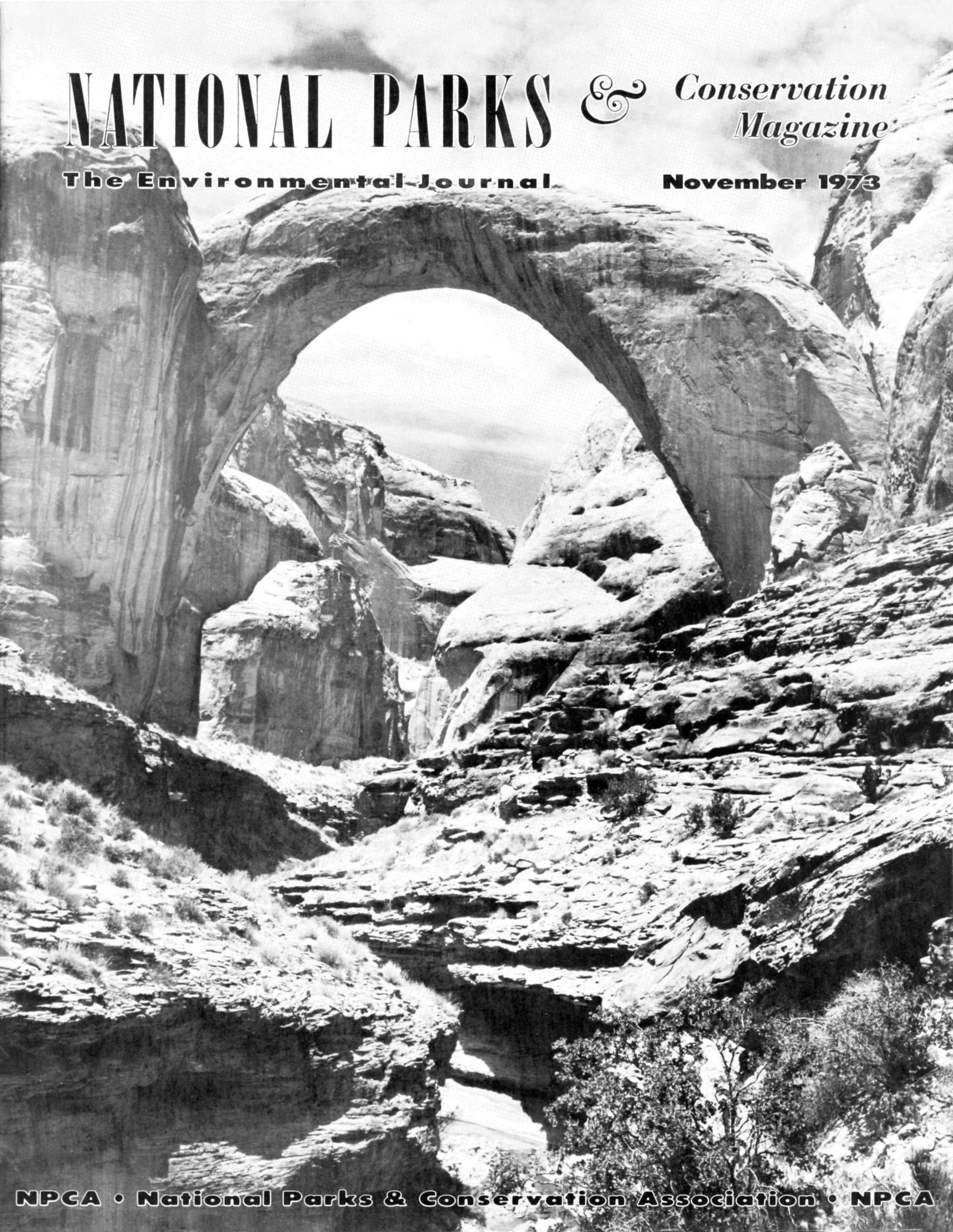


NATIONAL PARKS & *Conservation Magazine*

The Environmental Journal

November 1973



PEOPLE & POPULATION

THE RECENT HEAVY EXPANSION of grain shipments abroad, contributing to the disruption of the domestic food price structure, has been justified by responsible officials partly as providing the necessary exchange for the increased importation of petroleum.

The world's most heavily industrialized country becomes a major food exporter for the purpose, among others, of maintaining its supplies of raw materials; or more precisely the imports made necessary in part by poorly organized urban, energy, and transportation systems.

THE OMINOUSLY EXPANDING planetary demands for food arise in some measure from efforts to elevate dietary standards, but mainly from the growth of populations. Efforts toward the modernization of agriculture in the less developed countries in recent years have been but moderately successful in terms of need. Food production, let alone capital formation, tends to fall behind the growth in human numbers, and the threat of famine hangs over many lands continuously, and even entire continents.

The industrial countries become increasingly dependent on the raw materials nations, particularly the fuel producing lands, as consumer demands increase and domestic resources are depleted. The producing countries are in a position to cut off or to limit supplies, and to exact higher prices. Rising populations in the industrial countries will accentuate these difficulties. The need to stabilize, and eventually reduce, populations is thus a need which is shared by the more affluent and less affluent countries alike.

THE UNITED NATIONS Conference on Population, scheduled to be held next year, is of enormous importance to all the people of the entire world. It will deal presumably with an appraisal of the present world situation and specific national dilemmas, but hopefully it will draw up a worldwide action plan for the stabilization and reduction of populations everywhere.

Recent years have seen changes in attitudes in the United States with respect to family size which promise to simplify our problems at home. The total fertility rate (the average number of births in a woman's lifetime) in the United States fell to

2.025 in 1972. Had it not been for the greatly increased numbers of women of childbearing age, this would have meant a slowly falling population. A rate of 2.1, maintained for a long enough time, would result in a stationary population. In fact, these figures mean a gradual decline in population growth, with a stationary population a good many years away. The danger is that the change, which is highly advantageous, may stir fears of an uncontrollable decline and that efforts may be made to stimulate growth again.

THIS ASSOCIATION has emphasized the need for the dissemination of a general ethic of not more than two children as being fundamental to a sound national and worldwide population strategy. The need remains, of course, to improve upon existing techniques of birth control. In particular, it is vitally important to find methods which will be effective and acceptable among remote and illiterate populations. Systems of rewards and penalties for limiting family size can best be built upon a widespread understanding of the desirability and necessity for stabilization; law will follow custom in such matters, as in many others. The reformulation of customs, involving changes in moral and religious outlooks, often stubbornly resistant to alteration, will require the devoted labors of a multitude of good teachers everywhere.

The menacing deterioration and pollution of the environment which have been forced on public attention in recent years result from a combination of polluting technologies and the population explosion. The environmental crisis can be solved eventually only by grappling with both of these difficulties. A forthright identification of polluting technologies everywhere and vigorous efforts toward a changeover to nonpolluting methods of production will be essential for human survival. But the inescapably adverse effect of mere human numbers on planetary living conditions, and on the exhaustion of nonrenewable resources, remains fundamental.

A SOUND ACTION PLAN, in our opinion, applicable both at home and abroad, will include a combination of clinical and educational aid on a community-by-community basis. Technical and medical

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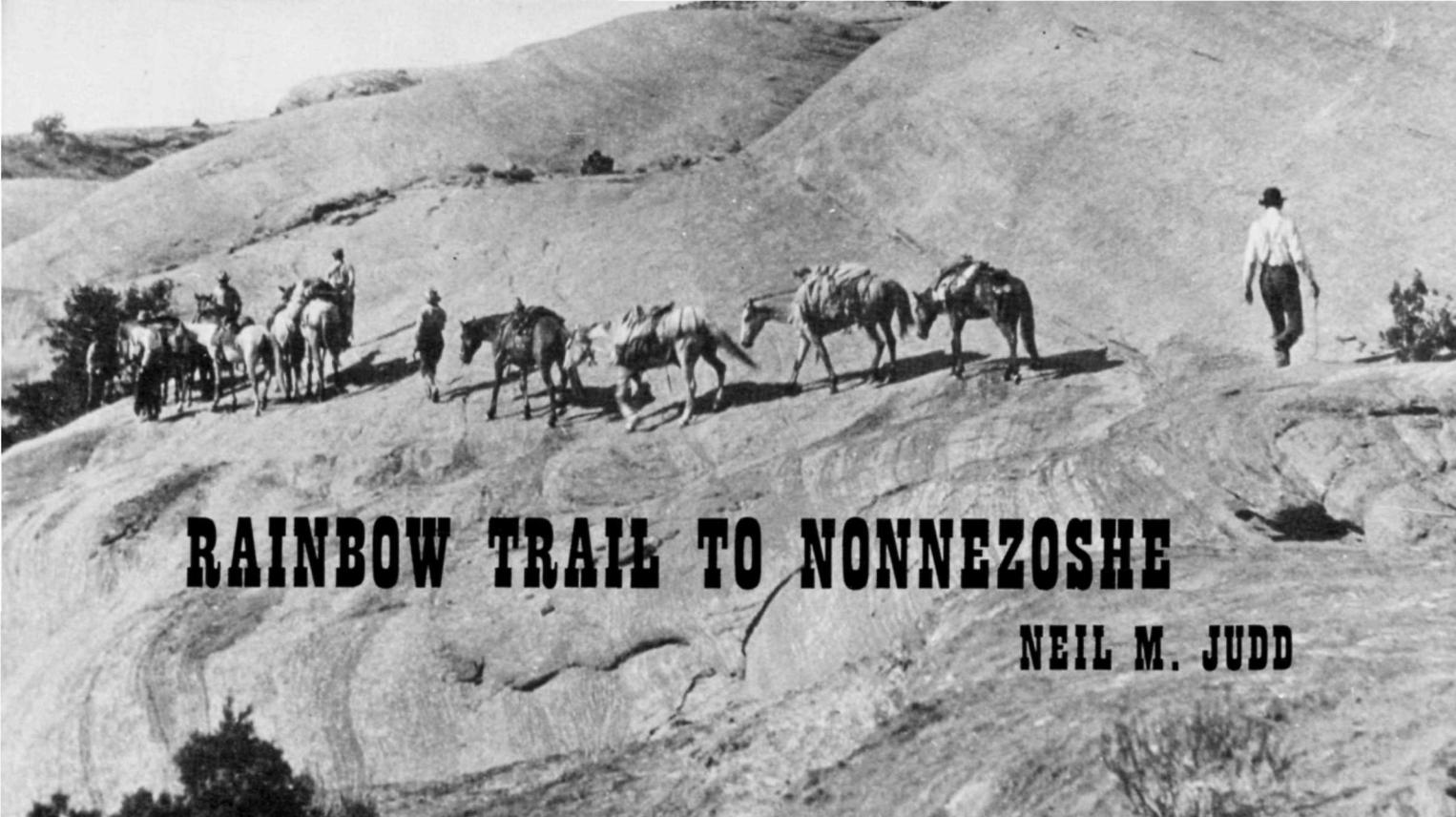
FRONT COVER Rainbow Bridge from upstream, by J. Y. Bryan
The sublime effect of Rainbow Bridge at close range is due in part to its surroundings but chiefly to its sweep, color, and magnitude. The largest natural arch in the world, it spans 278 feet and rises to a height of 309 feet—large enough to span the U.S. Capitol. The arch itself is as wide as an average highway—33 feet. Its reddish coloring alters as the stroke of sunlight across it changes. For that reason local Indians gave it a name meaning "Rainbow-Turned-to-Stone." (See pages 4 and 9.)

BACK COVER Coyote, by Joseph Van Wormer
The people of Maine are trying to work out new enlightened relationships with nature, as evidenced early this year when they rejected a bill that would have placed a bounty on the coyote, a newcomer to her forests. (See page 16.)

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RAINBOW TRAIL TO NONNEZOSHE

NEIL M. JUDD

Mile after mile of slickrock proved slippery footing for the horses.

NEIL M. JUDD

the story of the discovery of the world's largest stone arch,
now threatened by Lake Powell's waters, bears retelling

Rainbow Bridge in southern Utah has been controversial ever since it first was revealed to the white man, and indeed that revelation itself became controversial in its day. The great red monument to a special kind of natural engineering later became a national monument, but for many years now the monument's integrity has been menaced by water backed up in the Colorado River by a huge federal dam.

This article was first written by Mr. Judd for NPCA's Magazine in November 1927. Both historic interest and the shadow presently lying over both the Bridge and the monument itself make it timely to republish the discovery story, in somewhat abridged form, as written by one who as a young student assistant to Professor Cummings was a member of the Rainbow Bridge party in 1909.

THIS IS THE STORY of the discovery of Rainbow Bridge—Nonnezoshe, as the Navajo call it—colossus among the world's known natural bridges. But the story of that first trip when, on August 14, 1909, white men saw the Bridge for the first time, has not previously been written for the public eye. As a member of that group of discovery, I have been invited to tell the story.

Who actually discovered Nonnezoshe? Nobody knows. Some Indian in the pre-Columbian past, when man roamed widely over this continent of ours but left no written record to prove it. Some Indian was the real

discoverer; he stood a moment, dumb with surprise—turning-to-reverence, then straightway built an altar whose rising smoke column carried his prayer of homage up into the turquoise dome where dwells the omniscient Sky Father. But we whites have a conceit all our own which frequently tempts us to ignore the achievements of those of a different hue. A thing clothed in the traditions of a thousand years remains unknown until we, ourselves, have seen and recorded.

Somewhere in the archives of the Department of the Interior is a report identifying W. B. Douglass as discoverer of Rainbow Bridge. Zane Grey and others have given this honor to John Wetherill, famed plainsman and guide to desert regions. Such statements are incorrect or unwittingly omit certain essential facts. The first white man ever to have seen Nonnezoshe is Dr. Byron Cummings, president of Arizona State University. That was on August 14, 1909.

IN THE EARLY SUMMER of 1908 Professor Cummings, then of the University of Utah, extended his archeological surveys south of the Rio San Juan. The previous season had been devoted to similiar researches in southeastern Utah along Montezuma Creek, Grand Gulch, Armstrong and White canyons in which latter two gorges are to be found the Edwin, Caroline, and Augusta natural bridges [now Natural Bridges National Monument]. From Wetherill's trading post at Oljato,

in southern Utah, Cummings directed his 1908 studies through canyons of unpronounceable Navajo names to discover Ladder House, Swallow's Nest, and several other cave-ruins. In 1909 he visited Kit-seel, larger than the well-known cliff dwellings of Mesa Verde National Park, and discovered Betataiekin.

But it was during the progress of these 1908 explorations along the trail of prehistoric man that Professor Cummings learned from Mrs. Wetherill of the existence, somewhere in the vicinity of Navajo Mountain, of a natural bridge larger than those in White and Armstrong canyons. The venerable Navajo who first told of the colossal arch had died the previous winter, justly punished, his fellows may well have thought, for having divulged a tribal secret. However, Mrs. Wetherill agreed, at Cummings' request, to make further cautious inquiry during the approaching winter and make any necessary arrangements whereby the Bridge could be located and visited the following season. Cummings left Oljato in the late summer of 1908, therefore, with two objectives already in view for his 1909 expedition: discovery of the great stone bridge, and continuation of his archeological researches.

When the professor returned in June 1909, he was informed by Mrs. Wetherill that she had learned of only two Indians, father and son, who actually had seen the Bridge; many had heard of it. These two were Piutes, dwelling in Piute Canyon on the east slope of Navajo Mountain; they had seen the stone rainbow while searching for strayed horses. Through Wetherill, Cummings sent word to the younger Piute, Nashjabegay, engaging him as guide for the Bridge trip whenever the Utah party should complete its archeological work and proceed to the Indian's hogan in Piute Canyon. The first of August was suggested as a most likely time for the venture.

But when August came and John Wetherill arrived, as by agreement, at the Cummings camp in Sagie Canyon, he brought word that Douglass was expected at Oljato in about four days with Rainbow Bridge as his sole objective.

Now only one who knew Professor Cummings could understand how truly characteristic it was for him to order his party back, from a point already forty miles out on the Piute Canyon trail, to await two days the arrival of the government surveyor. Bear in mind the fact that Cummings had in his employ one of the two Indians who actually had seen Nonnezoshe; bear in mind the further fact that Cummings purposely retraced

his steps forty miles, and then waited two days to offer the obvious advantage of such guidance gratuitously to the federal man, and you will better understand the impatience of less generous members of the Utah group, and our subsequent disappointment when Douglass announced that Professor Cummings had attached himself to the federal party! It is because of these facts and my personal recollection of that moment when the professor drew rein and pointed out to Wetherill, and later to Douglass, the distant curve of Rainbow Bridge that I shall always insist that Professor Cummings and no other is the rightful discoverer of Nonnezoshe.

From Oljato the combined Cummings-Douglass parties turned north, down the Moonlight, toward its junction with the Rio San Juan. From Sagie Canyon Cummings could have followed an easier trail across the higher mesas stretching away from the base of Navajo Mountain; from Oljato, it was necessary to turn far to one side to avoid the deep canyons that separate the frayed ends of those same mesas.

I do not recall where we camped that first night. The first experiences that stand out vividly were our arrival in Nokai Canyon, our camp there and our exit. It had been a long, hard day—not hard as we learned later to know the meaning of that word on the Rainbow Trail—jogging, jogging, through loose, shifting sand down the Moonlight to the San Juan, around ragged points to the mouth of Nokai, then up its crooked course a short distance to convenient waterpockets and camping space. All day without water under a bronzing sun, across glistening sand; across acres of clicking pebbles, burned brown through eons of time; across endless bare, red rocks to camp on more rocks, more sand. The professor and his student assistants were somewhat hardened to it, having been doing much the same sort of thing daily for two months past. In that time they had learned to minimize personal conveniences, to sleep in sweaty saddle blankets when necessary, to travel days on a diet of rice to lessen the packs and reduce the number of animals in the train. But they cut too close to the bare necessities on the first Bridge trip and—unpardonable blunder—neglected to bring a shoeing outfit.

So fate decreed that one of the first things to be done at camp at Nokai Canyon was to replace a shoe thrown by a pack horse during the day. I recall with some amusement that Wetherill did the task with nails from an old tomato carton, salvaged from the camp site of a defunct placer company, with a cobblestone as shoe-



Left, Nashjabegay. In the front row below are, left to right, Mike's Boy, John Wetherill, Dr. Byron Cummings, W. B. Douglass, and Malcolm B. Cummings. Neil M. Judd is second from right in the back row.



ing hammer. Trained on the desert, Wetherill seemed prepared for any emergency.

The while, supper was preparing. Boiled rice, no doubt—it is light to carry, swells with the cooking, and is sufficient. Boiled rice, reddened by sediment in surface water left by the last rains, and baking powder biscuits hot from the Dutch oven! What matter if bread be dun-colored, brick-hued from such scanty water as the desert provides? I have known biscuits so red that experience dictated the wisdom of marking their position, when set out to cool on the red sandstone that answered as table.

With fading stars the horses were wrangled in, breakfast prepared, and the day begun. The long, snakelike trail that led out of Nokai Canyon to the summit of the plateau seemed endless rather than difficult. Up out of the bare, burned valley it crept, hugging the mesa side, turning and twisting but always up, up. There were three or four occasions when the bulkier packs had to be removed and the clumsier horses helped around jagged, treacherous points with rope at neck and hand on tail. Cliffs rose high on the right and dropped sharply away a thousand feet on the left.

Canteens were empty when we reached the top; mouths dry; tongues thick and cottoned. It had been beastly hot on the long, upward grade with a merciless sun beating full upon us. But a mile or more back from the rim, shallow pools of recent rain water marked the summit; into those pools went fevered noses, horses and men side by side.

Beyond the mesa top the trail led down into Piute Canyon, and here, close by green fields of Indian corn, we expected our guide, Nashja-begay. But the old father, toasting cotton-clad shins on the sunny side of his hogan, informed Wetherill his boy had waited until a day or two before, then had gone to the mountains with the family sheep and goats. So we moved on up out of the canyon and through the piñon and cedars that blanket the north slopes of Navajo Mountain. Nashja promised that his son would be recalled immediately and sent on to overtake the party. The old man also refreshed Wetherill's memory as to prominent landmarks that would be met.

Two days later the boy arrived to find the white men preparing supper beneath the spreading branches of a gnarled piñon. I cannot recall the name we gave this particular canyon, but the previous night had been spent beside the clear, gurgling waters of Beaver Creek, at the campsite utilized by nearly every subsequent party Nonnezoshe-bound.

Between Beaver Creek and the place where Nashja-begay overtook us was rough going. From vantage points along the trail we looked down the length of sandy mesas, yellowed by sparsely set clumps of bunchgrass, toward a purple ribbon that marked the gorge of the Rio Colorado. Vegetation was scant indeed: rabbitbrush, golden by the summer's sun; scraggy piñon and cedar, half-starved for lack of moisture, each tree standing somewhat aloof from its fellows but all forming, when far enough removed, a thin lacework of dark green against the red background of sandstone ridges and flat-topped mesas. Vermilion cliffs etched with magenta shadows! Toward the west, beyond the Colorado, Kaiparowitz Plateau supported a turquoise

sky; northward, the Henry Mountains reared through misty distance; close on the left, Navajo Mountain rose in solitary majesty 10,000 feet above sea level.

Bare rock stretched before us. Billows of bare red stone, carved and scoured by wind and sand, reaching mile after rocky mile and always downward from Navajo Mountain into the intricate network of canyons that surrounds it. I still marvel at Wetherill's ability or instinct to lead us over these windswept surfaces, around dangerously narrow ledges, past apparently insuperable barriers, without visible evidence of earlier travel to guide him. But he did, and brought us finally to the rounded crest of the "smooth rocks."

Here, at last, a trail! The first sign observed since passing Piute Canyon that other humans had journeyed this way. Shallow steps, pecked with stone hammers, led down the curved nose of the precipice into the valley below. And these steps have a history which I know only in part.

About 1865 the northern Navajo were making a last stand against American military and civil domination. Hoskininni was leader of the northern Navajo at that time, a resourceful leader beyond question. In 1866 Captain Kit Carson, with a detachment of United States cavalry, was sent into the red rock country to subdue Hoskininni and his followers. But the Navajo gave the soldiers the slip, forded the Rio San Juan supposedly at the Clay Hill crossing, turned through the Clay Hills, and doubled back across the river at the lower Piute trail and thence into the rocky, wild northwest of Navajo Mountain. Here his families were never found, and Hoskininni gained lasting fame in his tribe for having so cleverly outwitted a soldier and plainsman whose abilities remain unquestioned.

Now Hoskininni is accredited with having cut the steps down the Roman nose of the "smooth rocks" and, in the intricate canyons beyond, hiding away his followers and their herds until the soldiers withdrew. Only one who has stood at the top of those hewn steps and gazed into the maze before; who has looked northward from that same point across bumpy miles of bare sandstone; who has swum his pack train across the treacherous San Juan, can fully appreciate the completeness of Hoskininni's escape.

One hesitates before descending Hoskininni's stairway. It is a narrow passage into the unknown. We were tired when we reached the steps. Our weary horses balked at the dubious prospect; they required much coaxing and some beating. Two of them, trembling with fear and seeking better footing, left the stone-pecked trail, slipped, and slid to the bottom, pack and all. Neither was seriously hurt.

Earlier in the day slow, toilsome progress gave intimation of what still lay ahead. Rocks, ledges, sheer cliffs surrounded us. Rocks everywhere. Sand and sandstone. Where were we going and why? Just to find a sandstone bridge two Indians were alleged to have seen. Leg-weary men are easily dissuaded when not especially concerned with a task both exhausting and dubious as to outcome. Two of the surveyor's white assistants openly expressed their discontent. Also, Douglass' Piute guide, Mike's Boy, and Cummings' Navajo horse wrangler, Dogeye-begay, threatened to quit. But Wetherill laughed them to shame and forced



The long, serpentine trail out of Nokai Canyon seemed endless.

NEIL M. JUDD

their continued, though unwilling, cooperation. Douglass has maintained that his Piute was the real guide of the expedition, although Mike's Boy confessed to Wetherill before reaching Nokai Canyon that he had no certain information of the Bridge but hoped to learn the way from such Indians as might be met along the trail.

So it was a tired and partially disheartened group that made its way down the stone stairway, trailed along the sandy floors of more rocky canyons, and came finally to camp beneath the gnarled branches of a sheltering piñon. The site chosen for the night was pleasing enough. Piñons and cedars formed a green screen beyond which rose lofty sandstone cliffs, their strength and majesty enhanced by the setting sun. Camp was carpeted with soft white sand that lifted after dragging feet and mixed, it is safe to say, with the food in preparation. Boiled rice again; corn fresh from the can; Dutch-oven biscuits; hot tea flavored with alkali.

It was just here, with the party gathered for supper around a canvas spread on the sand, that Nashja-begay arrived. He smiled a friendly greeting and, I like to believe, felt somewhat chagrined that the expedition had advanced so far without him. But the jaded spirit of the party revived as soon as the Piute dismounted and ate.

We broke camp next morning with lighter hearts. Cummings and Wetherill were in the lead; Nashja-begay rode mostly with the other Indians, yet responded promptly whenever doubt arose concerning the direction to be taken. The trail was perhaps even more wearisome than that of the day before, but the mere presence of Cummings' Piute guide created a feeling of assurance that smoothed difficulties. We crossed through Paradise Valley, the most delightfully secluded and picturesque retreat on the Rainbow Trail, threaded a footsore way through polished boulders that pave

successive ridges on the western slopes of Navajo Mountain, and came finally to an upper arm of Nonnezoshe-boko—the canyon of the rainbow-turned-to-stone.

Memory may play me false, but that first trip through Rainbow Bridge Canyon stands out as the most trying I have ever experienced. Others have approached, none surpassed, it. And I remember, too, that my particular charge on that 1909 trip was an old brown packhorse, grown weary and utterly disgusted with our adventure. Brownie had a beastly habit of dodging behind convenient cedars, of scraping his pack against jutting rocks, of looking apologetic when discovered browsing complacently in secluded corners.

Tired animals occupied the attention of tired men on that first journey down Nonnezoshe-boko. Then we saw the canyon walls not as things of indescribable beauty but only as obstacles to our progress and barriers against return. Red cliffs rose close on either side—red sandstone cliffs, brown-streaked and fractured. Our course lay now across a sliding talus; now wound through the cobble-paved stream bed.

Douglass was in advance of the packs, his big roan sweaty with hard riding. How many miles we traveled that last morning I have no means of knowing. Time has obliterated the lesser details of that 1909 adventure. But I recall vividly the distinct thrill I experienced as I urged the brown horse over the crest of a rounded knoll and saw Professor Cummings, some rods in advance, suddenly draw rein and point down canyon. Then Wetherill reached his side; they stood in silence as others gathered. Of course I sensed that Nonnezoshe itself had at last come into view, and I am sure my rope plied the brown pack horse more vigorously than was necessary. I caught my first glimpse of Rainbow Bridge just as Douglass joined the silent group on the rim of the inner gorge. Never shall I forget that moment!

From the point where we first observed it Nonne-

zoshe appeared rather insignificant, dwarfed as it was by red sandstone cliffs towering 500 feet or more above. Brown rock masses protruded from the left; at the next bend, others extended from the right. The canyon twisted and turned; it folded and unfolded upon itself. A few steps to one side and the arch quickly disappeared. Only from one distant vantage point could it be separated from its enveloping cliffs. From the one point Cummings discovered Nonnezoshe; from that same point of view each other member of the joint exhibition first beheld Rainbow Bridge.

I remember it well! Those massive red cliffs, patched and streaked with brown; purple shadows and a faint bluish haze down canyon; shelving rock beneath the ledge on which we stood; brick-colored taluses flecked with yellow bunchgrass and rabbitbrush.

For moments we stood in silent admiration. Rainbow Bridge! The goal for which we had labored and endured much! It stood there before us, half hidden by the cliffs of which it formed a part. Human weariness, aches and pains were momentarily forgotten. We had attained the mystic stone rainbow; we had seen what few living men, white or red, had ever seen.

It was near midday. A noontime sun blazed down into the gorge and sent ripples of heat shimmering along each outstanding ridge. Silence ruled. We were the only living things astir. The crunching hoofs on graveled slopes echoed from wall to wall and died away.

But when we came at last beneath the great arch, packs and saddles were first removed. Our animals had fared far worse than we. Nearly every horse had lost its shoes during the preceding four days. Hoofs were worn to the quick; in some instances, were bleeding. Heads drooped; exhausted muscles could force weary legs no further. Not until the slanting shadows of late afternoon ushered soothing breezes through the canyon did our horses move out along the hillside to crop such dry grass as could readily be obtained. Saddle and pack horses bore the burden of that 1909 trip.

And they had no ambition to gratify; no interest whatever in Rainbow Bridge.

Nonnezoshe awes one into silence. Perhaps one is impressed there, as in other rare corners of the world, with the near presence of the Master Builder. A graceful curve of buff-colored stone spreading 274 feet and reaching skyward 308 feet in a thin arch that would span the Capitol at Washington. Before such unmistakable evidence of the Supreme Architect one stands as in a temple. Indians, even more than white men, pay homage to the phenomena of Nature.

The Navajo have a tradition that long, long ago one of their hero gods, hunting in the canyon, was suddenly entrapped by a rush of flood waters. In this predicament, with escape cut off, death for the hunter seemed unavoidable. But just then the great Sky Father cast a rainbow before the torrent, the hero god climbed to safety across the arch, the latter turned to stone and has so remained until this very day. ■

Indians venerate the awesome and the sublime, and in 1909 there was a primitive altar at the base of Nonnezoshe, evidence that some passerby had tarried to offer a prayer to the Master Builder. In fact, the wrangler Dogeye-begay refused to ride beneath the arch because he did not know the prayer that would ensure his safe return.

Today visitors ride in boats on Lake Powell to within less than a mile's easy walk of the great arch. And nowadays visitors carve their names in the base of Nonnezoshe instead of constructing altars. And the waters of Lake Powell creep ever closer.

Neil M. Judd served for many years as curator of American archeology, U.S. National Museum, and, later, as associate in anthropology at the Smithsonian Institution. During his career he excavated and restored Betataiekin Ruin, Navajo National Monument, Arizona, for the Interior Department and led numerous archeological expeditions for the National Geographic Society and the Smithsonian Institution.

First photo of Rainbow Bridge, from the spot where Cummings first sighted it.

NEIL M. JUDD



RAINBOW BRIDGE: 1973

J. Y. BRYAN

RAINBOW BRIDGE stands approximately in the center of 160 acres of southern Utah set aside in 1910 for preservation as a national monument. Until visited by an exploring expedition in 1909, the region in which the Bridge is situated—then one of the most inaccessible in the United States—was unknown to the white man. For many years after the monument was created, the great natural phenomenon remained so difficult to reach that the trip was considered high adventure.

Then the Bureau of Reclamation got under way with a project it had dreamed about and planned for many years: the Glen Canyon dam on the Colorado River in north-central Arizona, just below the Utah-Arizona state line. At full level of the reservoir to be impounded behind the dam—a body of water christened “Lake Powell” by the Bureau after the military man and able explorer John Wesley Powell, who might have declined the honor—water backs far up the Colorado and inundates many of its deep side canyons, including Forbidding Canyon and its tributary Bridge Creek Canyon, on which Rainbow Bridge National Monument is sited.

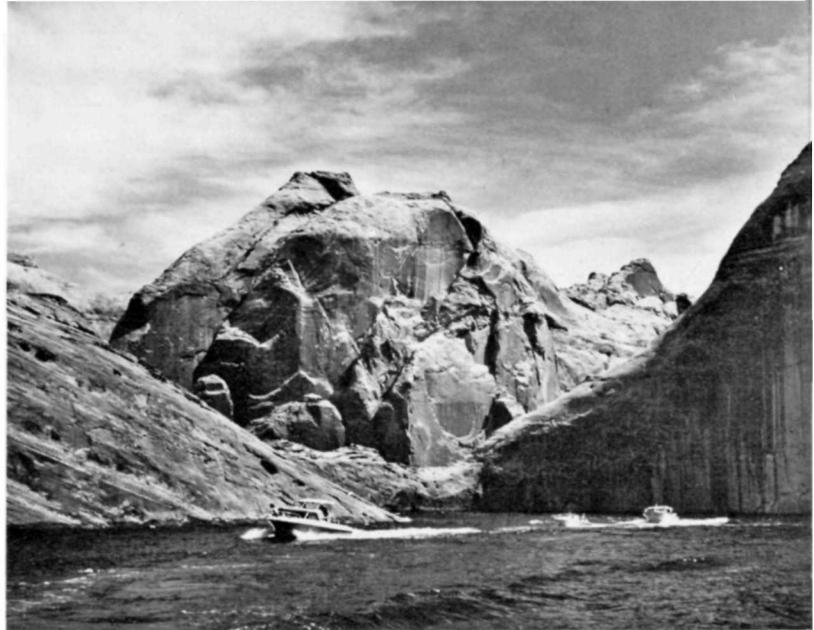
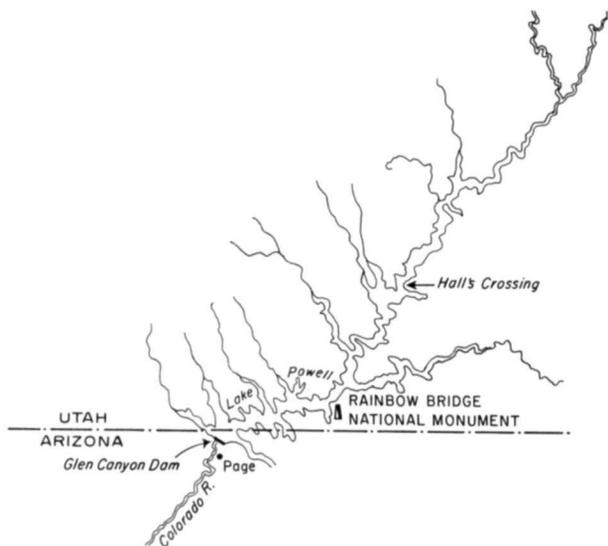
If the Bureau viewed the Colorado, with its side canyons and their scenic and scientific treasures, as a “natural menace” (the Bureau’s language, 1947), conservation organizations, led by the National Parks and Conservation Association did not. Construction of Glen Canyon dam began in the late 1950s, but NPCA and others still thought that it might be possible to force the Bureau to provide legally required protection for Rainbow Bridge Monument by holding up reservoir filling pending adequate protective measures. The battle went through the courts, and in 1963 the conservationists lost. Water began to rise in the canyons. “After all,” said one proponent of a full level for the reservoir, “what more satisfying way could there be to see and appreciate this magnificent arch than to float up under it and view it from many angles?”

Whatever the merits of the many-angled waterborne view, another question posed itself: What would be the effect of standing water on the Kayenta sandstone that formed the bases of the great arch? According to one argument favoring extension of Lake Powell through Rainbow Bridge Monument, the Kayenta sandstone un-

With the distance from the landing wharfs to Rainbow Bridge only about three-fourths of a mile, thousands of people each month make the pilgrimage to the great natural arch. The sign marks the near boundary of the national monument. Lake Powell already reaches into the monument far enough to require a floating walkway to link severed portions of the trail.







Fjordlike Forbidding Canyon near Rainbow Bridge.

derlying the natural arch is harder and less susceptible to damage than the Navajo sandstone of the arch itself. But opinions of geologists differ on the matter. Some feel that standing water will dissolve the cementing material of the Kayenta sandstone. Others disagree.

Today Rainbow Bridge is only about fifty miles by water from Wahweap Marina near Page, Arizona, and about equally far from Hall's Crossing in Utah. Both water routes pass between brooding cliffs and partially submerged peaks reminiscent of crumbling pyramids, abandoned temples, doomed castles, unfinished cathedrals, and deserted cities. Arriving at Forbidding Canyon, where the reservoir reaches toward Rainbow Bridge, a floating marina supports a ranger station, rest rooms, fueling pumps, and sewage processing facilities. Last year, according to the estimate of a ranger on duty at this location, 72,000 visitors traveled up the canyon by boat toward Rainbow Bridge. Like so many canyons now inundated by the reservoir, that reaching toward the Bridge has the aspect of an island fjord walled by stately cliffs of reddish sandstone. By day the boat traffic is almost incessant, despite the expense of putting a vessel two ways over fifty miles of water.

For the present-day visitor, Rainbow Bridge can restore any flagging sense of the miraculous in nature. However, if Lake Powell rises another eighty feet as now planned, and if Bridge Canyon is not dammed to restrain the water's intrusion, it is estimated that the reservoir water will extend upstream at least half a mile beyond the Bridge. In the maximum anticipated growth of the reservoir, water under the Bridge would rise forty-six feet, bringing it about to the base of the arch.

As virtually all present visitors are boat-minded people who reach the arch by water, many have difficulty imagining any harm resulting from such a change. But a few are alarmed. Prevailing attitudes are reflected in the following fragments of conversation overheard while I was taking these photos.

Unless protective measures are taken, waters from Lake Powell will extend farther upstream along the course at left, under Rainbow Bridge, and beyond for at least half a mile and will rise to the base of the arch.

"I can't see that water would hurt this thing any."
 "Some informed people do say so."
 "Ecologists do. The ecologists are against everything."

"Are they against national parks?"

"Well, no."

"As a matter of fact, we wouldn't even have national parks if it weren't for the ecologically minded."

"But we have millions of people who need water and power more than they need another arch."

"This arch happens to be the greatest thing of its kind on earth, and people need great natural wonders, too. Suppose a power project for the Seine were to endanger Notre Dame Cathedral. Would you be in favor of the project or of preserving the cathedral?"

"Oh, that's different."

"Yes, it's different. The cathedral is man-made and might possibly be moved. This arch is God-made and has to stay where it is."

Environmentalists agree with the latter visitor. Two environmental organizations, NPCA as a "friend of the court," and a concerned individual recently took the question of further flooding to court and secured a permanent injunction from a federal district judge against an increase in the level of reservoir water. Indeed, the judge said that it was the duty of the Interior Department not only to prevent intrusion of water into the national monument but also to remove water that had already invaded it.

The Interior Department appealed the decision to a U.S. Court of Appeals, and the district judge was overruled. Now the group is preparing an appeal to the Supreme Court; but meanwhile reservoir waters still creep toward the great stone arch, the "rainbow turned to stone." ■

J. Y. Bryan teaches photography at the University of California in Riverside. His artist's sensitivity and mastery of the camera enables him to see and capture essences on film. A new *Sunset* book on Mexico contains many examples of his work.

Eastern Wilderness Wanted



DARWIN LAMBERT

Nature is still in the process of eliminating evidences of man's presence in Shenandoah National Park and elsewhere.

**Darwin
Lambert**

The chance to preserve wilderness areas in the East exists now as perhaps it never again will

LIKE THE GATHERING of trickles and creeks into a river, individuals and groups seeking to protect eastern wilderness have achieved a strong unity of purpose and movement. Two out of three federal agencies having custody of suitable lands have gone along with this growing current of public opinion. The other, with by far the most to offer, has resisted.

Since the National Wilderness Preservation System was set up by the Wilderness Act of 1964, the Bureau of Sport Fisheries and Wildlife has helped designate several eastern areas—parts of Seney National Wildlife Refuge in Michigan, Wichita Mountains in Oklahoma, Great Swamp in New Jersey, Moosehorn in Maine, and islands off the ocean coasts and in three of the Great Lakes. It has proposed other eastern designations, including part of Mingo Refuge in Missouri and 343,000 acres of the vast Okefenokee Swamp Refuge in Georgia.

The National Park Service, though slower and stingier with wilderness recommendations than citizen-conservationists wished, has nevertheless acted. Several years

ago, for example, this agency recommended 73,280 acres of wilderness in Shenandoah National Park, Virginia, and it recently approved additions bringing the total a wee bit closer to the 112,687 acres advocated by many citizen groups. Other recommendations for national park wildernesses east of the hundredth meridian are pending.

Yet the Forest Service, custodian of twenty-three million acres in the same half of the country, has spurned citizen proposals for nearly nine years and has tried to divert the public opinion current. This activity is difficult to understand in light of the urgent need for eastern wilderness. Among the reasons for this need are the stresses and the pollution that make city life today something to escape from, at least periodically. Wildernesses are increasingly seen as refuges where the now-so-often cramped human spirit can stretch and participate again in the glory of the natural universe. Cramped spirits, if not soon uncramped, produce pathological societies. As Dr. Karl Menninger put it, "Psychiatrists plead for wilderness areas, not for the preservation of beauty but for the preservation of mental health."

Though the escape impulse is negative—to get away from the city rather than to come to the wilderness—there are matching affirmative values. Most mentioned is primitive recreation, by which is usually meant, on the surface, backpacking or horse-aided excursions beyond roads, motor vehicles, buildings. Yet the action, which is often considered the "recreation," is probably not as important as the situation, atmosphere, and mood experienced on a journey to or through wilderness. The technological cushion—or layer of abrasion if you prefer—is suddenly, wonderfully gone. Adventure comes from coping with basic reality; existence becomes life again through the thrill of direct contact with wild nature.

Emotional and spiritual values flower from wilderness in other ways too. Wilderness offers potent scenery, its effects enjoyed from many popular viewpoints. Millions of wilderness beneficiaries never take backpack or horsepack trips; yet, because wilderness lives on, the vigor of earth and of America's heritage flows healingly along the nerves. To moderns, as to the mythical giant Antaeus, the touch of earth brings renewal, a revival of health, faith, and strength.

Also, living examples of varied types of country, unaffected by man, are storehouses of scientific knowledge. They are "controls" for telling how much and in what ways we are changing the land, water, air, vegetation, and animal life, and whether the changes are helpful or harmful. They are savings banks for threatened species and for ecological patterns of organization and behavior. They are institutions for the environmental education of the public.

Wilderness thus contributes to human fulfillment and survival. It is urgently needed not only in remote places but even more importantly where most of our people live. Where wilderness areas are overcrowded, their unique functioning is diluted to the point of ineffectiveness; hence, substantially more eastern wilderness is needed. Faced by this need, why then has the Forest Service resisted wilderness designations east of

the hundredth meridian? Could it be that the public dream of adequate wilderness nearby is actually unrealistic?

The Forest Service has not denied the importance of wilderness; this is the agency, after all, that initiated wilderness preservation half a century ago (administratively, in the West). One obstacle has been the agency's interpretation of the definition of wilderness as set down in the Wilderness Act of 1964. The agency has insisted that wilderness once "destroyed" is gone forever; hence, only those areas qualify that have always remained untrammelled by the white man. But evidence accumulates that the Indian trammelled too, most notably with fire, but also by "deadening" (crudely girdling) trees to get sunshine on agricultural and wild-life lands. In this "purity" view, little if any land east of the Rocky Mountains could possibly qualify—ever. A lot of western wilderness couldn't either.

It is indeed true that national forest land (in fact, virtually all lands) east of the hundredth meridian has gone through one or more cycles of change by the white man. Only a few pickets, difficult of access, remained virgin from Indian times through the centuries of exploitation until 1911, when Congress authorized national forest conservation of eastern lands (to be bought from private owners). Does this history rule out consideration under the Wilderness Act?

Forest Service chief John R. McGuire said early in 1973: "In interpreting the Wilderness Act, the Forest Service has placed emphasis on areas which have almost entirely retained their primeval character and influence, rather than on those which have been restored to a natural appearance. . . . We have considered 'wilderness' as a unique, nonrenewable, predominantly undisturbed natural resource." For years the agency simply declined to consider anything close to wilderness designation in its eastern and southern regions. Then it began advocating alternatives to the strict and lasting protection of the Wilderness Act—an amendment to that act defining a less stringent "new category of wild lands in the South and East"; or new basic legislation for eastern areas "managed to restore their natural values"; or new "wild areas" set up through administrative action by regional foresters under existing authority or by the Forest Service chief, or the Secretary of Agriculture, or the President, rather than by act of Congress. Such administrative actions would be subject to quick and convenient reversals, also administrative.

Early in 1973 the Forest Service seemed to compromise further, proposing to study fifty-three different areas on eastern national forests for possible designation under the Wilderness Act itself—if the act were amended to establish distinctions between eastern wilderness and western wilderness. McGuire said that some eastern lands *do* "now have significant natural characteristics primarily because of the regenerative ability of eastern forest types to naturally 'reclaim' cleared and logged-over land." Yet he added that, though some eastern tracts "may be close to primeval . . . those large enough to protect primitive and natural values, and to also afford a sense of solitude, generally have within their boundaries developments and permanent signs of man such as roads, stone walls, wire



R. J. SCHAEFER

Ramsey's Draft in Virginia consists of about 21,800 acres of steep mountain slopes and narrow stream valley with 6,000 acres of virgin hemlock, white pine, and oak. A clear trout stream flows through a dense forest under-story of moss, ferns, azaleas, and mountain laurel. Abundant wildlife includes bear, deer, turkey, grouse, and bobcat. The Forest Service study area comprises only about 6,700 acres, excluding from consideration large adjoining regions with wilderness quality that could provide a wilderness area of adequate size.

fences, cellar holes, building foundations, orchard trees, ornamental shrubs, and remains of old logging camps. . . . Further . . . there are major areas of privately owned land. . . . Ownership patterns are fragmented. Even where surface rights have been acquired, the Government holds only 50 percent of the mineral rights. Most waterways and water surfaces are not owned or controlled by the Forest Service. . . . If almost any of the restored eastern national forest lands . . . were deemed to meet present Wilderness Act criteria . . . considered as 'primeval' . . . the uniqueness of the present wilderness system would disappear."



ARNOLD HYDE, JR., COURTESY OF WONDERFUL WEST VIRGINIA MAGAZINE

Advocates of eastern wilderness have consistently seen the matter differently. The 1964 Wilderness Act provided for a *National Wilderness Preservation System* with eastern and western wildernesses of equal status with equal protection. The language of the act does not support the Forest Service's "purity" stand but simply says that a wilderness is an area where "the earth and its community of life are [yes, *are*, not *were*] untrammelled by man, where man himself is a visitor who does not remain." It does not require virgin forest but insists only that the area "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." The 1964 act itself designated four national forest wildernesses in the eastern half of the country—Shining Rock and Linville Gorge in North Carolina, the vast Boundary Waters Canoe Area in Minnesota, and Great Gulf in New Hampshire (none without a history of trammeling by the white man)—thus making the intent doubly clear.

Citizen advocates have found areas scattered throughout the East and South that fit the act's definition, showing that nature just naturally re-creates wilderness when man allows her to do so and that the pace of re-creation on eastern lands is rapid. The generally accepted wilderness of Shenandoah National Park has been cited both inside and outside government as a classic example. Yet that land had been exploited by white men for two centuries and as recently as the mid-1930s was the home of hundreds of mountain families. Similar "miracles of nature" have occurred in most areas now proposed as eastern wilderness. Senator Frank Church, expressing a widely held view, has declared, "This is one of the great promises of the Wilderness Act, that we can dedicate formerly abused areas where the primeval scene can be restored by natural forces."

Twenty-eight areas adding up to approximately 480,000 acres, located in sixteen different states of the East and South, are now being strongly pushed for immedi-

Above, Dolly Sods in West Virginia, located on a high plateau, contains not only mountain laurel, but vegetation common to a much more northern climate but uncommon to West Virginia. Below, Bradwell Bay in Florida contains thousands of acres of coastal lowland with swamps, hardwood forests, virgin slash pine, and abundant wildlife.



U.S. FOREST SERVICE



The Aaron Nicholson cabin in Nicholson Hollow in the central portion of what is now Shenandoah National Park—in 1935 and 1973. In less than forty years nature has eliminated most signs of man's former exploitation—and is still working.



ate designation under the 1964 act. Among them are the following:

Presidential Range, New Hampshire, about 50,000 acres of New England's outstanding mountains with wild forest, extensive alpine zone, notoriously severe climate, varied wildlife.

Dolly Sods, West Virginia, 10,215 acres of chilly upland with unusual, brushy cover, many plants characteristic of northern climes, and surprising diversity of wildlife.

James River Face, Virginia, about 9,000 highly scenic acres where this white-water river bursts through the Blue Ridge.

Joyce Kilmer-Slickrock, North Carolina and Tennessee, 32,500 acres of impressive, forested mountains including the largest virgin acreage on an eastern national forest.

Cohutta Mountains, Georgia and Tennessee, about 60,000 acres of steep, dense forest; some virgin stands exhibiting giant hemlock, American holly, black gum, and laurel; wild white-water streams and spectacular gorge.

Caney Creek, Arkansas, 14,433 acres of mountains with shortleaf pine and upland hardwood forest and native wildlife such as bear, deer, and wild turkey.

Bradwell Bay, Florida, about 24,000 acres of coastal lowland with swamps, forests of black gum and other hardwood, notable cypress, virgin stand of slash pine, alligators, bear, deer, and turkey.

In addition to the twenty-eight candidate areas for "instant wilderness," dozens are proposed for study, with firm protection until final decision. These areas boost potential wilderness on national forests of the East and South, as now seen by citizen-conservationists, above the million-acre mark. Even if all were accepted, the total would be but a small fraction of the twenty-three million acres of national forest in the eastern half of the country, leaving vast lands for timber production and nonwilderness recreation.

By mid-1973 the Forest Service, partly because of growing citizen advocacy but also because of its own accelerating studies, had indicated support for immediate designation of eight areas under the 1964 Wilderness Act—Cohutta, Dolly Sods, and James River, all previously mentioned; Sipsy River in Alabama; Beaver Creek in Kentucky; Ellicott Rock in South and North Carolina and Georgia; Gee Creek in Tennessee; and Laurel Fork in Virginia. Further informal approvals seem likely as additional studies are completed.

This support does not mean that ample eastern wilderness is won. Informal approvals may prove to have troublesome conditions. Continued urging of the Forest Service, as well as of the wildlife and parks agencies, is necessary. Though quite a few of the proposed national forest areas are free of private-rights problems, others are not. Such problems could be simply solved when wildernesses are designated—but only if public support is demonstrably strong. Boundary disagreements are likely to intensify, the agencies often wanting to cut citizen-proposed acreages. And the timber industry is not easily accepting eastern national forest wilderness.

Yet the American opinion current keeps pushing for a more natural environment to further healthful, enjoyable living—now and for coming generations. The opportunity to secure significant amounts of eastern wilderness exists today as it never has before in the era of ultracomplex technology. And perhaps as it never will again. ■

Darwin Lambert has lived in the Far West, Alaska, and the East and became acquainted with wilder parts of all three places. He lived for a time with a mountain family in what is now Shenandoah National Park and during the following decades watched this area return to nature. He is the author of many magazine articles and six books, including *Timberline Ancients* and *The Earth-Man Story*, and is widely known for his concept of earthmanship.

COYOTES—IN MAINE?

article by
John N. Cole

photographs by
Joseph Van Wormer

The coyote is welcome downeast...will the timber wolf be next?

RUMORS OF THE COYOTE'S arrival in the deep woods of Maine have been commonplace for the past five years; but 1973 marked the first time the animal had been the subject of a long and heated legislative debate. Sparked by the November 1972 shooting and subsequent public display of a fifty-five-pound male coyote in the timber country of the Allagash, several Maine hunting and fishing organizations brought public pressure on the state's 106th legislature. When the session began in January 1973, State Representative E. Roswell Dyar of Strong introduced his "coyote bill," a measure that proposed a \$50 bounty on any coyote killed in Maine.

The opinion of most State House observers was that the bill would pass easily into law. Maine, after all, is the major hunting state in the Northeast. Bounties are traditional downeast; there is a \$15 bounty on Maine bobcats; the bounty on bears was repealed only a few years ago, and then because most Maine hunters reasoned they could make more money if they found bears for out-of-state gunners rather than shooting the big animals themselves.

Veteran lawmaker Dyar, who manages a hardware and sporting goods store in a small community in the timber country, had little reason to foresee any problems. His rural constituency and the hunters he traded with throughout the year had no doubts about coyote character. To them, the animal was a killer of the worst kind. The attitude of the state's rod-and-gun community was expressed in letters to the editors of every Maine newspaper and through the columns of outdoor writers. The green woods of Maine would soon run red with blood if the coyote were not exterminated—immediately.

There seemed no limits to the coyote's crimes. It is now a matter of Maine's legislative record that a coyote wandered into one rural town and was caught in the act of stealing a baby from its carriage, left there by the infant's mother shopping in the nearby supermarket. Only quick action by some of the local hunters saved the child, according to the lawmaker who told the fable in all seriousness on the House floor.

Eastern coyotes are similar to the western coyotes shown in these photographs, although they are somewhat larger.

Although it is doubtful if even most avid bounty advocates in the legislature believed that story, all of them were convinced that the state's deer herd would be slaughtered by rampant coyotes if the western arrivals went unpersecuted in Maine. The downeast deer is big business in rural sections of the state. More than 35,000 whitetails were tagged in the 1972 season, the majority by out-of-state hunters who give many local economies a late-season boost. A threat to the deer is a threat to Maine pocketbooks; and that, the bounty backers reasoned, would be the telling factor when the Dyar bill came up for a vote.

Early evidence that these forecasts might be something less than certain came at the required public hearing on the bill, called by the Joint Legislative Committee on Fisheries and Game. While those who favored coyote bounties appeared in predictable numbers and with predictable arguments, there were several unexpected voices raised in the coyote's defense. After hearing bounty backers talk of killer coyotes for two hours, it came as a surprise to those assembled when officials of both the state and federal wildlife services rose in the animal's defense.

J. William Peppard, deputy commissioner of Maine's Department of Inland Fisheries and Game, talked in some detail about predator-prey relationships; about the recorded futility of any bounty system; and about the relatively small numbers of coyotes (less than 500) in Maine's twelve million acres of wild woodlands. "We have yet to learn how the coyote will fit into the patterns of Maine wildlife," Peppard said, "but we already know bounties do not work as a control measure. We have spent nearly \$500,000 for bobcat bounties, and the cat population is about the same."

Peppard's comments brought Fisheries and Game committee members out of their customary hearing attitudes. Several, who had been all but dozing in public, pulled up from their slouches. Traditionally, state employees in Inland Fisheries and Game go along with requests from the Maine rod-and-gun community. But here was a deputy commissioner defending a predator renowned in hunting mythology as the cleverest killer of them all.

If the committee chairman, Senator Frank Anderson, and his fellow members were surprised at the Peppard

arguments, they were shocked by what followed. Frank Gramlich, Maine state supervisor for the federal Department of Wildlife Services (DWS), told his listeners he had come to know the coyote well.

"In Nevada," Gramlich began in his slow, modulated bureaucratic tones, "I helped the service put out more than one million poisoned baits for the coyote. In California, we spent more than \$8,000 just to kill one of these animals.

"We could spend \$15 million in the state of Maine, and we still could not extirpate the coyote population. This is one reason our department is against bounties; all our previous experience tells us they do not work.

"It is an archaic practice, out of phase with changing public attitudes that are rapidly gaining strength in the nation. There is a growing feeling against blood sports, for a more natural balance. If you believe you can pass this bill to help the hunter, I would argue the reaction against it might hurt him more."

From then on neither the hearing nor the coyote bill were routine. With both major state wildlife agencies on record as opposed to the bounty, others in the hearing audience became encouraged to speak. Their arguments sprang from the winds of change that Gramlich had mentioned, and their words allowed Roswell Dyar and the assembled rod-and-gunners their first insights into that change.

What they heard was a history of the coyote, its place in legend, its stubborn survival and stability in the face of relentless human pressures. They heard also of subtle predator-prey relationships, the facts of coyote diets, and the biological data (what little there is) on coyote population patterns. Yet the chief argument did not center on these topics. It was the theme of every statement, and yet it was never outlined specifically. It had to do with the fundamental concept of accepting nature as it is, of relinquishing man's colonial struggle to conquer nature and, instead, developing a relationship that allows both man and the natural world to coexist in harmony. That harmony would not be possible in Maine, said the coyote defenders, unless Maine welcomed the coyote rather than declaring war against it.

As this reasoning was articulated and argued in the Maine press during the following weeks, a new con-



To some, the coyote is a symbol of a newer and better...

stituency became visible in the state. It did not consist only of the animal lovers who had always argued for humane treatment and of the pacifists who had traditionally opposed guns and violence. The new alliance of Maine people was a broad coalition of many groups, ages, interests, and backgrounds—it even included some hunters. These people wanted the coyote as a symbol of the newer, and hopefully better, man-nature relationship in Maine. They wanted to put a stop to the bounty and have predators accepted as part of the natural order, rather than cause for official dismay.

Strengthened by their purpose, the new constituency made the coyote a spirited legislative issue. The results of the public interest became clearest on the last day of January 1973, when the Maine House voted 73 to 55 against the bill. From then on the measure never had a second chance, and the 106th closed its doors in June with the Maine coyote unburdened by a bounty and free of much of the “killer” stigma that the original bounty-backers had tried to make stick.

A special student team of biologists from Colby College in Waterville, Maine, has already spent six weeks in the woods trying to assemble more data about the state’s newest arrival, and another team plans a more extensive effort in 1974. The Colby project is typical of the ever-sharpening focus of attention that is being

aimed at a more comprehensive understanding of Maine’s predators. And although the intensity of that attention has been growing over the years, it was not until the coyote debate that it attained genuinely popular dimensions.

It was out of that broad base of renewed interest and public understanding that a new idea was born. It is a concept that never would have gotten off the ground unless the coyote had pioneered the way; and it concerns the coyote’s larger cousin—the eastern timber wolf.

It was Frank Gramlich who first mentioned the wolf. He was explaining his doubts that the coyote had originally been a Maine native. “We don’t know for a fact that the coyote was here before the state was settled. It may have worked its way east as men moved west.

“But we know the wolf was here. It was part of the Maine scheme of things, it belongs here. Perhaps we ought to think about bringing it back. We must always plan in terms of the species, not the individual; and the timber wolf is an important species now lost to Maine.”

Talk of wolves and Maine was given further momentum by another legislative move to allow the state’s moose herd to be hunted. The measure failed, but the proponents’ chief argument that the state’s moose population had reached a surplus situation became con-

verted on behalf of the wolf. "If there are too many moose," reasoned the wolf proponents, "then perhaps the herd can support a wolf pack, as it does on Isle Royale."

The talk has no official status. Most of the Maine men and women who would be part of any wolf decision are cautious about their approach.

"It's a matter we should talk about much more seriously than we have," says Deputy Commissioner Pepard.

"I certainly wouldn't argue against it," says Senator Anderson, perhaps recalling the unexpected developments at the coyote hearings. "It might be nice," he says, and walks away shaking his head as if bemused by his own words.

Dr. Malcolm Coulter of the University of Maine in Orono is widely known among Maine wildlife interests for his work on the restoration of the fisher and the marten. The fisher project is a confirmed success; the marten work is still in process. With this background, he is understandably stimulated by talk of the restoration of the wolf. Yet as a scientist he is also aware of some real problems.

"We don't know, for example," says Coulter, "how the wolf and the deer might interreact. In the days when the original timber wolves were in Maine, the deer herd was extremely small; then Maine had sizable populations of caribou and moose.

"We also have to think about where to put even a modest wolf pack. The most logical place would be the 1,200-square-mile area in northern Maine, near the Canadian border. But that land is privately owned by pulp and paper companies. They might have difficulties getting woodcutters if the men knew wolves were in the region. We are still less than a generation away from Little Red Ridinghood, you know.

"Still, a great many changes in attitude and land use patterns have taken place, rather rapidly. It's certainly an idea that should be discussed."

That discussion has already begun. Many people are talking without panic and with real curiosity about restoring the eastern timber wolf to Maine. And one of the major reasons they are able to do it is the coyote's victory over the 106th legislature and over the people who wanted to maintain old patterns of relationships with the natural world, rather than trying to work out some new and better ones. ■

John N. Cole has lived in Maine since the late 1950s and has worked as editor of the *Kennebunk Star*, the *Brunswick Record*, and the *Bath-Brunswick Times Record*, all in Maine. As editor of the *Maine Times*, a nationally acclaimed weekly journal with a readership of more than 40,000, Cole has helped set new patterns in the journalism field. The publication was started five years ago by Mr. Cole and his partner Peter W. Cox.

...man-nature
relationship
in Maine



Mushrooms that smell like oysters stewing and taste like steak are well worth a search in autumn woods

OYSTERS

ON Eileen Lambert

TREES

Pleurotus ostreatus



PHOTOS COURTESY OF THE NATIONAL FUNGUS COLLECTION

“The oyster mushrooms might have been taken from a banquet for the Olympian gods. Each mushroom was at least six inches across and, in the center, nearly an inch thick. As they steamed, the vapor from the pot did seem to carry the essences of oyster stew. Their taste, however, was fantastically like the taste of broiled steak.” So said John McPhee in a *New Yorker* article about a November foraging trip with Euell Gibbons.

With a teaser like that my husband and I could hardly wait to try oyster mushrooms. We live in a clearing and supposed the surrounding forest would be an ideal habitat for oyster mushrooms, but we looked carefully and frequently for more than a year before locating any. Then, late one November, we found a nice cluster growing on a stump, and they were well worth the long search. We have been lucky enough to find them several times since, when out hiking, and we always feel like prospectors who have struck it rich. Although oyster mushrooms are relatively rare in our near vicinity, some friends know where they can frequently gather a batch not far away. They are common and widespread in many parts of the United States.

Mycologists rate oyster mushrooms from “good” to “eminently edible” but disagree about the origin of their common name. One expert says they are so named because of the oystershell shape of the cap; another says the name is derived from their flavor; yet another claims that the aroma they emit when they’re cooking is the reason for the designation. A mystery, eh? Be your own judge.

Pleurotus ostreatus and *P. sapidus* are both called oyster mushroom. They are so similar that even the experts quibble as to whether they are really separate species or whether *sapidus* is merely a variety of *ostreatus*. Apparently the only difference is that *ostreatus* has a white spore print and a *sapidus* has a pale lilac print—but at least one famous mycologist claims *ostreatus* has a lilac-grey print. It is an interesting argument, but it doesn’t matter; they are equally fine eating.

Whether *P. sapidus* or *P. ostreatus*, oyster mushrooms are easy to identify. Typically, they are two to nine inches broad; white, grey, or buff; firm and fleshy; oystershell or fan shaped. They grow in overlapping layers to form clumps on a variety of dead or dying trees or stumps—aspens, birch, beech, maple, elm, willow, pine, cottonwood, and others. The smooth, moist caps may be flat or concave and are attached to the tree either directly or by short, curved stalks growing from one side. However, if they are growing on top of a log or stump, the stem is likely to be centered. Broad, white gills radiate from the edge of the cap, down the stalk if one is present, to the place of attachment to the tree. The stalk is usually hairy at the base.

Many people consider oyster mushrooms to be autumn fungi, and perhaps it is easier to spot them after tree leaves drop; but they do occur in spring and summer during cool, wet periods, and we have even

found them in December. One advantage to finding fresh specimens very late in their season is that they are less likely to be host to the tiny black beetles that may live between the gills.

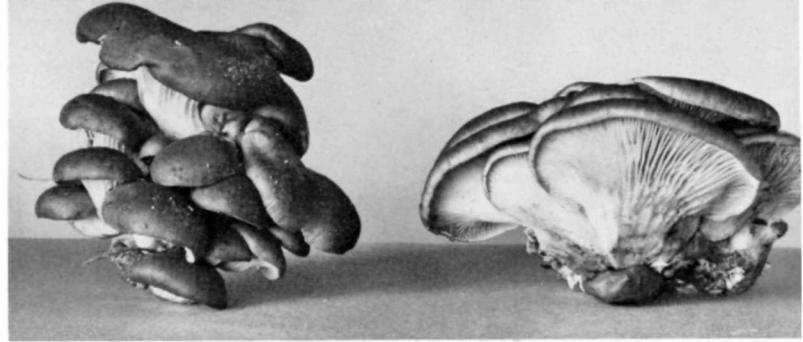
The oyster mushroom you see is only the fruit of the actual plant, a threadlike network called mycelium growing inside the tree or stump. For this reason, oyster mushrooms often can be found year after year in the same location. In fact, oyster mushrooms can be cultivated on newly cut stumps, and some people water a good stump to encourage mushroom production.

Oyster mushrooms resemble other shelf fungi that live on trees, but it is unlikely that anyone could confuse them with a poisonous species. Nevertheless, the only way to tell the difference between an edible and a nonedible fungus is to learn each specific species—as you learn to know a friend's face or a particular vegetable or flower. Therefore, anyone collecting wild mushrooms for food should study a good handbook. Various other tree fungi are edible and choice and worth learning—for instance, the related elm pleurotus (*Pleurotus ulmarius*), sulphur polyporus (*Polyporus sulphureus*), the beefsteak mushroom (*Fistulina hepatica*), and the hen-of-the-woods (*Polyporus frondosus*). Still others are simply too small or too tough or too woody to eat. Some species of brown-spored *Crepidotus* and rusty-spored *Gymnopilus* are very bitter (although not poisonous). Beware of the dangerous jack-o-lanterns (*Clitocybe illudens*, designated as *Omphalotus olearius* in newer books), so called because they glow in the dark. Like oyster mushrooms, they grow in clusters, usually at the base of hardwood stumps; but caps, gills, and stems are bright orange-yellow, not grey or white.

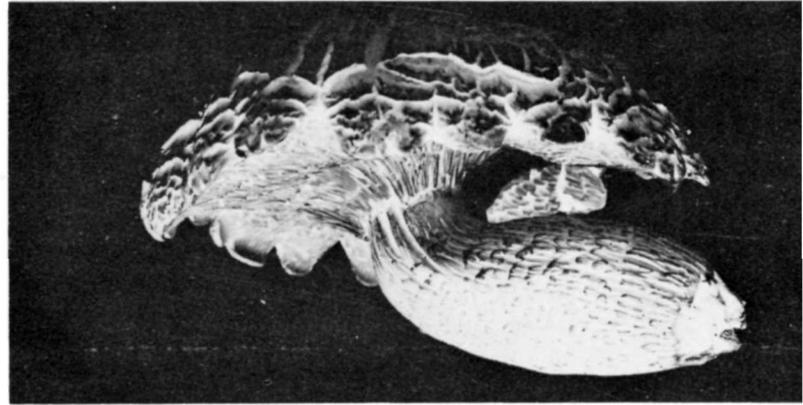
Oyster mushrooms are usually tougher than terrestrial mushrooms and need special care in cooking. (If the ubiquitous black beetles have found your specimens, you may get rid of the pesky critters by soaking the mushrooms a few minutes and then skimming the beetles off the water.) Use only the tender outer parts of older specimens or whole small ones. They are especially good when oyster-sized pieces are dipped in beaten egg then cracker crumbs and deep fried—or simply sautéed slowly until tender, or baked for about an hour with a roast. They're also delectable in homemade soup. Sometimes—if you're lucky—you may find enough to freeze a surplus.

My daughter-in-law and her friend went mushroom hunting on Douglas Island in southeast Alaska last November, and they found over two gallons of oyster mushrooms. Doreen strung some of her surplus up to dry. "Kind of pretty," she said, "strings of mushrooms hanging from the ceiling." She sautéed and froze some, too, for later use.

Oyster mushrooms are a good excuse (if you need one) to get out in the late fall woods—when the crowds who came to view the autumn colors are tucked back indoors. There may still be a few bright colors, but now you can see into the woods and it is easier to spot clumps of the "oysters." Take along a mushroom handbook and try to learn some of the other species. It's fun. If you're not lucky enough to find oyster mushrooms, you'll probably enjoy an outing in the



Pleurotus ostreatus



Pleurotus ulmarius



Pleurotus sapidus

woods anyhow—scuffling through the sweet-smelling leaves and appreciating lichen-covered rocks and the lovely bare bones of the trees, perhaps even helping yourself to a mouthful or two of squishy, ripe persimmons.

Westerners often find huge "oysters" in October and November on old poplars or dead cottonwoods along windbreaks or by creeks or irrigation ditches. Wherever you are, it's deeply satisfying to get in close contact with the earth, and it's a bonus if you should be fortunate enough to find some of these choice gourmet items for free, especially in these days of astronomical food prices. Happy hunting! ■

Eileen Lambert has studied and enjoyed nature in many of North America's wild places, including the Far West and Alaska. She and her husband now live in the Blue Ridge Mountains of Virginia, where she is the newly elected president of the Shenandoah Natural History Association. A free lance writer, her nature writing appears in both conservation and travel magazines.



Silver woundfin minnow

¾ LIFE SIZE

FISHES OF OUR ARID LANDS



With little public notice an obscure

American heritage is moving toward extinction

AMONG THE VERTEBRATES OF THE WORLD, the fishes, both in species and total numbers, are most numerous. In oceans and fresh waters there are more than 20,000 species; and the numbers of a single species may run to the countless millions. In the fresh waters of the United States alone there are more than 1,100 kinds of fishes, most of which are concentrated in the lakes and rivers of the East.

But west of the 100th meridian, which slices vertically through the second tier of states west of the Mississippi, there are barely 100 species of strictly freshwater fishes. In the arid lands that lie between the 100th meridian and the more beneficent habitats of the West Coast, the number is more like fifty; and today scientists and environmentalists are very much concerned over the well-being of that fifty.

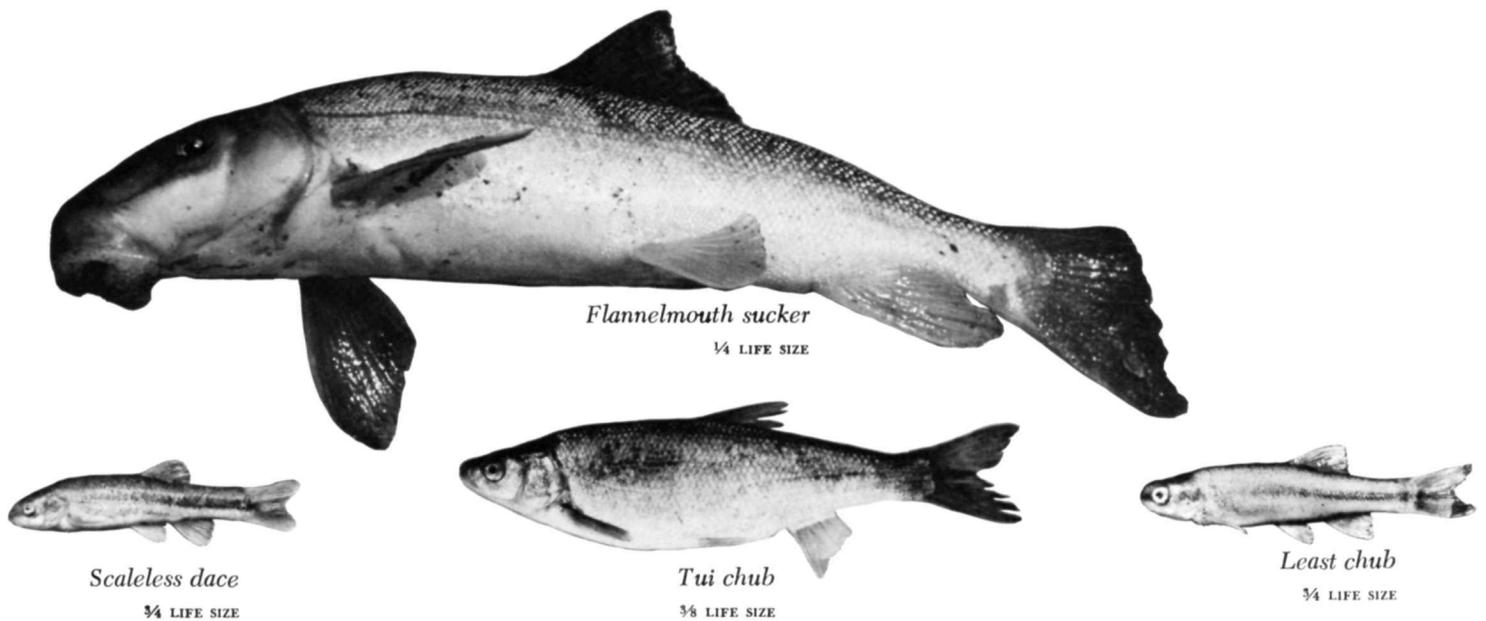
The arid-land fishes of this country do not, for the most part, exist as a continuously distributed group. Many species are confined to narrowly restricted habitats, some of which may contain only a few thousand gallons of water standing in pools a man could step across in a single stride. This kind of distribution has, over time, given rise to many regionally endemic species; it is further characterized by several monotypic genera (a genus consisting of a single species) and a plethora of relicts—fishes left over from the past, more commonly known as living fossils.

The past history of southwestern American fishes has been a complex one, but needs to be considered if present distribution is to be understood. In the Southwest several vast lake and river systems, full to overflowing during and immediately after the most recent stage of Pleistocene glaciation, have decreased steadily in size and flow, leaving many small springs and isolated drainages as relicts in their own right. As these

waters became segmented and isolated one from another, so did their fishes. Many more or less closely related species narrowly specialized for the conditions of life imposed upon them by nature have evolved. Thus the present mosaic distributional pattern of arid-land fishes slowly emerged.

Increasing human occupation of the Southwest has accelerated the destruction of its arid-land fish fauna. Southwestern aquatic habitats have been modified or destroyed in various ways. Stream flows have been decreased or eliminated by dams, often in a series of three or more, as in the Salt River Basin of Arizona. Massive siltation originating from farmland irrigation projects is common. The ever-intensifying use of groundwater has had a severe effect on the stream environments of the region, and the ranges of many species have become so fragmented that maintenance of breeding populations is now essentially a struggle for continued existence. In several areas—parts of Nevada and adjacent California—peat mining in desert marshlands and housing construction have been instrumental in exterminating at least two local races of desert minnows.

The impact on native fishes stemming from massive introduction of exotics, whether from abroad or from eastern states, is more difficult to assess. Today there is no state west of the 100th meridian in which native fishes outnumber introduced species by more than three to one; in most of the arid-land states the ratio is hardly two to one. In Nevada, Utah, Arizona, and perhaps New Mexico, introduced species actually outnumber natives. (In Nevada more than 60 percent of the fish fauna is comprised of exotic species.) The introduced fishes are responsible for extinction of several native species and local races through increased predation, particularly in restricted habitats, physical or otherwise,



article and photographs by **Branley Allan Branson**

where native, highly specialized species are easy prey. But predation is not the only impact of the exotics. Gradual replacement through the process of competition is equally important; only it is slower. And, finally, hybridization between an introduced fish and a native may swamp the genetic system of the native and eliminate it before it has had time to fulfill its own destiny.

The alarming thing about all this—the pitiful thing, really—is that most Americans are not only unaware of what is happening to this peculiar and highly interesting segment of the nation's animal heritage, but they are not even aware of the fishes themselves. It is hoped that this article may serve two purposes: to apprise the public of what it has already lost and to inform it on what is left.

The largest segment of our arid-land fish fauna consists of members of four fish families: the minnow family, Cyprinidae; the pupfish family, Cyprinodontidae; the sucker family, Catostomidae; and the live-bearer family, Poeciliidae. Of the four, the minnow family is by far the richest in species.

Our Western minnows include one of the smallest fish in North America as well as one of the largest minnows in the world. The least chub, *Iothichys phlego-thontis*, of Utah's Bonneville Basin, is scarcely an inch long. It presently is suffering greatly reduced populations because of agriculture-derived silt and the added pressure of introduced carp, goldfish, and some other minnows. The Colorado squawfish, *Ptychocheilus lucius*, which can weigh sixty pounds or more, was formerly abundant in the Salt River of Arizona, along with eleven other native fishes. All these species have been replaced by introduced fishes following extensive stream impoundment. One of the native minnows, the spike-dace, vanished from Salt River in 1937 and now faces

extinction throughout most of its range, now being restricted to a few riffle habitats in the headwaters of the Gila River in Arizona and New Mexico. There are three additional species of squawfishes on the West Coast; all are vigorously persecuted by fishery biologists because they supposedly compete with sport fishes—introduced salmon and trout.

Several other minnows of the Gila and Virgin rivers in Nevada, New Mexico, Arizona, and Utah are in real trouble. The loach minnow, once widespread, is now rare, and is restricted to one or two headwater riffles. Few scientists and even fewer laymen have even seen living specimens of this fish. The same unfortunate picture must be painted for the beautifully silvered woundfin minnow. This fish, adapted to life in sandy and swift downstream waters of the lower Colorado River basin, including the Gila, has its last known reproducing population in the lower Virgin River. The woundfin's range, already much restricted by the filling of Lake Mead, is now being encroached upon by released "bait-bucket" minnows from the ponds of Texas, Wisconsin, and California dealers. It is doubtful that this beautiful minnow will continue in existence for many more years.

The lower Colorado River drainage seems plagued with extinctions and threats of extinctions, and it seems highly unlikely that man's activities will lessen with passing time. The Little Colorado spinedace is now very scarce and is probably restricted to Clear Creek in the Coconino National Forest of Arizona—a stream that regularly dries up to a few pools during the summer. Two related forms, *Lepidomeda altivelis* of the Pahr-nagat Valley in Nevada, and *L. Mollispinis pratensis*, from a spring at Panaca, also in Nevada, are now extinct. A fourth species, the longfin dace, was one of

the most common fishes in southern Arizona and northward, but by 1970 its numbers had dwindled greatly. The species has disappeared from the upper San Pedro River, and the handsome little speckled dace has been eliminated from that river's entire length. Most such removals have been caused by diminished stream-flow with subsequent increase in water temperature. These particular environmental degradations occur widely today in many parts of the desert habitats.

In southeastern Idaho, eastern Washington, and adjacent Utah, the chiselmouth, a Snake River minnow that makes its living scraping algae off rocks by means of a peculiar horny sheath on the jaws, and the hardhead, a two-foot-long minnow of the Sacramento and San Joaquin rivers of California, both are suffering ever-decreasing populations because of agricultural siltation.

An insidious factor that has been operating against American fresh-water fishes in general, and desert-dwelling species in particular—one that has been present for a long time—has been the introduction of exotic species. The process started with carp introduction in the late 1800s and has continued in an increasingly disastrous fashion to the present. Such introductions are especially dangerous to species of restricted habitat.



The desert dace, another algae-scaper, is an example among minnows. This tiny fish is known only in one small spring in western Humboldt County, Nevada, where it is being threatened by competition from mosquitofishes introduced from the southeastern United States. The same situation obtains in the case of the peculiar, scaleless leather dace, found in the headwaters of the Moapa River in Nevada. This odd minnow was abundant until 1950, when some unthinking aquarist released the shortfin molly and the guppy into its habitat. Both these species are now present in great numbers, but the dace has become rare. The tui chub, a minnow formerly common in several of the interior river basins of California, now is scarce as a pure species because introduced minnows repeatedly have hybridized with it. Hybridization is merely a different route toward extinction.

The pupfishes, a characteristic group in desert springs and streams, have disappeared steadily as humans have invaded lands surrounding their habitat waters. *Crenichthys baileyi*, a related form, living in several widely separated populations along the White River system in Nevada, has lost several toeholds because of released aquarium fishes. Few people have ever seen this fish.

Over the past several years there has been much publicity on the Interior Department's attempt to save the Devil's Hole pupfish, of which only about 500 individuals still exist.

Most fishermen, and more so the general public, are little concerned over the safety of the fishes known as suckers. But the suckers are an important part of our

native fish fauna, and therefore are really more deserving of protection against the inroads of "progress" than cultural species gathered from the four corners of earth. Many suckers, although not formally on the endangered species list, are locally in grave danger. The odd humpbacked sucker and the flannelmouth sucker once were common in the Colorado River at Yuma, Arizona; both are now extinct there. A few years ago I watched a crew poison many miles of the Green River and its tributaries above the Flaming Gorge dam at Flaming Gorge to prepare its waters for stocking with trout. They were after carp and black bullheads. If I had had a boxcar available, I could have filled it several times with dead flannelmouths and native minnows. It was a sickening sight and a national disgrace.

[Note by the editors: The author is referring here to the notorious operation of September 1962 by the fish and game commissions of Utah and Wyoming, the Bureau of Reclamation, and the Fish and Wildlife Service in which some 524 miles of the Green River and its tributaries were poisoned with rotenone to eliminate "trash" fishes in favor of "sport" fishes—rainbow trout and kokanee salmon—in the Flaming

Gorge reservoir upriver from Dinosaur National Monument in northeastern Utah. The operation got completely out of hand, and native fishes were destroyed for many miles downstream from the dam and all the way through the national monument. The prospective poisoning had been protested vigorously by the American Society of Ichthyologists and Herpetologists as early as April 1961; again by the National Parks and Conservation Association in May 1962. The ensuing slaughter of native fishes, including some unique and rare ones, was officially described by the Fish and Wildlife Service as "an accident."]

Even some of the suckers of wider habitat range, such as *Pantosteus platyrhynchos*, are being threatened. Although a wide geographic range tends to protect a species, it does not protect local populations. If enough local races are eliminated the range of a fish becomes fractionated and the species may be destroyed piecemeal.

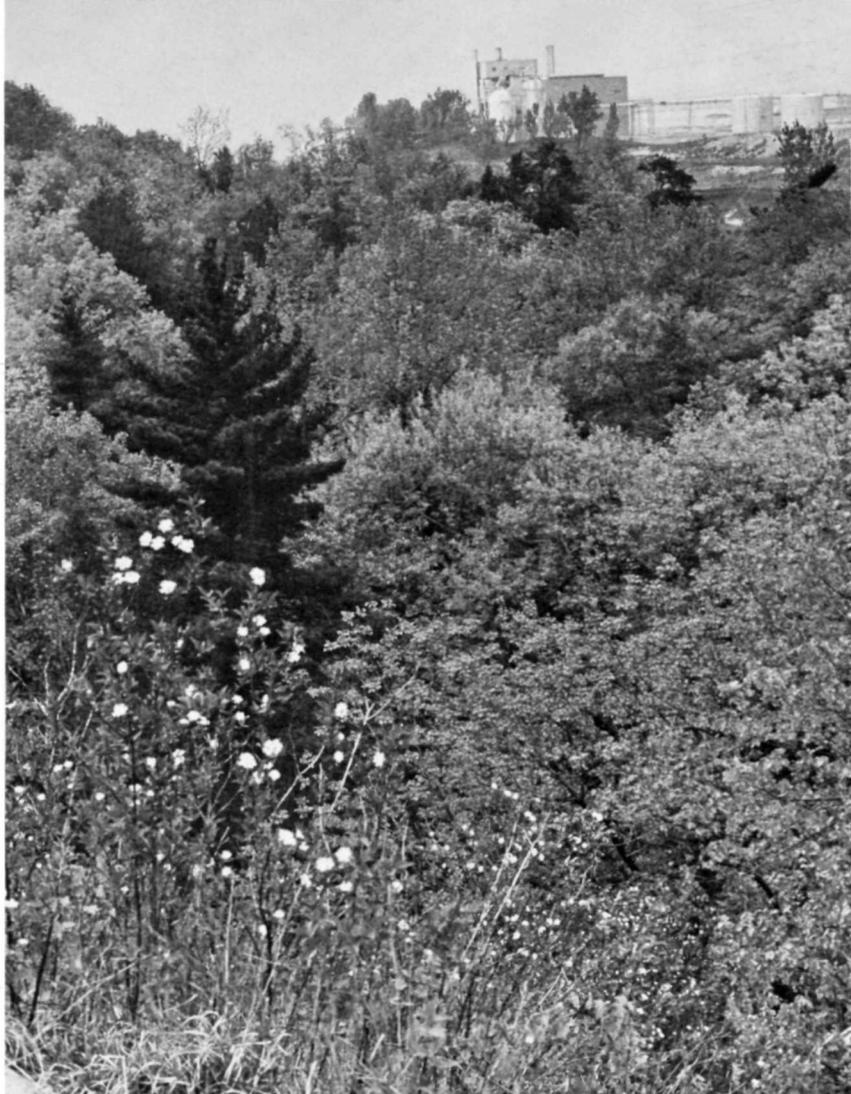
To summarize, nearly every hotlands fish in North America either is threatened today with extinction or under present trends will be in the near future; they are victims of public apathy and the destructive march of development across their desert lands. ■

Branley Allan Branson is a professor at Eastern Kentucky University, Richmond, Kentucky. He holds a Ph.D. in Ichthyology and Fisheries Management. He has published numerous articles relating to aquatic organisms and is a member of the American Fisheries Society and the American Society of Ichthyologists and Herpetologists.

ROUNDING out the INDIANA DUNES

Edward R. Osann

A new effort is being made to include further worthy units in our first national lakeshore



This area of forested Indiana dunes is proposed for addition to the national lakeshore created in 1966. It provides both a striking contrast between steel mills and nature and a grim foreboding of what is to come if the effort fails.

The Dunes are to the Midwest what Grand Canyon is to Arizona and Yosemite is to California. They constitute a signature of time and eternity. Once lost, the loss would be irrevocable.

—Carl Sandburg

In 1966 Congress authorized the Indiana Dunes, our first national lakeshore, "for the educational, inspirational, and recreational use of the public. . . ." Lying along the Lake Michigan shoreline in stark juxtaposition to the heavy industrial landscapes of northwestern Indiana, the natural values of the Dunes are myriad and well documented. Here dunes have been forming for the past 15,000 years along the shorelines of the ice-age predecessor of Lake Michigan, Glacial Lake Chicago. Major pauses in the retreat of Lake Chicago left three distinct shoreline ridges in addition to the present shore, each with an ecosystem now varying in stages from pioneer to climax. Similar-

ly, interdunal lowlands and swales offer ponds, bogs, cattail marshes, and wet prairie of varying stages of maturity. Cowles Bog and Pinhook Bog, both Registered National Natural Landmarks, have been studied by naturalists for years, dating back to the pioneer studies in ecological science by Dr. Henry Cowles at the turn of the century.

The proximity of the lakeshore to the Chicago-Gary urban area emphasizes the natural values of its diverse ecosystems. With sandy beaches accessible by both rail and expressway in less than an hour from downtown Chicago, the lakeshore is expected to play a major recreational role for urban residents short of quality recreation. Proximity is a two-edged sword, however, and development pressures in the vicinity of the lakeshore threaten to undermine the viability of the preserve.

In 1963 a compromise had been arranged by the Bureau of the Budget

under the Kennedy administration to pry loose two stalled and competing projects in the Dunes: a federally financed deepwater port, and a national lakeshore. The port and associated industrial developments were to be located in the center of the very area that conservationists were then battling most strenuously to preserve; but in any event a national lakeshore of some 9,000 acres was to be authorized from the remaining unspoiled beaches and dune areas of Porter County, with the addition to a 2,200-acre Indiana state park already in existence. Unfortunately, many of the proponents of industrial development claimed not to have been party to the compromise, and continued their opposition to the creation of a lakeshore in the Dunes right up to and beyond the authorization of a 5,600-acre reserve in 1966.

As a result of these activities, the currently authorized lakeshore represents a compromised compromise. Several



1961

The same vista near the lakeshore photographed in 1961 and again in 1971 demonstrates

outstanding natural areas remain outside its boundaries, and many of the fragile ecosystems within it are vulnerable to nearby incompatible activities. In response to this situation, companion bills were introduced in House and Senate in early February; the bills would add 5,328 acres to the lakeshore, selected for natural values, buffer protection for sensitive areas, diversified recreation opportunity, and manageability. Some of the present intentions of private owners for the land in question include residential subdivisions, a railroad yard, steel fabricating plants, and industrial dumpsites. A closer review of the priority areas that environmentalists hope may be added to the national lakeshore may lead to better understanding of the intent of the bills to protect and enhance it.

- **Burns Bog Unit.** This 700-acre tract is perhaps the most important of the proposed additions. The display of successive stages of old lake bottom and shorelines is easily interpreted from several dune ridge vantage points. Black oak groves alternate with cattail marshes to produce an exceptionally scenic terrain suitable for hiking or horseback riding. Wildflowers bloom throughout spring, summer, and fall—gentians, or-

chids, prickly pear cactus, and purple loosestrife, among many others. A substantial amount of prairie flora has become established because of periodic fires in this vicinity that date back before the arrival of settlers.

Burns Bog was included in lakeshore proposals of the 1950s and 1960s, but was deleted through efforts of a steel company that owns more than half the tract. Although zoned for heavy industry, the unit is unspoiled and under block ownership and would be usable immediately on acquisition by the National Park Service. It would ideally complement the existing parkland to the north, site of the lakeshore's intensive-use public bathing beach. The real danger lies in the temptation to subdivide the tract and sell off the high-way frontage for commercial purposes. Of immediate concern is the continued abuse of the area by off-road vehicles, which are causing unnatural ruts in established ground cover as well as some erosion.

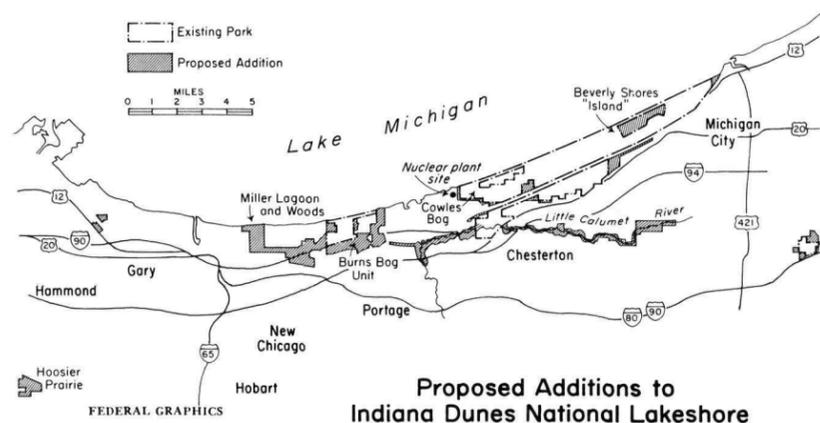
- **Beverly Shores "Island."** The long-range importance of acquiring the 660-acre enclave or "island" within the town of Beverly Shores cannot be overstated. The area was subdivided for speculative purposes several decades ago, and

the small lot size and multiplicity of owners have made large-scale development difficult up to now. The building that has taken place has been of low density—averaging greater than two acres per unit—and has been respectful of the natural terrain. However, with 70 percent of its taxable land already authorized for inclusion in the lakeshore, the town may be forced to rezone the island to promote tax-producing development. The real possibility of a high rise enclave with attendant drainage, sewage, and traffic conflicts seems to call for an early commitment to phase out residential development in the area over the next thirty to forty years.

In the interim, the winding, hilly roads make the island a bicyclist's paradise. As more houses are phased out, more roads can be closed to vehicular traffic. The vistas are spectacular. A high dune ridge along the shore is backed by deep, wooded ravines and an interdunal bog some six miles long, the western portion of which extends into the Indiana Dunes State Park. Although probably the most expensive portion of the current lakeshore expansion proposal, the low density, unspoiled character, and local sentiment for inclusion of the Beverly Shores Island will not last forever in this, the fastest growing county in Indiana.

- **Miller Lagoons and Woods.** A surprising feature of the effort to expand the lakeshore is the inclusion of more than 1,100 acres of remarkably unspoiled natural areas within the city limits of Gary. The gem of this addition is a 300-acre tract of beach, lagoons, and woods in the Miller area of the city. Owned by the U.S. Steel Corporation, the tract was subject of a hotly debated land exchange that would have resulted in the dredging of much of the area for fill material to support a powerplant on the Lake Michigan shore. The Gary city administration withheld final approval of the scheme, and the land remains unmolested except for the abuses of off-road vehicles.

Three natural features distinguish the Miller Lagoons area as outstanding and unduplicated in the remainder of the lakeshore. First, the band of foredunes near the shore is exceptionally wide because of the copious littoral deposits at the very southern tip of Lake



. . . . 1971

onstrates how quickly development can destroy unspoiled natural areas.



PHOTOS COURTESY OF THE IZAAK WALTON LEAGUE UNLESS OTHERWISE NOTED

Michigan. These are young, "live" dunes, scoured by the wind, with pioneer plant species just beginning to secure a toehold. South of the foredunes are the lagoons of the Grand Calumet River, the only natural segment of a stream so sluggish that sandbar action here closed off its flow into the lake and reversed its direction in the early 1800s. Below the lagoons are the black oak-blueberry forests, dotted with a progression of six eutrophying ponds that document some 3,000 years of aging. This natural terrain lies in dazzling contrast to the environmental consequences of a steel plant barely a mile away.

The remaining 3,700 acres of proposed new areas are difficult to describe in general terms. The purposes to be served are as diverse as the landscapes themselves. Hoosier Prairie is intended to provide an ecological reserve for scientific study of a dunes-related remnant of native Indiana wet prairie. The Little Calumet River offers modest whitewater canoeing and streambank fishing. A nesting area for the great blue heron is included, as is an essential buffer strip to halt the dumping of industrial waste into the western edge of Cowles Bog National Natural Landmark. Over a mile and a quarter of Lake Michigan shoreline would be added and a number of potential lakeshore management headaches eliminated.

New legislation is not, of course, a panacea for all the problems facing the Indiana Dunes. Conservationists in Indiana have learned, as NPCA members have known for some time, that a designation within the national park system does not guarantee timely or adequate protection of the resource from all encroachment. Public vigilance on behalf of already authorized lakeshore lands is now necessary on three fronts.

High water for the past three years has worsened shoreline erosion problems at the eastern end of the lakeshore. The Save the Dunes Council, a local group instrumental in the lakeshore's establishment, recently filed suit in federal court charging the Army Engineers with failure to act to protect the shoreline. A 1971 study indicated that the Corps-built breakwaters at

Michigan City were responsible for the severity of the erosion.

A second serious problem stems from the application of a local electric utility to construct a nuclear power plant adjacent to the lakeshore. Computing the lakeshore as part of the plant's "low population zone," the company would build a 660-megawatt reactor and a 450-foot cooling tower on the western edge of Cowles Bog. The Porter County Izaak Walton League Chapter, along with Chicago-based Business and Professional People in the Public Interest, have intervened in Atomic Energy Commission licensing proceedings. The Interior Department has remained strongly opposed to the nuclear plant site.

The Park Service's own development plans for the intensive-use public bathing area are being viewed with concern by both conservationists and local planning officials. The dispute is not over the general location of intensive-use facilities, since a large sand-mined area is available that could accommodate development with little disruption of natural values. Rather, the site planning—particularly of a multistory garage—

is being called into question. Park Service planners would cut into one of the few large dunes remaining on the site for the parking area; whereas conservationists would locate the facility farther away from the lake, in an area proposed for inclusion in the new legislation. The City of Gary has offered to construct the garage at this preferred location and operate both it and a shuttle service to the beach for the interim period before Service acquisition.

The costs in time and money for government and public alike to preserve and protect the Indiana Dunes have been substantial indeed, and include the costs of past inaction. In 1916 Stephen Mather, first director of the Park Service and later one of the founders of the National Parks and Conservation Association, proposed a national park along the Lake Michigan shoreline that could have been acquired then for three million dollars. Now acquisition of just this additional acreage will cost three to four times that amount. The Indiana Dunes National Lakeshore represents an ongoing commitment to the urban Midwest for the preservation and availability of a high-quality natural area. Each new challenge to the Dunes supports the warning of Tom Dustin, executive secretary of the Indiana Division of the Izaak Walton League: "Creation of a park or dedication of open lands or wilderness are the most reversible of all resource decisions. . . . You have to win the same fight again, again, and again. You lose only once, and the resource you have fought for is gone, usually irretrievably."



Edward R. Osann, a native of northwestern Indiana, works on the national staff of the Izaak Walton League in Arlington, Virginia. At the same time he is working toward completing a master's degree in urban planning at George Washington University.

NPCA at work

PAUL MASON TILDEN, ASSOCIATE EDITOR

National Parks and Conservation Association lost a respected and highly valued friend recently, when Paul Mason Tilden, Associate Editor, died on September 10 after suffering a heart attack at his home. He was buried at Pittsfield, New Hampshire. He is survived by his wife, Rosalie Greene Tilden, of Arlington, Virginia; his father, Freeman Tilden, of Friendship, Maine; a brother, Freeman, Jr., of Nashua, New Hampshire; and two sisters, Millicent Moore, of Warren, Maine, and Jane Van Auken, of Harrington, Maine.

Born on July 26, 1916, in Huntington, Massachusetts, Mase attended Colby College in Maine, where he majored in geology. During the depression he worked as a reporter on newspapers in Santa Fe and Albuquerque and also prospected for gold in the mountains of northern New Mexico. He served with the Army Air Corps in the South Pacific during World War II. After the war Mase established his own printing company in Warner, New Hampshire, wrote for the KEARSARGE INDEPENDENT (N.H.), and published his own weekly newspaper.

Later Mase worked as assistant editor of the former NATURE MAGAZINE, published in Washington, D.C. He left that publication for a brief stint in New York City on NATURAL HISTORY MAGAZINE but soon returned to Washington as editor of NATIONAL PARKS MAGAZINE. He served as editor of this Magazine from 1959 to 1969, when he took a sabbatical leave, returning in 1971 as associate editor.

A kind and gentle man, Mase was a pleasure to know. He had a lively curiosity and a profound appreciation for the world around him. He was a veritable treasurehouse of knowledge



about all manner of things, from geology, botany, wildlife, past and present events in the conservation arena, and park service history and policies, to organic gardening, orchard tree grafting, lily hybridizing, lapidary, building birdhouses, cooking lobster the "only way"—the Maine way—and even how to coalesce gold pannings to nuggets in baked potatoes in a campfire. Mase had a talent with words; he always knew just how to phrase a thought to express the exact shade of meaning desired. And he was a gifted photographer with not only the technical mastery of his equipment but also the sensitivity and attitude to "see." The Association and the Magazine benefited from the breadth and depth of Mase's knowledge, talents, concern, and wise counsel.

We're glad we knew you, dear friend. You enriched our lives. We'll miss you.

Grand Teton jetport Last month we reported to members on the upcoming decision by the National Park Service concerning the proposed jetport in the Grand Teton National Park, Wyoming. In an attempt to reach a decision the Service held a public hearing on the proposed airport expansion on September 11, 1973, during which NPCA presented its objections to the proposal.

NPCA noted that the proposed runway expansion is contrary to the laws governing management of national parks by the National Park Service and laws governing the use of park land by the Federal Aviation Administration. NPCA pointed out that the planes and airport would result in increased pollution of park land and would constitute both an auditory and a visual intrusion resulting in the destruction of wilderness and park values.

NPCA hopes that members have already expressed their opposition to this disastrous project. If not, there is still time to write the Secretary of the Interior, Department of the Interior, Washington, D.C. 20240.

Lassen Volcanic ski facility We informed members in the June issue of the proposed expansion of the existing ski facility and additional parking facilities, restrooms, and other accommodations at Lassen Volcanic National Park. We also reported on a letter to the National Park Service's deputy associate director for operations Joseph P. Rumberg from NPCA expressing the Association's concern over the proposed expansion. In reply to this letter a Park Service official assured us that no decision had yet been made. NPCA subsequently learned that the Service has decided to go ahead with the expansion.

Therefore, in September the Association protested to the Interior Department's Assistant Secretary Nathaniel P. Reed against plans by that department to approve further development of Lassen ski facilities. NPCA pointed out that the plans would be in violation of the Park Service Organic Act, which states that the primary purposes of the park system are "to conserve the scenery and the natural historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." NPCA also pointed out that approval of expansion of the facilities would be contrary to the recommendations of the Second World Conference on National Parks and the

1963 Leopold Report, which advised against mechanized recreational facilities in national parks.

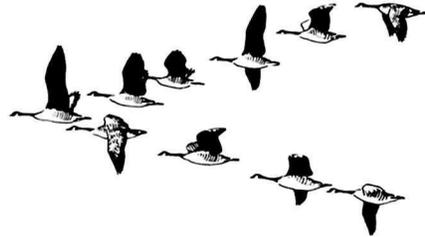
A startling reply In the August issue of the Magazine we reported that NPCA protested to the Army Corps of Engineers against the continuing plans of the agency to construct the Mera-mec Park dam on the Meramec River, Missouri, which is the habitat of an endangered species, the Indiana bat. In particular, NPCA asked the Corps what value it places on the habitat of an endangered species. In a startling reply from the acting Chief of the St. Louis, Missouri, engineering district, we learned, "there is no meaningful way for placing a dollar value on the esthetic and wildlife amenities you have mentioned." NPCA can only assume from this reply that endangered species habitat is not valued by the Corps, or at least not considered in cost-benefit computation. We would argue with the Corps' statement in that we believe that "such esthetic and wildlife amenities" are priceless and therefore worth preserving.

NPCA will continue to work to end the Corps' disturbing "no-value" system, by attempting to place high values on the habitat of endangered species. Maintenance of adequate habitat is, after all, the only way to save endangered species over the long haul. NPCA will continue to report to members on this important subject.

Back Bay Refuge Long-standing members will recall that the issue of off-road vehicular use in the Back Bay National Wildlife Refuge on the coast of Virginia has been in a state of flux for some months. The Bureau of Sport Fisheries and Wildlife had hoped to implement regulations that would restrict ORV use to owners of property below the refuge beach and to those with special permits. However, a series of suits was brought by other property owners, ORV users, and the city of Virginia Beach seeking general vehicular use on the refuge. A federal judge in Norfolk granted a preliminary injunction allowing use of the refuge beach until October by most property owners, but not by the general public.

In August Dr. John Grandy of NPCA visited the Back Bay Refuge to determine the effect of reduced ORV use on the refuge. He found that some wildlife populations have begun to recover, particularly the ghost crab, which had been much reduced on the beach. Dr. Grandy expects the populations to continue to recover if restrictions on ORV use are continued.

Refuge personnel report that the majority of their budget is spent controlling ORV use. Inasmuch as ORV use is not a primary goal of national wildlife refuges, we should all have added reason to encourage the Bureau of Sport Fisheries and Wildlife to discontinue such vehicular use to the maximum extent possible. NPCA is continuing to support the Bureau in its fine efforts to do just that.



Bird baiting NPCA and seven other conservation and humane organizations recently protested a proposal by the Bureau of Sport Fisheries and Wildlife to relax the restrictions on baiting migratory game birds (except waterfowl). Actually, the proposals will affect only doves.

In this context, "baiting" means attracting doves to make them easier to hunt—by scattering grain, for example. The proposed regulations, which NPCA and the others opposed, would have made more types of baiting legal and therefore would have made hunting easier.

In a letter to F. V. Schmidt, the organizations stated that the proposals seem to mistakenly place major emphasis on making enforcement easier by liberalizing regulations. "Instead," said NPCA and the others, "we urge you to revise the regulations, placing maximum emphasis on the continued health, well-being and survival of the migratory bird resource."

Clean air The Environmental Protection Agency (EPA) recently held a series of regional hearings on EPA's proposed regulations for the prevention of "significant deterioration" of air quality in areas where existing air quality is better than the secondary ambient air quality standards as established by the Clean Air Act of 1970. EPA is proposing these regulations as a result of a Supreme Court decision earlier this year on a suit filed by the Sierra Club and other environmental groups against EPA. The court decision in effect said that EPA had to implement regulations to keep clean air clean ("prevent significant deteriora-

tion"), not just allow it to deteriorate to the level of the primary and secondary standards for ambient air quality as interpreted by EPA.

At the hearings, industrial spokesmen said that EPA has no business imposing a strict air quality standard permitting no deterioration. One industry leader labeled EPA's attempt to set nationwide standards for maintaining clean air as "arbitrary" and "unjustifiable."

During the hearing, NPCA presented testimony on invitation contradicting that of the industrialists. NPCA said that although the significant deterioration of air quality in clean air areas may have a negligible effect on healthy people, it could very well have dangerous consequences for the elderly, the young, and those already suffering from respiratory diseases.

Addressing the urgent need for strong regulations, the Association stated, "Already there are a number of areas throughout the country in the various federally protected categories of the national park system, the national forest system, the national wilderness preservation system, and the national wild and scenic rivers system which, in the opinion of the NPCA and others, have experienced a significant deterioration of air quality as a result of the location of a number of poorly regulated industrial sources in the neighboring vicinity, although outside the protected area. Prime examples of this are found in the Mesa Verde National Park in Colorado and the Grand Canyon National Park in Arizona."

In concluding its testimony, NPCA told the EPA that "there will never be a strong incentive for either industry or the government to develop the technology to prevent pollution without the early implementation of strong regulations rationally and uniformly enforced at the national level which are designed to prevent 'significant deterioration' of air quality in areas of our country presently having clean air." The EPA and others have advocated that the definition of "significant deterioration" should be allowed to vary from one clean air area to another, depending on the primary use of the area or the wishes of the people in the area. The NPCA cannot agree with this concept; "significant deterioration" must be prevented in all clean air areas of the country regardless of their use or location. At this writing, the EPA has not announced its decision on the final form of its regulations to prevent the significant deterioration of air quality in clean air areas.

Deepwater oil ports In its continuing efforts to safeguard the integrity of the coastal and marine environments, NPCA, on invitation, commented on an Administration bill (S 1751) that would amend the Outer Continental Shelf Lands Act to authorize the Secretary of the Interior to license the construction and operation of deep-water port facilities located beyond the territorial sea.



The Association also commented on the draft environmental impact statement on the proposed legislation saying that the statement was inadequate and was designed to justify and facilitate development of deepwater ports and use of supertankers without addressing the fundamental issues of energy policy, marine transport, environmental quality, and consumer interests raised by such proposals.

IMCO convention The International Maritime Consultative Organization (IMCO), of which the United States is a member, convened an International Conference for the Preservation of Pollution from Ships in London during October. NPCA commented on the draft text of the convention, which would (1) establish discharge limitations for oil, chemicals, hazardous substances, sewage, and waste; (2) impose ship design and construction requirements to ensure that such limitations are met; and (3) provide for enforcement against violation of the convention.

NPCA supported the goal of the convention as expressed in the preamble, to achieve "the complete elimination of international pollution by oil and other harmful substances and the minimization of accidental discharge of such substances . . . by 1975, if possible, but certainly by the end of the decade" and has urged the United States to press for effective discharge standards, requirements of segregated

ballast achieved in part through double bottoms, and mandatory penalty provision. We also urged broad inspection rights for a coastal state based upon "reasonable grounds."

The Association's comments on the policy and specific text of the draft convention were presented to the United States National Committee for the Prevention of Marine Pollution, which formulates the United States position to be presented at the conference, and to the Subcommittee on Oceans and Atmosphere of the Senate Committee on Commerce. NPCA stressed the importance of an effective convention, noting that more than two million tons of oil are presently injected into the oceans each year from ship operations.

Forest Service environmental program

NPCA met recently with Chief of the Forest Service John R. McGuire, several of his staff assistants, and representatives of the forest industry, and other environmental organizations. The purpose of the meeting was to discuss and make recommendations for the development of the proposed ten-year (1975-1984) Forest Service Environmental Program for the Future. At the meeting NPCA recommended that a new Forest Service program—Urban and Community Forestry—pay particular attention to the social relevance of forestry to the diverse open-space needs of urban people and to include such areas as conservation education, youth and manpower programs, and outdoor recreation. The Association also recommended that recreational planning for forest land use be done on a regional basis to help deter adverse environmental impact from a heavy recreational burden in many of our national parks, especially during periods of high seasonal demand. This measure would include establishing campgrounds and similar intensive-use facilities in less fragile ecosystems on other public or private lands adjacent to or near national park boundaries. NPCA also expressed to the Forest Service its strong opposition to the practice of massive block clearcutting of national forest timber and stressed the importance of ecological forestry principles to achieve the goals of multiple-use management.

The August meeting was the first time the Forest Service had convened, at the national level, with representatives of conservation groups to discuss a program of the scope of the Environmental Program for the Future. Hopefully the meeting bodes well for the future of such dialogues.

NPS interpretation programs A nine-month survey, directed by National Park Service's William C. Everhart, showed serious understaffing and sub-standard operation of nature hikes and park interpretation programs in the national parks.

The Everhart report noted that in a sample involving 121 areas, only 23 park superintendents reported their interpretation operations met minimum standards. Many permanent professional interpreter jobs had been redesignated as nonprofessional, requiring less education and experience and involving much noninterpretive duty, such as traffic policing or fire-fighting. Interpretation programs have suffered as a result of increased visitor use, limited budget, and the demands on personnel made by crime prevention and park maintenance.

Mr. Everhart is the director of the Harpers Ferry (W. Va.) Center for Production of Interpretive Materials.

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He had been assistant director for interpretation; that post was abolished when he went to his present job.

The study recommends that the Park Service reinstate a high level headquarters post for interpretation as well as regional posts. It also recommends recruiting more qualified interpreters. The proposals were sent to Secretary of the Interior Rogers Morton and Park Service Director Ronald Walker.

Van Buren home acquired The National Park Foundation has purchased the Kinderhook estate in New York State, where Martin Van Buren settled in 1840 after losing the presidency to William Henry Harrison. The 23-room gabled mansion on the estate, known as Lindenwald, is set in a grove of linden trees and has remained a private residence throughout the years. The Park Foundation, chartered by Congress in 1967, will hold the property until it is legally established as a national historic site. After Congress has gone through the process of hearings, committee debates, and fund appropriations, the National Park Service will buy the site and restore it to its 1849 condition (as revealed in photographs and descriptions). A masterplan study team of Park Service architects, historians, and landscapers has come up with a \$2.3 million five-year plan for reconstruction and operation.

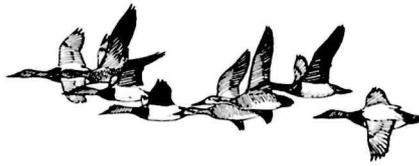
At present the Senate has passed the "Lindenwald National Historic Site" bill, but it is still pending in the House of Representatives.

Government wins Gulf Islands suit

The federal government won a major court case in July when the United States Fifth Circuit Court of Appeals dismissed an appeal by private claimants to halt reversion of the title of the recreationally valuable Naval Live Oak Reservation in Florida to the federal government.

The history of the Live Oak Reservation dates back to a series of land purchases by the U.S. government executed between 1828 and 1832. In 1869, local records of these conveyances were destroyed in a courthouse fire. Federal ownership was not recognized by the state, and state taxes were assessed on the reservation in 1870, 1871, and 1872. As a result of nonpayment of these taxes, tax deeds were sold by the state of Florida to private individuals. State assessments continued until 1932, when the Governor of Florida ceded legislative jurisdiction over the reservation land to the federal government.

Pursuant to the Surplus Property



Act of 1944, the War Assets Administration, predecessor to the General Services Administration, conveyed the reservation back to the state in 1947, with the provision that the property be used exclusively for public park purposes and that any breach of that restriction would result in the title reverting to the federal government.

Immediately following receipt of the title from the federal government, the state sought to dismiss the title claims of the private landowners who had purchased tax titles from the state. The Florida Supreme Court found that the state had lost its claim to the land. The State Parks Board dropped its claim to the property, and the court entered a final decree in 1955 handing the property over to the private claimants, still subject to the federal reverter clause.

In 1970, the federal government determined that the land was not being used for public park land, under the reverter clause, which finding formed the basis for the suit.

The reservation lies within the boundaries of the Gulf Islands National Seashore and will be reserved as part of the seashore.

National materials policy The National Commission on Materials Policy has submitted its final report to the President and Congress. The report is the culmination of the NCMP's two-year mission to develop a set of recommendations for a national materials policy that "must of necessity embrace the entire natural resources scene—materials, energy, and the natural environment." The commission recommended that it should be the policy of the United States to provide adequate energy and materials supplies of a dynamic economy without indulgence in waste; to rely on market forces as a prime determinant of the mix of imports and domestic production in the field of materials while avoiding a dangerous or costly dependence on imports; to protect or enhance the environment in the pursuance of the above goals; to treat waste materials as resources; and to institute coordinated resource policy planning that recognizes the interrelationships among materials, energy, and the environment. Copies of the report entitled "Material

Needs and the Environment—Today and Tomorrow" can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for \$3.20.

House prepares land use bill Since early in the 93rd Congress the Environment Subcommittee of the House Interior Committee has been preparing a national land use bill similar to the one passed by the Senate in June [reported in August issue]. In the view of many environmentalists, the current House print of the land use bill being managed by the Subcommittee chairman Morris K. Udall is superior in several ways to the Senate bill. As conceived by Congress the bill would not shift authority over land use to the federal government, but would encourage the states to establish a process for identifying and controlling major land use decisions of more than local importance. A key feature of both bills requires states to identify certain subdivisions, which must meet environmental standards.

Several conflicts remain to be resolved, both within the House Interior

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Committee and between the Senate-passed version and the House Committee print. Very simply they include: the level of funding, with the House bill authorizing more than the Administration has requested but less than the Senate has approved; the public lands controversy, with support in the House for inclusion of the public lands under the regulation of the Land Use Act, but with the Senate excluding public lands from their land use bill and considering it as separate legislation; and the inclusion of economic sanctions for noncompliance with the act, which lost as an amendment to the Senate version by a narrow 8-vote margin but is being seriously considered in the House bill.

An interesting addition to the House land use bill is the so-called "Save the Trees" amendment, introduced by Rep. James G. O'Hara, which would regulate development of an area to prevent unnecessary soil erosion and the purposeless destruction of trees and other features adding to the natural beauty of the area. Hopefully, the House will expedite action on this legislation, which is widely recognized as the most environmentally important legislation now before Congress.

conservation docket

With only two months remaining in the first session of the 93rd Congress, a number of major bills being actively considered by Congress are of concern to environmentalists but have not yet been enacted. As our congressional leaders look ahead toward an early holiday recess, there will undoubtedly be fewer newly introduced bills with a concurrent increased intensity in committee mark-up sessions and House and Senate floor activity.

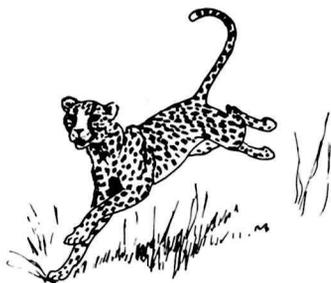
Among environmentally important bills now being considered by Congress are the following:

Endangered Species: The Endangered Species Conservation Act of 1973 (S 1983), introduced by Senator Harrison Williams, passed the Senate by a unanimous vote of 92 yeas. HR 37, introduced by Representative John Dingell, a somewhat different version, passed the House on September 18 by 390 yeas to 12 nays. Differences are being resolved in a Joint Conference.

Predator Control: Senate Commerce Committee hearings have been held on S 819, which would establish a national wild predatory mammal policy and program as well as prohibiting poisoning on public lands; but the bill has been re-referred to the Senate Interior Committee, where conservationists fear that the sheep lobby may seriously weaken the bill. The House Subcommittee on Fisheries and Wildlife Conservation and the Environment has held hearings on the House bill, HR 38, introduced by Representative John Dingell; no further action has occurred.

Eastern Wilderness: After extensive hearings, both regionally and in Washington, D.C., S 316, introduced by Senator Henry Jackson, has been sent from the Public Lands Subcommittee to the full Interior Committee for action. The bill contains over fifty proposed wilderness areas in the east, with about eighteen being authorized for immediate inclusion in the national wilderness preservation system and the remainder set aside as study areas for possible future inclusion. A number of wilderness bills in the House Public Lands Subcommittee are undergoing or awaiting mark-up.

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Forestry Incentives: The Forestry Incentives Act, originally introduced as a separate bill in the House and Senate, was included as a separate title to the Agricultural and Consumer Protection Act of 1973 (S 1888), which passed both the Senate and House and was signed into law by the President as Public Law 93-86. The Forestry Incentives Program will encourage tree planting and other multiple-use forest management practices on private, non-industrial woodlots of 500 acres or less.

Big Cypress: The House Interior Committee has completed action on HR 46, to establish the Big Cypress National Freshwater Reserve in Florida. The bill now awaits action by the House Rules Committee prior to debate and vote on the House floor. The Senate Interior Committee has taken no action on its Big Cypress bill, S 334.

Big Thicket: The House Parks & Recreation Subcommittee has held hearings on several bills, including HR 9253, introduced by Representative Alan Steelman, to establish a Big Thicket National Biological Reserve in Texas. A controversy has arisen over the acreage to be included in the bill, with a number of Congressmen and most environmentalists recommending a 100,000-acre reserve as opposed to the 68,000 acres supported by the Interior Department and the Office of Management and Budget.

Alaskan Pipeline: Both the Senate and the House have passed bills authorizing construction of the trans-Alaska pipeline, and prohibiting any further court consideration of the pipeline under the National Environmental Policy Act of 1969. However, the two versions of the bill differ considerably, requiring a Joint House-Senate conference. The conference must resolve the differences between the Senate's broad federal lands rights-of-way bill and the more narrow House bill which amends the Mineral Leasing Act of 1920 to permit a right-of-way wide enough for the Alaskan pipeline construction. Once the differences have been resolved, the President will most certainly sign the bill into law.

Energy Policy: The Senate has passed S 70, the Energy Policy Act of 1973, after extensive hearings in the Senate Commerce Committee. The act establishes a Council on Energy Policy to coordinate all energy activities of the federal government, to formulate policies for wise energy conservation and management, and to prepare a long-

range comprehensive energy plan. The House Interior Committee has held hearings on a somewhat different proposal (HR 6602), entitled the National Energy Research and Development Policy Act, but took no further action.

Strip Mining: The Senate Interior Committee has concluded mark-up of S 425, to regulate the strip mining of coal. The bill will probably be called up for floor action soon after the committee report is issued. The strip mining issue will represent the most significant vote in the Senate on the energy versus environment issue since the Alaskan pipeline bill was passed. Among other important provisions supported by environmentalists, the bill contains an amendment offered by Senator Gaylord Nelson that will require strip mining companies to restore mined land to its original contour. This measure also has the support of Arnold Miller, president of the United Mine Workers. The House version of the strip mining bill (Committee Print #3) is undergoing extensive mark-up by both the Environment Subcommittee and the Mines and Mining Subcommittee and seems to be emerging in a form more generally acceptable to environmentalists than the Senate version. It appears likely that both the House and Senate will pass some form of strip mining bill this year.

Toxic Substances: The Toxic Substances Control Act of 1973 has passed both the House and the Senate and is now before a joint conference to re-



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solve the differences. The bill is designed to cover the whole range of activities by which chemical substances enter the environment, including extraction, production, consumer use, and disposal. The act provides for the Environmental Protection Agency to regulate activities involving these hazardous substances and for citizens to bring suit to ensure enforcement of the law. The bill should emerge from the conference in the near future.

Deepwater Ports: Legislation has been introduced and hearings have been held in both the House and the Senate that would facilitate the construction of deepwater ports, primarily for accommodating the huge "supertankers" carrying oil imports. This complex issue must balance the needs for protection of the delicate marine and coastal zone environments with the problems of petroleum supply, secondary industrial growth and land use, and marine transportation systems. The Administration's bill in the Senate, S 1751, has been criticized by a number of conservationists and others. Governor Jimmy Carter (Ga.), representing the National Governors Conference, in testimony before the Joint Subcommittee of the Senate Committees on Commerce, Interior, and Public Works, stated that "the Administration bill falls far short of providing sufficient protection for the environment. Pollution, by whatever means, must be prevented and not merely 'minimized.' S 1751 neither regulates the whole coastal zone nor the whole of the facilities involved. Superports are but one component of the pressures of population and economic development which threaten to overwhelm us in our efforts to preserve through rational utilization our invaluable and irreplaceable coastal resources." Governor Carter also stressed the position that "the various states must be permitted to conscientiously weigh the potential environmental hazards against the potential advantages of having a superport constructed off their shores and then make their own decision." S 1751 provides only for consultation with a state before locating a deepwater port off its coast. The House committee has primarily considered HR 7501, but no further action has been taken.

Department of Energy and Natural Resources: Both the Senate and House have held hearings on the Administration's proposal (S 2135, HR 9090) for the reorganization of the Executive Branch to establish the Department of Energy and Natural Resources (DENR).

This new department would encompass most of the present activities of the Interior Department, the Forest Service and river basin functions of the Soil Conservation Service of the Agriculture Department, and the National Oceanic and Atmospheric Administration of the Commerce Department, as well as certain activities of the Atomic Energy Commission, the Transportation Department, the Corps of Engineers, and the Water Resources Council. Also proposed is a new Energy Research and Development Administration to include existing research and development (R&D) programs of the Atomic Energy Commission (AEC) and most of the fossil fuels research programs from the Interior Department. Having lost its R&D functions, the AEC would be renamed the Nuclear Energy Commission, exercising only the

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licensing and regulatory responsibilities of the present AEC. Although most environmentalists agree with the need for greater efficiency and coordination of federal resource management efforts, many are troubled by the ambiguity of the President's proposal and by the presence of energy production agencies and more environmentally oriented agencies in the same department. Based on the Administration's past actions on environmental matters, it seems likely that the proposed DENR Energy and Minerals Administration would overshadow the proposed Land and Recreation Resources Administration. Due to the extreme complexity of the proposal and the reluctance of Congress to accept it without intense scrutiny, it is unlikely that the DENR bill will emerge from committee in either the House or Senate this year.

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services must be provided even to the most remote communities. In the United States these services are needed in the urban and rural slums, of which we have plenty, and at least in their educational aspects in the affluent suburbs. In the less developed countries there will be a special need to approach a wide variety of distinctive local cultures having special problems of attitudes toward family size, and to provide alternatives to the economic security thought to be afforded for old age by large numbers of descendants.

While the ponderous machinery of international cooperation in such matters is being readied, a few well-designed pilot operations might contribute greatly to an understanding of what private and public agencies can do to hasten change. It should be possible to demonstrate in practice that teams of physicians and paramedics, cooperating with social workers, sociologists, religious teachers, can move into communities burdened by unwanted children and bring greatly needed relief in a relatively short time by technical assistance and an appeal to reason and morality. The various private institutions in the United States which are concerned with population problems might consider financing pilot operations of this kind in as many places as possible, both at home and abroad.

THE GREAT ADVANTAGES of a stabilized and reduced population level should be stressed. We have space to consider only a few of the factors. As examples, the seemingly insatiable demands of developed countries for energy would tend to fall; solar energy might well supply all the needs of the entire world if the planetary population could be reduced sufficiently. The nonrenewable resources, including metal ores, could be conserved, and renewable materials, including biodegradable synthetics produced from agricultural products, could be substituted. The overhanging threat of famine with which mankind has lived throughout all its existence could be demolished once and for all. Modern industrial methods could be employed to provide everyone with the basic necessities of food, clothing, and shelter, and with many commodities looked upon as luxuries.

In other words, there could be a great relaxation of economic pressures everywhere; men could turn their attention from the economics of survival to educational and cultural benefits. The congestion of the big cities could be alleviated; abundant open

space could be provided within the cities. The smaller rural communities could be revitalized, and well-planned new towns could be built; there would be space to do so. Land-use planning could be conducted with a view toward a good life within an open countryside, and not as a last ditch fight against urban sprawl and speculative development. The priceless historic treasures of the world, ancient buildings, public monuments, cultural and historic landscapes, and the older sections of our cities, freighted with the story of mankind, could be rescued from the wreckers and promoters. The goal which has been set in America for the abolition of water pollution at source could be achieved and maintained without great outlays for renovation. Clean winds might blow again across the countryside and through the cities.

THE THREAT of extinction could be lifted from the remaining plant and animal species of the world. Their competition with food animals would be insignificant. Their need for broad habitats could be met without stress on human settlements, agriculture, and timber production. The forests could be allowed to recover and to fulfill their function as environment, not merely as economic producers. Wide reaches of wilderness could be protected or restored, and the open countryside, as contrasted with the megalopolis, would provide a natural setting for human life.

Perhaps in some ways more important, the heavy psychological pressures of modern urban-industrial society could be reduced. The difficulty and complexity of governmental and industrial administration now begins to overwhelm the human mind. Intolerable haste and hurry has become an habitual component of life for everyone. Complex as the causes of these conditions may be, the underlying goal of population expansion is without question a major determinant.

AND THERE ARE some other things also. If none but wanted children were born, so the statistics suggest, population growth might come close to ceasing after the present momentum has been exhausted, if reinforced by an adequate and durable population ethic. If all children were desired and loved, what a sea-change might result in all human relationships! And if at the same time, the great burdens of poverty and famine, to the extent attributable to overcrowding, could be lifted, what a mercy for the world!

—Anthony Wayne Smith



Today our wildlife faces ever-increasing threats to their existence from man—commercial exploitation, pesticides, pollution, and habitat destruction. Specifically, government economies are causing substantial cutbacks in our wildlife refuges, and new Forest Service clearcutting policies will change the ecological balance in our national

forests, thereby causing further pressure on our national parks.

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