

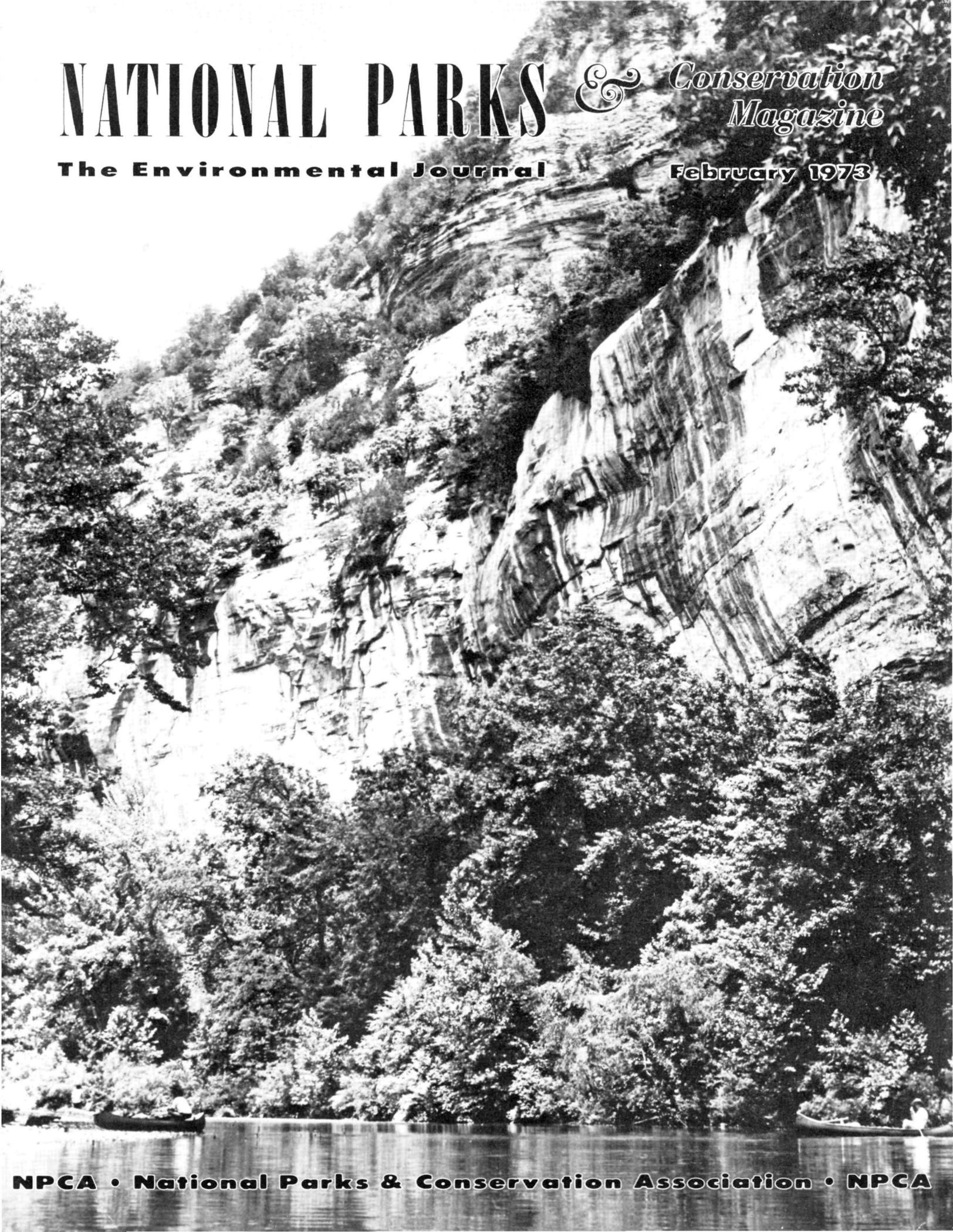
NATIONAL PARKS



*Conservation
Magazine*

The Environmental Journal

February 1973



Telics*

This paper will touch on the ecological imperative: that men must live within the network of all life, or die.

It will deal with what Justice Oliver Wendell Holmes once called the inarticulate major premise.¹ Men seldom state clearly the major premises from which their thinking and action proceed.

Premises, or postulates, can be ontic, related to being or fact; telic,² related to aims or purposes; or technical, related to methods or means.

The term telic is preferable to normative. It designates aim, purpose, value. Normative can mean the normal, customary.

We can speak of a telical imperative. Men must clarify their aims, lest their new technical powers destroy them.

It is the inarticulate telic or telical postulates which cause most of the trouble. They are seldom clarified by the speaker for his own purposes, still less for discourse with others.

The social sciences can be content with observation, description, classification, quantification, generalization, and prediction, providing data for control. But the question will always remain: control for what purpose?

So limited, the social sciences remain irrelevant to large and critical areas of knowledge and practice, the telical or normative areas.

This limitation is defended in modern thinking as pragmatism. But for James, pragmatism was verification by experience and the modification of ends in the light of experience.³ Nowadays it means justification by utility.[†] But the notion of utility also forces the question of purpose.

The telical premise draws on both ontic and technical premises, but adds an element of choice in the manner noted by Whitehead.⁴

*We publish herewith under a new title, as the customary policy comment, a paper delivered at a National Symposium on Man-Machine Interactions and Implications for Society of the American Association for the Advancement of Science at Philadelphia, Pa., on December 29, 1971, under the title of "The Environment, Values, and Institutional Change" by Anthony Wayne Smith, Esq., J.D., as President and General Counsel of the NPCA and as Chairman of the Environmental Coalition for North America. The Chairman of the Panel was Dr. James C. Charlesworth, for many years President of the American Academy of Political and Social Science.

†It might be better to say expediency.

This paper touches also on the contemporary crisis of life as a whole. The environment is in crisis, but more than pollution, scenery, space for living is involved.

The survival of all life on earth is at issue. Fromm has noted the psychoanalytical implications, the presence of a necrophilic minority among us, which prefers death to life.⁵ The ecological imperative states the alternatives.

Against this background, consider a few specific environmental problems, related values, and related institutions. No attempt is made at strict syllogistic formulation.

Consider the value judgment that all growth is good. This is obviously untrue in the case of cancer. It is no longer true, if it ever was, for cities; the promoters and speculators were the ministers of that false gospel. Or perhaps we should say that the modern conurbation is not a city.

What is desirable is the community, which is destroyed by the metropolis. What is desirable is adequate social and economic roots for the flowering of the cultural purposes of the community.

The small town of agrarian America, not the big city of industrial America, would be the model, sustained by an industrial economy of sufficiency and leisure. Once the value judgment has been formulated (and the change is now under way), the political machinery will be created.

We have assumed that economic expansion is always desirable. Yet the bald proposition is obviously false. It would justify the unlimited production of harmful goods and services; or a surfeit of otherwise good production. Yet modern economies presume to live by the false proposition.

The true value would be differential economic stabilization, producing more of the beneficial commodities, less of the harmful ones, and looking toward sufficiency, leisure, and stability: a steady-state economy at an adequate level. What is adequate? That is a telical question, to be answered in presuppositions which must always be open to revision.

Until but recently it was thought that national growth in numbers of people was always desirable. This notion is fading rapidly as town and countryside choke in traffic and pollution. Even as we meet, the stabilization of population is being accepted as desirable, imperative. Soon it will be seen that the levels which will be reached before

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COVER *Relaxing on the Buffalo, by Neil Compton*

Canoeists relax beneath the lower edge of majestic Big Bluff in Newton County, Arkansas, which rises some 550 feet sheer above the Buffalo National River. Weathering and mineral stains paint the bluffs of the Buffalo with streaks of red, orange, and blue in myriad pastel shades. (See page 4.)

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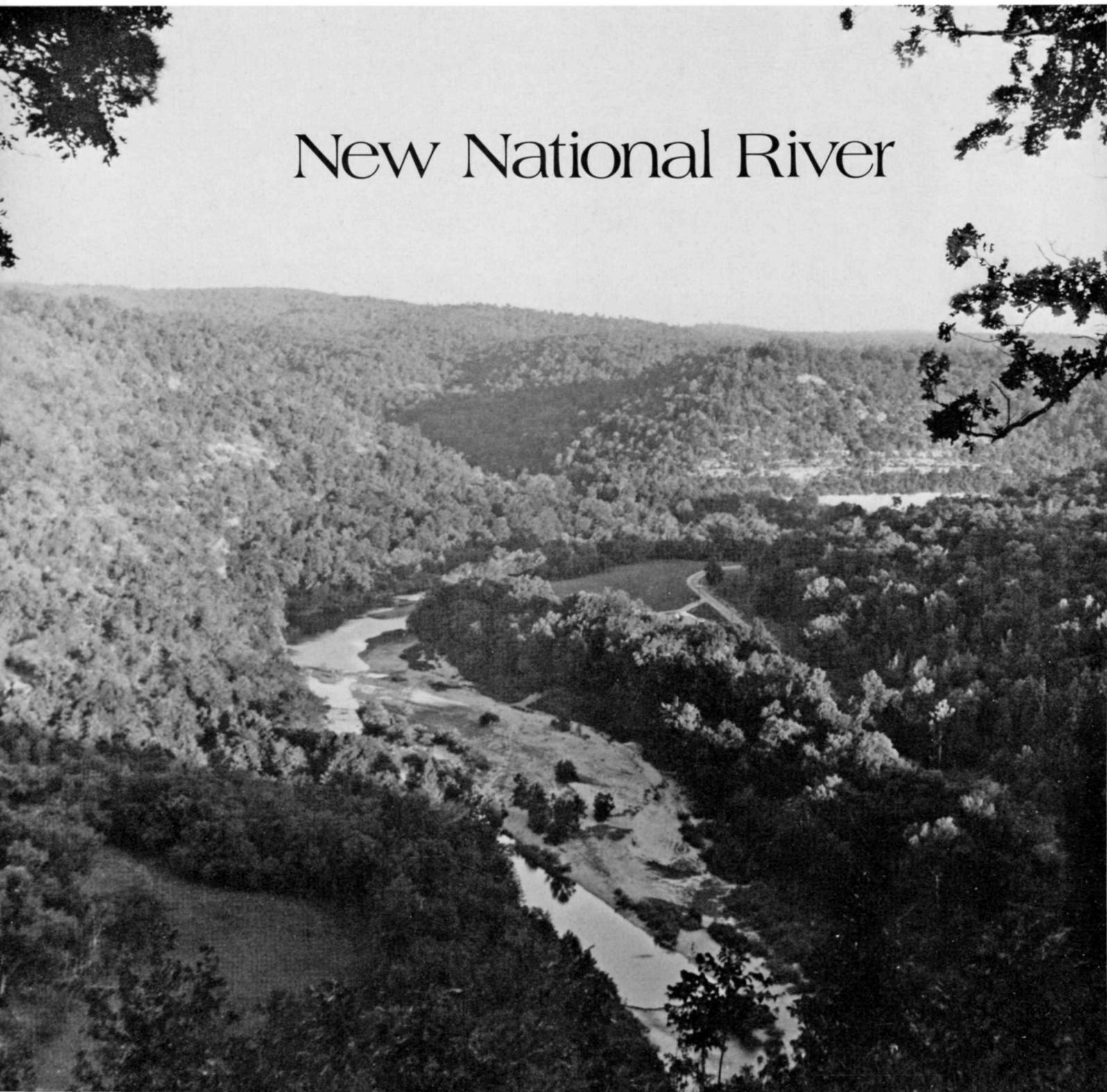
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weathered american chestnut trunk
jack jeffers photograph

THE BUFFALO

NEIL COMPTON

New National River



THIS RIVER IS TOO BEAUTIFUL TO DIE," commented Supreme Court Justice William O. Douglas, seated by an overturned canoe that served as a supper table for his hosts, Harold and Margaret Hedges of the Ozark Wilderness Waterways Club.

"From what I've seen of it today, I'd say it's worth fighting to the death to preserve," he added with sincerity, rolling a hot cup of coffee between gnarled fingers as the Buffalo River of northern Arkansas tumbled by the walls of Big Bluff that towered over our campsite across the river.

That was in 1962, when Douglas canoed the scenic upper Buffalo on a spring trip with canoeists from Missouri, Arkansas, and Kansas. Arkansas conservationists, who formed the Ozark Society to Save the Buffalo later that same year, never forgot his challenge to them that night. They organized a massive statewide campaign to save the river from destruction by dams proposed by the Army Corps of Engineers.

The long battle to preserve the Buffalo as a natural, free-flowing Ozark waterway ended exactly ten years later, in the spring of 1972, when Congress passed Public Law 92-237 establishing the Buffalo National River. It was a dramatic example of what citizens can do when aroused to concerted action.

The Buffalo National River eventually will encompass about 95,750 acres in an elongated strip of land along both sides of the river for 132 miles, from the Ozark National Forest boundary near its headwaters to its confluence with the White River, some 33 miles below Bull Shoals Dam. As a "national river," the Buffalo will not be part of the wild and scenic river system. The legislation establishing that system allows the federal government to own outright or control no more than 320 acres per mile, but the master plan for the Buffalo calls for eventual government control of nearly twice as much land. A new management category therefore was created for the Buffalo. The first national river will be managed by the National Park Service as a type of national recreation area, and the river will be preserved in its unpolluted, unaltered condition. Interpretive programs will stress the natural features of the Ozark Mountain river and its recreational potential for fishing, swimming, canoeing, hiking, camping, and just plain relaxing, as well as the history of human settlement along its shores.

The Park Service plans to divide the river area into three broad zones: a development zone (8,190 acres) for visitor service facilities; a conservation zone (78,133 acres), in which most of the river's choice natural features are loca-

john heuston

Dogwood blooms along the upper Buffalo River below the town of Ponca.

KENNETH L. SMITH, NATIONAL PARK SERVICE





KAREN DEMUTH

People are not the only creatures who enjoy a float trip along the Buffalo.

ted; and a private use zone (9,407 acres). Landowners within the national river boundaries who desire to continue living on their land may do so for life or twenty-five years, whichever they prefer. It is expected, however, that most landowners will sell their property immediately to the Park Service. Funding for the new national river will begin July 1, 1973, and an initial \$4.6 million has been earmarked for land acquisition. As at Cades Cove in the Smokies, those who do remain in the park area will be required to use compatible agricultural practices to maintain the pastoral scene.

Although within a day's drive of more than 15 million people, the Buffalo retains its isolated charm. It is crossed by only four major highways (state highways 21, 7, 14, and U.S. highway 65, a major north-south artery). Access will be improved at some points, although many old logging trails will be allowed to revert back to woodland. To accommodate the increased visitation that park status will bring, a 200-site campground is planned for the main headquarters area at Silver Hill where U.S. 65 crosses the river. Most visitor accommodations are expected to be developed by private enterprise outside park boundaries, thus eliminating one of the problems now plaguing some older park units in the national park system. Other, smaller campgrounds will be located at Ponca, Pruitt, Woolum, Buffalo River State Park, and Mouth-of-Buffalo. The traditional gravel bar camping, one of the Buffalo's priceless experiences, will be continued for those persons who cannot tolerate modern campground developments of any type. Hiking and horseback riding trails will be established along the entire length of the river. Interpretive overlooks, depicting the story of the river and the people who settled along its banks, will be provided at appropriate points.

The Park Service has recognized that the Buffalo is nationally famous not for any one feature but for a combination of attractions that make it *the* Ozark river by which all others are judged. The fisherman loves the challenge provided by the smallmouth bass. Canoeists come from all points of the compass to pit paddles against such old favorites as Gray Rock Shoals, the Suck Hole, Clabber Creek Shoals, and others with names unprintable. Skin divers drift over emerald pools on the lower Buffalo, and photographers become dizzy focusing on the juniper-dotted

cliffs that soar overhead. Insect-free gravel bar campsites beckon floaters to an early camp. Sleep comes to an indescribable chorus of night sounds. The Buffalo, then, is a personal experience that varies with each individual. It is a smorgasbord of sights and sounds.

The person who delights in stalking wild plants with loaded camera will find that the Buffalo River watershed justifies the Ozarks' reputation as the "meeting ground of American flora." Here species of southwestern plants rub thorns with remnants of the ice age and with invaders from the northeast and southeast. More than 1,500 species of plants have been identified in the area, including such rarities as the blue Newton larkspur, otherwise seen only in the Rocky Mountains.

This diversity of plantlife is attributed to elevations that range from 400 to 2,300 feet, encompassing a variety of soil types and exposures. The area's many springs produce fern falls along the river's sheer cliffs that defy description.

Although wildlife is not present in great numbers along the river, a great variety of animals live in the Buffalo region. There is evidence that the endangered red wolf (*Canis rufus*), now almost extinct in Arkansas, and the elusive mountain lion reside in remote areas of the river system. The red wolf is not now known to inhabit any other unit of the national park system.

KENNETH L. SMITH, NATIONAL PARK SERVICE



THE BUFFALO NATIONAL RIVER

Deer, quail, squirrel, and turkey are relatively numerous in the Buffalo area and their numbers will probably increase with protection. Various types of waterfowl frequent the river. Some are permanent residents, such as the wood duck, whereas mallards and Canada geese are only wayward wanderers traversing the Mississippi flyway. Con-

On an overcast breezeless day the river casts a perfect reflection of a barn and millpond in the upper Buffalo valley at Boxley.

trolled hunting during the fall and winter months, when other types of river use are at a minimum, will be permitted.

Geology enthusiasts (and what wilderness lover isn't a geology enthusiast?) will find much to ponder along the Buffalo as they trace the story of the building and erosion of the Ozark dome. The upper portion of the Buffalo River cuts through the rugged Boston Mountains section of the Ozark plateau, with its sheer bluffs. The lower Buffalo, with its broader canyons, is typical of the Springfield-Salem plateaus section.

Among the Buffalo's most interesting features are its scenic side canyons, many boasting waterfalls, sink holes, huge old trees, and, occasionally, the remains of "moonshine" enterprise. In Hemmed-in Hollow, which can be reached only on foot, is a 200-foot waterfall, the highest free-leaping waterfall between the Southern Appalachians and the Rockies. Many hikers refresh themselves with impromptu showers beneath its undulating plume of water. Another favorite in Newton County is Indian Creek Canyon, with its natural arch and tunnel cave that provide access to its lower reaches.

Many of these hidden canyons have not known the footsteps of man since Confederate partisans hid there, mining saltpeter for gunpowder and harassing federal cavalry patrols. Skirmishes were fought at Boxley and at



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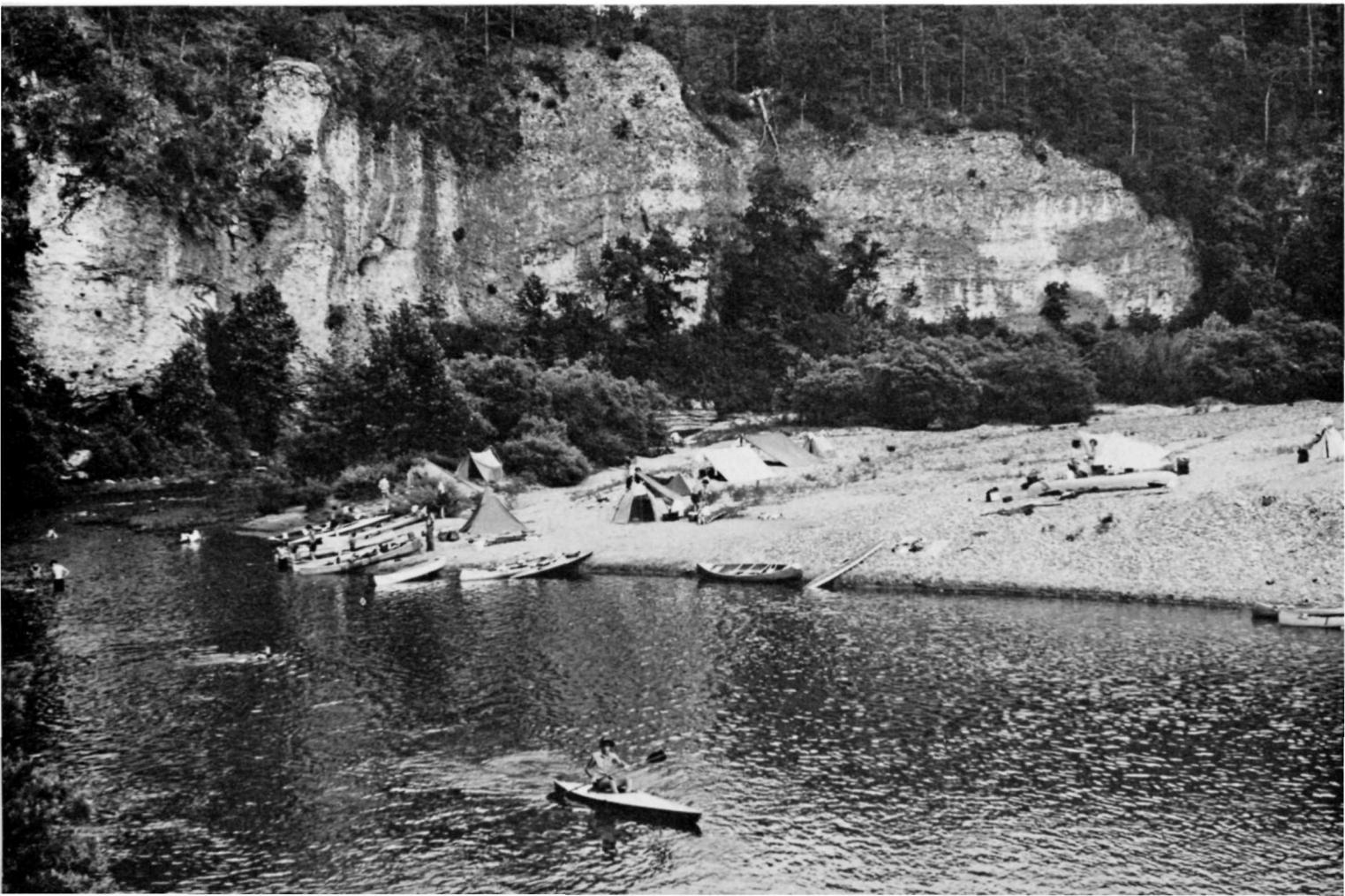
Winter canoeing (above) attracts the hardy sportsman. Below is a canoeist encampment on a gravel bar beneath Goat Bluff on the middle Buffalo.

several places along Richland Creek and the mouth of Tomahawk Creek during the Civil War.

Archeological sites are abundant along the river, offering scientists a chance to unravel the mystery of what happened to the ingenious Ozark Bluff Dwellers, who lived in dry shelters under the bluffs and hunted game with the primitive throwing stick. The river can tell the story of more than 9,000 years of human history dating back from the present. The Park Service plans to develop interpretive programs around such archeological finds for the visitor.

The region is as fascinating underground as it is above. The Arkansas Speleological Survey has explored and mapped many caves in the national river area. Some of the caves rate national significance because of the beauty and rarity of their formations. Beauty Cave, whose stalactites are encrusted by growing helictites, is a good example. It will be opened to the public.

The best way to get to know the Buffalo River is to float it, soaking up its sights, sounds, and smells. Some portion of the river is floatable at every season of the year, and



KAREN DEMUTH

canoeists and fishermen generally start the "season" near Ponca on the upper Buffalo and move their operations gradually downstream as spring melts into summer. The upper reaches of the river in Newton County are best floated in April through early June, give or take a few weeks. It all depends on fickle rainfall. From U.S. highway 65 in Searcy County on down through Marion and Baxter counties, almost sixty miles, the river is always floatable. Some boat-pulling may be necessary at wide, shallow shoals, but this presents no real problem.

An Ozark float trip can be as spartan or as plush as you care to make it. The hardy floaters like winter, snow and all. The Ozark Wilderness Waterways Club of Kansas City and the Ozark Society of Arkansas often sponsor canoe trips on Thanksgiving (complete with turkey) and on New Year's Day.

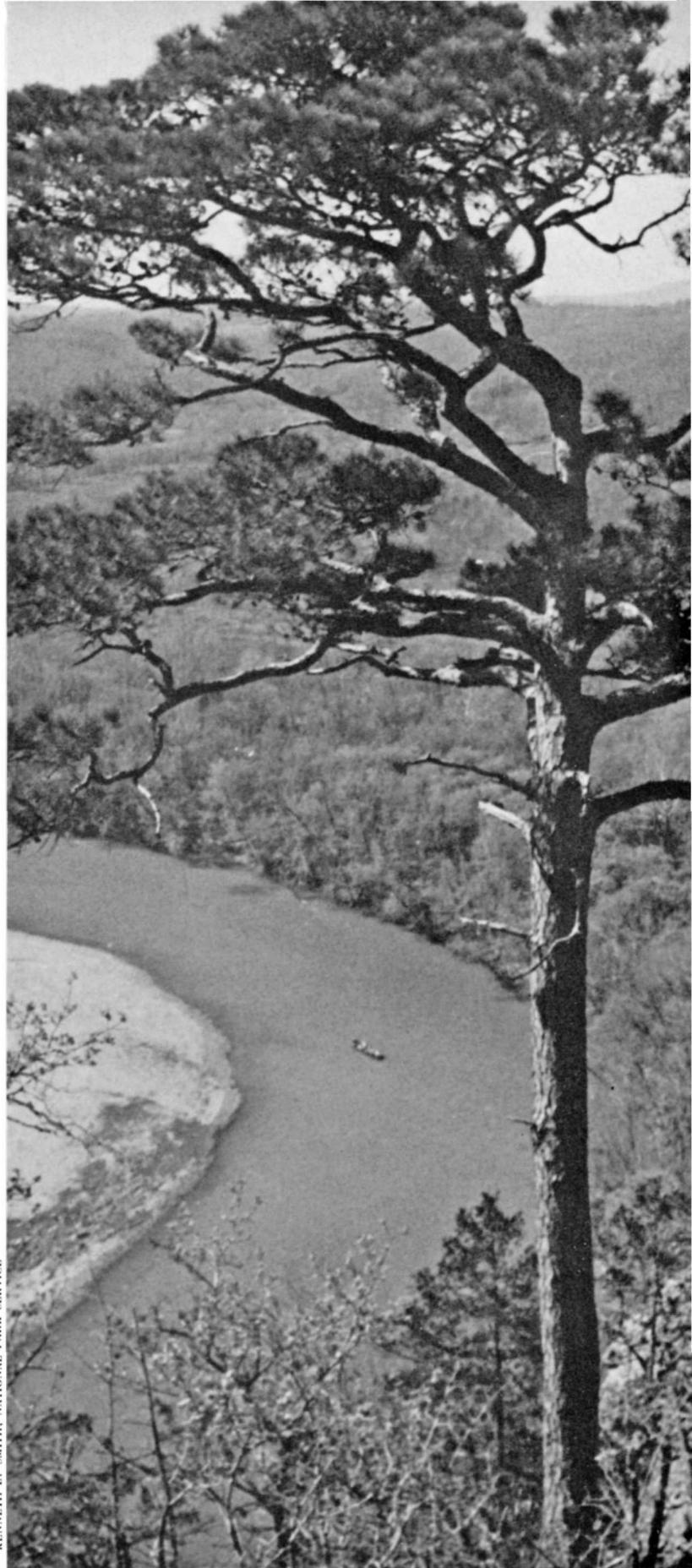
Commercial canoe rentals, unheard of eight years ago, are now available from Lost Valley Lodge at Ponca, Bill Houston at Pruitt, Jack Coursey at Coursey's meat specialty shop near St. Joe, and Leon Dodd and J. W. Barnes near Buffalo River State Park (Yellville). Also, trout dock operators like Jim Gaston at Lakeview and others in the Cotter, Norfork, and Mountain Home areas run overnight johnboat trips on Buffalo.

The mountain man's homemade "johnboat" is nothing more than a crude form of improved dugout canoe. An outgrowth of the johnboat, the modern aluminum canoe is now king on the Buffalo and most other Ozark rivers.

A canoe is easy to paddle, will carry two people and enough camping gear for an army, and its shallow draft makes paddling in shallow water a breeze. Most canoeists either shuttle their own cars from the put-in to take-out sites (leaving one car to ride back in) or, if in one car, hire someone to move the vehicle downstream for them. In good water, an experienced canoeist can average fifteen to twenty miles a day on the Buffalo, but I recommend a more leisurely pace of not more than ten miles per day (five if you are serious about fishing). An unhurried trip allows plenty of time for a lazy breakfast, frequent swim breaks, cave exploring, fishing, cloud watching, or whatever adventure comes your way. An evening on the Buffalo is a time to be savored, and for this reason an early camp is recommended. Cities are for hurrying; rivers are not.

In spring 1972 veteran Buffalo River campaigners of the last decade gathered again on the same gravel bar from which Justice Douglas had made his pronouncements ten years earlier. Most were a little grayer now, and a great deal wiser in the art of waging conservation battles. But as I watched the youngsters skip rocks across the Buffalo's timeless surface, I felt the decade of struggle to save it from a concrete corset seemed worth every sacrifice. ■

A free-lance outdoor/travel writer from Little Rock, Arkansas, John Heuston has canoed and fished the Buffalo River from headwaters to mouth and has backpacked extensively in the Buffalo's scenic watershed. He is a charter member of the Ozark Society, Inc., which spearheaded the Arkansas effort to preserve the Buffalo as a national river. He is also a member of the State Committee on Stream Preservation, which is involved with developing programs for saving Arkansas' remaining high quality scenic and recreational rivers.



KENNETH L. SMITH, NATIONAL PARK SERVICE

A view upstream from Red Bluff below the town of Gilbert shows a mountain johnboat with fishermen.

Forestscape & Fire Restoration at Whitaker's Forest

Lin Cotton & Harold Biswell

"I shall never forget such swelling domes of verdure so effortlessly poised in the cool blue sky." Standing as monuments to the past, the giant sequoia of the California Sierra had cast a lasting image on the mind of John Muir.

With his reluctant mule Brownie, Muir traversed the sequoia belt of Redwood Mountain in 1875, absorbing and recording the vibrations of the "most venerable-looking of all the Sierra giants." Reflecting on his impressions of Redwood Mountain, Muir wrote: "What a picture it made! In all my wide wanderings I have seen none so sublime. Every tree of all the mighty host seemed perfect in beauty and strength, and their majestic domed heads, rising above one another on the mountain slope, were most imposingly displayed, like a range of bossy, upswelling, cumulus clouds on a calm sky." On that part of Redwood Mountain that would later become Whitaker's Forest, however, Muir was dismayed by the destructive logging operations that had leveled many fine sequoias.

Today the sequoia continues its reign in some seventy groves in the Sierra Nevada, although its visual dominance has been altered by a variety of management practices that effectively foreclose Muir's esthetic experience to visitors in all but a few groves. As wise John Muir said, "Everybody needs Beauty as well as Bread, places to play in and pray in, where Nature may heal and cheer and give strength to body and soul alike." Americans increasingly are seeking such wilderness experiences, and they are asking their wildland managers to think not only of production in water and timber terms but of production in recreation and esthetic terms, as well. Today the restoration of visually inspiring forestscapes is a pressing forest management task.

Whitaker's is a 320-acre experimental forest of the University of California located on the western slope of Redwood Mountain in Tulare County, adjoining the magnificent Redwood Mountain grove of giant sequoias in King's Canyon National Park. Following logging in the 1870s and the burning of slash in 1880, the forest was taken over by dense stands of second-growth giant sequoia, incense cedar, white fir, Scouler's willow, and shrubs. One of the most marvelous groves of young sequoias to be found anywhere in the Sierra, now ninety-one years of age, occurs in this area. However, thickets of young shade-tolerant white fir and incense cedar have continued to increase while other thickets have died. Together, these thickets form a continuous bed of fuels from the ground to the tops of

the tallest trees. Where such trees have grown high in the understory, with heavy accumulations of debris below, serious fire hazards exist.

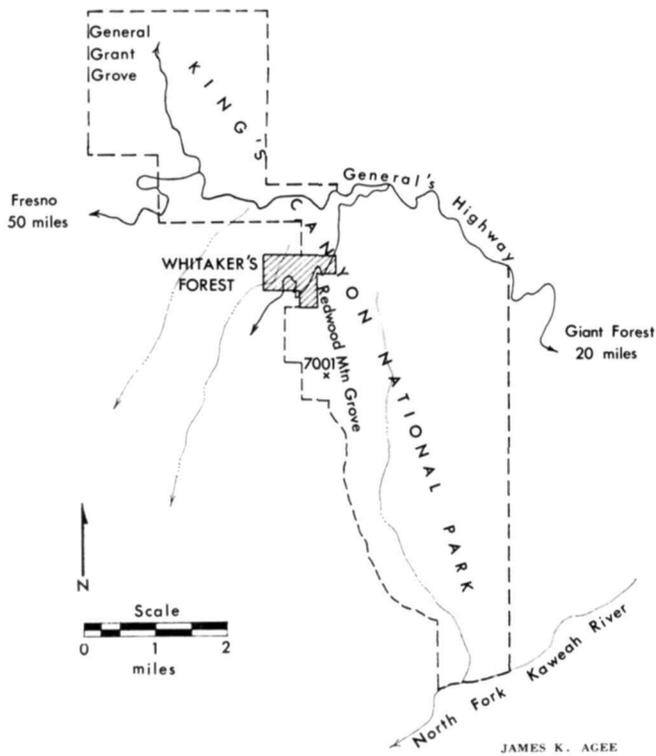
Wildfire hazards not only are severe and critical on Whitaker's Forest but exist throughout the Redwood Mountain grove in adjoining Kings Canyon National Park and the Sequoia National Forest. For as much as 100 years now, forest managers have protected California's groves of giant sequoia from destructive forces, including surface fires that once were an integral part of their environment. Today there is a growing concern that such protection, although of vital importance, is not in itself an adequate substitute for natural conditions.

Given the legacy of fire suppression and the resulting steady increase in understory fuels, many giant sequoias are faced with an ever-increasing threat to their existence, because modern firefighting equipment and technology are not totally effective in suppressing all wildfires in sequoia terrain. The fire-scarred trunks of many old sequoias attest to the ability of the tree to survive repeated surface fires. However, the sequoia will not withstand the crown fires that are sure to occur if a fire burns swiftly uphill through heavy debris accumulations and understory trees in dry, windy weather. At present protection from wildfire is essential under adverse conditions; but it is apparent that steps must be taken to insure a fire of relatively low intensity if one should occur.

The overabundance of understory trees and large quantities of debris on Whitaker's long have restricted access to the forest both physically and visually. By 1960 summertime use of the forest had been virtually eliminated because of extreme fire hazard. Over much of the area riparian and shrub plants, herbs and wild flowers, and deer long since had been excluded by the debris and dense shade of a developing understory.

Experiments were started on Whitaker's Forest in 1965 to study methods of fire-hazard reduction and restoration of surface fires as a natural ecological factor in the giant sequoia environment. (The need for such studies was discussed earlier in an article in the April 1961 issue of this Magazine under title of "The Big Trees and Fire.") An important aspect of the experiments has been the restoration of the forest's visual qualities as created by natural fires and as they were described by Muir and other early explorers. Other studies on the forest concern the





effects of fire and the management of wildlife populations, such as birds and deer; water infiltration and soil moisture; and, more recently, wood smoke and its qualities in the Whitaker's Forest environment.

Because of the work done on Whitaker's the wildfire situation on Redwood Mountain is not so dismal now as it was a few years ago. Equally important, however, is the pertinence of the work to the new policy and guiding principle of the National Park Service for the pristine national parks: that above all, the maintenance of naturalness should prevail. The Service has commenced its own program of prescribed burning in an effort to restore fire to its proper role in the giant sequoia forest. Brightening the picture on Redwood Mountain is the fact that the U.S. Forest Service has started some prescribed burning in the debris-laden ponderosa pine forests of the Sequoia National Forest on the lower fringes of Redwood Mountain. If these efforts continue, as they should, and fire is restored to the environment here, the Big Trees will be saved and the young sequoias on Whitaker's will be able to grow in accordance with the natural forces that operated in the region over past millenia.

In experiments aimed at removing dense understory and reducing wildfire hazards on Whitaker's Forest, manual

Prescribed controlled burning reduces fuels and helps restore visual character to the forest.



cutting and cleanup in addition to surface fires were used on sloping and flat forests to test their results on a variety of forest systems. Because the main purpose of the work was to reduce fire hazards and restore naturalness, pictures of primeval sequoia forests and a knowledge of the role of surface fires in sequoia ecosystems proved useful.

Coincidentally with this work, however, attention was focused on the esthetic problems inherent in the restoration of the visual character of the forest. At Whitaker's, some cutting of understory incense cedar and white fir seemed essential for quick restoration because thick stands of undergrowth had developed during some ninety years of fire suppression. Some might say selective cutting leads to artificial forestscapes. But Garret Eckbo has said, in *Ecology and Design*, that "the essence of the design process is to produce the happiest marriage between reality and fantasy. Reality is the basis of ecology, but when it becomes a preconceived formal determination which rejects the validity of human imagination, it becomes a narrow-minded and arbitrary cultural restriction."

And René Dubos, in *The Genius of the Place*, says, "Man always adds something to nature, and thereby transforms it, but his interventions are successful only to the extent that he respects the genius of the place." This is good

advice to forest managers. At Whitaker's Forest the "genius of the place" is respected, and manipulation is producing some powerful visual effects.

Because giant sequoias, old and young, are the primary feature of Whitaker's Forest, considerable effort has been made to highlight them. The trails of Whitaker's are being modified to expose, conceal, and then reveal again the giant trees through framing thickets of understory vegetation. Like a vision of Xanadu, the unreachable and partially concealed is more exciting than the readily attainable. The vibrant second-growth giant sequoia stands that populate cutover portions of this forest have their own delightfully fanciful flavor. Repetitive forms reaching for the sky, perfectly conical and symmetrical—the young groves are charming and help emphasize the genius of the place. To be fully appreciated, these groves must be seen from openings or promontories—not too common at Whitaker's. Carefully designed modifications are increasing the number of forest openings and strengthening the impact of the young Big Trees.

In the sequoia understory prescribed burning and cutting have effected remarkable changes. Views to distant Big Trees penetrate previously solid walls of vegetation. However, occasional stands of young trees are retained to

Mighty giants are revealed through a framing of understory vegetation; before and after manipulation.





separate spaces. Roads that formerly were the only passages through the forest—and that produced considerable adverse visual impact—now melt more effectively into the forestscape. Herbs and wild flowers again sparkle in shafts of sunlight, and splashes of color complement the russet bark of the forest's masters. Now there are the glad sounds of the Douglas squirrel harvesting sequoia cones, and deer browse the rejuvenated shrubs of new openings.

Several things have been done to modify the eye-level visual experience at Whitaker's Forest: retention of skirting juvenile limbs where they catch silvery, filtered light (without, however, looking manicured); selective elimination and retention of thickets of shade-tolerant understory white fir and incense cedar; and retention of glistening sugar and ponderosa pine saplings left after understory clearance.

Characteristics of the Big Tree formerly concealed have become apparent in the new open, parklike forest. For example: the seed of sequoia requires a seedbed prepared by a hot natural fire; and, in some groves, regeneration of the tree actually follows the linear patterns of burned logs. Where this happens sequoias of similar size and age

Young sequoias with perfect spires contribute to the visual variety and charm of Whitaker's Forest. Juvenile limbs catch silvery light and refuse to look manicured in the open, parklike forest.



may be lined up like the columns of the Parthenon. It is delightful to stroll away from one end of such a line at a right angle and see the massive sequoia forms spring from behind one another as one proceeds.

In manipulating Whitaker's Forest for ecological and esthetic purposes, great restraint is exercised, for the wholesale elimination of understory vegetation, leaving the canopy without interruption, could produce a monotony that would seriously detract from the visitor's experience. It has been shown that most human activities take place in a series of "linked spaces," and the quality of an environment can be rated by the variety of such linkages and spaces and by the strength with which it reinforces them. An "imageable" environment is one that readily identifies solids and voids, space and non-space, pathways and routings. The primeval Sierra forests, if early accounts are correct, were varied, imageable environments. Management efforts strive to recreate similar variety by reforming openings, strengthening edges, and defining linked spaces. An open and parklike forest is visually advantageous if it contains these elements.

The task of restoring visual harmony to an overprotected sequoia forest requires as much thought as would a wholly scientific enterprise. Here science and informed artistry are joined for the purpose of identifying "the genius of the place" and treating it with respect. The spirit of the sequoia forest springs from the trees themselves and was well identified by John Muir long ago: "The venerable aboriginal Sequoia, ancient of other days, keeps you at a distance, taking no notice of you, speaking only to the winds, thinking only of the sky, looking as strange in aspect and behavior among the neighboring trees as would the mastodon or hairy elephant among the homely bears and deer." ■

Lin Cotton is a master's degree candidate in landscape architecture at the University of California, Berkeley. Professor Harold Biswell, of the university's School of Forestry and Conservation, for many years has advocated prescribed burning as a substitute for natural fire in the Big Tree forests of California's Sierra Nevada.

Sparkling shafts of sunlight add to the abundance and nutritional quality of herbs and wild flowers.



ALASKA LAND SETTLEMENT

A report by Jonas V. Morris, NPCA representative
for the national park system

IN DECEMBER 1971 President Nixon signed into law the Alaska Native Claims Settlement Act, Public Law 92-203, which directed the Secretary of the Interior to withdraw over a period of months certain public domain lands in Alaska that he determined might be appropriate to study for addition to the national park, national forest, national wildlife refuge, and national wild and scenic rivers systems. Lands so designated are specified as "d-2" lands because authority for such designation was described in Section 17(d)(2) of the act. They are more generally referred to as "national interest lands." Additional lands to be studied for possible public use are known as "d-1" lands because of their designation under Section 17(d)(1) of the act and are generally called "public interest lands." The initial land withdrawal was completed by Secretary Rogers C. B. Morton in March 1972; final withdrawal came in September 1972. The act authorized the Secretary to designate up to 80 million acres as "d-2" lands. Final withdrawal reserved 79.5 million acres of "d-2" lands and 47 million acres of "d-1" lands.

The Alaska Native Claims Settlement Act of 1972 also required the Secretary to present Congress with legislative proposals regarding lands designated "d-2" by December 18, 1973, and directed that Congress act on the proposals within five years.

On the accompanying map the National Parks and Conservation Association indicates the kind of protective land system to which, in its opinion, the various parcels of "d-2" land should be assigned. In a few instances—particularly in the Wrangell Mountains—NPCA recommends that some lands designated "d-1" also be included in the national park system. These recommendations are designed only to assist the Secretary in his further administrative deliberations on these lands and to inform NPCA's members.

In making its selections NPCA has focused on exceptional values or qualities illustrating the natural heritage of the nation. The areas that the Association thinks should be added to the national park system are outstanding for wildlife, scenic grandeur, and subtle beauty; those indicated for addition to the national wildlife refuge system contain habitats that support vanishing, rare, restricted, or spectacular species of mammals, fishes, and birds. Recommended for addition to the national forest system are those parcels already adjacent to national forest lands. Such additions should be designated as wilderness and afforded appropriate protection in primitive state.

NPCA has recommended that all of the 79.5 million acres of "d-2" lands be included in one or another of the four systems, and the map index indicates the way in which such areas are identified on the map. In two areas—the

Gates of the Arctic and extensions to Mt. McKinley National Park—NPCA recommends, because of their importance to the integrity of the proposed unit, lands not withdrawn by the Secretary. These lands presently are eligible for selection by the state.

The numbers of the areas in the following descriptions correspond with the numbers on the map.

1. *Wrangell Mountains.* The Wrangells, a 15-million-acre section of the southeast portion of the state, include more mountain peaks exceeding 14,000 feet in height than any region of equivalent size on the North American continent. One such peak is snowcapped Mount Saint Elias, at 18,000 feet second in height only to Mount McKinley on the North American continent. But Mount Saint Elias is even more dramatic in its visual impact than Mount McKinley, because it rises precipitously from the sea to the clouds, whereas Mount McKinley does not rise from sea level. The Wrangell Mountains join an equally spectacular range of mountains in Canada; and if current plans materialize, the Wrangell Mountains section eventually will become part of an international park. Because precipitation is greater here than in other parts of the state, the Wrangells tend to be among the few accessible Alaska ranges that are snowcapped throughout the year. Other spectacular features of the Wrangell Mountains area include Mounts Bona, Blackburn, Sanford, and Canada, all of which exceed 16,000 feet in altitude. One of the largest glaciers in the world—the Malaspina glacier, more extensive than the state of Rhode Island—adds to the grandeur of the area. In the center of the Wrangells is an area known for its possible copper deposits; but mining interests have not expressed a great interest in development there, although federal mining agencies would like to hold the copper area in reserve. The Wrangell section, often called "the Jewel of Alaska," stands out for its dramatic scenic beauty and is an outstanding candidate for designation as a national park.

2. *Mount McKinley National Park Extension.* In order to preserve the Mount McKinley region as an ecological and geographical unit, extensions are proposed for Mount McKinley National Park both on the north and south. The extensions would total approximately 4 million acres and would result in one of the finest wildlife parks in the world. Animals now using the park—black and brown bears, grizzlies, wolverines, wolves, caribou, and moose, among others—would receive protection on both winter and summer ranges. The park extension to the south would bring the balance of McKinley massif, including dramatic mountains and glacial peaks, into the park. It is extremely important to the environmental integrity of Mount McKinley Park that Lake Chelatna to the south be included in the

park as well as adjoining lowlands that would provide both access to the mountains and ice fields and fine opportunities for camping and hiking. These lands are presently reserved for state selection.

3. *Yukon Flats.* Yukon Flats is described primarily in two sections totaling more than 11 million acres, both of which are valued principally as wildlife habitats, although portions in the southern section, generally referred to as "the 40-mile," contain many rivers that are prime candidates for inclusion in the national wild and scenic rivers system. The Yukon Flats, meeting place of some of the most dramatic rivers in North America, is a major breeding and resting place for a large variety of waterfowl and other birds that migrate annually to the lower forty-eight states and regions farther south. This area should be made part of the national wildlife refuge system.

4. *Arctic Wildlife Refuge Extension.* Two parcels comprising more than 4 million acres should be added to the Arctic Wildlife Refuge. One parcel is separated from the refuge only by the corridor that is reserved for a natural gas pipeline, if one ultimately is developed. The Arctic Wildlife Refuge itself occupies more than 10 million acres, and the extensions are necessary to include omitted components of the ecosystems so as to ensure its integrity and protect its watershed.

5 and 6. *Brooks Range-Noatak.* This parcel of more than 20 million acres runs from the central Brooks Range to the Alaska west coast and includes the Noatak River, one of the last remaining river systems in the world that is entirely intact and unmarred. The Noatak drainage, labeled 6 on the map, should be studied for inclusion in the national park system. Its eastern section generally is called the Gates of the Arctic (labeled 5 on the map) and includes the rugged, knife-edged Arrigetch Peaks. The area is a prime candidate for national park status, and legislation has been introduced in Congress in the past to designate it as such. The area is one of the more spectacular sections of the state and one of nature's great remaining true wilderness regions of great extent.

7. *Cape Lisburne.* This is a small, two-parcel tract adjacent to Point Hope that is extremely important for its bird rookeries. The area should be made a part of the national wildlife refuge system.

8. *Imuruk Basin.* This 3-million-acre area is important as wildlife habitat and for its scenic variety and recreation potential. It contains lava beds, wild rivers, lakes, marshes, hot springs, and varied wildlife, including reindeer herds. It should be preserved in the national park system.

9. *Yukon-Koyukac.* This area, which should be made part of the national park system, contains some dramatic

sand dunes of archeological importance in addition to the Onion Portage, an ancient transportation corridor used by the Eskimo.

10. *Innoko Flats.* The Innoko Flats, an area of approximately 4 million acres, are the floodplains and lowlands of the Innoko River and are important habitat for waterfowl, moose, and bears. The Flats should be made a part of the national wildlife refuge system.

11. *Yukon Delta.* This 6-million-acre section is located at the mouth of the Yukon and is particularly valuable as a wildlife habitat. It should be made part of the national wildlife refuge system.

12. *Togiak.* A 2.2-million-acre section immediately west of the Wood River-Tikchik area is known for its lovely glacial lakes. The Togiak River drainage is particularly desirable because of its high mountain peaks, large lakes, and accessibility. The Togiak is important both for its geological interest and as wildlife habitat. It should be made part of the national park system.

13. *Iliamna-Lake Clark.* This is a 9-million-acre section centered on dramatic Lake Iliamna, in the south-central part of Alaska, important spawning areas for salmon and trout. Much of the land around the 1,000-square-mile Lake Iliamna and around part of Lake Clark is withdrawn for native selection; but the remaining lands delineated on the map should be preserved for both recreational and wildlife needs as part of the national park system. The southern portion of this area contains some lands that should be added to Katmai National Monument.

14. *Aniakchak-Ugashik.* This section of approximately 1.5 million acres is located on the east side of the Alaska Peninsula south of Katmai. The center of the area is mountainous, with snowcapped mountains rising to 4,000 feet and then falling abruptly to the sea, interlaced with streams, rivers, lakes, ponds, fjords, and bays. Beyond its scenic significance this section is the most outstanding brown bear habitat in Alaska currently not under protection. The moose and wolf inhabit the area, which also is the site of Aniakchak crater, an extinct volcano. The area is valuable as wildlife habitat and should be made part of the national park system.

In developing these recommendations NPCA has relied heavily on persons with a firsthand knowledge of Alaska who have traveled the state widely and who know the areas intimately. Foremost among these persons is NPCA trustee Mark Ganopole. Mrs. Ganopole has been a resident of Alaska for many years and is director-secretary of the Alaska Wilderness Council, which includes various Alaskan conservation organizations and individual conservationists. ■



RETURN OF THE WOLVERINE

RONALD M. NOWAK

Surrounding the northern polar ice is a ring of barren tundra that in turn is encircled by a broad belt of coniferous forest known as the taiga. In the Western Hemisphere this boreal forest stretches southward to the region of the border between the United States and Canada. Areas of taiga-like forest, some of which enclose tongues of alpine tundra, extend farther south along the great mountain ranges of the United States. These subarctic lands are home to a limited number of animal species adapted to the challenges of a harsh environment. Among the most characteristic of these species is the mysterious and solitary wolverine, *Gulo gulo*.

Although the wolverine occupies nearly the entire tundra and taiga of the Northern Hemisphere and is known to many nations and races of humans, its remote habitat, elusive nature, and ill temper have made it one of the world's least observed or studied mammals. This fact, along with its reputed strength, cunning, and ferocity, has given rise to some fantastic legends among the peoples of the north; and even modern Europeans and Americans have sometimes regarded the animal with superstitious awe. From its wilderness haunts have come tales of a savage "devil beast" that could pull down moose and caribou

twenty times its size, drive grizzly bears and mountain lions from their kills, and systematically destroy vacant human habitations and traplines without itself being caught. Although scientific studies have taken some of the glamour from these tales, basically they are true.

Taxonomic classification places the wolverine in the weasel family—the Mustelidae—and the species is considered a close relative of the weasels, martens, and fishers. The wolverine, however, is much larger than most of the other mustelids, and its size and other external features give it a resemblance to a small bear. It measures thirty-six to forty-four inches in length, including the short, bushy tail, and stands fourteen to seventeen inches high at the shoulder. Weight ranges from twenty to fifty pounds, females averaging about 30 percent lighter than males. The heavy coat is blackish-brown, with light brown or yellowish bands extending from the shoulders along each side to join over the base of the tail. The fur is not of high value to most humans, but because it accumulates less frost than any other kind, it is used by far-northern peoples as trimming for parka hoods. Like the skunks and other mustelids, the wolverine possesses a pair of large anal scent glands from which it can project a highly odorous secretion.



SAN DIEGO ZOO

The wolverine is a comparatively slow-moving creature but is probably the world's strongest mammal of its size. It is capable of killing large hoofed animals, although usually when the latter are handicapped by deep snow or other adverse conditions. Most of the caribou, reindeer, and moose upon which it feeds are immature, old, sickly, or already dead. Thus the animal not only performs a sanitation task but also is important as a predator that helps maintain the health of game herds. It also eats rodents, rabbits, birds' eggs, and berries. The wolverine is a tireless hunter and in winter may wander as far as thirty miles a day in its search for food.

For humans, the life history of the wolverine always has been something of an enigma. However, during the year just past R. A. Rausch and A. M. Pearson summarized some important new information on the animal. Mating apparently occurs from May to July, but implantation of the fertilized egg—pregnancy, as commonly understood among humans—is delayed until winter. The young, usually two or three, are born from January to April in a den under the snow or in some other sheltered spot. They grow quickly, and both males and females may be sexually mature by the following year's breeding season.

Most of our current information on the wolverine is based on observations in Alaska and Canada, where the species still occupies much of its original range. In Alaska, state law classifies the animal as a furbearer and game animal, and it may be killed legally during published seasons. Most Canadian provinces have similar policies, but the Yukon Territory classifies the species as a predator, to be hunted at any time. Although threatened in many localities by trapping, poisoning, and snowmobile hunting, the wol-

verine does not seem to be in immediate danger of extirpation from Alaska and western Canada. South of the Canadian border, however, the species is seriously endangered, and I shall devote the balance of this article to a survey of the wolverine's history and present prospects in the contiguous United States.

When the first Europeans arrived in North America, the wolverine was present everywhere in that northern terrain that stretches from Maine to Washington and also in certain parts of the Sierra Nevada and Rocky mountains, as shown on the accompanying map. Much of this region probably was marginal habitat for the species and thus the more easily upset by the incursions of early westward American expansion. The wolverine, with its great appetite and corresponding need for a large and well-stocked territory, thus was far more dependent on the preservation of wilderness than many of its contemporaries.

The giant weasel came into conflict with man in other ways as well. It was pursued both as a predator that threatened domestic animals and to some extent for its pelt. Furthermore, the wolverine demonstrated a tendency to compete directly with man on his traplines, devouring valuable fur animals that it found in traps. Sometimes the wolverine proved a nuisance in invading cabins and food caches and spraying all with its strong scent as a mark of possession. Although the number of wolverines responsible for these acts undoubtedly was few in comparison with the animal's total population, human prejudice quickly branded all the animals as outlaws.

By the early 1800s the wolverine already was considered



a rarity in the northeastern United States. The last reliable sightings of the animal east of the Mississippi River are more than one hundred years old, and the species has been unreported from the plains region for nearly that long. Indeed, the only part of the country east of the Rocky Mountains that still harbored a wolverine population at the end of the nineteenth century was the forested area of northern Minnesota. Modest numbers were present there in the 1890s, and individual animals—probably wanderers from Canada—were killed there in 1918 and 1934.

In the Rockies the wolverine held out longer but was steadily forced back into the wildest and most inaccessible areas. The last sightings in Utah occurred in the 1920s near the town of Brighton. Reports indicate that the species still was present in the high mountains of central and southwestern Colorado, in the vicinity of Yellowstone National Park, and in extreme northern Idaho during the same decade. Scattered sightings continued in these areas through the 1930s and 1940s; but apparently no kills occurred, and some authorities considered the wolverine then extinct in all the Rocky Mountain states.

Farther west, in the Sierra Nevada and Cascades, the wolverine also was making a last stand. One was killed in central Oregon in 1912, and subsequently little was heard of the mammal in that state. In Washington a small number of the animals, probably constantly replenished by wanderers from Canada, managed to survive in the northern and central Cascade Range.

In California the wolverine apparently became restricted to the remote wilderness of the central and southern Sierra Nevada after 1900. By 1933 the isolated population of this area was estimated to consist of only fifteen pairs. Fortunately, this remnant population was centered in Sequoia, Kings Canyon, and Yosemite national parks, which afforded the animals legal protection. By the 1950s wolverine sightings had increased in this region, and there was evidence that the species was extending its range to the north of Lake Tahoe in the central Sierra.

During the past decade wolverine reports have continued to increase throughout the Pacific coast region. Recent sightings indicate that the California population now has expanded into Shasta and Trinity counties in the northern part of the state. And in February 1972 one was sighted near Gasquet in the far northwestern corner of the state. The first wolverine to be killed in Oregon in nearly half a century was shot near Three Fingered Jack Mountain, in the north-central part of the state, in 1965. Since then, one was accidentally trapped and two others were seen in

A family of playful wolverines



JEFF D. SWINEBROOD



Wolverine Range: Solid line shows approximate original southern limits of wolverine's range; shading indicates those areas now regularly occupied by wolverine populations; dots show other localities in which wolverines have been killed or reliably reported since 1960.

the same region. To the north in Washington at least six wolverines were killed between 1960 and 1968, and others have been sighted recently over a fairly large area in the mountainous part of the state. Thus, although the wolverine remains among the rarest mammals of the region, it now seems possible that individuals might be sighted almost anywhere along the Cascade and Sierra Nevada ranges, from the Canadian border to Sequoia National Park.

There is evidence for a resurgence of the wolverine in the northern Rockies also, particularly in Montana. As in other Rocky Mountain states the wolverine in Montana had been nearly wiped out by 1920 even in the wilderness of Glacier National Park. But in the 1930s tracks were again seen in the park, and several animals were trapped in nearby areas. Reports of sightings continued to increase in the region, and by the early 1950s the wolverine seemed resident again in northwestern Montana. Probably the species had moved back into Glacier Park from Canada, built up its numbers in that sanctuary, and then had spread into adjacent terrain. Range expansion has continued there, and now the wolverine seems established throughout the mountainous western section of the state. More than 200 animals have been taken there by fur trappers in the past decade.

Idaho, to the west, also has experienced a limited increase in wolverine numbers. The first verified kills in many years occurred in 1949 and 1954. During the past few years reports of sightings have increased, and there have been several kills in the central mountains of the state.

The number of wolverine sightings increased also in northwestern Wyoming during the 1950s and 1960s. It seems likely that the mammal never was quite eliminated in the Yellowstone Park region and that it still is present

there in small numbers. Wyoming's first recorded kill of the twentieth century occurred near Boulder, in the west-central part of the state, in 1968.

In 1965 a wolverine was killed near Sedalia, Colorado, a few miles south of Denver. And in 1969 two wildlife researchers observed a wolverine in a wilderness area of the state's northwestern quadrant. There have been other sightings also in Rocky Mountain National Park.

Some remarkable sightings of the wolverine have occurred recently far east of the Rockies in localities where the species long had been extinct. In 1960 a wolverine was shot on a farm in Tama County, Iowa, although there is some question as to whether the animal had reached Iowa naturally or had been brought in by man. The wolverine can cover great distances, and it would not be unreasonable to think that this specimen may have wandered down from Canada by itself. An escaped zoo wolverine was killed northwest of Wing, North Dakota, in 1971, after having traveled 160 miles in five months. Another wolverine, probably wild, was killed on a sheep ranch south of Timber Lake, South Dakota, in 1962. Minnesota's first kill in many years took place near the town of Skibo, in the northeastern part of the state, in 1967.

The number and distribution of records since 1960, shown on the map, suggest that the wolverine has reoccupied much of its former range in the western United States. A significant reason for its return may be the decline of the fur-trapping industry in the region. Some natural cyclic or environmental factor also may have played a role as well. There is also the possibility that some of the many recent reports reflect only increased human use of remaining wilderness and consequent greater chances for man-wolverine encounters.

In any case, the present density of the wolverine population is certainly low, and with the exception of the gray wolf the species seems to be the rarest mammal in the western United States. Although its increase in range is encouraging, its overall position remains perilous, because permanent wolverine populations seem dependent on large areas of wilderness, a commodity ever diminished by clearcut logging, new road construction, and invasion by snowmobiles and other off-road vehicles.

The preservation and expansion of existing populations of the wolverine would involve, at a minimum, the enactment of state laws fully protecting the species. Most states in which the wolverine has been reported in recent years already have enacted such legislation, as detailed in the accompanying box. An unfortunate exception to this list is Montana, which contains the largest population of the big weasel south of Canada. In that state the wolverine still is classified as a predatory animal to be killed at any time. The reason for this designation remains a mystery inasmuch as in its remote habitat and small numbers the wolverine hardly constitutes a threat to human interests.

The wolverine also might be helped by timely federal interest in its future. Although the animal does not seem to be near extinction over its entire range, its precarious status in the contiguous United States should qualify it for a place on the Department of the Interior's list of endangered American species. And because the wolverine is a wide-ranging animal that wanders freely across state and international borders, there may be precedent for the

Present Status of the Wolverine in the Contiguous United States

California: Small population concentrated in Sierra Nevada Mountains; complete legal protection since 1970.

Colorado: A few individuals in central and northern mountains; complete legal protection since 1965.

Idaho: Present in small numbers in mountainous areas; complete legal protection since 1965.

Iowa: Wanderers may appear on rare occasion; no legal classification.

Minnesota: Wanderers may appear; unprotected by law.

Montana: Population throughout western mountains; may be legally killed at any time.

Oregon: A few in central Cascades; complete legal protection since 1965.

North Dakota: Wanderers may appear; no legal classification.

South Dakota: Wanderers may appear; no legal classification.

Utah: Wanderers may appear; no legal classification.

Washington: Present in small numbers in central and northern mountains; complete legal protection since 1964.

Wyoming: A few in western mountains; complete legal protection since 1971.

kind of direct federal protection long accorded migratory birds. Another possible avenue of approach would be regulations—such as those now affecting endangered species of cats—that would prohibit the importation and sale of wolverine furs in the lower forty-eight states.

But legal protection for the wolverine at state or federal levels will not do the whole job. A nationally coordinated program of research, publicity, and conservation would be helpful in locating groups of wolverines, informing the public about their rarity, and helping to protect their wilderness habitat. Field studies should be initiated in several localities to ascertain more precisely the range and food requirements of the animal. The feasibility of reintroduction of the wolverine into suitable original habitat should also be investigated, although the species has already demonstrated a capacity for returning to much of its former range without human help.

The recent resurgence of the wolverine in the lower United States has demonstrated its competence in the fight for survival. Given an opportunity and sufficient wilderness habitat, this splendid and as yet little understood creature might once again play its role as a solitary wanderer through the mountains and northern forests of America. ■

Ronald M. Nowak is working toward his doctorate at the Museum of Natural History at the University of Kansas. He is author of a number of published articles and papers on topics in his special field, the study and conservation of the carnivorous mammals.

Jeff Swinebroad and his wife spent nineteen days in an improvised lean-to in Canadian wilderness in rain, snow, sleet, hail, and sun to obtain the photographs of wild wolverines published with this article.



JOHN SPRING

High school wilderness group participants regrade a hiking trail against the majestic backdrop of Mt. Rainier.

EMILIE MARTIN

Student Volunteers

IN THE NATIONAL PARKS
AND FORESTS

Many young people in the United States have declared that they want “to do something to save the environment.” Could they not be put into contact with the overworked staffs of national parks and forests? The catalytic agent that brings these two separate and often frustrated elements together—resulting in some impressive success stories—is the Student Conservation Association. Founded on a college girl’s dream, SCA is designed to provide young volunteers with field positions in government and other public agencies that do conservation work.

SCA enables such volunteers from all over the nation to lend strong backs and energetic willingness to the endless tasks of maintaining the backcountry of our public lands and of interpreting cultural and natural values to visitors. During the 1972 summer 332 young people worked outdoors to produce a net volume of work that is invaluable, although difficult to measure, to the national parks and forests and to the public that uses them.

SCA’s headquarters is on Vashon Island in Washington state, where a staff of five works year-round to organize, advertise, coordinate, and otherwise manage a program that has resulted in eye-opening summers of growth for young people from all the states and from eight foreign countries, a total of 1,614 participants over the years. A board of 22 influential citizens meets in New York three times a year to guide the operation.

SCA started quietly on a small scale. A Vassar student,

Elizabeth Cushman, proposed the idea in a thesis for her bachelor of science degree in 1956. Dr. Scott Warthin, her geology professor, responded with a challenge, “It sounds great,” he said. “Do you have two years to give to it?” Seventeen years later Elizabeth Cushman Titus laughs uproariously. “And I thought two years was a long commitment,” the tall, slim, energetic woman recounts. Mrs. Titus retired in 1969 from full-time involvement in SCA, but she remains active as president of the association and as a member of the board of directors.

Modestly, she gives the participants the credit for SCA’s success. “It is the enthusiasm of those marvelous kids that gives it the momentum,” she explains. But other people also are responsible—people all over the United States, friends in the right places who have boundless reservoirs of exuberance and respect for young people’s potential. Liz, as her friends and participants in the program call her, solicited support from influential conservationists like Horace M. Albright, former director of the National Park Service; Fairfield Osborn, prominent author and president of the New York Zoological Society; and George E. Brewer, Jr., who was a founder and an officer of the Conservation Foundation and a trustee of the National Parks Association.

The latter organization, now known as the National Parks and Conservation Association, agreed to sponsor the first Student Conservation Program, as the summer volunteer projects came to be called. Conrad L. Wirth, director of

the National Park Service at the time, gave his approval, leaving the final decision to cooperate to individual park superintendents.

In 1955 Liz and a friend, Martha Hayne, traveled extensively to drum up interest and funding for their new project. By the summer of 1957 money had been collected mainly from member clubs of the Garden Club of America and other conservation groups.

The superintendents of Olympic and Grand Teton national parks agreed to host the first Student Conservation Program. After much arranging and coordinating, two groups of teenage boys were selected to work in Olympic Park at trail building and renovation. Sixteen college students spent the summer at Grand Teton National Park engaged in individual projects.

This arrangement was successful enough to be repeated every summer since then. Jack and Enid Dolstad were hired as work and camp supervisors in 1958. As a family unit the Dolstads and three children devoted their summers to running two sessions of the Olympic National Park high school wilderness camp until 1970. The needs of the wilderness program dovetailed with the skills of the Dolstads. For six years the mainstay of the Student Conservation Program was the Olympic camp they supervised.

In an effort to strengthen and provide continuity to the ongoing program, its originators decided to incorporate the Student Conservation Program as an association. The Student Conservation Association was organized in 1964 as a nonprofit tax-exempt educational organization in the state of New York. Since then the number of participants has increased steadily, as has the number of cooperating national parks and forests.

SCA has set two primary goals. One is "to assist public conservation agencies to perform tasks that they could not

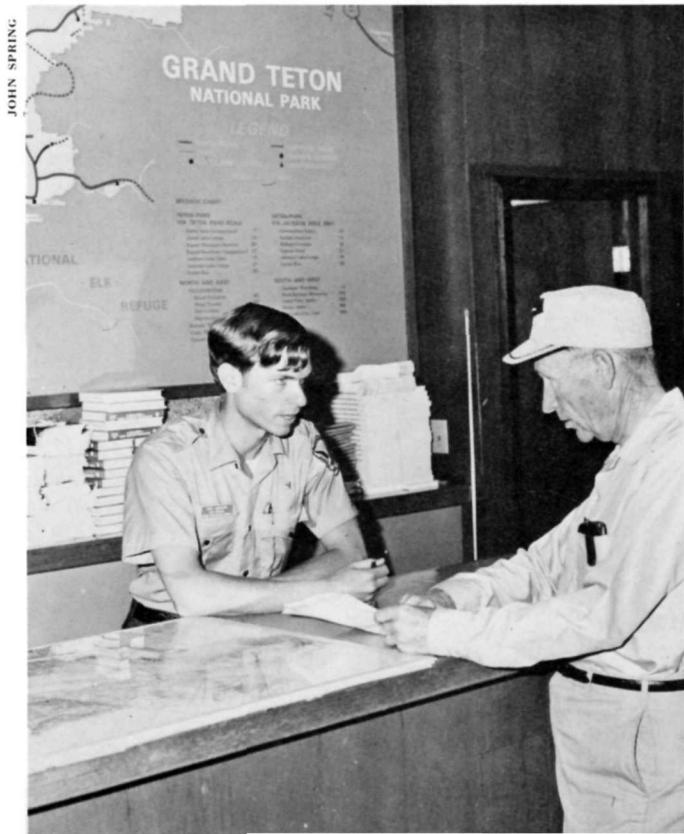
otherwise afford by channeling the desire of young people for personal participation in meaningful public matters." The other is "to offer concerned and dedicated young people the opportunity, through a conservation education program involving actual field experience, to gain greater insight into and respect for the natural and cultural heritage of our land."

"And there is no way of assigning priority to those two goals," John Osterling, assistant director, said recently. "We work for both—and try to insure a good experience on the part of both the individual and the agency involved," he emphasized. "We want the SCA alumni to be influential in strengthening a respect for the natural and cultural heritage of our land."

SCA's field work is divided according to high school and college classifications. The high school wilderness groups have up to fifteen members sixteen years old or older who live and work as a team, usually in a remote backcountry location for a three-week period. SCA provides subsistence for the volunteers, and some financial assistance is available to those participants who cannot afford travel to their summer placements. The National Park Service provides matching funds for Student Conservation Program wilderness groups in park areas, but all the rest of the money must be raised by SCA.

Jobs for high school volunteers vary from place to place, but often the main project is building or renovating hiking shelters and patrol cabins. Trail work is another staple job, entailing removal of fallen trees and rocks that obstruct trails, removal of trees in order to widen trails, and construction of water-diversion ditches—as well as hauling lots of dirt, wood chips, and sand to form the trail bed. Other jobs include replanting and renovating injured ground cover, replacing the roofs on backcountry structures,

Many park assistant positions involve the information desk. Left, a volunteer helps a visitor in Grand Teton National Park. In many historical areas park assistants participate in "living history" demonstrations. Right, a girl in period dress shows how candles were dipped 150 years ago when Hopewell Village operated as an ironmaking community in the hills of southeastern Pennsylvania.



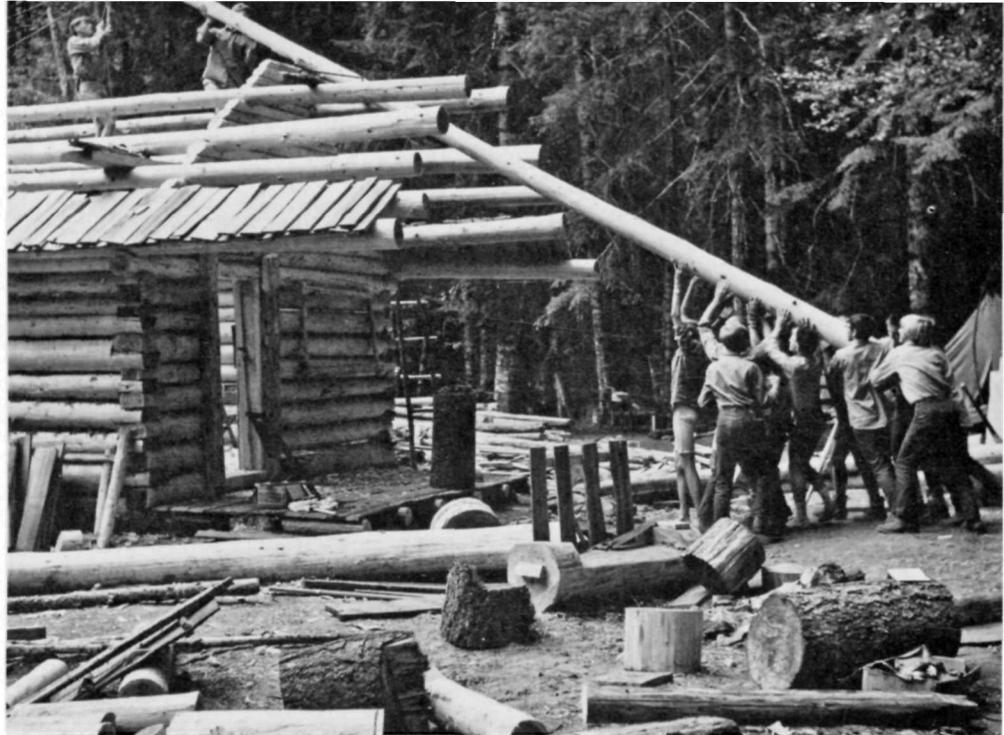
JOHN SPRING



RICHARD FREAK, DEPARTMENT OF INTERIOR



PHOTOGRAPHS BY RUTH AND LOUIS KIRK



Most high school wilderness group volunteers engage in heavy physical labor. Left, volunteers build a simple bridge to span a marshy stretch of trail—and thus prevent further erosion—in a wet area on the Olympic Peninsula. Above, willing hands hoist the roof beams to the top of a patrol cabin at Hayes River in Olympic National Park. Opposite page, volunteers haul a downed log that had washed ashore on the Pacific Coast, and, far right, volunteers and supervisors perch happily on a just-completed shelter in Merck Forest in Vermont. Bottom right, a volunteer indulges in a favorite after-work sport.

building and repairing footbridges, installing new posts and signs, tearing down “unofficial” fire rings and obsolete shelters and lookout towers, and doing general backcountry cleanup.

The culmination of each high school session is a backpacking trip, usually one week long, during which volunteers can see more of the parks and forests in which they have been working.

The positions open to college students and graduates are called “park assistant” and “forest assistant.” Each volunteer works under the supervision of a Park Service or Forest Service employee. Most parks and forests make available two to six positions, most of which deal with visitor information programs. Volunteers give talks; lead walks; present demonstrations; and organize displays, collections, and files. Independent interpretive and research projects can be arranged according to the needs of the park or forest staff and the capabilities of each volunteer.

The volunteers perform their work as a “labor of love,” because no salaries are paid. SCA provides each park or forest assistant with a travel and subsistence grant, and the parks and forests, when applicable, provide housing.

The Student Conservation Program has become decidedly popular. Last year only one of every three applicants could be placed. Jack Dolstad, now codirector of SCA (with his wife Enid), says the response can only be described as “fantastic.” In fact, Dolstad has expressed concern that the success of the program may kill it.

The problem is financial. “For every \$1 we take in, we get five applicants,” explains John Osterling. The number of positions that can be made available depends on the

money SCA can collect. Most of SCA’s resources go toward the travel and subsistence grants for the park and forest assistants and toward hiring capable group supervisors and providing food and equipment for the high school wilderness groups. The funding problem will intensify in 1973 when a three-year foundation grant expires. The grant helped Dolstad and his staff streamline the administrative processes necessary to provide effective liaison between the participants and the parks and forests.

The federal government has established two programs for which the Student Conservation Association may have served, at least indirectly, as a prototype. They are the Youth Conservation Corps (YCC) and the Volunteers programs—Volunteers in Parks (VIP) and Volunteers in Forests (VIF). Dolstad is concerned that these governmental versions may “take the starch out” of SCA’s appeal to obtain private donations. “We set out to prove that young people are of value to government agencies, particularly in the field of backcountry work,” Dolstad pointed out. He believes that private programs will be necessary even after that concept is realized in the federal government, because each offers different opportunities and reflects different values.

At the end of each work session the volunteers are asked to complete a questionnaire to evaluate their experiences. Similarly, the supervisors prepare evaluations of their projects. From the candid comments recorded on these forms emerges general agreement about the value of the Student Conservation Program both to individual volunteers and to the government agencies with which they work. Everyone who came into contact with the program—volunteers and



JIM CORNELL



DUNCAN CAMPBELL

their supervisors both—gave it enthusiastic, wholehearted support.

A random collection of responses from the volunteers reflects sincere appreciation for the opportunities given them through the Student Conservation Program. A high school boy said of his experience at Green Mountain, "It has been one of the great times of my life. I thank you, SCA." A Florida volunteer wrote, "I came home with an unleashed spirit." A college student who spent the summer at Assateague Island National Seashore said, "I learned more in my nine-week stay than I did in a year of college."

HOW TO VOLUNTEER

Students interested in volunteering may obtain application forms and detailed information about the Student Conservation Program from SCA, Route 1, Box 573-A, Vashon, Washington 98070. Applications are accepted from December through the spring months preceding each year's session. Positions usually are filled by the end of March.

"Living in a wild area permits you to observe the direct impact of your living habits on the environment," stated a volunteer from Olympic National Park. "If everyone could spend three weeks doing what we did, America would never be the same," wrote a volunteer from North Cascades National Park.

Park and forest administrators across the country praised the Student Conservation Program volunteers. "They continue to be a genuine asset to our overall efforts," wrote the chief of interpretation at Cape Cod National Seashore. Dixie National Forest personnel in Utah commented, "We feel the volunteers did an outstanding job for us." The former superintendent at Acadia National Park said that SCA park assistants bring a "freshness, a commitment without focus to the park. And they are not hung up on procedures. They contribute zest to the whole operation."

A majority of the participants expressed the wish that more young people could take part in the Student Conservation Program. Jack Dolstad may have been the first person to voice this lament when he evaluated his original group back in 1958. "My only regret was that the program did not include more volunteers." Today that same regret propels Dolstad, his staff, and the friends and 1,614 alumni of the Student Conservation Association as they strive to enlarge the Student Conservation Program. Their visions hopefully will become reality for more young Americans and the cultural and natural heritage they are working to protect and expand. ■

Emilie Martin is a free-lance writer specializing in outdoor and hiking topics. Her weekly hiking column "What's Afoot" is carried regularly in the Tacoma, Washington, *News Tribune*. She lives at Longmire, Washington, in Mount Rainier National Park, where her husband is a ranger. She first became acquainted with the Student Conservation Association in 1963 while she lived at Staircase Ranger Station in Olympic National Park.

NPCA at work

Grizzly bear program The National Park Service program in Yellowstone Park for getting grizzly bears off artificial diets and back into a natural regime has produced much confusion and many conflicting claims in recent months. Essentially, there are two schools of thought on how the program should be implemented. One school, represented mainly by Park Service biologists, thinks the operation should be performed as quickly as possible. The other school, mainly composed of interested biologists and wildlife specialists, argues that the transition should be made fairly slowly. Thus the question of whether the grizzly program is headed toward success has become a matter of considerable contention.

Several months ago NPCA suggested to Yellowstone's superintendent that an environmental impact statement should be prepared on the program before it went farther, and the superintendent agreed. No statement has issued as yet. Because of the current sharp differences of opinion over the program NPCA again has requested the superintendent to have a statement prepared, saying that the document would help clarify the situation and gather conflicting claims into a single record for review and decision making.

Owls and birds of prey In November we printed on NPCA's protest to the Bureau of Sport Fisheries and Wildlife regarding the agency's inclusion of the horned owl on a list of nuisance birds, so-called, that includes blackbirds, common crows, magpies, grackles, and cowbirds. In January NPCA lodged a further strong protest with the Bureau on a *Federal Register* notice that seemed to lift restrictions on the taking of birds of prey, including owls, covered by the recent U.S.-Mexico Migratory Bird Treaty, only excepting those birds covered under other laws. NPCA requested that owls of all species be placed again on the fully protected list and that the notice be republished with ninety days for public comment.

The Bureau now has cleared up the first matter by indicating that inclusion of the horned owl on its list of nuisance birds was a mistake, and that the bird will be removed from the list when final regulations are developed.

NPCA's second objection seems, in light of correspondence with the Bureau, to be based on a difference between NPCA and the Bureau in the interpretation of the *Federal Register* notice on birds of prey. On this matter the Bureau has agreed to republish and clarify the notice this month with sixty days for public comment. NPCA has renewed its request with the Bureau that the public be allowed ninety days for response to republication.

Environmental agreement One of the important agreements stemming from the President's 1972 trip to the Soviet Union concerned environmental problems of concern to both nations. As a result of the agreement, formally signed in September, working groups of both nations have been formed to identify important specific areas of mutual environmental interest and to develop programs for action.

The outline of the first major program, wildlife conservation, under the agreement now is sufficiently clear to report on; it can be divided into five general categories. These are: marine mammals, with emphasis on several species of whales, the polar bear, seals, and the walrus; protection of rare and endangered species of animals; the economic aspects of free-ranging wildlife (for example, the domestication of mammals like the reindeer and musk-ox as human food sources); migratory waterfowl and waterfowl breeding areas; and predator management.

So far as the United States is concerned the agency chiefly concerned with this phase of the agreement is the Interior Department's Bureau of Sport Fisheries and Wildlife, in consultation with an advisory committee in the Council on Environmental Quality. During the past November the Bureau invited a small group of representatives from major national conservation organizations, and from other concerned agencies of government, to an informal meeting in the Bureau's Washington offices to discuss the wildlife portion of the overall program from the U.S. point of view. Attending for NPCA was Dr. John W. Grandy IV, administrative assistant for wildlife. Although no formal statements issued from the meeting, it was Dr. Grandy's feeling that arrangements for work on endangered species, marine mammals, and waterfowl should dovetail nicely with the interests of the Bureau and the private conservation community, while overall "the wildlife portion of the agreement represents a tremendous step forward in international wildlife conservation."

Dredging in Biscayne Bay In November we reported to members on NPCA's formal objection to the Army Engineers on a Florida developer's application for a permit to dredge a vast quantity of fill from Biscayne Bay in south Florida near Coral Gables to create artificial land in the bay for construction of apartments and other dwellings. NPCA detailed the vast destruction that would be wrought on both bay bottom and mangrove shoreline and requested the Corps to deny the developer a permit for the project; or, alternatively, to hold a public hearing and file an environmental impact statement.

A further action on the matter has been a recent decision by the Dade County Board of Commissioners to allow the developer to go ahead with the project.

NPCA has written the Board saying that its action seemed ill advised, imprudent, and possibly illegal (in light of a previous Florida court decision relating to the so-called "bulkhead line" for south Biscayne Bay, discussed in the January 1972 issue of the Magazine). In its letter NPCA again pointed out the significant adverse ecological effects of the huge dredging project on the Biscayne Bay bottom. Some of these effects would include loss of submerged plant and animal communities and habitats on the bay bottom, reduction in water quality because of temporary fill deposit [400,000 cubic yards] in the mangrove zone, modification of tidal patterns, and damage to the ecological integrity of the bay, which is the site of Biscayne Bay National

Monument. NPCA also expressed its concern over the Board's failure to give adequate notice of its consideration of the developer's application and its failure to solicit and assess evidence of the environmental impacts of the project.

For all these reasons, NPCA told the Board, it would seem advisable for Dade County to exercise initiative and leadership in securing the public interest by carefully evaluating the environmental impacts of the operation. The Association urged the commissioners to reconsider their decision.

Roadbuilding in parks The Federal Highway Administration, through its Office of Highway Safety, recently published a notice in the *Federal Register* proposing application of national highway standards to roads administered on federal lands by agencies of jurisdiction, including lands of the national park system. Stated purpose of the proposed action is to secure the public safety.

In response to the invitation of the notice, NPCA President A. W. Smith has written the FHA assuring that agency of the Association's concern over safety on the federal highways. He pointed out, however, that the units of the national park system are administered to secure the public interest in their natural, historic, and recreational values, not for providing high speed transportation. Park system road construction currently is done under guidelines of the National Park Service's *Park Road Standards*, published in 1968.

"That publication," wrote Mr. Smith, "contains the standards which have evolved over the years as a result of much thought and experience by the National Park Service and organizations such as this Association. It reflects the judgment that the scenic and other values of a park can be more fully enjoyed by allowing reasonably designed curves and grades to remain in the roads. . . ."

"The protection of people and the natural environment within parks and other units of the national park system depends first of all upon keeping the speed of travel down to reasonable levels within the parks. What is reasonable with respect to speed and other aspects of highway safety must be determined with reference to the values of the area through which the road runs. Where public safety on highways cannot be secured without major construction which jeopardizes park values, feasible alternatives to road transportation have been and should continue to be explored and implemented."

Mr. Smith pointed out further that these comments were equally applicable to roads in the national forest and national wildlife refuge systems and other federal areas where there are unique considerations. "We recommend against implementation of

the program standards as set forth in the *Federal Register*," he said.

Ocean dumping The recently concluded international Convention on the Prevention of Marine Pollution by Dumping and its U.S. domestic equivalent, the Marine Protection, Research, and Sanctuaries Act of 1972, may have helped persuade the American Cyanamid Company of Savannah to abandon its plans to dump acid wastes containing heavy metals in the Gulf Stream off the Georgia coast. The company announced in early December that it would withdraw a request for an Army Engineers permit to build a barge dock if a new Japanese at-source treatment system "proves to be a viable solution."

The ocean dumping convention, as a significant step toward establishment of an international environmental code of responsibility, is a concrete implementation of the principles set forth by the United Nations Conference on the Human Environment in Stockholm. The preamble to the convention says that signatory states recognize "the responsibility to insure that activities within their jurisdiction or control do not cause damage to the environments of other states or of areas beyond the limits of national jurisdiction." States pledged themselves to take "all practicable steps to prevent the pollution of the sea by the dumping of waste or other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."

The final text of the convention was drafted in a November conference in Lon-

don attended by eighty participating nations and twelve observing nations. The convention was open to signature beginning December 29 last, and Russell Train of the Council on Environmental Quality has indicated that the United States will sign and has expressed the hope that the Senate will approve. Congress recently enacted a law regulating the dumping of all types of materials into ocean waters and to prevent or strictly limit dumping of materials that would adversely affect human health, welfare, the amenities, or the marine environment and its ecological systems.

NPCA already is on record as objecting to American Cyanamid's dumping proposal in comments on an environmental impact statement prepared by the Army Engineers in regard to the company's application to build a barge dock. (October Magazine, page 30; November Magazine, page 33.) A recent letter to the Engineers' Savannah District Engineer from NPCA's special assistant for programs, Robert Eisenbud, states that the international convention and the new domestic law support NPCA's earlier comments on the matter. The letter further states that "the proposed dumping of wastes containing cadmium and mercury compounds is totally proscribed by the recently concluded convention" and that the ocean dumping act requires the company to obtain a permit from the Environmental Protection Agency after opportunity is given for public hearings. NPCA asked that this letter be included in the record of comment on the impact statement.

American Cyanamid presently dumps its wastes into the Savannah River and proposed the ocean dumping plan after the Georgia Water Pollution Control Board set

A CITIZEN'S VOICE IN GOVERNMENT

Organizations like the National Parks & Conservation Association, which enjoy special privileges of tax exemption, may not advocate or oppose legislation to any substantial extent.

Individual citizens of a democracy, however, enjoy the right and share the responsibility of participating in the legislative process. One of the ways citizens of a democracy can take part in their government at state and federal levels is by keeping in touch with their representatives in the legislature; by writing, telegraphing, or telephoning their views; by visiting and talking with their representatives in the national capital or in the home town between sessions. Every American has two senators and one congressman with whom he may keep contact in this manner.

The best source of information for such purposes is the official *Congressional Directory*, which may be purchased through the Government Printing Office, Washington, D.C. 20402. The volume, produced both in hard and soft cover editions, tells you who your senators and congressmen are and lists the membership of the various congressional committees. It also gives full information on the personnel of the various executive bureaus of the government that one may contact about administrative programs and policies.

The *Congressional Directory* for the first session of the 93rd Congress will be available in March. The GPO sets no prices on the new volumes until it is well into the production process; but the Magazine will publish costs for both editions when the information is available.

a July 1972 deadline for abating discharge into the river. That deadline was extended until early 1973 and now may be further extended to allow the board and Environmental Protection Agency to review the proposed new treatment system.

Impact statement needed In a letter to Environmental Protection Agency administrator William D. Ruckelshaus, NPCA has requested that agency to produce an environmental impact statement on the Administration's decision to limit commitment of funds to states for new water treatment plants during government fiscal years 1973 and 1974. The decision to limit the level of funds to less than half the amount authorized by Congress clearly may result in a significant impact on the quality of the human environment, NPCA said.

"President Nixon is quoted . . . as characterizing this decision as a 'course of action' and you are quoted as announcing a commitment by the Administration to the limited level of funding," NPCA wrote.

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"Whatever the arguments for such action, the decision is clearly a major federal action and within the purview of the . . . Environmental Policy Act of 1969."

NPCA pointed out that the act requires that an environmental impact statement be filed and circulated for review and comment prior to major federal action that significantly affects the quality of the

human environment, and that NPCA has "not been aware of the existence of such a statement in connection with the decision to limit federal funding of clean water programs."

In view of these considerations NPCA requested EPA to stay any implementation of the decision pending compliance with the National Environmental Policy Act.

Member at Work: a Letter on Grand Teton

NPCA often asks members to write executive agencies of federal, state, or local governments expressing their views on proposed policies or actions affecting the environment. Well-reasoned comment from members on current environmental issues is a valuable public service and, contrary to the opinion of some, such expressions not only are effective but often are actually welcomed. NPCA would be glad to have a copy of your letter or, where this is not possible, at least a postcard saying that you have written. The Magazine prints here an especially fine response from an NPCA member to the President, with copies to other public officials, on the proposed airport runway extension in Grand Teton National Park, the subject of an article and other comment in the Magazine during the past year.

DEAR MR. PRESIDENT:

A commercial for your re-election chose T. S. Eliot's clarion call: "Clear the air! Clean the sky! Wash the wind!" to eloquently demonstrate your concern for our country's environment. Now I am dismayed to read that you have signed into law an appropriations bill that authorizes construction funds for the extension of the airport in Grand Teton National Park in order to accommodate Boeing 737 jets.

Mr. President, is the introduction of jets within one of our national parks in keeping with your pledge to "Clear the air! Clean the sky! Wash the wind?" Have you thought of the effect upon visitors to the park of the roaring engines from 15 daily flights? Of the sight and smell of the fuel that must be dumped from planes flying at this high altitude? Of what this noise and pollution would do to the wildlife and vegetation of the park? Did you know that the landing pattern of the jets will bring them in at low altitude directly over those who will be rafting down the Snake River in search of quiet and relaxation? Here are a few pertinent facts:

1. Frontier Airline's present fleet of 32 Convair turboprop 580's is perfectly adequate to handle not only present but also projected passenger loads.
2. People who fly to Grand Teton comprise only 1 percent of all yearly visitors to the park.
3. It is not true, as proponents of the jetport contend, that the 1700-foot extension is necessary for reasons of safety. It is a parallel taxiway that is needed for safety; an extension is not.
4. The 20-year lease on the airport comes up for renewal in 1975, and will have to be re-evaluated in the light of the National Environmental Policy Act (NEPA). It may well be decided at that time that the airport should be relocated outside the park. It was described as an "undesirable intrusion" in the park by Acting Director of the National Park Service A. E. Demaray in 1941.
5. NEPA requires that an environmental impact study be made for the proposed extension. The groundwork for the environmental studies is being done by the architectural and engineering firm of Lee Graham and Associates of Cody, Wyoming—the same firm which is the contractor for the extension. The National Park Service lacks both the trained staff and the necessary time to properly evaluate this study. It is essential that this be done by an impartial agency which has no stake in the study.

Commercial interests in Jackson say that the introduction of jets will bring desired economic growth. This may be. But the importance of Grand Teton National Park to the people of this country as an oasis for the human spirit far outweighs, I believe, its importance as a lodestone for Jackson's economic development.

I have never been to Grand Teton. I may never get there. But it is important to me, and to millions of Americans like me, clustered in densely populated megalopolis, that it exists, and that it exists unsullied by the intrusions of urban civilization which we must needs put up with in our daily life. If only in our dreams, we need to feel the peace and serenity of the Snake River. We need the vision of elk grazing on alpine meadows, of trout leaping in a crystal lake.

A little less than two years ago you saved Everglades National Park from the encroachment of a jetport that had been planned for its periphery. You can save Grand Teton now. In so doing you will truly be making good your promise to all Americans who cherish their dwindling wild places to "Clear the air! Clean the sky! Wash the wind!"

MRS. AHIRA COBB, Princeton, New Jersey

NPCA field trips Because of present internal conditions in Uganda, that country does not appear in NPCA's field trip advertisement printed regularly in this section of the Magazine. Club Tours, Inc., of New York City, operators of the trips for NPCA, has advised that since it does not seem likely that the embargo on travel to Uganda will be lifted for some time at least, the first few days of the trips normally spent there have been added to the program in Kenya and Tanzania. The shift has resulted in an opportunity for deeper exploration of the national parks of those nations, with their wealth of great mammals, and a closer acquaintance with citizens and their customs. Full information on NPCA field trips is available from Club Tours, Inc., 18 East 41st Street, New York City 10017. The telephone number is (212) 532-7075.

McKinley Park Hotel In late summer of 1972 the hotel on park lands at the eastern edge of Mount McKinley National Park in Alaska was largely destroyed by fire. The accident immediately raised the question of whether the hotel should be rebuilt on its former site or whether visitor accommodations at McKinley Park should, in fact, be placed outside the park, as advocated by NPCA for many years and by some others more recently. The accom-

modations situation at McKinley currently is complicated by several things, importantly the needs of the coming summer, the possibility of a substantial enlargement of the park under the Interior Department's recently proposed Alaska public land settlement, and the further possibility that accommodations may be built on nearby state lands to serve both the northern and southern parts of the park at its present size.

NPCA has been in close touch with the McKinley Park accommodations situation and with the Park Service on its plans in the matter. The Service already has held meetings (informal local hearings) in Alaska to sound public sentiment. It apparently has agreed with the park concessioner that some kind of arrangement will be necessary for the coming summer season but says it has made no commitment on specifics. The Service has indicated that master planning for the park, which among other things would discuss accommodations siting, may be delayed because of the park enlargement possibility. (See NPCA's recommendations for park enlargement on the map in centerfold of this issue.) It asserts also that there is no current construction activity at the old hotel beyond securing of utility lines, cleanup, and a leveling of the site to its natural grade.

However, one of the difficulties private environmental organizations like NPCA encounter in formulation of recommendations, for public hearings or otherwise, on questions of this kind is that no information on a vital aspect of the overall situation—the park concessioner's financial interest—can be obtained from the Park Service, which says that the information is exempt from public disclosure by law. NPCA and others have argued that the information should be available under existing law—specifically, the Freedom of Information Act. With particular reference to Mount McKinley National Park, NPCA has told the Park Service that it feels the reconstruction of a destroyed facility is in effect the award of a new concession. The Association has requested preparation of an environmental impact statement prior to any decision to construct facilities or otherwise affect the environment.

Life member reception On December 5 of the year just past Mr. William Zimmerman, of NPCA's New York Honorary Committee, was host at a reception for Association life members and patrons at the Sky Club atop the Pan-Am Building. Those attending received and discussed a report from President A.W. Smith on NPCA's present activities, future plans, and financial needs. Staff members Robert Eisenbud, Dr. John W. Grandy IV, and Robert Bridges spoke briefly on specific NPCA projects.

conservation news

Encouraging trend We noted in a recent issue that NPCA had commended the Illinois Department of Conservation—in particular the supervisor of its Division of Wildlife Resources, James M. Lockhart—on its role in helping secure a state endangered species act. Supervisor Lockhart has now informed NPCA that the division recently acquired a specialist on non-game species who will work with songbirds and small mammals to correct a pre-act emphasis on larger birds and mammals, particularly those of interest to sportsmen. Thus the trend of wildlife resource management under the new Illinois law seems most encouraging.

Marine Mammals Act A briefing for environmentalists on plans for administration of the Marine Mammals Act of 1972 by the National Marine Fisheries Service of the Commerce Department's National Oceanic and Atmospheric Administration was held at NPCA headquarters in Washington January 11. The Service's presenta-



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tion was made by Deputy Director Robert W. Schoning, Associate Director Robert F. Hutton, and Acting Program Coordinator William F. Peck, and was followed by an informal question and answer period. We shall have more details on this briefing in the March Magazine.

A vital water issue A document of the deepest significance to environmentalists recently was released by the National Water Commission, established by the Congress in 1968 to help formulate America's future water resource programs and policies. The document is the Commission's draft report and recommendations on a broad range of national water resource topics; it includes, among many other things, a hard look at the operations of construction agencies like the Army Engineers, Bureau of Reclamation, Soil Conservation Service, and Tennessee Valley Authority, and recommends some fundamental changes in their various damming, channelization, and wetlands drainage schemes.

The final version of the report is scheduled for publication this spring. Thus it becomes critically important that NPCA members register their views with the National Water Commission on the draft document as a counterbalance to the voluminous testimony that certainly will be offered by the governmental construction

agencies and the developers and contractors.

Notice of public hearings on the matter came too late for effective alerting of NPCA members through the Magazine (four public hearings were held in various parts of the country in January and early February), but the hearing record will remain open until February 15, and members should write the National Water Commission, Room 405, 800 North Quincy Street, Arlington, Virginia 22203, asking that their comments be included in the hearing record.

An analysis of the 1,122-page draft *Report* hardly could be attempted here, but NPCA members might wish to consider the following points on which there is general agreement among environmentalists.

The Commission's recommendations for reform in the rules for local sharing of the costs of flood control, irrigation, drainage, and navigation projects are praiseworthy and should be adopted. If most or all of the costs of such environmentally damaging projects were picked up by the localities or regions they were supposed to benefit rather than by the public at large, many such projects never would be promoted.

The draft report calls for better floodplain management and nonstructural methods of flood control as a substitute for big dams and river channelization. Pointing out that many flood-control projects actually increase damage from floods (by pro-

moting a false sense of security and greater floodplain development), the Commission very wisely has recommended that steps be taken to reduce floodplain development—a step long urged by NPCA and other national conservation organizations.

Members may want to support the Commission's stated view that there is no need in the next thirty years for federally subsidized water resources development programs to increase the agricultural land base of the country. This comment is directed specifically to river channelization projects that bring new croplands into production while Americans pay well for keeping other croplands out of production. Members also might want to point out the ecologically destructive nature of stream channelization projects.

The Commission is not happy with the usual construction agency practice of beefing up cost-benefit ratios of water projects in one way or another to justify them, and has recommended establishment of an independent review board to look at projects closely in this respect. Most environmentalists would agree that such a move is long overdue.

Not so praiseworthy is the Commission's proposed 5½-percent discount rate for water projects. Far better would be a realistic 10 percent, the current "opportunity cost of capital." At the low 5½-percent rate developers can justify many water projects

IMPORTANT NPCA PUBLICATIONS

ECOLOGICAL FORESTRY FOR THE CENTRAL HARDWOOD FOREST

ECOLOGICAL FORESTRY FOR THE NORTHERN HARDWOOD FOREST

by Peter A. Twight and Leon S. Minckler

Important studies on socio-ecological forest management support NPCA's contention that there are methods other than clearcutting that can be used profitably in harvesting and regenerating our forests. Dr. Minckler was for 33 years a silviculture and hardwood ecology research forester with the U.S. Forest Service and is author of more than 130 scientific papers. Mr. Twight is administrative assistant, forestry, with NPCA and has a background of 5 years' professional experience with the Forest Service.

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that would not be economically feasible at the higher, realistic rate.

Another weak point that members may want to mention is the Commission's attitude that the 1972 amendments to the Water Pollution Control Act, aimed at eliminating water pollution by 1985, are too stringent and costly; that rivers should be evaluated in terms of how much pollution they can assimilate rather than whether they should be polluted in the first place. Environmentalists think the Commission has overlooked the fact that water pollution presently costs the nation about \$12 billion yearly and that the sum could be spent much better on effective water pollution control programs.

NPCA MEMBERS: Final disposition of the Commission's recommendations will affect the future physical shape and liveability of the nation—its environmental quality, if you will. The piecemeal destruction or alteration of the national rivers, river basins, swamplands, and shorelines can continue under the developer's catchphrase of "progress"; or a more enlightened national water resource attitude can be adopted soon to the benefit of all, especially young Americans and their future young. Member comment on the matter would seem in order. NPCA would like, if possible, to have a carbon copy of your letter; but by all means write the Commission with your views.



Ronald H. Walker



George B. Hartzog, Jr.

New Park Service director President Nixon's second term brought, among other changes in government bureau personnel, a new director to the National Park Service. He is Ronald H. Walker, former special assistant to the President and at one time assistant to former Secretary of the Interior Walter J. Hickel. Mr. Walker replaces George B. Hartzog, Jr., who had served as director since January 1964, having been appointed by the then Secretary of the Interior, Stewart L. Udall. Commenting on the appointment the present Secretary of the Interior, Rogers C. B. Morton, said that he had selected Mr. Walker because he "is a dedicated person of unusual talent and ability. He will be a strong successor to Mr. Hartzog, who served well during the nine years of his directorship." Secretary Morton noted further that the Administration's park policy is aimed at a sound balance between park integrity and public access and enjoyment.

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New waterway plan Apropos to the water report on page 32 we can tell NPCA members that the Army Engineers have reactivated a twelve-year-old plan for greatly widening and deepening the Intra-coastal Waterway on the coasts of Delaware, Maryland, and Virginia—about 145 miles of waterway, all told. Out of the present facility would come a channel through the coastal marshlands and shallow embayments and sounds of those states six feet deep and a hundred feet wide, partly by new construction and partly by the deepening and widening of existing waterway. The spoil alone from this vast dredging operation, estimated at some 5 million cubic yards, will cover a thousand acres of Maryland and Virginia lands, if the acres can be found. The cost-benefit ratio for the project apparently leans heavily on a yearly \$642,000 “stimulus for enlargement and creation of commercial enterprise to furnish goods and services for boat users.”

Some East Coast environmentalists have expressed surprise that the Engineers have resurrected the old proposal for public inspection at a time when the tidal marsh and bay environment of this region has been a matter of lively public interest and concern. Indeed, the Engineers themselves have brought suits in recent months against private dredging in the marshlands and shallow bays here and have been rendering assistance to Maryland and Virginia in enforcement of state wetlands laws.

The bays, sounds, and marshlands of these states are some of the world's most productive breeding grounds for aquatic life, some of it highly important to the economy of the states involved. They also are highly vulnerable to pollution because of their shallow, slow waters. The 8,800 additional powerboats and small commercial vessels the Engineers say would be brought into the area yearly would doubtless have a serious impact on federal reservations adjacent to the waterway, including Assateague Island National Seashore and the Chincoteague National Wildlife Refuge. But air and water degradation resulting from this increased traffic and the installations necessary to service it could be dealt with by state and federal pollution control agencies, the Engineers say.

The plan first must go to the governors of the states concerned. If approval is obtained, it must then go to Congress for funds.

Tellico dam delayed Further construction work on the Tellico Dam, being built by the Tennessee Valley Authority on the Little Tennessee River, recently was halted by the Sixth U.S. Court of Appeals when it affirmed a lower court decision requiring TVA to file a final environmental impact statement on the project. Four in-

terested groups, including the Association for the Preservation of the Little Tennessee River, had requested a U.S. District Court to require the statement; TVA had contended that dam construction had started before passage of the National Environmental Policy Act and that terms of the act did not apply.

Conservationists in Tennessee and elsewhere, including NPCA, long had opposed construction of the \$69-million impoundment (originally estimated at around \$42 million), which would flood out the last remaining free-flowing reach of the Little Tennessee. After the dam had made an initial and unsuccessful trip to Congress in 1965, it was funded in 1966, and construction began in 1967.

The Tellico reservoir will convert the Little Tennessee into an unbroken series of artificial impoundments reaching far upstream toward headwaters in the mountains of North Carolina and north Georgia. It will cover more than 14,000 acres of rich bottomlands and bury many early American historical sites, including the Indian town of Tennesee, which gave a name to the state of Tennessee. When environmentalists finally lost their battle against construction, NPCA president A. W. Smith commented that “the loss of the fight for the little Tennessee is a tragedy for all the American people.” That tragedy may be delayed by the last-ditch efforts of environmentalists, but probably not finally prevented.

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Continued from page 2

stabilization is achieved will be unacceptable, and that reduction will be essential.

The telical statement has elaborate ontic and technical ramifications. Space for living would be one criterion; energy demands would be another. The feasibility of stabilization and reduction depends on control of birth rates. In terms of medical techniques it is already very high; the problems are cultural, and ultimately manageable, once the essential value judgment has been made.

Considering a few specifics, natural areas like the great parks and wilderness areas have immense human value in terms of spaciousness, solitude, quietude, natural beauty, ecological preservation, as contrasted with crowd entertainment, which can be provided elsewhere. Comprehensive regional planning is needed to preserve the parks and wilderness, and to provide outdoor recreational opportunity in the entertainment sense elsewhere. The essential governmental institutions for planning and management already exist, but are not being used; the problem is the value judgment.

Consider the forests. They produce timber and wood products, except in parks. They can be harvested for sustained yield by methods which conserve and protect the soil, watercourses, wildlife, scenery, recreational opportunities, and the forests themselves. This means, in general, selection, shelterwood, or small patch cutting, not large-block clearcutting. There may be an economic differential, an environmental protection cost which must be internalized. The fiscal and technical problems can be solved when the value judgment has been made. The trans-valuation, however, will reverse present-day technology.

In wildlife management, the objectives of the future will be survival, restoration, ecological balance. Sports hunting has had a useful place as a management tool. But the trend is toward the enjoyment of wildlife alive; toward protection, observation, photography, and scientific study.

A sense of the community of all life may be arising which could implement the ecological imperative. A growing delight in the manifold forms of life might reflect and foster that biophilia or love of life which is the modern hope of survival against mass murder and mass suicide.

In river basin management, the values have been control, full development. The Aswan Dam may have provided the first good shock therapy for this

delusion. We are still squandering billions all over America on high dams for hydropower, irrigation, flood control, pollution abatement, water supply, navigation, so-called recreation, and other purposes which are in most cases technically outmoded, and certainly telically unsound.

The standards of planning for the future must be those of ecological management. This means headwaters stabilization, flood plain clearance, natural stream valley protection, and complete urban and industrial effluent purification. It means returning liquid and solid organic wastes to the land as fertilizer. This is an imperative trans-valuation; it will have highly beneficial, if revolutionary, social consequences.

One final example: the abuse of pesticides is endangering life on this planet. Yet a measure of selective control for insects is obviously necessary for food production, sanitation, and comfort. A shift is necessary from hard to soft pesticides, and thence toward biological controls. The shift may terminate with integrated control, involving a residual use of chemicals.

The problem is both national and international. Fiscal and regulatory institutions can and must be created on a worldwide scale. The necessity forces the creation of environmental institutions with essentially legislative, executive, and judicial aspects on a planetary basis.

The elaboration of such institutions must be a major part of the business of the United Nations Conference on the Human Environment which will be held in Stockholm, Sweden, in 1972.[‡] They have been foreshadowed in the draft convention on the Law of the Sea which will be considered in a subsequent United Nations Conference in 1973. Similar problems will come before the United Nations Conference on Population in 1974.

International law grows by consensus; but institutions can be created by consensus which can act by majority decision pursuant to law. The environmental crisis will hasten the birth of a World Community which will also, of necessity, be a Community of Life.

—Anthony Wayne Smith

[‡]This work has begun.

NOTES

1. Holmes, O. W., "The Theory of Legal Interpretation," 12 *Harvard Law Review*, 417 (1899); *Collected Legal Papers*, 203, 209 (1920).
2. Webster, Merriam, 2351 (1966).
3. James, W., *Pragmatism*.
4. Whitehead, A. N., *Process and Reality*, 435 (1929).
5. Fromm, E., *The Crisis of Psychoanalysis*, 161 (1970).



A great environmentalist once called the two American sequoias—the coast redwood and the Sierra Nevada Big Tree—the most remarkable trees in many respects on this continent and in some respects the world. To him they were “patricians, tracing their lineage from the dim vistas of creation.” The protection and proper management of the two California sequoias have been a continuing concern of NPCA since the organization was founded some 54 years ago.

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