parks again suffered destruction of priceless redwoods and other natural features. Total damage is still being assessed as this is written.

Lost Man Creek, south of the Prairie Creek Redwoods State Park in the Redwood Creek watershed of Humboldt County, is one of the beautiful wilderness streams that would be incorporated into the proposed Redwood National Park under the National Park Service's maximum plan. Its waters are already muddied by the runoff from logged areas upstream. For contrast, see photograph of stream on page 13.

Goal of Many Years

Why, then, should not a more substantial area of the world's tallest species of tree be established as a Redwood National Park? One of the original objectives of the Save-the-Redwoods League was to work for "the establishment of a National Redwood Park." Over the decades a number of studies have been made by the League and the Federal Government, but always the proposals have failed; and the task of trying to save enough of the finest cathedral-like groves has continued to rest entirely with the League and the State of California.

Today, however, escalating timber values—reflecting the rapidly diminishing virgin forest—have largely outstripped the combined resources of both League and State. Funds are available for only a small part of the program of properly expanding the State parks. If any new areas of virgin forest are to be saved before it is too late, Federal participation will be necessary. Unlike most national parks in the West, which were carved out of the public domain, the redwoods outside State parks are almost entirely in private ownership. In what was perhaps the biggest giveaway of public land in history, the redwood forest was "sold" in the 19th century for a mere $1.25 or less per acre, comparable to the price paid for alkali flats and grassland. It is the private ownership today which makes saving a sufficient segment of the once-vast primeval forest so difficult, the controversy so heated.

"How much is enough?" This is a question often heard concerning redwood parks. Responses are as varied as night and day. There are, for example, the logging firms whose business is cutting down the virgin-growth trees for high quality lumber and other products. There are the local communities which depend largely for business upon the timber industry, and which therefore identify their welfare with lumbering. On the other hand, there are some local inhabitants who view with understandable alarm the speed with which the last virgin-growth trees are being cut, and who would prefer, while there is still time, to build into their largely single-based economy a substantially expanded tourist business aided by a truly great national park. And there are the conservationists who consider the primeval redwoods eminently worthy of national protection and who recognize that some of the finest redwood-forest scenery is still unprotected.

The battle lines are drawn. The lumber industry is uniting nationally against the park, and is expected to press for defeat of Redwood National Park legislation. Local chambers of commerce, county boards of supervisors, most local newspapers, and many North Coast groups and individuals are convinced that their region's future well-being rests with logging the remaining privately-owned virgin redwoods. The park proponents, aided by the National Geographic Society and represented by such organizations as the Sierra Club, are nevertheless trying to help document the esthetic and scientific case for increased redwood forest preservation in expanded State parks and in a national park.

Increased redwood protection, however, in the words of the National Park Service's preliminary report, *The Redwoods*, will at best offer "not the solution which might be suggested if the clock could be turned back a decade or two." Not only have the tallest trees known to man been cut down long ago—the 400-foot giants which grew along the lower river flats—but the acreage of primeval forest has shrunk from an estimated 1.8 million acres to mostly patches and strips totaling at most some 300,000 acres, barely a sixth of which is within parks today.

With over 800 million board feet of original-growth trees being cut for lumber each year, it is estimated that the remaining 250,000 acres of privately-owned trees could be gone in twenty to thirty years at the present rate of cutting. Although most of this forest has been reduced through logging to irregularly shaped, disconnected parcels or consists of lower quality or mixed stands, one area in particular ranks above all others.

To the northeast of Eureka, California, lies a long, deep valley touching the eastern edge of the redwood belt. For close to ten miles Redwood Creek Valley presents unparalleled scenes of primeval redwood forest. For miles the wide creek twists and turns between "walls" of towering trees. Many side-streams, never disrupted by man, flow through the mighty forest, with borders of graceful sword ferns and moss-draped maples. At a sharp bend of Redwood Creek is a flat area from which arise what are believed to be the world's tallest trees. A National Park Service-National Geographic survey team found them during their studies last year, measuring them at 367-feet—at least the height of a twenty-story office building. This is the area suggested by the Park Service as

the nucleus of a fine national park.

Extending unbroken to the north are two more largely unaltered smaller valleys—Little Lost Man and Lost Man, where primitive forest and watershed values still exist. Years ago these two valleys and May Creek, which lies between them and Prairie Creek Redwoods State Park farther north and west, were included in a master plan for eventual expansion of that park. May Creek is now completely logged off right to the edge of the famed Redwood Highway. Already parts of all three unprotected valleys have been and are being logged. Delay can seal the fate of that which remains.

Prairie Creek Park would add other unique natural features to such a national preserve. Here are some outstanding groves of redwoods in a near-rain-forest setting adjacent to the Pacific Ocean. To the west and partly in the State park are the picturesque Gold Bluffs, which drop several hundred feet from the edge of the forest to a broad, sandy beach. It is here that resident herds of Roosevelt elk may be seen by the edge of the sea. One of the many side-canyons back from the beach is an unbelievable scene of sheer walls solidly covered with waving fronds of delicate ferns, and along the beach itself may be found a number of plumey waterfalls plunging down the face of the bluffs.

A Redwood National Park, extending from this seashore at Gold Bluffs through the primeval valleys of Prairie Creek, Lost Man and Little Lost Man, to the eastern limit of the virgin forest above Redwood Creek, would present a magnificent sweep of redwood ecology that can be duplicated nowhere else. Unlike the State parks, no express-oriented highways would pierce the virgin forest; only access roads to such areas as Redwood Creek Valley would be built, designed to do as little harm to the scenery as possible.

Roads in State parks are a serious problem, as many of the parks straddle main highways. Prairie Creek Redwoods is currently faced with a threat of freeway construction. The California Division of Highways has already completed the roadbed for a four-lane freeway to the northern boundary of this park, and a controversy revolves around the several possible alternate routes through or around the protected area. One route would cut a wide swath through the heart of the park's majestic groves where now only a two-lane road runs beneath the towering redwoods. Another route would largely obliterate a memorial grove on its way south to Gold Bluffs Beach. The noted architect, Nathaniel A. Owings, said recently of the intrusion of a roaring expressway on this beautiful seashore that "the area traversed, including the beach, the canyons, and adjacent areas, will be totally changed and its rare, wild beauty utterly destroyed." The freeway controversy at Prairie Creek park has meant to a few people the loss only of individual redwood trees. Thus even Governor Edmund G. Brown, in attempting to find a solution to the problem, offered a "tree-for-a-tree" trade; for every tree cut down for a freeway, the Division of Highways would provide money from its own billion-dollar-a-year gas tax funds to purchase other redwood trees now outside the park. While of course the Governor's concern for the redwoods is appreciated, the issue is not as simple as trees. Involved is the unity of a seashore-and-redwood-forest park which cannot be replaced. At issue also is a contemplated breach of the trust placed in the State of California by the grove donors that these areas would in fact be held in perpetuity for park, not commercial expressway, purposes.

However difficult or more expensive the park-bypass route to the east through logged-off lands may be, Division of Highways officials have acknowledged that such an alternative *is* feasible. Certainly there is no other way of keeping intact this magnificent park, an area now deemed worthy of inclusion in a great national park.

To the north of Prairie Creek, near Crescent City in Del Norte County, lies another redwood area of interest to the State and the nation. It was once described by the eminent landscape architect, Frederick Law Olmsted, in these words:

"There is one quality of immense inspirational value to mankind which is to be found in the Mill Creek Redwoods to a degree that is not approached in any of the redwood parks. It is a quality dependent on the cumulative effect of the unbroken continuity of a virgin Redwood forest, vast in extent; in which the impression of stupendousness of height and girth and density of the trees is multiplied by the seemingly limitless size of the forest, to an intensity that can never

At left, logging is under way in the redwood forest a mile from Gold Bluffs seashore and a mile south of Prairie Creek Redwoods State Park. Photo taken in July, 1964. At right, the same terrain after logging had been completed in November, 1964. Torrential rains on barren soil can produce flood disaster in lower parts of such heavily-logged watersheds.

be reached in detached groves of limited extent."

"If the project is carried through," continued Olmsted, "it will soon become the only really large and unbroken redwood forest remaining in the world, and people will come to see it in ever-increasing numbers for centuries to come . . ."

But that, unfortunately, was years ago. While the League and the State of California in the meantime have jointly established one of the major State parks in the lower portion of Mill Creek Valley, it is only a portion of Mr. Olmsted's plan. The Sierra Club recently described the situation this way: "As this forest of giants falls before the attack of the chain saws, so does the forty-year dream of completing the park with the entire watershed of Mill Creek, to provide a natural boundary and to protect priceless downstream groves from devastation by floods."

The remaining uncut Mill Creek redwoods outside Jedediah Smith Redwoods State Park now total only a few thousand acres. With completion last year of a lumber mill just a mile upstream on Mill Creek from the park boundary, full-scale logging of this irreplaceable forest began. Even more tragic than loss of this part of a forest, which should have been given park protection, is the danger the logging poses to the presumably protected virgin forest downstream inside the park. The recent heavy rains, falling on slopes already scraped free of vegatation, brought the first serious flood and erosion damage to the usually sparkling stream. As the last of the virgin forest is taken from the hills upstream, the park and the public's priceless investment will be exposed to even greater threats of destruction.

It is possible, however, to avert such tragedy. Part of the National Park Service's preliminary report suggests that Federal assistance be given to California to help the League-State program of expanding park protection for the Mill Creek watershed. Timber values, however, are prominent among reasons for a less than satisfactory proposal, for most of the virgin forest is omitted from the grant-in-aid suggestion. The State of California recently issued its own revised master plan for this as well as other parks, and likewise omitted a more substantial portion of the watershed. Both the Federal and State governments have placed their hope for the downstream park upon the doubtful prospects of sound forestry management on the lumber company lands. Such a precariously balanced question poses one of the most urgent park problems in the redwood country today, and only the future will tell whether Jedediah Smith Park will be fortunate or not.

These, then, are the new-park suggestions. What about the opposition? Why should those against new park lands object so strongly to the addition of some 24,000 acres of virgin forest not now protected, when there is ten times that much virgin-growth redwood remaining for lumber, and when there is close to 1½ million acres of land either now or in the future available for sustained-yield production of redwood or other species of trees?

It is true, of course, that the lumber companies own the land and that it is their right to cut the trees, subject to certain reasonable standards imposed by sound land management. (Such standards, however, are not being applied in many areas of redwood logging today; some experts have called it the "worst logging in the world," so destructive is it of fish and wildlife and watershed values.) But it is also true that a fair price would be paid to the companies whose lands and mills were involved in the establishment of a national park. Newspaper headlines have screamed loudly of the need to "stop the Federal land grab;" yet there would be no such "taking" of the land. There are those, typified by the California Redwood Association which represents the redwood timber industry, who say "the removal from private ownership of such large areas of commercial timber land is not needed to preserve adequate areas of the best of California's redwoods; this preservation has largely been achieved." Since their lands are directly involved, it seems logical enough for them to say what is already accomplished is sufficient.

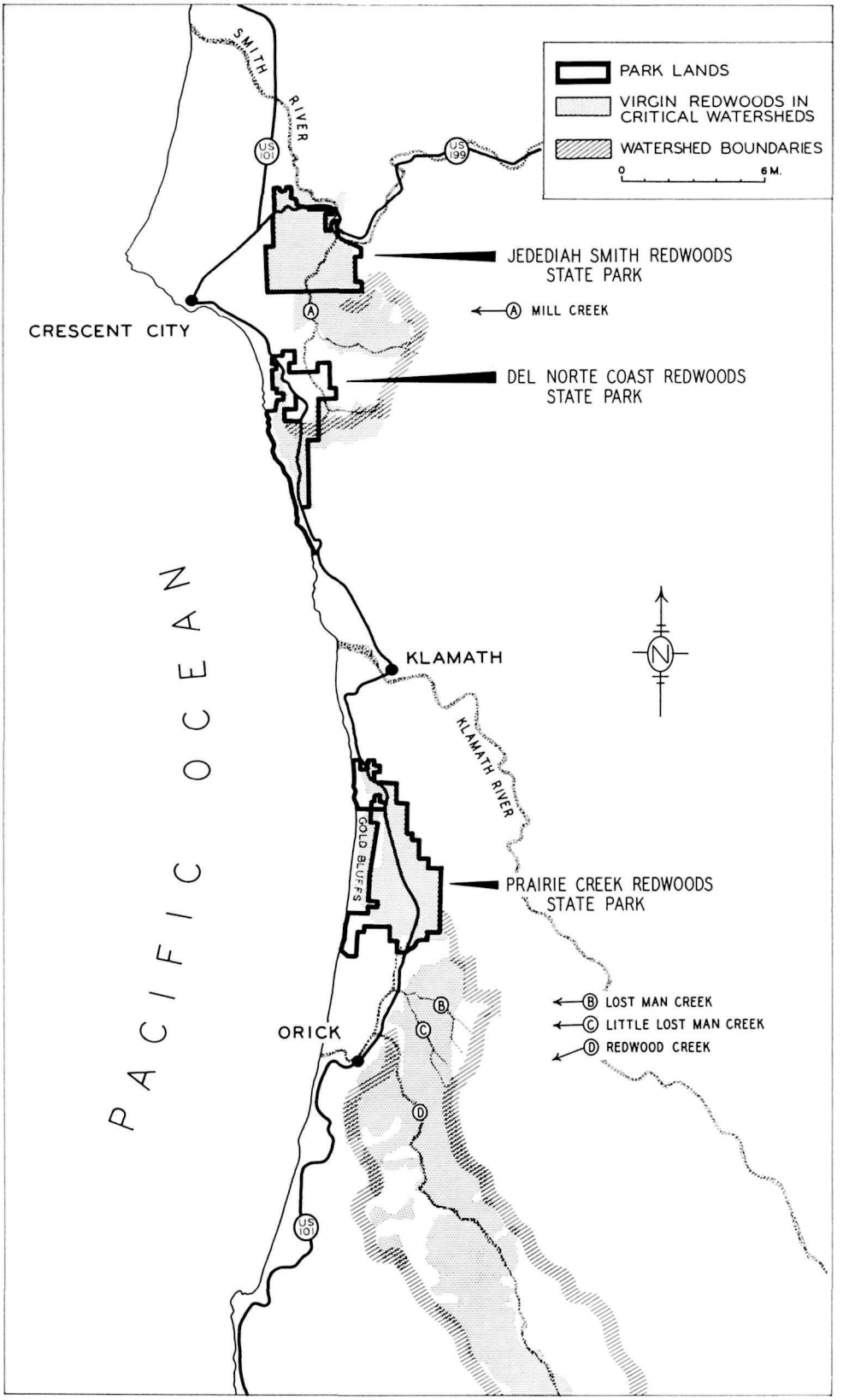
A herd of native Roosevelt elk grace the sands of Gold Bluffs seashore within the area proposed for national park status, west of existing Prairie Creek Redwoods State Park. The Gold Bluffs shoreline has been proposed as a route for a four-lane expressway.

Another economic problem concerns the effect a national park might have upon the North Coast economy. Local opposition often argues that "The park proposal would permanently and seriously damage the economy of California's north coast counties without any compensating advantage." Among the more important reasons cited for this argument is the undermining of the local tax base. There are possible solutions to this problem, too, including the "in lieu" tax payment which has been successfully applied in other parts of the United States. Such a Federal payment can be scaled over a period of years, to be reduced gradually as tourist income increases.

Not all the facts and figures, however, argue against establishment of a national park. The fact is, as one leading California attorney recently pointed out, that lumbering has done more to erode the land tax-base than all the parks put together—existing or proposed. Land bearing virgin redwoods yield thousands of dollars per acre in taxes until more than 70% of the trees are removed. Then the taxation rate collapses to a few dollars or even a few cents per acre, remaining at that nominal level for at least forty years. By that time, a second-growth forest—if one exists—may bring increased revenue although still far below that of the virgin forest.

It would seem true, then, as one Humboldt County resident has said, that the national park "will represent the most profitable use of the land in question . . . once the trees are cut and become board feet in the yard, their utility is gone, whereas if we leave them standing, then they remain an indefinitely usable commodity that over a period of time will return far more in actual dollars and cents than profit which can be realized only once from their cutting."

This is but a glimpse of the Redwood National Park proposal. The obstacles to be overcome are varied, the conflicting interests many. Yet the opportunity for setting aside such a park for the whole nation and the ever-increasing numbers of visitors is before us, for the last time. A few more years, and the chance will be gone forever. "All we save now, is all we will ever save," is a catchy slogan used by conservationists. And it is true. ■



Shown above are the Redwoods State Parks of Humboldt and Del Norte Counties on the north coast of California, and the watersheds within which outstanding virgin redwood forests are in peril. Circled letters indicate areas discussed in this article; Gold Bluffs is found on Pacific shore side of Prairie Creek Redwoods State Park. A map showing location of the Park Service's proposed Redwood National Park will be found on page 11.

Summary of the Preliminary Report of the National Park Service on Its Special Study of the California Coast Redwoods

DURING SEPTEMBER, 1964, THE NATIONAL Park Service published an interim report on its study of remaining stands of *Sequoia sempervirens*, the California coast redwood. The study, which has been in progress for nearly two years with financial aid from the National Geographic Society, analyzes the coast redwood forests, their present protection, and the possible need for further protection. The report, titled *The Redwoods*, was distributed to persons interested in coastal redwood protection and utilization, with invitation to comment; it looks toward a final report by the Interior Secretary to the President.

The report covers three basic facets of the redwood problem: economic background; ecology of the redwoods in relation to preservation and public enjoyment; and relation of commercial lumber operations and forestry management practices to the future of the coast redwood. Woven through the study, which confines itself largely to the three coastal counties of Del Norte, Humboldt and Mendocino, where the finest remaining redwood stands are found, is the natural and human history of the redwood belt; its climate, plants, animals and geology, and record of human occupation.

The coast redwood, says the report, once covered nearly 2 million acres in a narrow band along the northern and central California coast, representing a genus of trees once spread widely through the world; a limiting factor in its present narrow range may be a critical precipitation-to-evaporation ratio. Redwood seed is generally low in viability; a more important reproduction mechanism is the ability of the tree to sprout from wood. The species is tolerant and generally responds to release after suppression. Typical virgin redwood stands are climax forest; barring man's activities or major natural changes redwood stands could be maintained indefinitely in relatively small, well-protected areas, but such small areas probably could not be maintained in their natural ecological settings.

Little logging of the coast redwood took place until discovery of gold in California during the middle of the past century. After that, the report notes, redwood lumbering became the dominant factor in the economy of the northern California coast; only ten years or so after the gold rush began, there were 300 sawmills operating in the redwoods, and it was said that the resource was inexhaustible. Nonetheless, there were some concerned with wasteful logging even then; an unsuccessful attempt was made as early as 1852 to preserve coast redwoods by legislation.

By the turn of the 19th century, states the report, new lumbering techniques had so speeded redwood logging as to cause public concern over the resource. Both State and Federal interest was aroused, and in 1901 California created the first State coast redwood preserve; a few years later President Theodore Roosevelt established the Monterey Forest Reserve and the Muir Woods National Monument. In 1918 a group of conservationists established the Save-the-Redwoods League, looking toward establishment of a redwood national park to preserve a typical stand of redwoods; Congress authorized the Interior Department to conduct a park study, but no park materialized. California, however, took a new interest in preservation of coast redwoods; an interest that initiated the present system of 28 Redwoods State Parks.

Survival of the redwoods, says the report, may be based in part on recognition by industry of the importance of improved logging practices and forest management. Smaller owners have generally been replaced by larger owners who are moving toward sustained yield management of redwood lands. In parts of the redwood belt the timber industry produces more than 70% of payrolls and tax revenues; redwood sawtimber is currently being cut at the rate of about 850 million board feet annually. The forest economy of the region has until recently been wholly lumber-based, but redwood is now also used for pulp and plywood. The report foresees continuation of the trend toward larger redwood landholdings; thus, the largest five redwood landowners held 406,000 acres in 1948, while today the largest five own 711,000 acres. There is a continuing loss of redwood lands to nonforest uses, and at least three counties in the redwood belt will cease redwood timber production altogether in the coming 50 years.

The total volume of redwood on commercial forest lands in 1963 was estimated at 30,981 million board feet; 16,844 million board feet of this was old-growth, of which 14,500 million board feet was under conservatively managed private ownership. Unreserved public lands accounted for 1,500 million board feet, and the balance was in small or unstable private ownership. The volume of old-growth redwood timber on public and private commmercial forest lands will decline to about 2,500 million board feet by the year 2000, it is stated; but virgin-growth redwood outside public ownership will be completely gone in 30 years.

The redwoods are of both national and international significance, the report says, and there is no question that further outstanding examples of redwood forest should be preserved. The question is, how much. Present State parks encompass 102,689 acres of redwood lands, and 48,383 acres of virgin trees. In some parks, however, preservation is only nominal because of in-

fringement by roads and freeways, erosion, and developments. On balance, the conservation of redwoods is losing ground both in area and effectiveness.

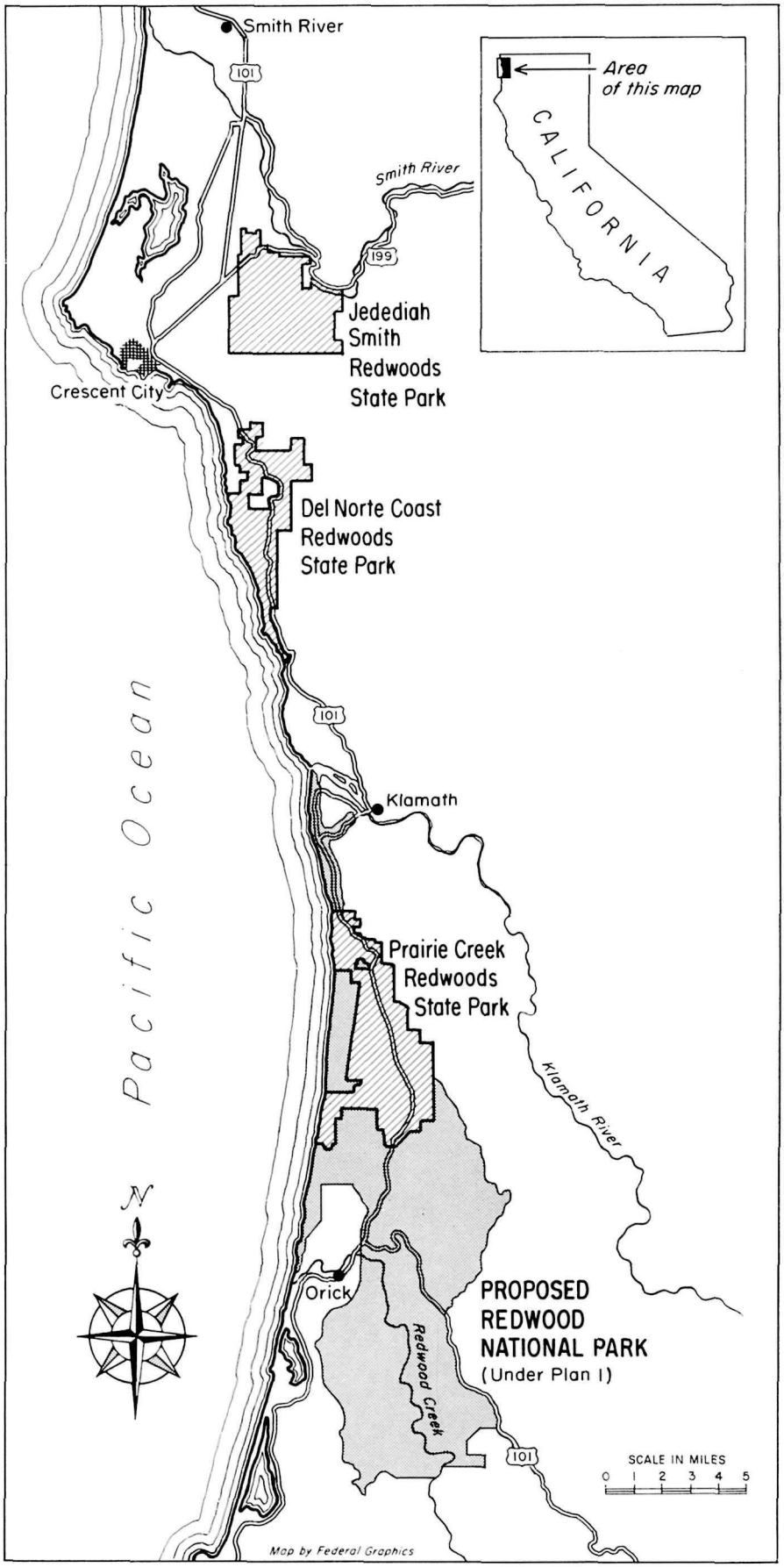
There is an urgent need to aid the State redwood parks and to set aside additional acreages of virgin redwoods, the report states; urgency and cost considerations indicate Federal assistance. The study presents three alternative plans for further preservation of the redwoods, each involving Federal assistance to California in rounding out existing State redwood parks, and establishment of a Redwood National Park.

Plan 1 calls for a national park of 21,300 acres in the Redwood Creek watershed in Humboldt County, plus 14,280 acres in adjacent Lost Man Creek and May Creek watersheds. It would include an enlarged Prairie Creek Redwoods State Park. Total size of the national park would be 53,600 acres. Federal aid to the State would include 600 acres for extension of the present Avenue of the Giants; 250 acres of redwoods along Highway 36 and the Van Duzen River; and 7,990 acres for a redwood corridor between Jedediah Smith and Del Norte State Parks, plus inholding acquisition and ocean frontage for both.

Plan 2 sees Federal aid to the State as in Plan 1. The national park would be reduced to 39,320 acres by elimination of three creek drainages.

Plan 3 sees Federal aid to the State as in Plan 1. The national park would be reduced to 31,750 acres by severe retraction of west and south boundaries. The report notes that the cumulative reduction in Plans 2 and 3 becomes critical in Plan 3; further reduction would eliminate the national park plan on both scenic and ecological grounds.

The report concludes with an economic analysis of the redwood park plan indicating an estimated net gain in revenues for the two involved counties—Del Norte and Humboldt—of $177,000 by the fifth year of establishment and $721,000 by the 15th.



As seen in the Park Service study of the California coast redwoods, Jedediah Smith and Del Norte Redwoods State Parks in Del Norte County would be enlarged and connected by a corridor, while Prairie Creek Redwoods State Park in Humboldt County would be incorporated into a Redwood National Park. Boundary of national park shown on the map is that of the National Park Service's Plan 1.

Summary of National Parks Association Study and Comment to the National Park Service on the Proposed Redwood National Park

In response to the public invitation of the National Park Service, the Association, after careful study of the preliminary report of the Service on the proposed redwoods national park, commented upon it by letter dated November 13, 1964.

The Association voiced its gratification at the interest expressed in the redwoods by the President of the United States and the Interior Secretary.

The proposal to establish a redwood national park and enlarge the State redwoods parks, said the Association, is definitely in the public interest.

Of the three plans suggested by the National Park Service, Plan 1, comprising the largest area, was the most desirable; public opinion would support such a project.

In fact, the Association felt that Plan 1 might not be adequate, and raised the question whether all the remaining virgin stands should not be acquired.

In any case, all the monumental groves in proximity to the proposed national park or the existing State parks, and all other areas needed for their protection, should be incorporated into the parks.

The monumental groves, it was noted, are far more valuable to our civilization as cultural and recreational resources than for wood products.

The employment of the two tools of Federal aid to the State and direct Federal acquisition appeared to be wise; details would be for the planners to determine.

There may be cases, however, where destructive road-building can best be resisted by incorporation into the proposed national park; in case of State acquisition, Federal aid should be conditioned on permanent State guarantees that no roads will be built in any State park without Service approval.

The Association noted that the construction of throughways through parks like this is intolerable; Federal aid for any highways touching the redwoods should be withheld entirely until binding guarantees are given against invasion.

A recommendation to the President was suggested that he direct the Secretaries of Commerce and Interior to instruct the Bureau of Public Roads and the National Park Service to work out procedures along such lines.

The protection of watersheds above the monumental groves and park units cannot be left to problematical agreements with redwood land owners and operators.

Unless inviolable and permanent contractual guarantees can be obtained promptly, the Association said, the critical watersheds should be acquired as public holdings, by eminent domain if necessary.

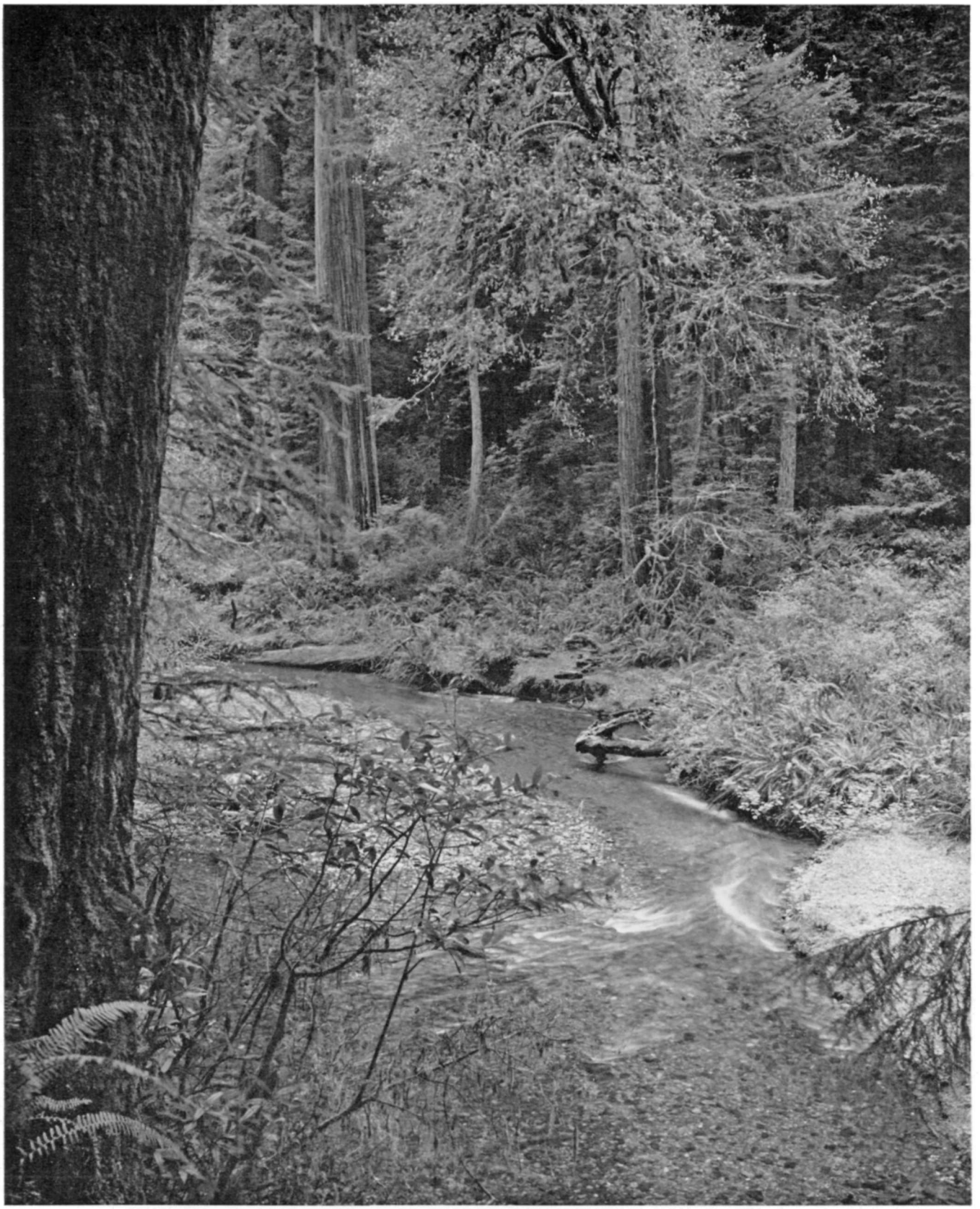
Where a serious impact might result on employment or business, the Association suggested, conservation easements might be obtained in these watersheds, by condemnation if need be, instead of outright purchase, requiring operation in accordance with ecological principles, including watershed protection.

Only one-third of the present operators plan to employ selective cutting, according to the preliminary report, and in view of the suitability of redwoods to such management, operators planning to employ selective cutting would be helped if others were obliged to follow similar practices. The entire industry and region could thus be stabilized economically.

It was suggested that consideration might be given to the establishment of an easement purchase unit comprising the entire coast redwoods belt, in addition to the proposed park. The Forest Service would have power to acquire conservation easements, by eminent domain if need be, or by donation, within this unit; it would also have power to acquire outright ownership where land is offered voluntarily for sale or donated; lands so acquired would be managed, by customary timber sales to private operators, for long-term regeneration and selective long-rotation perpetual yield.

It was noted that Gifford Pinchot proposed a national forest comprising the redwoods nearly twenty years ago, management to be on a long-rotation, selective-cutting basis; four national park units around the State parks would also have been created; a possible program for conservation easements in the commercial redwood forests (not part of the National Park Service proposal) would be much less drastic than the Pinchot proposal.

In any case, the Association believes that the time has arrived when public opinion will call for a prompt and fundamental solution to the preservation of the coast redwood forests. It commended the National Park Service on its excellent preliminary study. ■



Swanlund Photo Laboratory, Eureka

A small stream winds clear and unhurried through a portion of the Prairie Creek Redwoods State Park in the coast redwood country of northern California's Humboldt County. Under Plan 1 of the National Park Service's coast redwood study, Prairie Creek Redwoods State Park would be incorporated into a 53,600-acre Redwood National Park with additional lands along Redwood Creek and three other drainages.

Chapel Rock, on the shoreline of the proposed Pictured Rocks National Lakeshore.

A Pictured Rocks National Lakeshore

By Henry A. Raup

Sketch and map by James A. Bier

FOR MORE THAN THREE HUNDRED years the rocky and cliffed shores of Lake Superior have proved a strong and mystic lure to the explorers and adventurers of North America. From the second half of the 17th century through the 1850's virtually all of the explorers, missionaries and traders who passed up the rapids at Sault Ste. Marie and ventured westward along the south coast of Lake Superior took note of the towering Pictured Rocks, recording in their journals their impressions of this wild shore. "The range of cliffs, to which the name of the Pictured Rocks has been given, may be regarded as among the most striking and beautiful features of the scenery of the north-west, and are well worthy of the attention of the artist, of the lover of the grand and beautiful, and of the observer of geological phenomena," wrote the geologists Foster and Whitney in 1851. Today, there is a movement to protect this notable shoreline within a Pictured Rocks National Lakeshore. The proposed lakeshore possesses natural and historical features which would make it one of the outstanding recreational areas of the midwest.

The earliest known visitors to the Pictured Rocks were Jesuits traveling westward from their mission at Sault Ste. Marie to the head of Lake Superior. The bluffs of the Pictured Rocks are mentioned in the Jesuit *Relations* at least as early as 1660. French voyageurs passed this way frequently and named many of the features of the area, calling the region *Les Portails*—"the gateway." It is now uncertain whether this refers to the appearance of the Grand Portal, a seaarch resembling a Gothic churchway, and numerous lesser arches, or to the fact that the region lies near the entrance to Lake Superior. Both explanations are fitting, however. The term "Pictured Rocks," although used very early, is apparently the name applied by English visitors, who were more impressed by the coloration of the cliffs than by the wave-cut configurations which impressed the early Frenchmen.

For nearly twenty years—1822 to 1841—an American Indian agent named Henry R. Schoolcraft lived at Sault Ste. Marie, traveled extensively

throughout the region, and recorded his observations of the land and Indians along the Lake Superior shores. The patient notebooks and publications of Schoolcraft are filled with Chippewa legends and traditions as well as his own descriptions of the natural environment of the region. His writings were studied by Henry Wadsworth Longfellow, who later based the *Song of Hiawatha* upon the Indian lore recorded by Schoolcraft.

The legend of *Hiawatha* is closely related to the Pictured Rocks region, with many of its events having taken place here. It was on the shores of Lake Superior—Gitche Gumee, the shining Big-Sea-Water—at Munising where stood the wigwam of Nokomis, who raised the young Hiawatha. And it was at the wedding feast of Hiawatha that the handsome Pau-Puk-Keewis danced on the beaches, kicking up the sands to form the Grand Sable Dunes.

* * *

The Pictured Rocks are located along the north shore of Michigan's Upper Peninsula, and extend for about twelve miles to the northeast of Munising. The Rocks are high sandstone cliffs that have been sculptured by long exposure to wave-action and which have subsequently been colored by chemical staining. Also included within the proposed lakeshore area is a fifteen-mile section of cliffs and sand beaches and the five square miles of ancient dunes perched upon the cliff crest between Au Sable Point and the village of Grand Marais.

The Geological Background

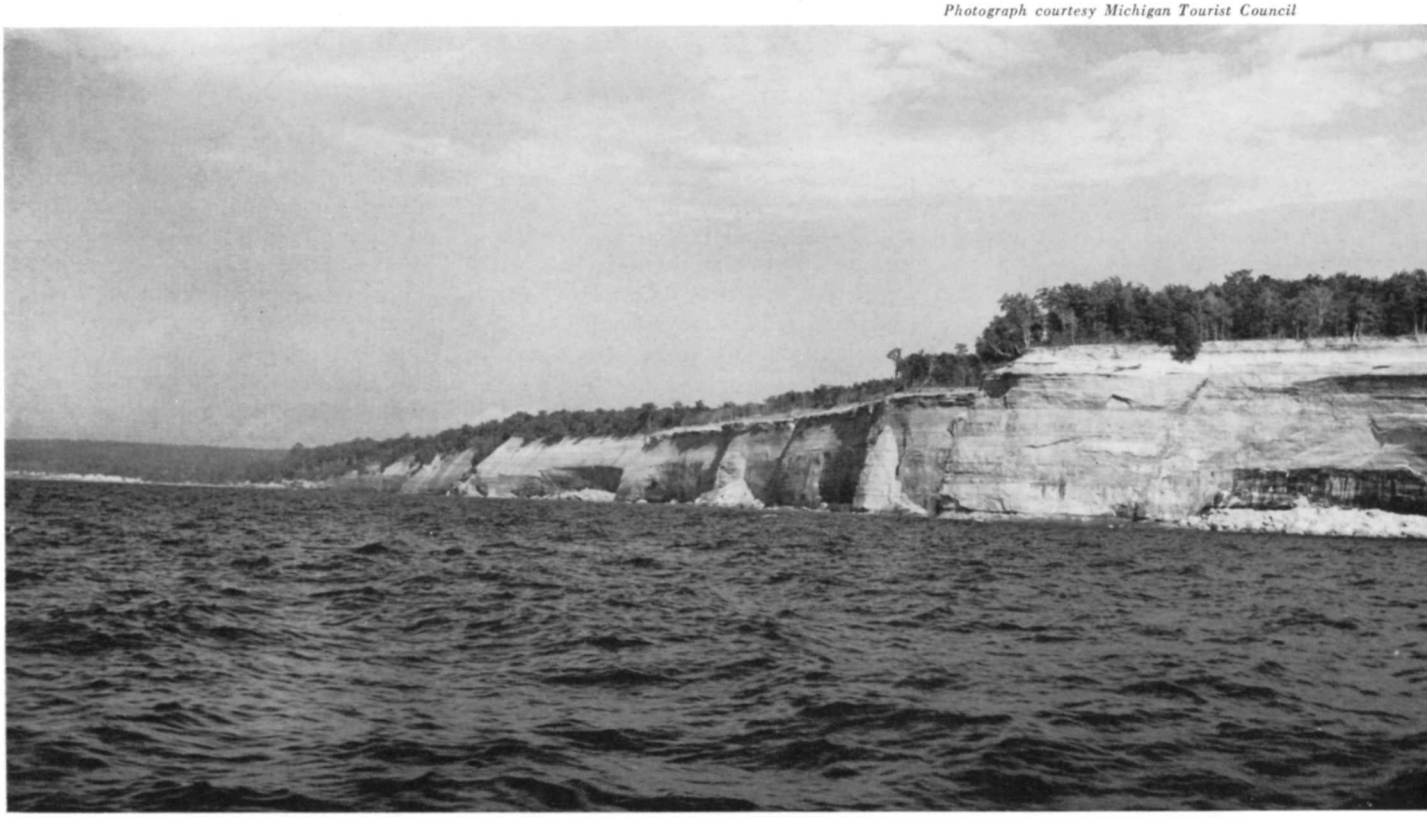
The basic rock material which makes up the Pictured Rocks is Cambrian-age sandstone, laid down some 500 million years ago during inundations by ancient seas which then covered the central part of North America. Development of the sheer bluffs of the Pictured Rocks resulted from a gentle tilting of the sedimentary layers, which dip imperceptibly towards the southeast and into the vast marshes of the Upper Peninsula. The exposed cliff face has been weathered by the on-shore waves of past glacial lakes—earlier beach lines are visible in the area—as well as by the pounding surf of Lake Superior. The bluffs stand as a high escarpment ranging between fifty and two hundred feet above the present lake level, and extend in a nearly unbroken, scalloped wall from Munising to Grand Portal Point.

Wave action has carved sections of the cliffs into water-level caverns, seastacks and arches, and various grotesque shapes, three of which are of particular note. Miners Castle, the only part of the Pictured Rocks now accessible by road, is an undercut stack named for its resemblance to the turreted entrances of medieval castles. A small county park is located here, and Miners Castle is the chief center of the Pictured Rocks tourist activity at the present time.

To early visitors the crowning feature of the region was *Le Grand Portail*, the "Grand Portal," a series of several honeycombed arches jutting some six hundred feet out into Lake Superior. The highest arch was more than one hundred feet high and led to vaulted passageways entering upon a great amphitheater, into which small boats might pass when the lake was calm. At such times gently swelling, emerald-green waters splashed quietly in the

On the north shore of Michigan's Upper Peninsula the ancient sandstone, wave-cut and stained by metallic oxides, was very early called "the Pictured Rocks."

Photograph courtesy Michigan Tourist Council



Michigan Tourist Council

Several small streams, flowing toward Lake Superior from the south, cascade over the Pictured Rocks to enhance the beauty of the proposed lakeshore. Above, Spring Falls.

cathedral atmosphere; but when the surf was high, waves echoed from the cavern with a thunderous roar and all boats kept well clear of the rocky cliffs. Nature is not static, however, and repeated undercutting of the arches has taken its toll—*Le Grand Portail* collapsed just after the turn of this century, leaving some lesser arches, bowl-shaped amphitheaters, and piles of rock debris. Such erosional changes are to be expected along this rocky shoreline.

Another sea-stack of special interest is Chapel Rock—*La Chapelle* of the voyageurs. The name, according to one local legend, is derived from possible use of this pedestal-like rock by Jesuit missionaries as they preached to Indians. Another legend relates that the name was derived from the hardy custom of "baptism" in nearby Chapel Creek for all novice voyageurs entering upon Lake Superior, in a ceremony similar to that experienced by sailors crossing the equator for the first time. The most likely origin of the name, however, is the chapel-like appearance of the rock which impressed early visitors. Today Chapel Rock is located well away from the water's edge, but at some earlier lake-stage waves undercut the base of the pedestal, leaving a large rock mass perched upon several strong columns which rise to enclose an irregular, vaulted room. The chapel effect is enhanced by the presence of small pedestals resembling an altar and pulpit, and differential weathering of the sedimentary rock has created a series of steps leading from Chapel Rock down towards the water's edge.

Nature's Bright Canvas

Of significance equal to the erosional features of the Pictured Rocks is the coloring of the escarpment in some sections. The staining of the Pictured Rocks in vertical bands adds interest and beauty to the horizontal rock layers and is most brilliant when the cliff face is wet. Dominant colors are reds, greens and browns, although other colors may be observed on occasion. The stains are apparently the result of the percolation of water into the ground until it reaches a relatively impervious layer which diverts the water out to the cliff face. Metallic oxides of various hues, carried in solution by the ground water, are deposited on the rocks as the water seeps down the cliff face.

In addition to the prominent erosional features and coloring of the Pictured Rocks the region possesses many other scenic attractions. Small arches, stacks and caves are present as well as many sections in which massive blocks have broken away from the bluffs. Several small streams cascade over the precipice into Lake Superior.

The full beauty of the Pictured Rocks may be best observed only from Lake Superior. While a view of the lake is impressive from the top of the escarpment, the cliffs themselves must be viewed from the water. During the summer months several commercial sight-seeing boats make scheduled runs out of Munising as far as Chapel Rock, and a trip along the base of the Pictured Rocks is highly recommended. If possible the trip should be made during the late afternoon when the setting sun strikes directly upon the Pictured Rocks face.

East of the Pictured Rocks, from Grand Portal Point to Au Sable Point, the Lake Superior shoreline is more subdued. The escarpment, sometimes called "The Bluffs," is neither as steep nor as high as it is to the west. The lower cliffs are interspersed with small sand and pebble beaches. Several picturesque inland lakes are located just a few feet above the level of Lake Superior. Virtually the whole of this central section is inaccessible except by foot, or by jeep using abandoned logging roads. A dirt road reaches the crest of the escarpment and parallels the shoreline for only a short, scenic stretch just west of Au Sable Point.

Rivaling the more famous Pictured Rocks in beauty and interest are the Grand Sable sand dunes, covering some five square miles just to the west of Grand Marais. Bela Hubbard, a visitor to the area in 1840, deemed the Grand Sable dunes ". . . extraordinary, and worthy a place among the scenic wonders of America." Since then, however, the dunes have attracted little public notice.

During the later stages of Pleistocene glaciation, while most of the region was beneath glacial meltwaters, a large estuary extended southward from the present dunes section. Glacial till and sand, carried by waves and wind, were deposited on top of the Cambrian sandstone across the estuary mouth. Subsequent rising of the underlying rock, as the weight of the ice mass was removed, gradually lifted the sand deposits out of the water until the dunes now are perched on top of the escarpment some 200 feet above the level of Lake Superior. The dunes themselves, rising to crests another 155 feet higher, extend inland nearly two miles and present a striking desert-like appearance. Topographically rough and knobby, the dunes are barren except for an occasional pocket of trees in moister depressions and a sparse grass cover which is becoming established.

With glacial retreat and subsequent lifting of the dunes away from lake level, there was no longer a source of new materials. Blown by steady onshore, westerly winds, the dunes have been moving slowly eastward and are encroaching upon the adjacent forests and Grand Sable Lake. Sable Creek, a short stream draining Grand Sable Lake, is gradually being forced to move eastward by the shifting dunes.

To the interior, away from the shoreline, the Pleistocene ice shaped the topography of the region. During a period of stagnation the leading edge

of the ice sheet remained in a relatively constant position. Debris carried by the ice was deposited as a low, rolling ridge, as much as fourteen miles wide, which is called the "Munising moraine." This moraine dominates the inland section of the proposed lakeshore and parallels the shoreline from Munising to Grand Marais. Glacial meltwaters carried large quantities of debris southward from the ice front and dropped it to create the relatively flat outwash plains that break the rolling moraine.

The natural vegetation of the Pictured Rocks region was, and still is, forest although the character of the forest has been altered considerably by past logging. Most of the area within the proposed lakeshore is classed as "mixed hardwood-coniferous" forest. Maple and beech, sometimes mixed with birch and hemlock, were the principle species in this association and occupied the upland moraines where soils are fine grained and loamy. White spruce and balsam fir are commonly found in poorly-drained bog areas. In addition to these hardwoods and conifers, there were originally sizable stands of magnificent red and white pine located on the sandy outwash soils in and north of the Kingston Plains.

Photography courtesy National Park Service: Humphrey

The graceful headland above, at Grand Sable Dunes in the proposed lakeshore, is composed of morainal material deposited by retreating Pleistocene ice. Sand dunes atop the moraine are of later age.

Arrival of the Loggers

The wave of lumbermen which swept across the Lake States during the late 19th century left its mark throughout the Upper Peninsula. The Pictured Rocks region was logged during the 1880's and 1890's and has undergone lumbering at various times since. The stands of giant pines, of highest value, were the first to fall. Later cuttings removed the prime hardwoods from the most accessible lands with a corresponding deterioration in forest quality. Extensive fires consumed the slash and damaged or destroyed much of the timber that had been left. Fortunately there still remain some sections of mature hardwoods within the lakeshore area which serve as examples of the primeval forest. The great pines, however, are largely gone and the barren Kingston Plains are a silent monument to earlier destructive lumbering practices.

Native wildlife, an important attraction of the Pictured Rocks region, is typical of much of the Upper Peninsula. Whitetail deer are present in large numbers. The second-growth forest provides abundant summer browse while cedar and spruce swamps afford winter protection. Black bear may occasionally be seen along woodland roads. While coyotes are still found in the lakeshore area, the timber wolf, unable to withstand the pressures of civilization, is virtually extinct. The moose is now extinct in the region, although there have been recent unconfirmed moose sightings. During the late 1930's an unsuccessful attempt was made to reestablish a moose herd in this area.

Both upland game birds and migratory waterfowl—particularly Canada geese and loons—are often observed, as are many other smaller game animals, and the lakes abound with panfish, bass, pike, and trout.

Most of the Pictured Rocks region remains today in a comparatively wild condition. There are no settled communities within the proposed lakeshore, although a small number of permanent residents live within the area and a few summer cottages have

been built. Poor soils and a harsh climate do not favor agriculture, and farm production is negligible within the lakeshore area. Abandoned fields and farmsteads testify to the futility of past farming attempts on the marginal lands.

It is the forest industry that provides the chief economic activity within the region at the present time. Both sawtimber and pulp are currently harvested to supply mills in nearby communities. Although a relatively few landowners are involved in the proposed lakeshore acquisition, the land is sixty-five percent privately owned, chiefly by several large corporations. The timber here is generally being managed on sustained-yield principles.

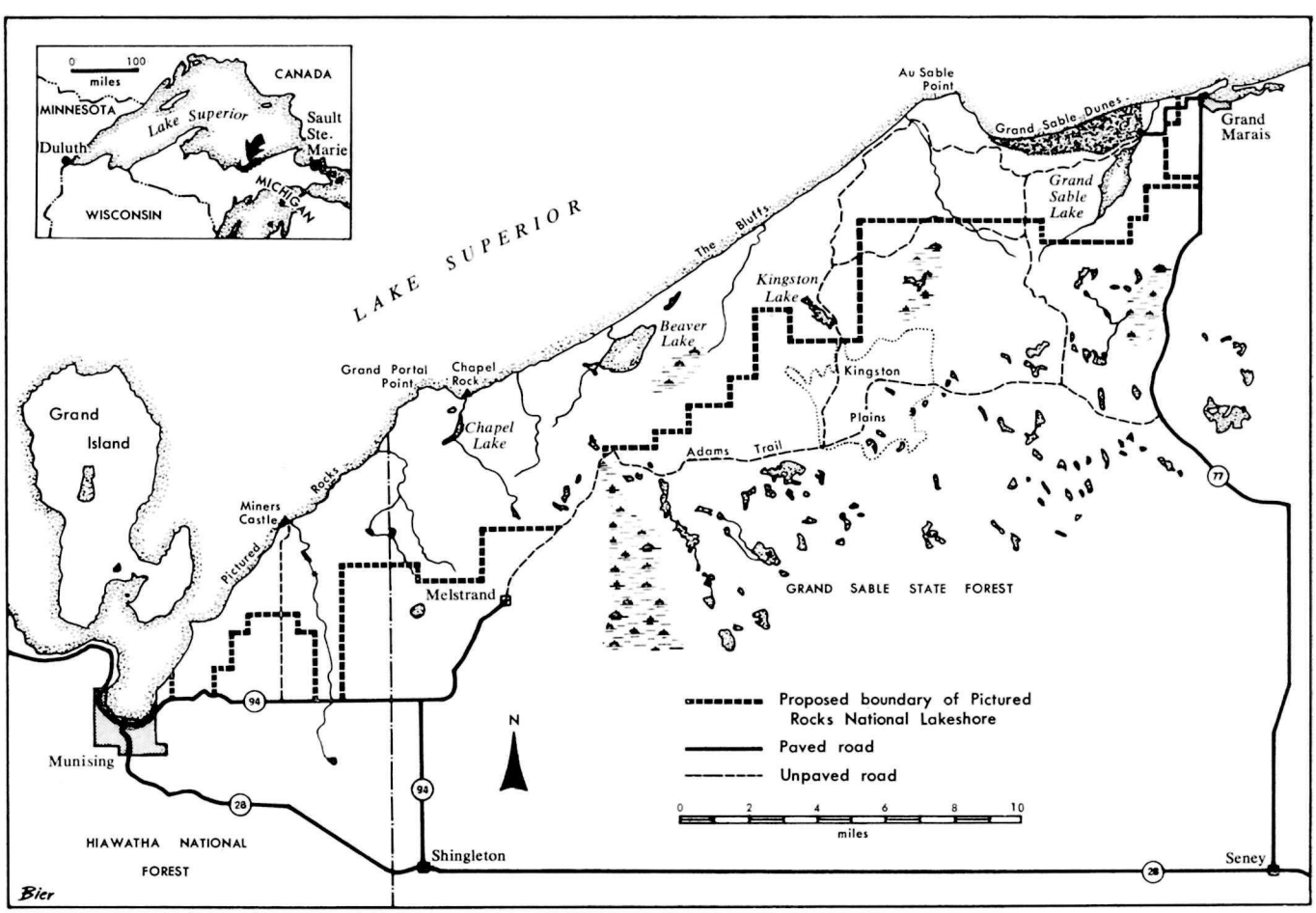
The Pictured Rocks National Lakeshore, as now proposed, would include about 65,000 acres, an acreage very close to that recommended by the National Park Service in its 1959 recreation area survey of shorelines of the Great Lakes. Two zones, paralleling the shoreline, are planned. The core of the lakeshore, along Lake Superior, would eventually be acquired by the federal government and would be maintained solely for its scenic and recreational values. This zone would include the Pictured Rocks proper, the Beaver Basin, the Bluffs, a number of waterfalls, and the Grand Sable Dunes. A slow-speed parkway would be constructed along the escarpment from Munising to Grand Marais and numerous scenic turnouts would be provided. This parkway would ultimately serve as a part of the Circle Route around Lake Superior.

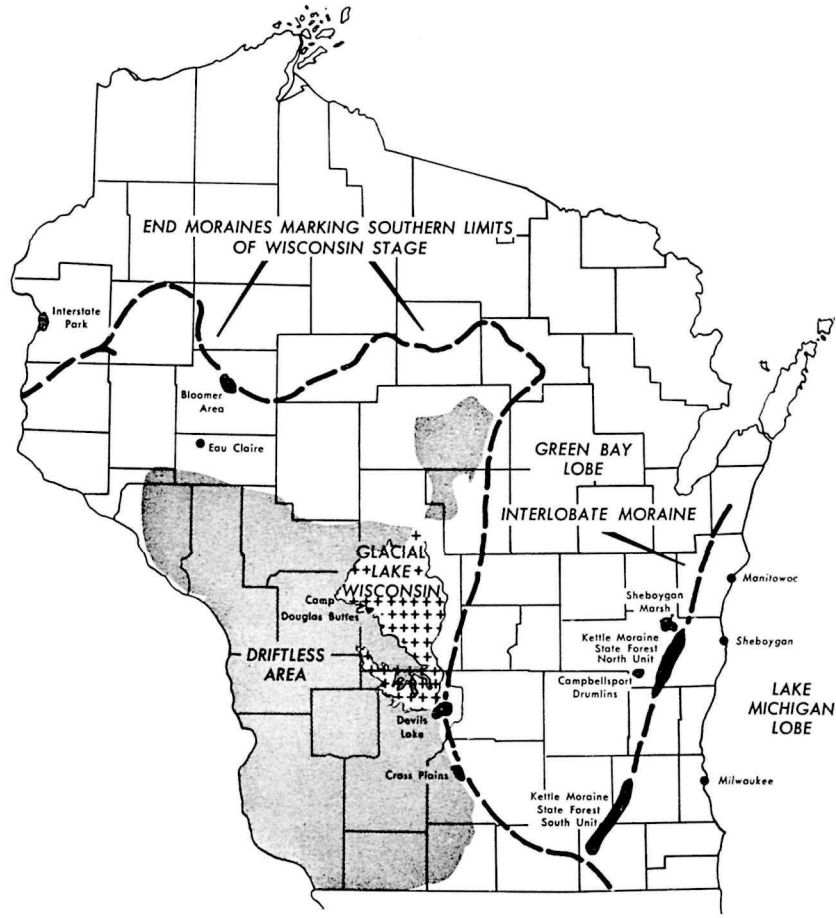
Inland, away from the cliffs and dunes, a second zone is foreseen to serve as a "buffer" between the recreation zone and the areas outside the lakeshore. This section would continue in its present combination of private and public ownership, and sustained-yield timber harvest would continue. Campgrounds would be provided in both zones, and fishing and hunting would be permitted under existing Michigan laws. Commercial accommodations would be available at Munising and Grand Marais.

Both the common and the unusual are present within the proposed Pictured Rocks National Lakeshore. The rolling landscape, clothed in forests which shelter deer, bear and other animals, is typical of the Upper Great Lakes region. The sculptured and multicolored cliffs, the rugged headlands, and the elevated Grand Sable Dunes dominate the area and stamp the region with a special character; its happy combination of scenery and natural and human history would seem to afford an excellent basis for establishment of a national lakeshore. ■

Mr. Raup is assistant professor in geography at Western Michigan University; Mr. Bier, who contributed the sketch and map for this article, is in the Department of Geography at Illinois University.

Below, the boundaries of the Pictured Rocks National Lakeshore as proposed by Senators Hart and McNamara of Michigan in the 88th Congress.





Solid black areas on the map show units, some of which are already within the Wisconsin State park and forest system, that will be considered for inclusion in the Ice Age National Scientific Reserve. Some of the units will be enlarged to include further particularly fine examples of continental ice-work, and to provide additional outdoor recreational opportunities.

Map adapted from the Interior Department publication "Ice Age National Scientific Reserve"

The Ice Age National Scientific Reserve

OVER AN AREA WHICH ENCOMPASSES roughly the northern third of the United States the great Pleistocene ice sheet, spreading south from the bleak terrain of northern Quebec, left its many marks on the face of the land. It carved and scored the bedrocks, destroyed and created river-courses and drainage basins and, departing, dropped its bulldozed heaps of boulder, cobble and sand helter-skelter across the northern landscape to create a special kind of topography. In a subtle way, the last or Wisconsin advance of the Pleistocene ice had its effect even on the lives of those Americans of today who inhabit its former province.

During the fall of 1964, some 10,000 years after the Wisconsin ice-sheet had melted away, Congress agreed that the Department of Interior and the State of Wisconsin should collaborate in preserving further representative samples of the various works of the continental ice; Wisconsin already has some 31,000 acres of ice-worked lands under protection in a number of its public parks and forests. Thus came into being the framework for an Ice Age National Scientific Reserve, dedicated to the better exhibition and interpretation of the continental ice and its phenomena, as well as increased opportunities for public outdoor recreation.

Within four or perhaps five nucleus areas already partly in State ownership visitors will be able to see and study glacial features such as drumlins, kames, eskers, glacial bogs and ponds, boulder trains, and hills which were once islands in Glacial Lake Wisconsin. Many of these ice-created features are scattered along the so-called Green Bay-Lake Michigan interlobate moraine in the eastern part of the State, where two advancing tongues of ice met to pile up between them a long series of earth-rubble ridges, pock-marked today with depressions left by the decay of buried ice—the "kettle" of the glaciologist. Other ice features are abundant along the terminal moraine which marked the western edge of the Green Bay ice-lobe and, farther west in the State, the terminal moraine of the Chippewa ice-lobe. Of special geological interest is Devil's Lake in south-central Wisconsin (see map) where the ancient Wisconsin River broke through the Baraboo range of quartzite hills. The lake, now within a State park, came into being when the retreating ice plugged the river at both ends of the range with windrows of morainal material.

The act creating the Ice Age Scientific Reserve authorizes needed additions to the State holdings that contain outstanding relics of glaciation; these presently total some 31,000 acres. Upon completion of the reserve it will contain about 42,500 acres. A $50,000 Federal appropriation will be available with which Interior and Wisconsin may formulate a comprehensive plan for the many-faceted reserve; land acquisition money for rounding out the reserve, in the amount of $750,000, will be deducted from Wisconsin's future share of land and water conservation fund revenues. ◆

News and Commentary

The Wrong Consultants

Conservation organizations at both the local and national level have recently expressed concern over plans for a pulp mill on the Flathead River near Columbia Falls, Montana, not far from the West Glacier entrance to Glacier National Park. The mill would be financed in part by a loan from the U. S. Department of Commerce's Area Redevelopment Administration.

Conservationists have pointed out that pollution from the mill would seriously injure the fisheries resources of both the Flathead River and its tributaries, many of which are in the national park, and Flathead Lake, one of the largest natural fresh-water lakes in the West. The Flathead River drainage contains the principal native cutthroat and Dolly Varden trout fishing waters remaining in Montana; these fishes require very high-quality water and an undisturbed environment for survival. They spend the winter in Flathead Lake, then migrate up the Flathead River for spawning. Just west of Glacier Park the Flathead divides into the North, Middle and South Forks; the North and Middle Forks constitute the west boundary of the park. Thus much of the spawning is carried on within waters of the park itself, and pollution of river waters between the confluence of the forks and Flathead Lake would effectively cut the fishes off from their spawning grounds.

Consulting with the ARA in its investigation of the mill loan application have been the Public Health Service of the Department of Health, Education and Welfare at the national level, and the Montana Board of Health at the State level. However, the National Parks Association has recently pointed out in correspondence with the administrator of the Area Redevelopment Administration that the problem to be considered in this case is not one of public health but of ecology, and that agencies like the National Park Service and the Fish and Wildlife Service, which have both expressed interest in the matter, ought to be consulted in matters of resource management. The Association indicated its belief that ARA assistance in the construction of the proposed pulp mill would seem to represent a basic conflict between Federal programs of natural resource management and natural resource protection.

Boundary Waters Protection

Minnesota's wild and beautiful Boundary Waters Canoe Area, managed by the United States Forest Service partly for multiple-use purposes, has for some time been the target of a vocal battle between conservationists and lumbermen over possible misuse of the area. Vice-President Hubert H. Humphrey, former Minnesota Senator, recently charged that the area was being robbed of its wilderness character by too much logging and road-building. To investigate the charge, Secretary of Agriculture Orville L. Freeman appointed a diversified six-member committee to study the problem and suggest constructive alternatives if the area was indeed being misused.

During January the committee reported that the vast canoe area—which constitutes about half the Superior National Forest—has been subjected to danger from overcutting; Secretary Freeman then issued an order doubling the land area in which timber cutting is prohibited; probable future additions will increase the no-cut area to more than 600,000 acres, according to the Secretary.

Question of Good Taste

In the spring of 1954 Major-General U. S. Grant, president of the American Planning and Civic Association, denounced a then-proposed bridge across relatively unspoiled Theodore Roosevelt Memorial Island in the Potomac River between Washington, D. C. and Arlington, Virginia, and noted, "Persons of all ages and walks of life contributed their pennies and dollars to establish this living and highly appropriate memorial to Theodore Roosevelt, founder and leader of the conservation movement in America . . . As urban growth drives wildlife from most of its surroundings, the island becomes a refuge for displaced species, and makes it evermore an island of natural beauty and solitude for the city dweller who needs to escape the whirl of wheels and the fumes of gasoline."

Less than a decade later, however, the whirl and fumes which General Grant dreaded were penetrating the Island from the long, sprawling bridge that crosses the memorial like a giant fallen derrick. Then came another Roosevelt memorial—this one of granite and bronze —in the heart of the little sanctuary.

The memorial is nearly finished now. It is a circular structure sporting fountains, reflecting pools, footbridges, ornamental gardens, 21-foot-high granite slabs, and a huge statue of President Theodore Roosevelt. Ironically enough, the memorial has wrecked the ecology of the island; but next spring's visitors will probably not see the cement-spattered trees, the muddy, gouged-out service roads, the trampled vegetation, or the crushed bodies of small animals unfortunate enough to get in the way of trucks of the construction crews. The man-made memorial will be there, but the true memorial—the living memorial —has been destroyed. A quiet sanctuary for animals and humans alike would have been far more representative of Theodore Roosevelt's own love of nature; the intrusion of a man-made structure is probably the last thing he would have desired.

Bringing Back the Birds

The State of Washington hopes to cut down on the use of pesticides and at the same time eliminate insects on State forest lands by inviting some former bird occupants of the forests to return and set up housekeeping once again. The birds left the forests in the first place because of management practices that eliminated bird habitat; since their departure, the insect population has exploded. To entice the birds into wooded areas the State's Department of Natural Resources has built and erected birdhouses which, it hopes, will attract wrens, swallows, bluebirds, chickadees and woodpeckers. It is hoped that these particular species will return to Washington's forests in large numbers, since they feed almost entirely on insects.

Attwater Prairie Chicken

A century or so ago the tall-grass coastal plains of Texas supported large populations of bird life. But with the advent of modern agricultural methods, much of the grass and many of the birds have disappeared. One species of bird, the heath hen, became extinct some years ago through dimunition of its natural habitat; conservationists are now deeply concerned over the future of another species, the Attwater prairie chicken.

Each spring these large, striped birds assemble at traditional Texas breeding grounds to perform strange courtship dances and send out loud, booming calls which reverberate through the countryside. In late years, however, congregations of the birds have been alarmingly low; a recent survey has revealed that, of the million or more Attwater prairie chickens that once ranged from southeastern Louisiana to the Nueces River in Texas, there are now approximately a thousand, or less.

To help save the species from extinction The Nature Conservancy, national conservation association located in Washington, D. C., has joined with the World Wildlife Fund and other organizations to

purchase and preserve sections of Texas grasslands where the birds can nest and find suitable habitat. Decline of the species has been so rapid that wildlife management experts fear only immediate acquisition of suitable grasslands will save it. The Conservancy has obtained options to purchase 3,460 acres of ideal Attwater's prairie chicken habitat; Dr. Walter S. Boardman, executive director of the Nature Conservancy, has said that "preservation of unbroken prairie is the only hope that the birds can be saved from extinction."

Ross Leffler

A sensitive conservationist who left behind him a legacy of wise use of natural resources, Ross L. Leffler, died in December, 1964. For 29 years Mr. Leffler was a member of the Pennsylvania Game Commission, and served as commission president for sixteen years. The Arctic Wildlife Range in northeastern Alaska; the Key Largo Coral Reef Preserve off the coast of Florida; the Pennsylvania Izaak Walton League; and the Ross Leffler School of Conservation in Pennsylvania are all part of his legacy to Americans. His death is a loss to all conservationists who wish, as Mr. Leffler did, to insure the wise use of America's natural resources, and who agree heartily with his statement that "Every nation in the past that has destroyed its resources has destroyed itself."

Gift to New Yorkers

To help keep the wooded, rolling Adirondack Mountains in New York State in their natural condition forever, 90-year-old Samuel J. Bloomingdale, honorary president of the Bloomingdale chain of department stores, recently placed a restrictive covenant on 11,000 acres of forests, lakes, and islands in and around Essex County. The covenant will prevent commercial or residential development in the area, and will keep the land open to the public for hiking and other compatible recreational uses. Mr. Bloomingdale and his family will retain title to the land; the covenant, however, has been given to the State of New York. This is the first such gift the State has received, and Conservation Commissioner Harold G. Wilm thanked Mr. Bloomingdale by stating that the gift preserved "some of the most outstanding esthetic qualities of our northern New York area."

Senecas Lose Again

After seven years of verbal and legal battling, the Seneca Indians recently lost part of their ancestral lands near Salamanca, New York, for construction of the Kinzua dam, a Corps of Engineers project. The dam will flood a third of the Seneca reservation, uproot families, destroy homes, and jam the Indians into the remaining portion of the reservation with what seems to be utter disregard for the promise made in George Washington's treaty with the Indians of 1794—a treaty which promised the Senecas the right to perpetual occupancy of their traditional homelands.

As a result of construction of the dam, the Secretary of the Army decided that New York State Route 17, a two-lane highway running through the reservation, must be relocated and increased from two to four lanes. The highway will be fenced in, and will cut through the remaining two-thirds of the Indian lands. To prevent further dislocation of families and separation of the tribe the Senecas appealed to the United States courts to protect their lands. Recently the Court of Appeals for the Second Circuit upheld the right of the government to seize further Indian land on which to build the disputed highway.

The Senecas lost their appeal in the matter of road construction by a two-to-one decision; Judge Leonard P. Moore, dissenting, declared that the highway would divide the Indians, and that Congress never intended to give the Secretary of the Army power to condemn treaty-protected Indian property. "Under the guise of a road of higher standard," said Judge Moore, "New York State is, in effect, promoting a public highway project quite independent of the water resources projects authorized by Congress."

Population and Food

Throughout the geologically brief history of the human species, man has disdainfully assumed that his companion creatures—not being endowed with human intellect—had but one basic purpose in life: to reproduce at all cost. Recent studies by a Scottish scientist, however, seem to point to the conclusion that animals have built-in population controls which operate to adjust the size of an animal population to prevailing food supply. Man, unfortunately, seems to have no such built-in control, and therefore exhibits what scientists have called "a tendency to expand without limit." For other species of animals, such a tendency would be fatal; they would soon starve. And even with a superior intellect man may not be able to escape the same consequences; for, according to the 1964 report of the Food and Agriculture Organization of the United Nations, " . . . agricultural production has just managed to keep up with population growth, [and] there has been little or no margin available for improvements in nutritional levels."

At one time or another most Americans have felt twinges of guilt as they sat down to a well-stocked table with the knowledge that humans elsewhere in the world were starving. Among persons who are really aware of the severe overpopulation of humans on this planet in relation to availability of food, however, guilt has turned to alarm; if FAO calculations for the 1963-64 farming year are correct, world population has increased two percent while agricultural production—mainly food—rose less than 2 percent.

Consequences of this lag in food production for a constantly increasing population cannot be other than dire, especially in the under-developed nations now struggling to lift themselves out of mass poverty and create some sort of civilized living standard for their peoples. This year's FAO report shows ample evidence that protein malnutrition is widespread, and that in many nations ". . . reduced growth rates from around six months to adolescence, and poor general physical and possibly mental development . . . can also be attributed in large part to diets containing inadequate amounts of protein of good quality." In Latin America, for instance, population is increasing at about three percent a year, while protein production has declined by about six percent. According to the 1963 *Annual Report* of the Population Reference Bureau, such conditions "virtually preclude any permanent improvement in the health, living conditions, and educational standards of the people involved."

On the whole, there is little or no food shortage problem in the United States, although it is the fourth fastest-growing nation in the world. But the consequences of uncontrolled population growth in the United States are perhaps even more startling than the prospect of starvation. In a 1964 issue of *Science Digest* researchers reported that ". . . overcrowding appears to touch off chemical changes within a person, cutting down his ability to fight disease. The crowding of any animal population, including man, increases the disease and, ultimately the death rate. . . ."

Along with the anxiety and consequent physical disabilities created by an overcrowded environment, Americans are facing growing unemployment, which becomes severer each year. Early in December, 1964, the silence that surrounded the obvious correlations between over-population and unemployment was broken when Labor Secretary W. Willard Wirtz declared "There is strong indication that a disproportionate number of the unemployed comes from large families . . . drastic changes in course may be required." The need for such "drastic changes" to fight not only unemployment but poor mental and physical health caused by overcrowding was also recently recognized by the trustees of the American Medical Association when they urged the Association to drop its neutral stand on birth control and press for the dissemination of information about human reproduction, recognizing that severe economic, social, and medical problems may stem from overpopulation.

While most Americans are not especially concerned with food shortages there is concern among experts that shortages may develop in the not-too-distant future. Meanwhile the nation faces economic and social upheaval, loss of esthetic values, and increasing mass anxiety and poor health as the rest of an overpopulated world grapples with the specter of starvation. One solution would seem to be thoughtful regulation of family sizes; farm technology may spur food production, but production gains are being quickly offset by yearly population increases. The FAO report notes that land production cannot yield enough food for world population, and suggests that humans turn to sea resources to supplement their diets. "The future potential of fish and other aquatic products as human food is of particular interest," says the report. "In the longer run technical progress may make various methods of modifying the resources of the sea a practicable means of obtaining a very large expansion of the world's protein supplies."

Perhaps human food can be produced from the sea to some extent, but there is a "maybe" attached to the hopes of the FAO—*maybe* technology will come along just in time to rescue the human race from starvation, as the old-time cavalry troop arrived just in time to save the Western hero. We cannot afford continued irresponsibility in respect to population control in the hope that technology will, in the future, correct the mistakes of past and present. Moreover, the sea is already showing signs of over-use and abuse; several species of whales are on the brink of extinction because of overhunting; pollution of the seas by oil-spillage and other man-caused disturbances may have adverse effects on sea ecology; pollution has already in some instances rendered various forms of sea life unfit as human food.

Where do we go from here? Humans have already stripped much of the land of its plant cover and animal inhabitants. The sea cannot support us all. A combination of land and sea may be sufficient for a short time—but perhaps only at the cost of the intangible values which humans associate with their natural environment. Conservationists well might take the lead in alerting the public to the dangers of overpopulation.

THE CONSERVATION DOCKET

A NUMBER OF CONSERVATION BILLS, IN VARIOUS stages of the legislative process when the 88th Congress adjourned last fall, are scheduled for probable reintroduction this year.

Senator Ralph Yarborough of Texas has reported his intention to reintroduce the Guadalupe Mountains National Park bill, which would add approximately 71,000 acres of scenic mountain country in Hudspeth and Culberson Counties, Texas, to the national park system. The Senator also plans to bring before Congress a bill authorizing the Secretary of the Interior to establish an Alibates Flint Quarries preserve, in Potter County near Amarillo, Texas.

Virginia Senator Harry F. Byrd and Representative John O. Marsh, Jr. plan to present a new proposal to realign the boundaries of Shenandoah National Park, which straddles Virginia's Blue Ridge Mountains. The proposed realignment would increase the park area by some 16,000 acres.

Introduction of a bill to facilitate revision of the boundaries of Sequoia-Kings Canyon National Park, in California, is also expected; the bill would transfer Tehipite Valley and Cedar Grove, now under the jurisdiction of the Forest Service, to administration by the Park Service as part of the park.

Bills to establish an Assateague Island National Seashore, stretching for thirty-seven miles along the eastern Maryland and Virginia coasts, will reportedly be reintroduced by Maryland Senators Daniel B. Brewster and Joseph D. Tydings, and Maryland Representative C. B. Rogers Morton, in whose district the Maryland portion of the proposed seashore lies. Early consideration of the bill has been requested of the Senate Committee on Interior and Insular Affairs, which held preliminary hearings on the bill in the last session of Congress. A detailed article on the proposed seashore appeared in the November, 1964, issue of *National Parks Magazine*.

A proposal to establish Cape Lookout National Seashore, extending from Ocracoke Inlet to Beaufort Inlet in North Carolina, was endorsed late in 1963 by the Secretary of the Interior's Advisory Board on National Parks. Conservationists expect introduction of a bill in the current session of Congress to create such a national seashore.

A proposed Oregon Dunes National Seashore bill, S. 1137, for the protection of a long stretch of beach, forest, and fresh-water lakes on the coast of Oregon, was introduced in the last Congress by Senator Maurine Neuberger and received a favorable report from the Senate Interior and Insular Affairs Committee. Debate continued on the bill until the end of the 88th Congress; reintroduction of a similar bill appears likely.

The National Parks Association has learned that Senator Philip Hart of Michigan plans to reintroduce legislation to create a Pictured Rocks National Lakeshore, along the north coast of Michigan's Upper Peninsula, and a Sleeping Bear Dunes National Lakeshore on the west coast of the Lower Peninsula. Enabling legislation on the Sleeping Bear Dunes was passed by the Senate during the 88th Congress; the Pictured Rocks proposal received only field hearings.

Last October Senator Henry Jackson of Washington State, acting for himself and several co-sponsors, introduced Senate Bill S. 2249 to create an 11,700-acre Indiana Dunes National Lakeshore between Gary and Michigan City, Indiana. The proposal was aired at Senate subcommittee public hearings in Washington during March, 1964. As hearings progressed, a portion of the area proposed for inclusion in the lakeshore was leveled by Bethlehem Steel Company to make way for a plant the company hoped to erect on the site. S. 2249, recommended by the Interior Department, eliminated the leveled areas and sought inclusion of inland areas to be managed as nature preserves or wildlife sanctuaries. The proposal passed the Senate on September 29. It was then sent to the House for approval, but received no further consideration. It is reported that Senator Jackson, who will continue as chairman of the Senate Interior and Insular Affairs Committee, plans to reintroduce the bill for further consideration.

Early Senate attention is expected for a new bill which would expand and strengthen the Federal water-pollution control program. First approved by the Senate in 1963, the bill was amended and then favorably reported by the House Committee on Public Works during the last session of the 88th Congress. Complications in the House Rules Committee prevented the bill from coming to a vote; observers expect swift reintroduction in the 89th Congress.

There are several administration proposals which are expected to reach the new Congress for early consideration. The Department of Interior is currently working on a program to establish ways of protecting rare and endangered species of wildlife; a proposal authorizing the Department to acquire and manage lands for that purpose may come before the 89th Congress. Proposals for establishment of a Voyageurs National Park in Minnesota and an Allagash River Recreation Area in Maine may reach the legislative process this year. The controversial Rampart Dam, which would be built on Alaska's Yukon River, may be proposed for construction in the 89th Congressional session. According to a report issued by the United States Fish and Wildlife Service, the dam and its huge reservoir would be vastly destructive to Alaskan wildlife resources.

Review

REPTILES AND AMPHIBIANS OF ZION NATIONAL PARK. By Roland H. Wauer. Zion Natural History Association, Zion National Park, Utah. 55 pages. Unpriced.

Many fine natural history handbooks have been published to aid national park visitors interested in everything from flowers to birds. Now a comprehensive, factual, and superbly illustrated booklet has been added to the ever-growing list to assist visitors interested in what the author calls "the least understood animals" of Zion National Park: its snakes, lizards, salamanders, toads, and frogs. Written by a park naturalist who knows and appreciates his subjects, this sleek booklet is small enough to carry along on a hike on Zion's trails, but large enough to cover the vital facts of each species. It includes a map of the park, a short section on where each species may be found, and general information on the characteristics of reptiles and amphibians. One page of text and a photograph is devoted to each of some thirty-three species of reptiles and amphibians found within or near the park. There is also a checklist and index to the species, a list of suggested reading, and a page of "photo hints" for the enthusiast who wishes to take some specimens home with him on film. If the hints aid readers in obtaining anything like the excellent color photographs included in the booklet, it will make this publication all the more worthy of attention.

Photograph courtesy the Sierra Club

A typical high-quality stand of primeval coast redwoods, with a predominant ground-cover of sword-fern, in the Jedediah Smith Redwoods State Park, California.

ONE OF THE IMPORTANT educational functions of the National Parks Association is the impartial evaluation of proposals for national preservations like the Redwood Park in California, and the dissemination of information concerning such proposals. Thus, in this issue of the Magazine, the Association examines both the need for a redwood park and the difficulties and objections which might lie between the proposal and its fulfillment.

You can assist your Association in such educational work in any of several ways: by helping to secure new members; by raising your membership class; or by contributing to the general funds of the organization over and above regular dues. Contributions, and membership dues in excess of $6.50, are deductible for federal taxable income.

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