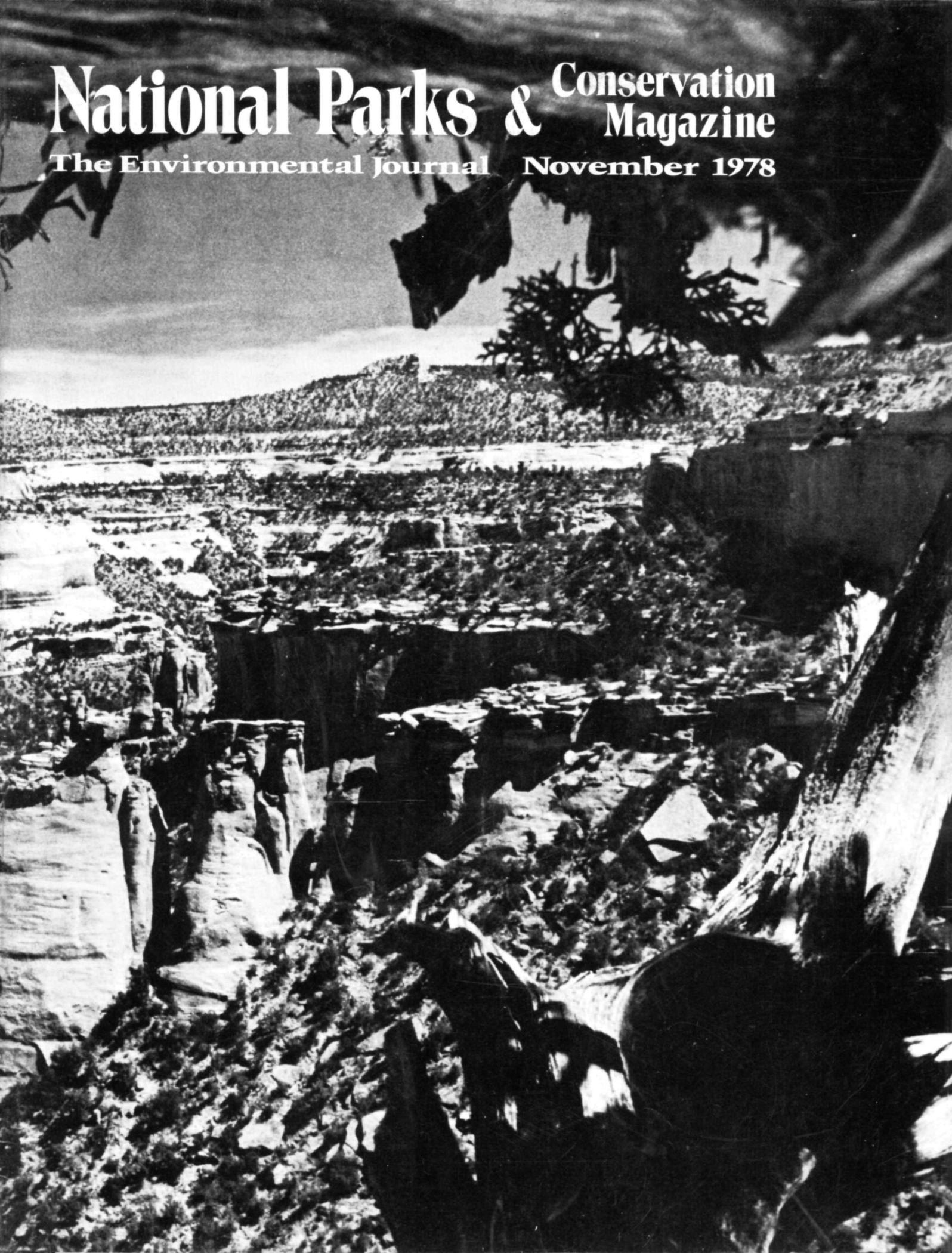


National Parks & Conservation Magazine

The Environmental Journal November 1978



A World Plan for Survival

RELIEF AND GRATITUDE are the emotions which first arise on reading *A World Conservation Strategy*, published in July by the International Union for Conservation of Nature: relief because at last a long-range plan for the protection of the living resources of the planet may be emerging; gratitude toward the leadership in the IUCN, the United Nations Environment Programme, and the World Wildlife Fund, which has made this outcome possible.

For years, for decades, the world conservation movement has labored with bits and pieces of its stupendous responsibility while events drifted inexorably toward catastrophe. Now, perhaps, we have the beginnings of an effective global plan of action. As we write, the Strategy is being presented to the General Assembly of the IUCN at Ashkhabad in the Soviet Union, and approval is expected.

THE GENERAL OUTLINES of the human *problematique* should be kept in mind in appraising this document: the persistence of desperate poverty, illiteracy, malnutrition and the menace of famine in much of the world; heavy pressures on all the natural resources of the planet as the result of industrialization and the population explosion; the impending exhaustion of many of the non-renewable resources; soil erosion, forest clearance, desertification, food and water shortages; and the endangerment of the ecosystems and plant and animal species on which human life and civilization inevitably depend.

Against this rising tide of destruction, conservationists have thus far attempted to erect only the flimsiest of barriers for the protection of the living resources of the earth. Whether the present Strategy will lead to significantly better defenses will depend less upon the specific recommendations it contains, which are for the most part unexceptionable, than on whether effective global or regional authorities can be established for their implementation, with mandates extending into domestic affairs. The test of strength on that score will require at least another decade, but must be faced now.

THE STRATEGY calls for a commitment to conservation at the highest levels of each nation and province. It urges that politicians and

government administrators understand and support conservation. It makes the cogent recommendation that economic growth be measured by methods which take count of the costs of depleting the living natural resources and the benefits of conserving them.

Among the measures proposed are the development of national conservation strategies; inventories of resources, ecosystems, species, and their capabilities; the establishment and funding of protective institutions; and the enactment of conservation legislation. The Strategy consists in large part of recommendations as to the content of these national plans and institutions.

Reliance is thus placed very heavily on the readiness and willingness of governments to manage the resources of the countries in a rational way; yet we know that far too frequently they will not do so; the pressures of special interests, of greed, of corruption, of crowding and hunger will too often overwhelm them. Rational proposals are essential; they were long overdue; they are comprehensive and well stated in the Strategy; getting them carried out is another matter.

IN CONTRAST, consider the Informal Composite Negotiating Text (ICNT), evolved by the United Nations Conference on the Law of the Sea in some of its applications to pollution. The ICNT (Articles 208 *et seq.*, 236) obligates parties to the Convention to enact laws and take other measures to prevent pollution of the seas from land-based sources and otherwise; it makes them liable in damages for violation of those obligations; the issues may reach the International Court of Justice in proper cases. In other words, the adoption and ratification of a treaty based in this respect on the ICNT will establish a measure of world law on pollution reaching far beyond the oceans and *into the domestic economies of the signatory states*. This achievement was overlooked, but should rather have served as a model, in preparing the Strategy.

There are many ways to approach the problem of enforceable worldwide, or at least regional, legal obligations to respect and protect the living resources of the planet. The point is, however, that although outlines need to be prepared of what ought to be done by nations, they are not self-

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COVER Colorado National Monument, by Patrick Sarver
A juniper tree frames the Coke Ovens at the upper end of Monument Canyon in Colorado National Monument. Named for their resemblance to old-fashioned iron-ore furnaces, the Ovens were formed when their caps of Kayenta Sandstone eroded away. (See page 4.)

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The founder of the Colorado National Monument was a real “character”—part visionary, part trail-builder, and part crazy

John Otto: Eccentric With a Vision

by PATRICK SARVER

BACK IN THE EARLY 1900s, most people in Grand Junction, Colorado, thought John Otto was crazy, living alone in his tent in the rugged canyons west of town instead of searching for gold like a man with sense. After all, John was an experienced powder man who could have made good as a prospector. That didn't bother John, though, because he dreamed of the rugged canyons where he lived as a national park.

It all started when Otto drifted into western Colorado in 1906 to work on a water pipeline being built across the Uncompaghre Plateau. Almost as soon as he saw the steep, red canyons at the edge of the plateau, his life became bound up in their future. Upon his arrival in Colorado, John pitched his tent in Monument Canyon and began his almost thirty-year residence.

Once John's work on the pipeline was done, he announced that he was a trail builder and a promoter of the canyons. Soon, the people of Grand Junction found out how deeply John valued the canyons

they considered worthless. When someone mentioned that there was nothing to do around town on Sundays but dangle their feet in the Colorado River, John burst into action. He corralled all the influential people in town and had them sign a petition that asked the federal government to turn the canyons into a national park.

By 1909 the land was withdrawn from public domain for study, but Congress dragged its feet. So John stepped up his earlier letter-writing campaign. As a result, President Taft declared the canyons the Colorado National Monument in 1911, with John appointed its first Custodian at \$1 per month salary.

THE CONSTANT determination that marked John's efforts in getting the land declared a national monument was probably his most outstanding trait. Whenever he encountered opposition to his ideas, he ignored it and often launched one-man projects to promote or improve the monument in spite of that opposition.

He was also extremely patient, a virtue that others often saw as pure stubbornness. At times, his persistence made him a nuisance, particularly at the local newspaper and Chamber of Commerce offices whenever he was promoting one of his ideas, which seemed to be just about all the time. On occasion, he would even stop people on the streets of Grand Junction to persuade them to support his ideas for improving the monument. When Otto's ideas were good, such as the creation of the monument, his determination accomplished things where others would have failed.

The locals, though, thought John was more than a bit “loco.” Not long after he moved into Monument Canyon he was brought into court and judged insane three times because of his “offbeat” ideas. It seems he had been advocating the eight-hour workday, women's rights, and transcontinental highways.

Unfortunately, John also had some ideas that made sense only to himself. For example, he once



John Otto lived in a tent in Monument Canyon for more than twenty years, building trails and promoting the monument's beauty. Although Otto was not a hermit, he did spend most of his time alone. His most constant companions were his horse, Dolly, and his two burros. John was so at home on a trail that a cowboy once remarked that John could track a tick across a rock slide in the middle of the night.

wanted to dedicate a wildlife fence to war heroes. Another time he unloaded a massive block of granite that he called the "cross of ages" at the site of the county courthouse along Grand Junction's Main Street. On it, he had carved Indian trade occupation symbols.

John was superpatriotic, often in strange ways. So when he decided to dedicate the monument to the spirit of his country, it was no wonder that he did the unusual, asking his wife to chisel the last sentence of the Declaration of Independence and the names of the first signers into one of the monument's huge boulders. She did the chiselling, but it probably contributed to the shortness of John's marriage.

John's unusual personality made him something of a local character. In the years he spent living at the base of the 575-foot-high Independence Monument, rumors about him came and went in town. Never were they more common, though, than about John's two-month marriage. Local gossips had

it that Otto and his bride had climbed to the top of Independence Monument for their vows. Another version was that Otto and his best man climbed up while his bride stayed below, with the preacher using a megaphone so that John could hear him. Still another rumor circulated that John's wife was from a lonely hearts club and that John had proposed by mail.

Although these rumors enhanced John's local fame, they were far from the truth. John's wife came to the area from Boston to paint the scenery in Monument Canyon. After they were married, life in a tent proved too much for her. Within two months, she left John and his tent and returned to Massachusetts. John evidently understood, remarking in a letter to the Director of the Park Service that not everyone could live in a tent as he did.

Although John didn't climb Independence Monument to be married, he did build a "trail" of iron rungs to the top of the pinnacle. It was a ladder that hundreds of peo-

ple climbed to sign a register that Otto placed there. (The Park Service removed the rungs years later.) Once at the top, John thought it would be a perfect place to install a flag, especially now that the canyons were a national monument. So off he went to town, where he persuaded the largest department store to donate a flag. Before long it was flying high overhead. So what if it was so small that it couldn't be seen from the canyon without binoculars? It was there, and that was what mattered to John.

Besides the "trail" to the top of Independence Monument, Otto also built almost all the monument's twenty miles of trails with little more than a pick and shovel. Liberty Cap, Ute Canyon, Coke Ovens, Monument Canyon, and Corkscrew trails were all products of John's work. But his most famous was the Trail of the Serpent. John first built this trail for foot travel only. Later, he supervised the upgrading of the trail into a road that wound up to the canyon



JAMES F. O'BRIEN

When Otto first saw Monument Canyon, it was love at first sight, and he soon pitched his tent there. At the time, he was working on a pipeline that ran across the Uncompaghre Plateau near the canyon. When the project was completed, Otto began petitioning the federal government to make the area a national park. After several years of effort, it was declared a national monument by presidential proclamation, and John was named its custodian.



PATRICK SARVER

rims at the east end of the monument. It easily earned the nickname of "the crookedest road in the world" from drivers who battled its fifty-four hairpin curves in the two and a half miles it climbed along the steep cliffs. Today the Trail of the Serpent has been converted back to a foot trail.

JOHN OTTO had several ingenious fund-raising ideas. Among his more successful projects was to ask everyone he met for their buffalo nickels to help transport a herd of bison from the Denver zoo to Monument Canyon.

The gimmick worked, and the monument soon had fifteen bison grazing in the canyons. The descendants of this herd can still be seen today wandering about Monument Canyon.

The bison caused a major clash between Otto and the Grand Junction Chamber of Commerce. To celebrate the building of a transcontinental highway nearby, the chamber sponsored a buffalo barbecue. The monument's herd "donated" two bison to the cause. When Otto found out, he reacted with outrage, writing letters that branded the chamber as "the big-

gest Punk Outfit in Creation," and threatened to change the name of Monument Canyon to Murder Canyon. He ended one letter to the chamber with "here is hoping . . . your whole bunch gets roasted and fed to the dogs." The Park Service investigated, did some official scolding of the locals, and everyone forgot the incident—everyone, that is, except John.

One of John's long-term projects that never panned out—in spite of his constant plugging—was a road he called the "Union Trail." This road, John never tired of saying, would run through the canyons

and desert from the Colorado National Monument to the Grand Canyon. John's Trail of the Serpent was to be the eastern end of this road. He argued constantly against the road that was built across the flat land below the monument. He eventually lost, but he still kept pushing for his Union Trail as long as he was at the monument.

OTTO NEVER seemed to receive the appreciation he deserved. Once, when the Director of the Park Service was to come to the monument for a visit in the 1920s, he wanted John to be busy

elsewhere. The Chamber of Commerce asked the sheriff to toss Otto into jail for the duration of the visit, and the idea was actively pursued. Luckily for John, a nearby national forest supervisor asked him to help on a backcountry project instead. John's pride was hurt when he found out, but he never seemed to resent the treatment. His long experience as an outsider, even in the place he lived, had accustomed him to such treatment.

John was losing support as Custodian by 1927 when disagreements arose over roads through the monument. As pres-

sure from the growing number of visitors increased at the monument, Otto's Trail of the Serpent had become more and more dangerous. Although John had always preferred that people hike or ride horseback through the monument, working a little to enjoy the scenery, he had also pushed for the construction of the present Rim Rock Drive as part of his Union Trail. So when the road was approved, John thought that the first step of his Union Trail was at last underway. It didn't take long, though, until his pride was dealt a severe blow.





PATRICK SARVER



NATIONAL PARK SERVICE

Five-hundred-and-seventy-five-foot-high Independence Monument stands in the center of Monument Canyon. Otto lived in his tent at the base of the huge pinnacle for almost thirty years. He built a "trail" of iron rungs up the side of the monolith, and he installed a flag on top. Hundreds of people climbed the ladder before the Park Service removed the rungs years later. Above, John Otto (upper) nears the summit of Independence Monument in June 1911 with an unidentified companion.

As definite plans to build the road took shape, John found out that he wasn't even being considered as a consultant for the construction. Arguments soon flared between Otto and the supervisor of the road construction crew. Meanwhile the Chamber of Commerce of the nearby town of Fruita, hungry for its share of Otto's and the monument's success, began undercutting John by sending letters to the Director of the Park Service that were less than truthful.

Under these circumstances, John's repeated complaints about "lack of cooperation" to the Park Service led to his replacement as Custodian. Even after losing his

job, though, Otto continued to live in his tent beside Independence Monument for several years more, writing letters to the Director periodically to report the news and needs of the monument as he saw them. Finally, John gave up and moved to northern California. His dream had grown up around him and had passed him by; nothing was left for him but to go on to new territory.

Just before he died in Yreka, California, in 1953, Otto wrote that the monument was "the highest class park project in all creation." Living a thousand miles away, Otto never lost his faith in the beauty of its canyons. Such was the strength of John Otto's vision

that it still burned as brightly as it had well over forty years before when he first brought the Colorado National Monument into existence. ■

Patrick Sarver is Associate Editor of *Outdoor Life* and former Editor of the *Commerce City (Colorado) News*. His articles and photographs have been published in several national and regional magazines.

Special thanks are due Alan J. Kania, of Denver, Colorado, for reviewing this manuscript for historical accuracy. Mr. Kania has thoroughly researched John Otto's life and has produced a book-length manuscript about him.

The Jersey Pine Barrens are a valuable national asset, and a bill passed by Congress at the eleventh hour may help protect their unique plants and animals and treasure of underground water

by BOB RHODES

The Pine Barrens: Can We Save the Ancient Forest?

WOULD YOU BELIEVE that in the midst of the most densely populated state in the country exists a majestic forest of haunting, primordial beauty? Fifty million people live within a day's drive of this vast, sprawling tangle of pitch pine and oak, pure streams and rivers, rare plants and animals—New Jersey's famous Pine Barrens. The U.S. Department of the Interior has called the Barrens "the most extensive remaining wildland tract in the Middle Atlantic seaboard region."

The Pine Barrens extends over more than a million acres of Atlantic Coastal Plain. A rather monotonous forest, the Barrens' attractions are subtle rather than spectacular. The forest originally stretched eighty miles along the Jersey coast from the outskirts of Asbury Park to the Cape May peninsula. It extended inland for almost thirty miles, reaching halfway to Pennsylvania. Now the 2,400 square miles of previously uninhabited wilderness have been reduced to slightly less than 1,500, and development interests are threatening to reduce it still further—eventually to destroy it.

THE PINE BARRENS derived their name from early settlers who selected fertile uplands on the edges of the forest to homestead. They shunned the strange, haunting forest with its pitch pine growing out of apparently infertile sugar sand. They considered its thin, sandy, acid soil barren and would scuttle through the forest, intent on evading the legendary Jersey

Devil. Although the existence of this creature was a myth, the idea of a fierce, devil-like being was consistent with the melancholy woodland. The Indians must have believed the myth, too, because even they would not live within the interior; remains of permanent Indian villages have been found only on the forest's periphery. But the Pinelands are anything but barren. They are essentially a plains area believed to have been formed by sand and gravel deposited by retreating seas and glaciers millions of years ago.

Most of the upland region is covered by pitch pine. ("Upland" in the Pinelands means a few feet higher than the surrounding area.) It has been said that nowhere else in North America does this species dominate so large an area. Various species of oak are sprinkled among the pines, and along the streams and in the swamps, southern white cedar and swamp magnolia are common.

One might think of the Pinelands as a living museum, a kind of outdoor laboratory. The area is an ecological "island," for it contrasts dramatically with the surrounding area. In fact, the Pine Barrens are of great interest to science, and scientists come from all over the world to study their ecology. Paul M. Tilden, in an article in *National Parks & Conservation Magazine* (August 1971), described some of the reasons for this interest.

Here, over the ages, the nature of a forest has been almost entirely shaped by a single element: fire. "The vegetation of the Pine

Region," says one investigator, "is both highly flammable and extremely resistant to killing by fire. . . . The vegetation owes its peculiar character, at least in large part, to its severe fire history." Plants unable to stand frequent forest fires, which have quite likely been even more severe in the past than they are today, are seldom found in the Pine Barrens. . . . All upland plants excepting mosses and lichens, and many of the plants of lower elevations as well, are capable of sprouting from below ground level after their tops have been destroyed. . . . Thus, over the centuries, wildfire has tended to prevent the intrusion of trees unable to survive in such a specialized environment, and has produced a forest consisting essentially of many representatives of relatively few species.

The animal population in the Pine Barrens also is composed of many individuals of relatively few species, according to Tilden:

Only 132 different species of birds have been identified here, in spite of a natural food supply that seems ample for the needs of many other species. On the other hand, the Barrens support a rich assortment of reptiles and amphibians, including some species seldom found elsewhere in such abundance. Notable among these latter are the colorful Pine Barrens tree frog, the carpenter frog, and the northern pine snake. Mammals are not especially plentiful, with the exception of the white-tailed deer, though the visitor may occasionally catch a glimpse of a gray fox, a raccoon, or an opossum.

Several species of plants and animals are unusual or unique to the Pine Barrens. The nearest population elsewhere of the rare curly grass fern, whose leaves grow in a spiral, is in southern Nova Scotia. Sand myrtle, a variety of Pickering's morning glory, and the Pine Barrens tree frog are unique to the Pinelands.



NATIONAL PARK SERVICE PHOTOGRAPHS BY ROSS CHAPPLIE



NPS PHOTO BY ROSS CHAPPLIE

Campers, hikers, and students of nature visit the Barrens every year to enjoy its subtle rare beauty. Canoeing along the dark, tea-colored streams is popular. Some of these waterways can be navigated in a matter of hours; others require several days.

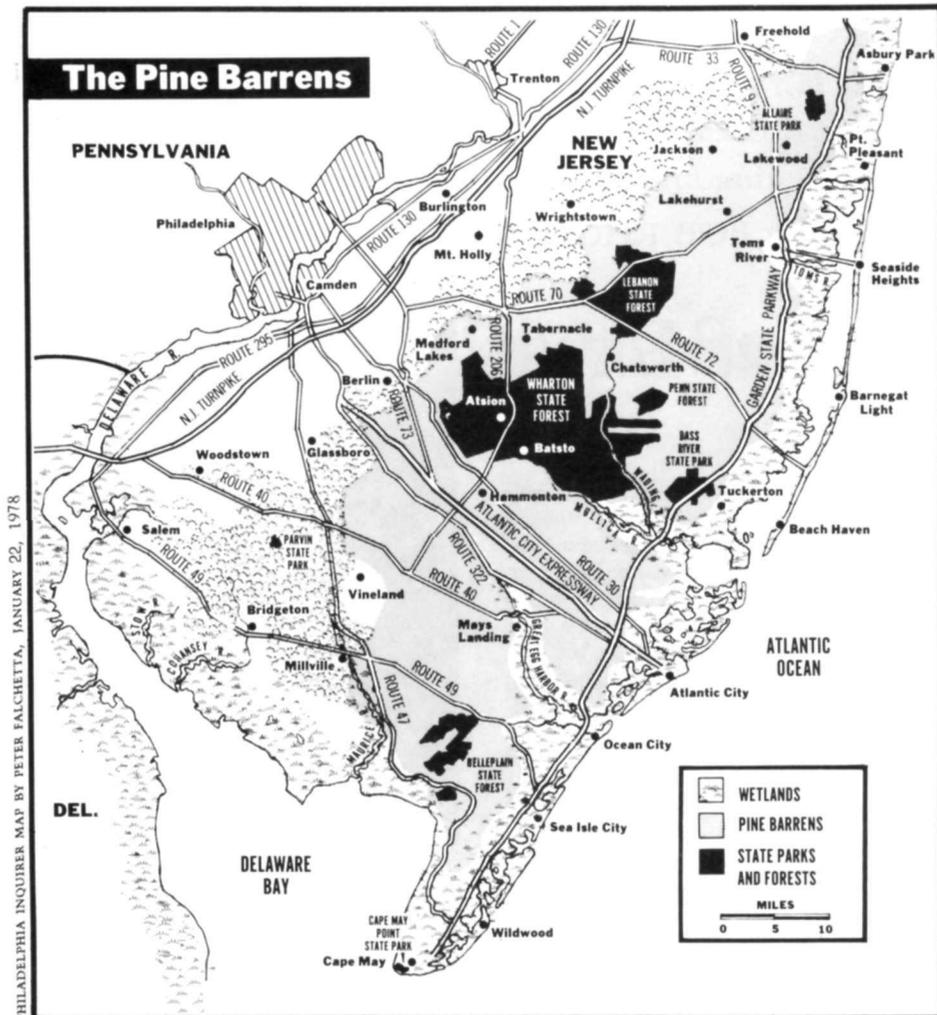
More than thirty lakes and ponds contribute to the adventures offered by the Barrens. But the real water story lies deep within the sandy soil of the forest floor. Beneath the surface is a huge aquifer, or spongelike stratum of coarse sand, that holds an estimated 17.7 trillion gallons of pure water.

For more than a hundred years New Jersey has valued this great underground freshwater reservoir. The state has established a number of public forests and parks in the region that have helped to preserve the water as well as the plants and animals. Unfortunately, however, the forest soil is so porous that pollutants could easily reach the underlying water deposits. Haphazard development on private lands in the Barrens would certainly cause this polluting. Although the Barrens has never faced the scale of development it now faces, the region long has been exploited for its natural resources.

DURING the Revolutionary War loggers cut pine and cedar lumber for use in nearby shipyards and towns. During these junkets into the forest bog iron was discovered. What farmers could not wrestle from the Pinelands, ironmasters could; so the Barrens came to know the sounds and smells of forge and furnace.

The flourishing iron business in the Barrens produced arms and related hardware for the Revolutionary army. Nails, kettles, stoves, and even tombstones were manufactured from bog iron. This industry lasted for about a generation until iron ore was discovered in Pennsylvania, closer to the coal fields. New Jersey's bog iron industry vanished almost as quickly as it began.

Enterprising residents of the iron towns that had sprouted within the forest turned their energies to



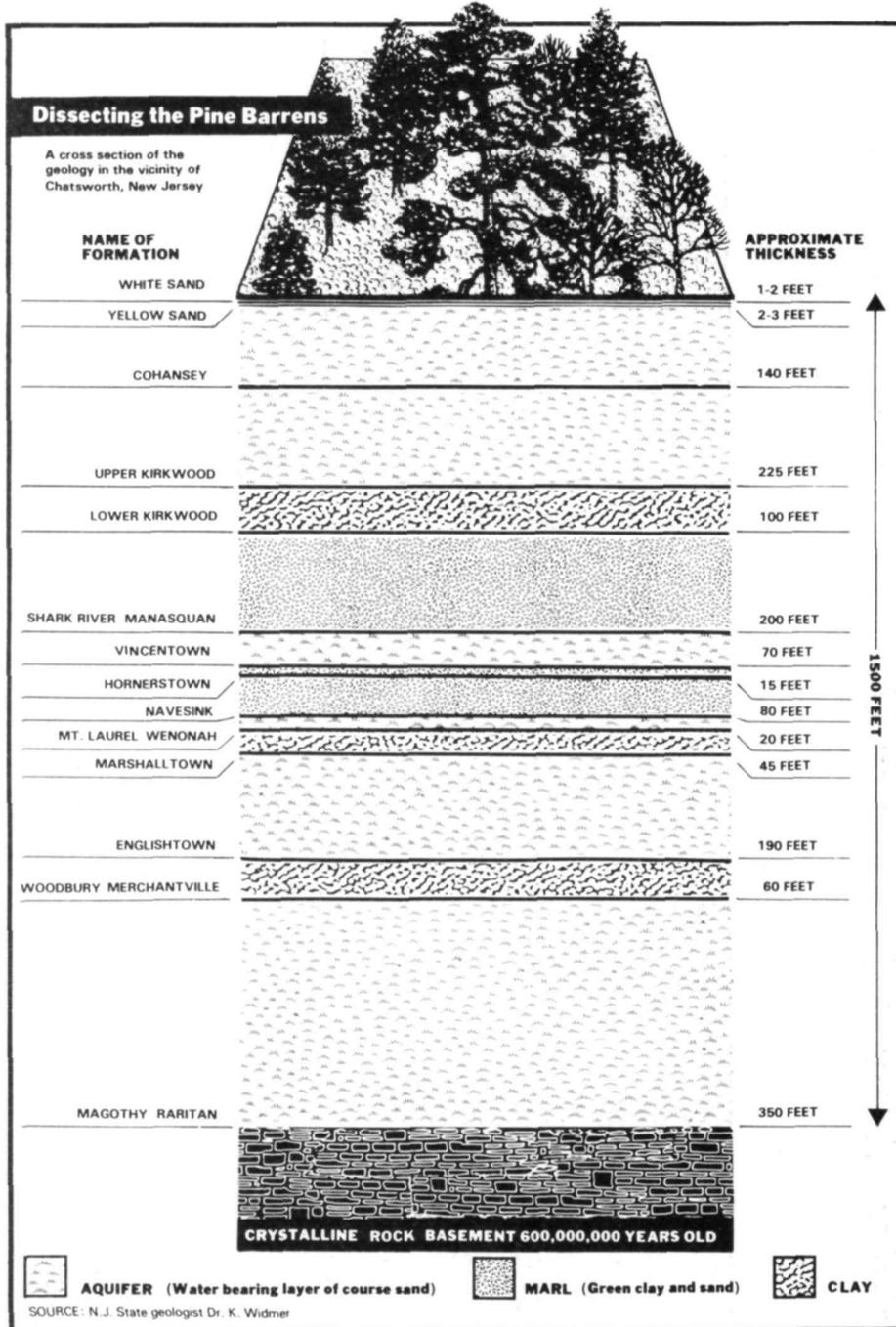
NATIONAL PARK SERVICE PHOTO BY JOHN KAUFMANN





The essence of the Pine Barrens is its surface and subsurface water.

NPS PHOTO BY ROSS CHAPPELLE



PHILADELPHIA INQUIRER DRAWING BY PETER FALCHETTA, JANUARY 22, 1978

1500 FEET

making glass and paper. At first it seemed that economic survival was possible, but in the late 1800s these industries, too, collapsed. Many people were forced to leave the forest and seek employment in towns and cities. But some hardy folk remained within the forest and learned to live off the land.

Woods folk learned to follow a natural cycle that would provide them a means of livelihood from the forest. In winter they made charcoal. In the spring they pulled sphagnum moss from swamps and sold it to florists in surrounding cities. In summer they picked blueberries, which they called huckleberries; and they harvested wild cranberries in the fall. At Christmas they gathered pine cones and boughs of pine and laurel for sale. Game was plentiful; the people took what they needed for food, nothing more.

So plentiful were the wild cranberries and blueberries that it was only a matter of time before someone began to cultivate them. It was discovered that the pure, acid water of the Barrens was the key to the plentiful fruit. It had taken several hundred years to discover the secret of the Pinelands, but at last the supposedly barren, infertile forest would support commercial farming. These efforts have proved so successful that New Jersey is one of the nation's leading producers of blueberries and cranberries.

LESS THAN 200,000 acres of the remaining forest in the Pine Barrens is publicly owned as parks and preserves. The vast majority of the Barrens is comprised of privately owned land—most of which is undeveloped. The developed land lies along the periphery and includes the small towns and villages that bridge the transition from inner forest to suburban community. Among these villages are numerous settlements that date to the early days of our country's growth.

Rising taxes, increased costs of farming, and a general disinterest in farming among younger people have caused many farmers who work the fertile lands surrounding

the Pinelands to sell their homesteads. It is estimated that 90 percent of these farms go to land speculators.

As with any rural area within commuting range of Megalopolis, these peripheral farms will witness the first stages of large-scale residential development. Accompanying septic system drainage and fertilizer runoff will affect the purity of the acid water so necessary for the crucial berry farming of the Pinelands.

The berry farmers are the last of the large-scale landowners concerned with Pinelands preservation. But they, too, will have to sell if they can't raise their crops. With them will go the considerable acreage and watershed control that their farms represent.

Some people believe that the cycle has already started. The once-thriving cranberry business in Ocean County has collapsed. Blame has been laid on extensive housing developments that have destroyed the valuable watersheds. Elsewhere, the estuaries into which certain heavily developed Pinelands watersheds empty have

become so polluted that shellfish harvesting, once a thriving activity, is prohibited.

If the Pine Barrens are left in the hands of speculators, their future will be written in asphalt.

TO AVERT such disaster, numerous plans have been proposed to preserve the Pine Barrens. A Pinelands Review Committee, established by the state, has been granted the authority to review state projects in the Barrens and to approve a plan for protecting part of the area from scattered and piecemeal development.

The state Department of Environmental Protection has enacted water quality standards designed to uphold the purity and special character of a 760-square-mile portion of the Pine Barrens water.

At the local level, voters in Burlington County approved in November 1977 a \$1 million bond issue for the purchase of conservation easements to thousands of acres of critical lands. Under this plan a sum of money would be paid to landowners to ensure that land use remains agricultural. The

agreement would permit resale, but land could not be used for different purposes.

On the federal level, on October 13, 1978, Congress passed omnibus parks legislation including a provision for protection of a Pinelands National Reserve. This national reserve, the first of its kind in the country, will include about one million acres to be preserved under a plan prepared by a commission of local, state, and federal representatives. The legislation provides \$26 million, most of which would be used to acquire critical lands chosen by the Secretary of Interior in consultation with the commission. These lands probably will be managed by the state. Thus, the Pinelands may become a model for cooperative protection efforts. Perhaps now, with such attention at all government levels, the ancient forest, with its animals, rare plants, and underlying freshwater, will at last be safe. ■

Free-lance writer Bob Rhodes is a "born-again piney" who has lived for some ten years in the Pine Barrens and has come to treasure its beauty.

The Pine Barrens have been exploited in many ways, including for timber and bog iron. Even today logging continues (opposite), but only on state land are seedlings being planted on cut-over areas. In addition, large sections of the forest are chewed away by sand quarries. Perhaps the most harmonious use of the Barrens—besides wilderness—is berry farming. Cranberry bogs are flooded for part of their growing cycle (below) and are drained later for harvest in autumn (opposite, bottom). The Barrens were threatened in the 1960s by a plan for a jetport in their midst, but that proposal was defeated. The worst threat now is housing developments that will destroy plant and wildlife habitat and will pollute the aquifer.





PHOTOGRAPHS BY BOB RHODES



A cooperative international program is attempting to reestablish the endangered Kemp's Ridley Turtle at Padre Island National Seashore

by ROLAND H. WAUER

"Head Start" for an Endangered Turtle

SOMETHING awoke me! I lay there quietly trying to understand what it was. The tent ceiling was hiding my view of the sky, and I listened intently for sounds of a prowling animal nearby. Then I realized that the surf, only a couple hundred feet away, was louder and stronger than it had been the previous evening. The wind was stronger. It blew through the tent window and riffled the pages of my notebook that lay beside me. I knew that if the wind continued it would probably bring an *arribada* to this lonely stretch of Mexican beach in the morning, for the turtles nest only on windy days. Apparently they evolved this habit to reduce the chances of detection of their tracks and nests by predators.

At 7:30 a.m. the wind was gusting out of the northeast to 20 to 22 miles per hour. It increased to 25 miles per hour by 8:00 a.m., so by 8:30 a reconnaissance team moved out toward the north to search the beach for the first sign of an *arribada*, or nesting congregation.

FINDING a great sea turtle groping its way up a sandy beach is like discovering a bear calmly sauntering down main street. It seems incongruous that a reptile that has spent its last eight to ten years at sea suddenly beaches itself

for approximately an hour to dig a nest, lay one hundred to one hundred and twenty golfball-sized eggs, then slip silently back into the sea.

But the Kemp's (or Atlantic) Ridley turtle (*Lepidochelys kempii*) is something extra special. It is one of five endangered sea turtles. In 1968, the International Union for the Conservation of Nature declared it the "most endangered" of all endangered species. And for good reason. Since the discovery of its nesting grounds in 1947, it has suffered a dreadful decline of 99 percent. Sea turtles and their eggs have provided food for human populations for centuries, and many Mexicans still believe that the eggs are powerful aphrodisiacs. Recent commercialization, along with greatly increased trawling for seafoods adjacent to nesting beaches, have been blamed for the severe decline.

Until 1961 many biologists did not believe that the Kemp's Ridley turtle was a valid species. Except for a nest discovered on Padre Island, Texas, in 1951, it was considered a "mystery" turtle and suspected of being a hybrid. Then came the day in 1961, at a meeting of the American Society of Ichthyologists and Herpetologists, that a film made in 1947 convinced the scientific world that the Kemp's Ridley was for real.

The photographer was Andrea

Herrera, an amateur herpetologist filled with wonder about local rumors about mass nestings of sea turtles on a beach north of Tampico, Mexico, where Andrea lives. He had flown his plane over the beaches north of Tampico almost daily during May and early June hoping to find an *arribada*. Then on June 18 his wish came true. He suddenly saw below him on Rancho Nuevo Beach thousands of turtles in the process of nesting. Fortunately, Andrea had the presence of mind to land his plane and document with movie film the nesting congregation that was later estimated at about 40,000 females.

Still the film did not come to the attention of science until Dr. Henry Hildebrand discovered it fourteen years later and showed it to other scientists. It provided positive proof that the Kemp's Ridley turtle is a valid species, is a daytime nester, and nests in huge *arribadas*.

That *arribada* in 1947 was the first and last of its kind to be documented for the Kemp's Ridley turtle. In spite of the fact that biologists Archie Carr, Peter Pritchard, and Rene Marquez have spent a good part of their lives since then monitoring the nesting populations, there has been a steady decrease in numbers.

The efforts of those scientists, however, accomplished a good



FRED MANG, JR., NATIONAL PARK SERVICE



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In May 1978 eggs were collected at a Mexican beach as the turtles laid them. The eggs were placed in bags of sand from Padre Island National Seashore and later stored in boxes of such sand for forty days until they were safe to move. On June 29, 1978, the eggs were flown to Padre Island, where they began to hatch ten days later.

deal. They led to the official listing of the species as endangered. Since 1966 Mexico's Departamento de Pesca (Department of Fish) has sponsored an annual program of beach monitoring and protection of the nesting turtles and their eggs. Under the coordination of Rene Marquez, the Mexican program was all that stood between the survival of the species and complete decimation of the population. Each year, 20,000 to 35,000 eggs were collected and placed in fenced enclosures that were guarded night and day by Mexican marines. When the hatchlings finally appeared some fifty days later, they were escorted down the beach to where they disappeared into the Gulf of Mexico. An area of beach approximately ten miles long was declared off limits to the local human population during the nesting season. Yet, in spite of those activities the Kemp's Ridley population continued to decline. In 1977 the largest *arribada* recorded contained only 200 female turtles, a far cry from the 40,000 in Herrera's film. The total world popu-

lation was estimated at only 2,500 individuals.

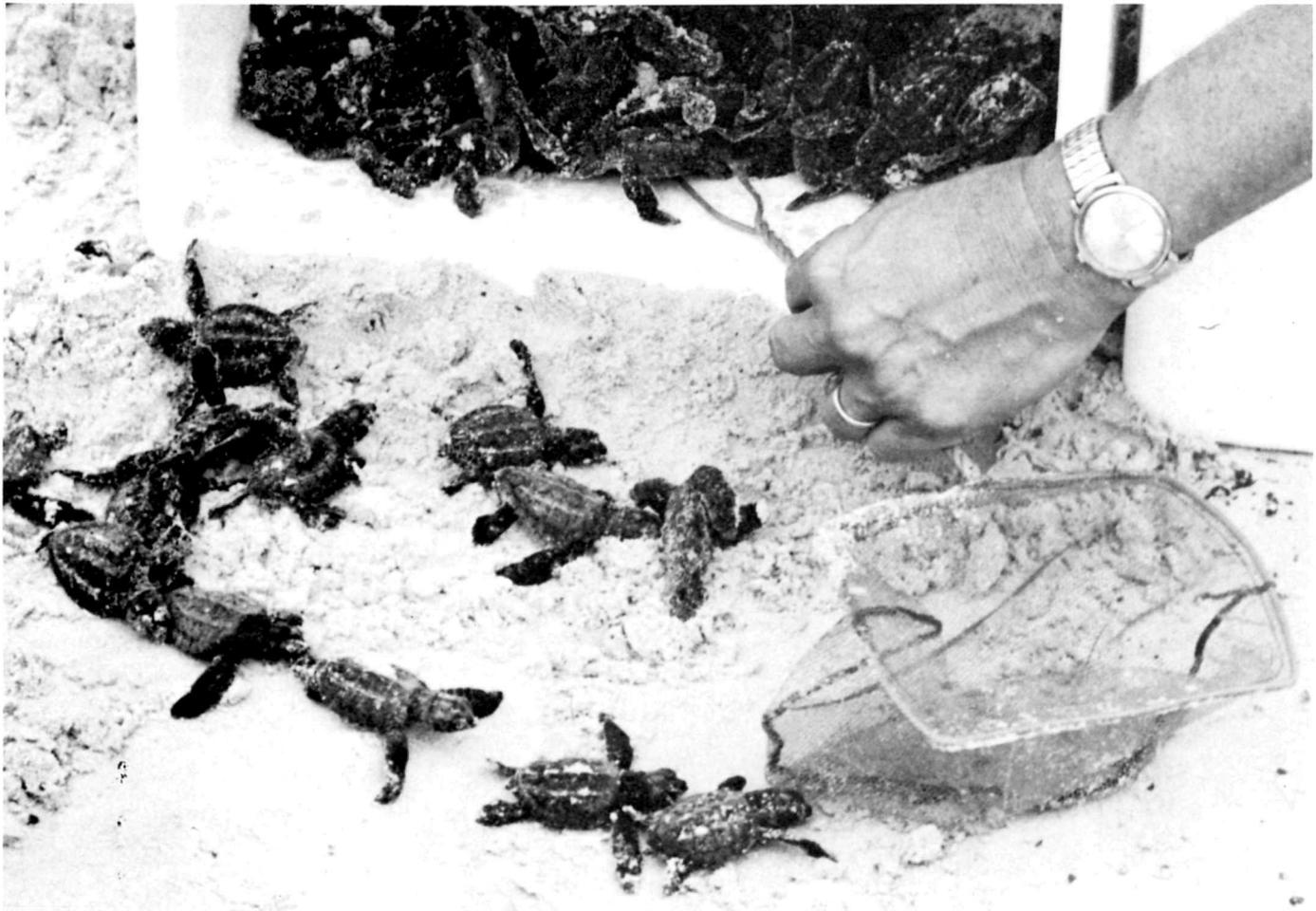
IFIRST became involved with an idea in 1974 while assisting Padre Island National Seashore personnel with resource management planning. We developed a resources management plan as an initial step in a process that documents a park's program for managing its natural and cultural resources. It details the hows and whys of an area's resource manipulation, the research required to do the job, and its long-range goals for environmental protection. One of those goals is the restoration of extirpated species.

Inasmuch as the Kemp's Ridley turtle once nested on Padre Island, and because the national seashore is one of the last fully protected expanses of beach within its ancestral nesting range, there is no better place for restoring a breeding population of Kemp's Ridleys. Padre Island National Seashore can provide the necessary protection for the species while it is nesting.

The new phase of the save-the-

Kemp's-Ridley-turtle project started in 1976 when Dr. Clyde Jones, U.S. Fish and Wildlife Service, and I planned strategy over a couple of bottles of cold beer. Our plan was to collect turtle eggs from Mexican beaches and take them to Padre Island to hatch. Then, we hoped, when the turtles matured, they would return to Padre Island to nest.

Step one of the project was a feasibility study, jointly funded by the National Park Service and the Fish and Wildlife Service, under the direction of Dr. Howard "Duke" Campbell during the summer of 1977. A multiagency meeting followed in December, after which I prepared an initial draft of an action plan that, after considerable reworking at a February 1978 meeting, was to serve as our guidelines. This project would mark the first time that two countries (Mexico and the United States); four federal agencies (National Park Service, Fish and Wildlife Service, National Marine Fisheries Service, and Coast Guard); and one state agency (Texas Parks



and Wildlife Department) would be working together for the single purpose of saving a species from extinction.

FINALLY—after more meetings and much bureaucratic paperwork—on that early May morning in 1978 at Rancho Nuevo, as the wind whistled through my tent, I was filled with anticipation of the next several hours.

We collected almost 15,000 eggs that day. By the middle of June that number was close to 85,000. Another 5,000 eggs were placed in the exclosure on the beach by July. Two thousand of the eggs collected in May were given special handling. They were taken directly from the turtles as they were being dropped, immediately placed in bags containing sand brought from Padre Island, then placed in styrofoam containers filled with Padre Island sand.

Biologists generally believe that young turtles imprint on their hatching beach. We were taking no chances on their imprinting on the beach at Rancho Nuevo, so we

permitted the eggs and hatchlings to touch only Padre Island sand. We stored the styrofoam containers at Rancho Nuevo for forty days, until the eggs were far enough along in their development to be safely moved. Then they were flown to Padre Island to complete incubation there. On the fiftieth day the eggs began to hatch.

Each morning for five days the hatchlings of the previous day were released at the high-tide line at Malaquite Beach, a portion of Padre Island National Seashore where over-sand vehicles are not permitted. As the sun warmed their tiny bodies (about the size of a silver dollar), they began their trek to the sea. We let the hatchlings scamper down the beach to the surf on their own. This is probably when imprinting occurs. All two thousand hatchlings headed directly for the sun, apparently an instinctive move toward a "guiding light." They reached the surf within an hour. No hatchlings were lost to gulls or other predators. Without human escort, this form of predation occurs extensively in the wild.

As the hatchlings reached the surf, we permitted them a few moments' time in the water before we scooped them up in nets and placed them in holding cages where they would remain throughout the next phase of the project.

Our plan is to provide complete protection to the youngsters until they are old enough and large enough to survive on their own with a minimum of predation. The daily litters were flown by Texas Parks and Wildlife aircraft to Galveston, Texas. There the hatchlings were placed in a "head start" program operated by the National Marine Fisheries Service (NMFS). The little turtles will be kept in special tanks constructed for them. They will be fed a carefully selected diet of shrimp and fish pellets until just before their release. Then, at about one year of age, they will be released somewhere along the west coast of Florida or at their hatching beach. The "head start" program will get them through the early months when they are preyed upon by numerous forms of sealife. At one year of age—and about the



NATIONAL PARK SERVICE PHOTOGRAPHS BY FRED MANG, JR.



When the turtle eggs began to hatch in early July 1978, the hatchlings were allowed to run to the surf at Padre Island National Seashore before being scooped up and sent to Galveston, Texas, to grow big enough for safe release. Workers with nets prevented the hatchlings from escaping to sea.

size of a dinner plate—most should survive.

One-year-old Ridleys are found in sargassum beds along Florida's west coast where food is abundant. From there, they wander around the Gulf of Mexico or along the Atlantic coast as far north as South Carolina. All the Padre Island turtles will be marked, and a few will be fitted with radio transmitters so their movement can be monitored for a time after release.

Although we can provide the Ridley turtles a safe hatching beach at Padre Island and tender loving care for their first year of life, the national seashore cannot protect them from the numerous trawlers that daily fish the outer banks. A special excluder net, for retaining fish and shrimp but permitting sea turtles to escape, is in the experimental stage. The long-term success of saving the Kemp's Ridley turtle depends upon the success of that experiment, as well as upon the conservation projects of Mexico and Padre Island.

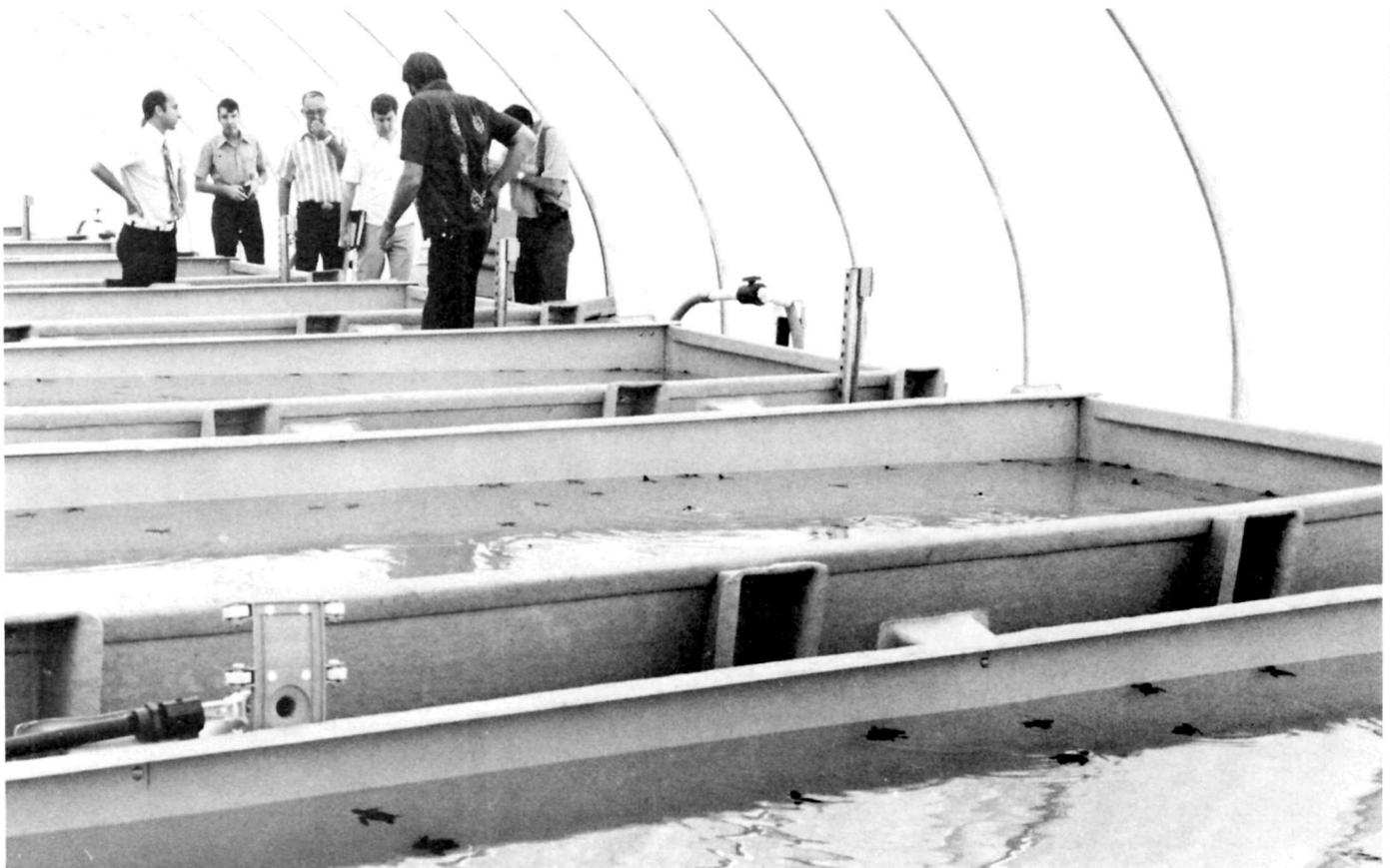
A TOTAL of 1,900 baby turtles survived the hatching and imprinting stages at Padre Island in July 1978 and are now residing at the NMFS Galveston Lab. The program is designed to be repeated each year for ten years. This project requires a long-term commitment that government agencies rarely make. But the combined state, national, and international efforts encompassed by this program just might save the Kemp's Ridley sea turtle.

We will know for sure only one windy spring morning about ten years from now when a giant turtle lumbers out of the surf at Padre Island and begins digging a nest. ■

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The Kemp's Ridley turtle hatchlings will be tended in holding tanks at the National Marine Fisheries Service lab in Galveston, Texas, for about a year. By the end of that time they will be big enough to release without fear of predation. It is hoped that they will return to Padre Island to nest.



NATIONAL PARK SERVICE PHOTOGRAPHS BY FRED MANG, JR.

In Eastern forests a flexible approach using a combination of silvicultural systems is best

by LEON S. MINCKLER

Flexible Silviculture: Help for Environmental Forestry

RRATIONAL METHODS for the application of silviculture are basic to environmental forestry. Environmental forestry, as I use the term here, includes the integrated production of timber and the values derived from the forest as a living environment such as wildlife, recreation, water, and esthetics. Most important, all these values must be produced without destroying the integrity of the forest-site-soil-water ecosystem. This can be done by practicing a more flexible silviculture, as I will discuss in this article, and by adequate care in timber harvesting.

I have broadly defined silviculture as "the art of forest culture, based on science, practiced for the objectives desired." In this case the objectives include the full range of goods and services as explained above. Another definition is "the science and art of growing and tending forest crops, based on a knowledge of silvics." Silviculture can also be considered as applied forest ecology for human welfare, present and future. Ecology is the science; the application is the art. The different perception of two objectives has been at the root of much of the controversy in forestry in this country today. These are (1) importance attached to the long-term protection of the resource and environmental base, and (2) values produced include the environmental as well as the material ones, usually on the same piece of

land. This value problem has been rendered more acute by the lack of a common unit of measurement, such as the dollar, that is applicable to all. Therefore, people argue from subjective, value-laden viewpoints; and decisions must usually be political. Foresters and environmentalists often have been needlessly on opposite sides of the argument.

The practice of silviculture includes three basic activities in the forest or on the land: (1) the modification of *existing* stands but without provisions for new regeneration, (2) the creation of vertical and horizontal space and other conditions required for new regeneration; and (3) the establishment of new forests through artificial regeneration on open or understocked lands.

The first activity—modification of existing stands—includes the intermediate cuttings and treatments such as thinning, improvement cutting, release cutting, and weeding. These practices are universal in the sense that they are or may be included in all "silvicultural systems" and all management methods. They are an attempt to improve existing stands of trees for objectives desired and within economic limitations and, often, within limitations of the knowledge of forest managers.

Creating space for new regeneration can be done in different ways and to different degrees, and herein

lies the key to the different "silvicultural systems." Actually such systems also include site preparation, seed supply, seedbed conditions, and ways of applying the intermediate cuttings and treatments already mentioned. The different systems, as discussed later, result in stands that are either essentially even-aged or uneven-aged. Both also occur in nature, depending on environmental happenings, and considering that these species and forest types respond in different ways to these happenings. As is well-known, even- and uneven-aged forest management units are "regulated" in different ways. With even-aged units we keep track of the area of forest land in each age class. For uneven-aged units we keep track of tree diameter distribution and timber volume for the management unit. It is in these fields—systems of obtaining natural regeneration, the nature of the resulting forest, and the required method of regulations—where so much controversy exists between foresters and environmentalists and among foresters themselves.

Establishing new forests by artificial regeneration is beset with critical technical and scientific problems, but the controversy over "silvicultural systems" in natural forests could yield in a significant degree to a better understanding of the nature of the problem and the formulating of a more rational policy of silviculture.

IT IS MY OPINION that the classic systems of silviculture have been conceived and practiced too narrowly. This has probably held back the practice of effective forestry for the commodity and environmental values needed and desired by the people of this country. All the systems of silviculture are related to each other by a common factor; that is, the intensity and pattern of cutting. This usually includes timber volume, size of cut openings, and the total amount of cleared area open to sunlight on the forest floor.

Consider the classic systems in this regard, and list them from the most to the least intensive cutting. They form a continuum and grade in to each other in the following way: clearcutting→seed tree→shelterwood→patch cutting→group selection→single-tree selection. Conversely, the residual stand left to grow progresses from zero through light and moderate to heavy. The biomass progresses from near zero to heavy. Clearcutting, seed tree, and shelterwood result in new even-aged stands. The selection systems maintain or create uneven-aged stands. Patch cutting is a borderline, or transition between clearcutting and group selection. If the patches are large enough to identify on the ground and to be recorded by area (and in fact are so recorded), they are not essentially different from clearcutting and even-aged management. If patches are thrown together in a larger management unit, regulation is uneven-aged as for selection cutting.

Regardless of the silvicultural system, all regeneration usually starts out in the same way, i.e., as small or large aggregates of even-aged seedlings and saplings. Cutting a single twenty-two inch sugar maple, for example, will result in an opening of forty to fifty feet in diameter. The resulting regeneration will nearly always go through a stage of approximately even-aged saplings, in this case perhaps thirty to sixty saplings or more. Five or

six reach pole size, and so on to another large mature tree. A group selection opening in hardwoods of one-fifth acre might have two hundred to four hundred even-aged saplings and end up with five or six mature sawlog or veneer trees. Patch cuts or clearcuts would go through the same stand development process. The small openings, however, as in selection or group selection, must be large enough to allow the saplings and poles for species of that tolerance to grow into the open space between surrounding crowns.

Diameter limit cutting is not a system of silviculture in itself. It has some elements of single-tree selection; but premature trees are cut, and many non-growing-stock smaller merchantable but low-quality trees are left uncut. It does not require the services of a forester. In fact, it is not silviculture at all, because no art or science is required. In cases of well-stocked stands with wide diameter distributions, it does preserve a stand. It has been a very common practice on small private woodlands where the owner did not receive professional advice. The coppice system is a form of clearcutting where regeneration is from stump sprouts and objectives are usually firewood and pulpwood. It cannot be practiced indefinitely on a given area. Continued coppice cutting practices have degraded forests in many parts of the world.

POOR FORESTRY practices in this country have generally resulted from the abuse (improper application) of silvicultural systems or their too rigid and narrow application in the diverse conditions prevailing. For decades, even on national forests, the selection system was distorted by making it essentially highgrading or diameter limit cutting. Little or no conscious effort was made to provide for regeneration or to eliminate high-risk, low-quality, and cut trees by improvement cutting.

The "cure" for this situation,



This industrial land in West Virginia

is an example of even-aged management for only one use: the rigid application of clearcutting for pulpwood.

even for eastern mixed hardwoods and northern hardwoods, all too often became the rigid application of clearcutting and even-aged management, even when most of the trees were immature for sawtimber and of good quality. Of course, this was usually no cure at all, although it did have some economic advantages for timber harvesting. It was said that with selection systems regeneration did not occur or it consisted of inferior species. This is true for single-tree selection, for the less tolerant Central and Appalachian hardwood species. But where is the ecologic, economic, or social wisdom of a rigid application of a system not adapted to the forest types being managed? Does this mean that rigid clearcutting and even-aged management is the only alternative for the desired objectives? It does not mean that, unless foresters and policymakers choose to make it so.

The practice of silviculture emulates nature except on a different

time scale. Cultural measures are taken before they would normally occur in nature, and sometimes stimulants such as seedbed preparation and fertilizing are justified. Waste is avoided, net yields of wood increased, rotations shortened, and greater flexibility attained in the character and diversity of the standing forest for both timber and nontimber values. Silviculture should also emulate nature in the effectiveness of ecological constraints to protect the integrity of ecosystems and thus maintain productivity. None of these objectives can always be attained by rigid application of a silvicultural system for all sites and forest conditions, and for all objectives. Yet, except on small private woodlands, there is now a strong trend in this direction in the United States.

I have said that systems of silviculture form a continuum based on the amount of space provided for regeneration. (All systems make provision for seed source or for ad-

vance reproduction already on the ground. Also, all systems make provision for intermediate cutting and treatments as already discussed.) I believe that a rational and effective approach to regeneration cutting would eschew rigid silvicultural systems and use different systems, modifications of systems, or combinations of systems that will meet the requirements of forest conditions and the values desired. For example, in northern hardwoods management units of about forty acres or more, managed for integrated uses, a combination of single-tree selection, group selection, and patch clearcutting might well be the best silviculture. Combined with this, and done at the same time, an improvement cutting and thinning might well be required for intensive practice. If there were small stands of mature white pine in the management unit, a shelterwood cut could be used to encourage regeneration of white pine. Obviously trees would be marked by

a forester who understands the silvics involved and who is intensely aware of the objectives desired and how the nature of the forest, as affected by his decisions, influence the forest values. Even if the predominant objective is sawlogs or veneer logs, seldom is one system of silviculture, rigidly applied, the best procedure on typically diversified management units. One method, such as clearcutting, may give the greatest immediate financial return to the operator (and reduce professional costs for management), but I do not believe it would produce as great a volume and value of logs in the long run as a more flexible approach.

In Central hardwoods and Appalachian mixed hardwoods the silvicultural options are somewhat more restricted. The use of single-tree selection, as a regeneration cut, is not ecologically viable. But most management units, if intensively managed, will require a combination of group selection and patch cutting plus the always

This stand on the Monongahela National Forest, West Virginia (right), is designated for clearcutting. The silviculture on this type of forest—only partially mature—should be a combination of improvement cutting, group selection, and occasional small clearcuts of mature patches. Such flexible silviculture will better meet diversified forest and site conditions and will produce multiple values.



PHOTOGRAPHS BY LEON S. MINCKLER



Above, sapling and small pole regeneration in a forest opening about fifteen years after rather heavy selective cutting to remove cull, poor-quality, and mature trees and to leave good immature trees. The diversified nature of this stand, on the Kaskaskia Experimental Forest in Illinois is apparent.

needed improvement cutting made at the same time. Any stands of even-aged and mature mixed oaks, if advance reproduction is absent, might well receive a shelterwood cut to encourage oak regeneration. Overmature or decadent hardwood stands might well be clearcut if small in size or if timber is the main objective. Light scarification on yellow-poplar sites made at the time of logging will almost always assure yellow-poplar reproduction if seed supply is present.

Even loblolly and shortleaf pine or mixtures of pine and hardwoods can be managed in a flexible manner, if objectives warrant. Group selection and patch cutting would be combined with improvement cutting and thinning to maintain a generally uneven-aged management unit. And, of course, other management units might warrant clearcutting and continued even-aged management. Seldom or never should a whole national forest be managed by clearcutting and even-aged management unless

timber is the *only* objective and multiple-use is minimized.

It should be clear that the flexible silviculture discussed here would be regulated on a management unit basis by tree diameter classes and volume. Clearcut areas large enough to be considered separately would be separate units and regulated by area. The silviculture would be on a "spot-to-spot" basis, but regulation would be by management units.

Small private woodlands fit particularly well into the type of flexible silviculture I have been discussing. In fact, it is the only way to enhance and promote integrated forestry for all values on small woodlands. There would be a constraint on the use of patch cuttings and shelterwood cuts within the usually small forests; but all appropriate forms of selection cutting combined with small patches and improvement cutting are almost ideal for small woodlands, which constitute most of our commercial forest land.

NOTHING I have said here should be construed to mean that even-aged management units are undesirable. Ecologically adapted species such as aspen, cottonwood, southern pines, and Douglas fir can well be managed in even-aged stands. But such forests, if objectives justify, can also be managed by a combination of group selection, patch cutting, and thinning. There is no straitjacket.

It should be clear that plantations intensively managed for wood products and stands managed for short rotation pulpwood production do not lend themselves to the flexible management being discussed. Artificial regeneration by planting or seeding will usually be required, although area size and shape can be varied and ecological constraints practiced to maintain forest health and site productivity.

It has been said many times that practicing foresters do not write their experiences and that foresters who write have not usually practiced very much in the woods. My

convictions about managing natural stands for integrated uses have developed from twenty years' experience of actual management of forests from inventory through marking, logging, and subsequent observations of regeneration and stand development. This was extended for another ten years through informal personal observations after cutting and other treatments were discontinued on the Kaskaskia Experiment Forest in southern Illinois. I know that rather intensive silviculture for multiple values will work, because now, after twenty-five to thirty years, the forests on the Kaskaskia attest that it works. The forests themselves speak loud and clear. They are productive for timber, they are diversified, and they are beautiful.

A brief list of the essential management steps we took on hardwood forest compartment units might clarify what happened:

1. Inventoried the trees;
2. Made a marking plan based on

the inventory and the experimental treatment objectives;

3. Marked trees to be cut and culled;

4. Felled the "cut" trees, bucked them into logs, and skidded logs to landing;

5. Hauled logs to sawmill;

6. Killed cull trees and left them standing;

7. Tallied and killed trees severely damaged by logging or salvaged any logs present;

8. Repaired skid trails to prevent washing if required;

9. After two to four years inspected regeneration openings to determine need for weeding or release cutting, and made treatment if required;

10. Made next inventory just before second cutting cycle, and repeated the above steps.

The key operation was marking for combined group selection and improvement cutting. Growing stock trees were left. Mature trees, high-risk trees, low-quality trees, and culls were removed with great

attention given to creating regeneration openings generally at least one-eighth to one-half acre in size but sometimes larger. There were many details to consider and much knowledge to use, but it worked.

OUR POLICY for silviculture should be the use of biologic, economic, and social knowledge as a basis for the art of silviculture to attain commodity and environmental objectives. There should be no rigid systems of silviculture, but rather a combination of cultural practices best suited to the management unit and values desired. I have no catchy name for this holistic type of silviculture for integrated values from natural stands. It is silviculture that promotes environmental forestry. ■

Leon Minckler is a trustee of National Parks and Conservation Association. He worked for the U.S. Forest Service for thirty-three years and has also taught silviculture at several major universities.

NPCA at work

NEW PARK LEGISLATION

Check Out the Chattahoochee & Park Transportation Projects

"I don't know of any legislation that I have signed since I have been in the White House, nor will sign while I am here, that brings me more personal pleasure than does this," President Carter said at the August 15 signing ceremony for PL 95-344, the law establishing the new **Chattahoochee National Recreation Area** in Georgia.

As governor of Georgia, Carter had canoed and rafted the Chattahoochee and cooperated with a Georgia environmental coalition that promoted protection of the area. (See December 1977 NPCA at Work, p. 17, and article by then-Rep. Andrew Young in the December 1975 issue.) NPCA heartily supported passage of the legislation.

The recreation area will be composed of approximately 6,300 acres in fourteen noncontiguous units along a forty-eight-mile corridor of the Chattahoochee River stretching from Buford Dam on Lake Sidney Lanier downstream to Peachtree Creek in

northern Atlanta. "It is a rare occasion when within the city limits of one of our major cities, one can find pure water and trout and free canoeing and rapids and the seclusion of the earth the way God made it," Carter said.

The recreation areas involved include everything from sites of interest for botanical, archeological, ecological, and urban water supply studies to places for primitive camping, fishing, hiking, and swimming. Almost all the sites have easy access to the water. In fact, the U.S. Army Corps of Engineers reports that Lake Lanier is the most heavily used recreation area in the United States.

PL 95-344 provides authorization for acquiring property along the Chattahoochee River. In addition, some state parklands will become part of the national recreation area; many landowners have donated property.

NPCA supported the bill's preservation of the areas in question from

intense development pressures. The federal government will work in cooperation with the state, which has a program to preserve water quality of the Chattahoochee. The river supplies the water for about 25 percent of the entire population of the state.

Carter noted that the same legislation authorizes \$750,000 for completion of the **Fort Scott National Historic Landmark**, Kansas, a site commemorating events of the Civil War era in that state.

Not mentioned in the President's speech was the fact that attached to the Chattahoochee legislation is a provision authorizing \$6 million over three years for demonstration **park transportation projects** in various NPS areas. The bill passed over opposition to such an expenditure from the Executive Branch's Office of Management and Budget. NPCA congressional testimony, however, had pointed out that \$6 million is a small amount compared

GRAND TETON

Muffling the Jet Age in Jackson Hole

At Grand Teton National Park NPCA continues to work to keep the jets out of the airport and eventually to get the airport out of the park. In the meantime, this Association recently recommended measures to reduce current aircraft noise levels over the famous Wyoming park.

Located in Jackson Hole Valley at the foot of the Teton Mountains, the airport intrudes into an historic and scenic area that is prime habitat for moose, elk, and many species of birds. Jackson Hole is one of only two air facilities in the park system; both were inherited by NPS—in this case when Grand Teton's boundaries were expanded in 1950. (The other case is a training strip in Florida's Big Cypress National Preserve.)

NPCA has long held that the airport is completely incompatible with the park and should be removed at least by 1995, when the current NPS permit for the facility expires. The Jackson Hole airport now serves only a minute per-

centage of park visitors and does not contribute much to the economy of the town of Jackson.

Meanwhile, however, local business and tourist organizations are continuing a longstanding campaign to expand the airport and to extend its runway to accommodate jet traffic. The Interior Department is waiting for the results of an interagency Greater Yellowstone Regional Transportation Study before making a final decision on the extension—probably early next year.

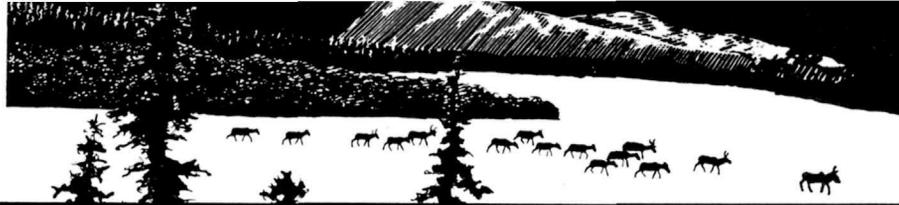
However, Interior clamped down when one airline proposed to shortcut the extension decision and introduce jet service by Boeing 737 planes with high-thrust engines, a model that would not require an extended runway. Assistant Secretary for Fish and Wildlife and Parks Robert Herbst not only opposed introduction of the 737s but also warned that *present* operations create "unacceptable" noise in the park and called for development of a

noise abatement program. In recommendations to the Park Service about what features the plan should include, NPCA maintained that "the most effective noise abatement measure would be to establish airspace restrictions over the park or at least over the backcountry areas." Although the FAA has not set airspace restrictions over other NPS units, Grand Teton is in the unique position of having an airport within its boundaries and merits special consideration.

In addition, this Association recommended establishment of a dusk-to-dawn curfew—not only to reduce noise but also to eliminate the need for intrusive lights beaming into the park at night.

Moreover, the noise abatement program should limit the frequency and noise levels of daytime flights. NPCA said that commercial tours now flying over the park are especially "abusive" of the park's purposes.

Referring to a current debate about



to massive expenditures on parking lots and on increased road construction in the parks. NPCA, long a leader in calling for improved transportation to and within the parks, promoted the pilot projects as a step in the right direction.

The transit bill was introduced by Sen. Harrison Williams (D-N.J.) and Rep. Jonathan Bingham (D-N.Y.). It originally authorized projects in at least nine parks including Gateway, Golden Gate, and Cuyahoga national recreation areas and Cape Cod National Seashore. (See page 28.) The new law does not name parks but is especially oriented toward ones near urban areas. "We desperately needed this legislation to cut down on the traffic, noise, and pollution in our national parks," Williams says. "We also needed to make our parks more accessible to the elderly, handicapped, very young, and those without private transportation." ■

whether a low-level control tower is needed at the airport, NPCA opposed any expansion of airport facilities unless measures like the tower are demonstrated to be necessary for safety and noise control.

The Jackson Hole Airport Board has developed an airport master plan calling for expansion of the terminal building, runway extension, and other "improvements." The FAA supported those recommendations in a 1977 draft environmental impact statement on the master plan. The NPS approved the building expansion in May 1978, but the conditions of the lease are still pending. NPCA is working towards strong language spelling out that the airport should be moved out of the park to an alternate site at least by the termination of the current lease and that in the interim only the minimum improvements needed for safety and noise control should be allowed. NPS Director William Whalen had not released the terms of the lease at press time. ■

ALASKA ACTION ALERT

Literally hundreds of thousands of Americans worked for a strong Alaska wilderness bill this year, but one man was able to kill the issue for 1978 in the last hours of the Ninety-Fifth Congress.

In order to set aside new national parks, refuges, wild and scenic rivers, and forest wildernesses in Alaska, everything had been set in motion to produce a good bill this year. The Administration capped years of research with its strong conservation recommendation in 1977. The House pursued the issue with what HR 39 originator Rep. Morris Udall called "the most tireless, detailed, sophisticated study of a piece of legislation that I've seen in my career."

Led by Rep. John Seiberling, a special House subcommittee held hearings around the nation. According to the Library of Congress, this issue attracted more public participation than anything since the civil rights movement in the 1960s.

By mid-1978, the Alaska Coalition, which began under the leadership of just a few organizations including NPCA, had grown to an alliance of more than thirty-five conservation, union, and sportsmen's groups supporting the bill. Victory came in May when the House passed a strong bill by an overwhelming 277-to-31 vote.

Meanwhile, the late Sen. Lee Metcalf, followed by Sen. John Durkin, had provided the Senate with an excellent foundation for legislative action. But the Senate Energy and Natural Resources Committee delayed acting (partly because of the obstructionism of Sen. Ted Stevens of Alaska) and then approved a badly battered Alaska wildlands bill less than a week before Congress adjourned. That gave little time for action to salvage the legislation.

Nevertheless, in the last few days of the Congress a rush of senators signed up as cosponsors of strengthening amendments to bring the bill in line with the House-passed bill. No time for Senate floor debate or a House-Senate conference remained. So at a day-long session on October 13, negotiators from both sides—including Senators Stevens and Mike Gravel and Rep. Don Young of Alaska—began to informally hammer out compromises to expedite consideration. Agreements reportedly had been reached on almost all issues before negotiations broke down when Gravel walked out of a second meeting the next morning.

A bill then was drafted to provide interim one-year protection for some 125 million acres of public lands in order to give the next Congress time to act. Secretary of Interior Cecil Andrus, Representatives Young, Udall, and Seiberling, and Senators Stevens, Henry Jackson, and Durkin all agreed to this measure. NPCA and the rest of the Alaska Coalition agreed to this measure. The House passed it unanimously on October 14.

At about 5:30 a.m. on the last day of Congress, October 15, the Senate took up consideration of the extension bill. But Gravel then began a filibuster. With no time to invoke cloture to cut off the filibuster, the bill was killed.

"No two ways about it, we had the votes to win in the Senate," says T. Destry Jarvis, NPCA Administrative Assistant and Senate Coordinator for the Alaska Coalition. "The thousands of citizens who don't want to hand all their public lands in Alaska over to the developers won't forget about Alaska next year. We'll be back—stronger than ever."

Meanwhile, unless interim action is taken to protect them, our nation's greatest wildlands and the caribou, grizzlies, waterfowl, and other wildlife they protect will be exposed to possible mineral entry, logging, oil and gas development, and state selection starting on December 18. On that day the legislative deadline protecting the lands expires.

At press time the Administration was considering its protective options. Under the Antiquities Act of 1906, the President can create national monuments by executive order. Such monuments in Alaska would be permanent NPS units unless Congress makes changes when it considers Alaska lands legislation later. The Interior Secretary also has temporary withdrawal land authorities under the Federal Land Policy and Management Act of 1976. At press time supplemental environmental statements on presidential proclamations under the Antiquities Act were expected to be released on or about November 1 for a public comment period of several weeks. NPCA members are urged to write President Carter (Washington, D.C. 20500) immediately and support use of the Antiquities Act to protect as much wild land in Alaska as possible. Call the Alaska Hotline at 202-547-5550 for a recorded update. ■

news notes

DREAM

I dreamed of Time, that perfect clock,
Destroyed by some atomic shock,
And all the universal gears
No longer ticking off the years.
The falling rains in mid-air hung,
The moon and stars no longer swung;
Predatory hawks on high
Stayed fixed against a frozen sky;
Surfs grew silent, winds stood still,
Grass stayed green on every hill,
Loaded guns exploded never,
And deer stayed poised in woods
forever.

The dream was stark, but what seemed
nice

Was that man's hates were put on ice.

*The above poem is from
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*a book of verse that
reflects today's world.*

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CAPE COD

An Ill Wind Blows Good at Coast Guard Beach

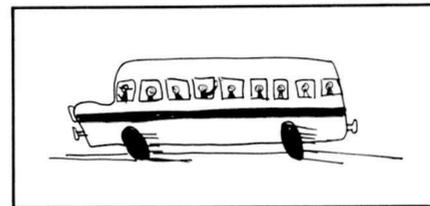
When damage inflicted by one of 1978's worst winter storms threatened to close Cape Cod National Seashore's heavily used Coast Guard Beach to this summer's visitors, national seashore officials solved the problem with an innovative and economical use of available resources.

Both the 300-car parking lot and the bathhouse facilities at the beach were destroyed when fourteen-foot waves swept away the fragile barrier dunes of Nauset Spit in the wake of the February storm.

To ensure access to the popular beach for the 1978 season, the Park Service instituted an emergency busing system that employed local drivers and two school buses normally idle during

the summer. A third bus was added later as ridership increased. For a cost of only \$14,300, the buses shuttled visitors from the seashore's Salt Pond Visitor Center and two other parking areas to Coast Guard and nearby Nauset Light beaches.

Between June 23 and Labor Day, the familiar yellow buses with their friendly drivers carried more than 93,000 passengers to the beach and back.



JOBS

Seasonal Work in the Parks

Paid seasonal jobs in the parks will still be hard to come by in 1979, but give it a try—whether you're interested in working as a trail crew member or tour guide, as a lifeguard or law enforcement aide, or in a variety of other positions. But be sure to also check out the special opportunities in youth programs and some exciting volunteer positions. Do it today—the deadlines are near.

• **Regular Seasonal Jobs:** In 1978 there were more than ten applicants for each seasonal opening. Moreover, out of more than 45,000 applicants, only about 2,500 people were hired by NPS for the first time. Most positions were filled by persons returning from previous seasonal employment; naturally, experienced seasonals have invaluable knowledge and skills to offer the Park Service. If you're a potential first-time seasonal, keep in mind that your chances are much better if you are willing to work at one of the lesser known park units. Each applicant may be considered for two separate park areas and for two types of jobs in each of the two parks.

A brochure entitled "National Park Service Seasonal Employment," is now available from any Park Service office or from the Office of Personnel, Na-

tional Park Service, Washington, D.C. 20240. The brochure includes descriptive information and a computerized application form for positions for seasonal park aides, technicians, and rangers—jobs now filled through the Denver Service Center of the Park Service. In 1978 the NPS instituted a new central computerized program for these jobs. The brochure also includes details on how to apply for seasonal work in architecture, engineering, and science; for lifeguard positions; for Civil Service Commission openings for clerical work in Washington, D.C.; and for positions for seasonal laborers and work in the skilled trades and crafts. As indicated in the brochure, jobs for laborers and work in the trades are now filled through the nine regional offices of the Park Service. The deadline for applying for most jobs is January 15, 1979.

• **Youth Conservation Corps:** This program employed about four thousand youths aged fifteen through eighteen in 1978 summer programs in 114 park system units as well as additional thousands of teenagers in national forests and other public areas. YCC is expected to expand this summer. There are trails to build, trees to plant, animal habitats to study, air and

At summer's end, both bus users and the Park Service pronounced the emergency measure a success.

Merchants and motel owners in the adjacent town of Eastham, Massachusetts, though, pressed for early reestablishment of parking facilities, claiming that lack of automobile access to Coast Guard Beach had hurt business. Unusually bad weather during the month of August must have been a contributing factor, however.

By all accounts most visitors, as well as many summer residents of the area, seemed to like the bus system. The marked decrease in customarily heavy traffic on the narrow roads leading to the beach was welcomed, as was the rare opportunity to enjoy sea and sand

dunes free of crowds. Most agreed, too, that riding the buses was fun.

At press time, seashore officials were analyzing public response to an "Assessment of Alternatives" for the Eastham area. This information will help them determine whether new, less vulnerable, parking facilities for the two beaches should be constructed—at an estimated cost of more than half a million dollars—or whether some form of public transportation should become permanent.

While the decision is being made, however, busing to the beach will continue to be a part of the visitor's experience at Cape Cod National Seashore—at least for the next few summers. ■

water samples to gather, and many other conservation activities limited only by the imagination of the planners and the Corps members. The selection process serves to minimize transportation problems by employing Corps members as near to their homes as possible. Recruitment varies from state to state, but detailed information

A Youth Conservation Corps crew in Zion National Park removes a fence that was used to enclose bighorn sheep in preparation for reintroducing them into the park. From left to right are Steve Isom, Cindy Boggs, Luann Langston, and Joan Sanders.



KATHE GLASSNER, NPS

should be available from most school guidance offices and libraries. Or write to the YCC Selection Office, P.O. Box 2975, Washington, D.C. 20013. Deadline for applications is in mid-March.

• **Jobs With Private Concessions:** The hotels, lodges, restaurants, stores, and other visitor facilities in parks are operated by private companies and individuals who do their own hiring. These jobs are not available through Park Service channels, but the brochure described under "Regular NPS Seasonal Jobs" provides the addresses of many concessioners as a public service. Concessioners most often pay the minimum wage established by the state where the facility is located.

• **Volunteers-in-the-Parks:** The VIP program needs persons of all ages and skill backgrounds. The main "requirement" is a desire to share your skills with other people and to help the environment. As a VIP, you serve without pay. But the program offers much job flexibility—you often can serve on a part-time or intermittent basis at various times of the year.

As a VIP, you may be helping visitors understand the natural or human history of an area by working at one of the NPS interpretive facilities or you may be dressed in period costume and



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news notes

be presenting "living history" as a soldier, colonial lady, frontiersman, or whatever. You may demonstrate a skill such as candlemaking or weaving, help children with simple arts and crafts, work with students and their teachers, help a ranger survey wildlife, work on a plant project, or join a team controlling soil erosion.

You might even have some ideas of your own for your favorite park. Just apply to the park of your choice or write the Office of Personnel, National Park Service, Washington, D.C. 20240, for the brochure "Volunteers in Parks," which contains the addresses of the nine Park Service regional offices from which you can obtain more information on specific units of the Park System.

classifieds

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MAKE MONEY SELLING BOOKS by mail order. Catalog for stamps. Wholesale Books. Box 5842 NP, High Point, NC 27262.

GO—The Adventure Travel Newsletter—For unusual vacations subscribe now—\$10 annually for ten issues of provocative ideas for travel. Box 571P, Barrington, IL 60010.

• **The Student Conservation Association:** This association offers summer programs and some spring and fall programs for sixteen to eighteen-year-old high school students and for college-aged individuals eighteen years and older. Students volunteer their services in more than fifty national parks, forests, and other areas.

High school work programs vary from restoring a pioneer homestead in the Great Smokies to grubbing a trail through a rain forest in Washington's Olympic National Park. A week is devoted to hiking and the rest to maintenance work. You'll be responsible only for your travel expenses to and from the work site and your personal equipment. Some financial aid is available.

The Student Conservation Program

offers college students the opportunity to work directly with professional park and forest personnel as Park or Forest Assistants. You will have many of the same duties as the rangers—interpretation, backcountry patrol, research. You will receive a grant to cover travel and living expenses; housing is provided.

Program announcements and applications are available from the Student Conservation Association, P.O. Box 550, Charlestown, New Hampshire 03603. Detailed lists of all positions offered will be sent with the application. Deadline for receipt of applications will be March 1, 1979, for summer 1979 programs. Deadline information for spring and fall programs will be sent with your application. ■

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OLD STATE, RAILROAD, COUNTY MAPS. 70-110 years old. All states. Stamp for catalog. Northern Map Co., Dept. NP., Eagle River, WI 54521.

Continued from page 2

filling; the necessary global or regional conventions establishing standards applicable *within* the signatory states, and providing for enforcement, will have to be developed in a long series of international conferences which will consume one or more decades. The time for action is short.

THE STRATEGY contains many excellent and indispensable definitions and category structures which will clarify conservation thinking and implementation. It contains and is supported by specific information and documentation on the severely depleted species of plants and animals; it makes recommendations for the establishment of priorities for their protection. It will serve, with its Source Books, as a manual to guide the IUCN, UNEP, WWF, and the conservation agencies of governments around the world. But, it will not be self-executing.

We find the heavy reliance on relatively small protected areas to be disturbing. It suggests a digging in for a last-ditch stand in too many places; no doubt there will be many battles of that kind. But if in addition to setting up reserves against an expansion of destructive agriculture and forest clearance we could foster ecological methods of farming and timber management, we might be more effective.

THE APPROACH taken by the Strategy toward development is excellent. The point is made that reckless exploitation which depletes resources impedes development on a sustainable basis. Surely the conservation of fossil fuels, metal ores, soils and forests is an essential element of any rational economic system; but conservationists have too often failed to say so. And by the same token, the protection of all the living resources of the planet must be thought of as indispensable to a well-run planetary economy.

As the Strategy reports, the oceanic fisheries are, for the most part, in grave danger. The ICNT will put a floor under depletion by overharvesting (Articles 61 and 119) if enforcement machinery can be established for the protection of the living resources by requiring dispute settlement by compulsory conciliation as a minimum, as now seems possible. This protection must be extended to marine mammals by the necessary revision of Article 65.

The coastal nations, which will be given sovereign rights over the living resources out to 200 miles or more, will be under heavy pressures to

over-harvest because of over-population and famine. New regional or planetary conventions will be needed, in addition to an improved ICNT, to establish and enforce adequate regulations. The Strategy sets a course, but cannot fulfill it; fulfillment will require effective international enforcement machinery; the Strategy should emphasize the point.

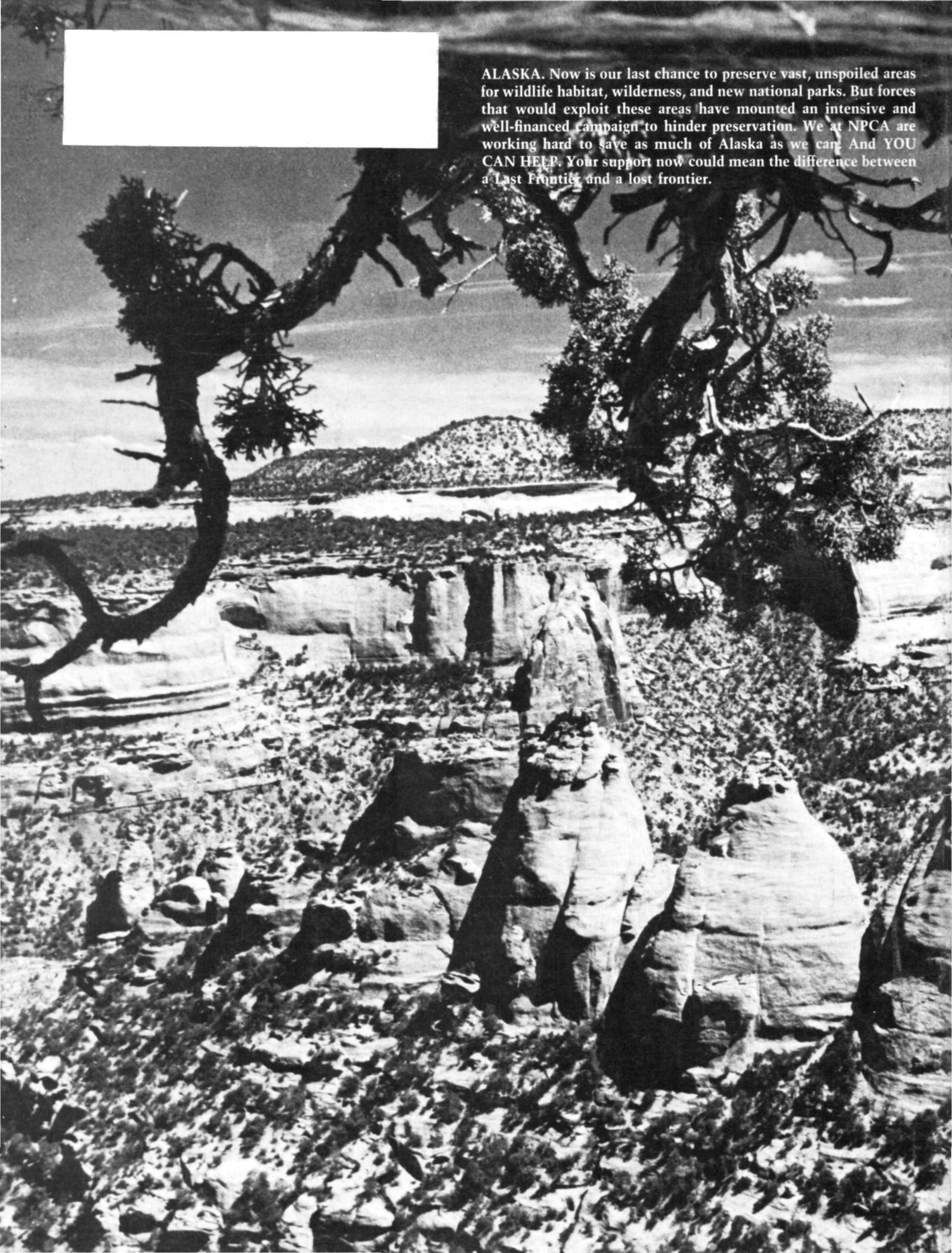
IN ONE IMPORTANT RESPECT the Strategy is gravely deficient. Oddly enough, at several places it mentions the pressure of population on endangered species and other living resources. It notes that family planning programs should be initiated or expanded, although without daring to specify planning for *small* families. And yet, when it comes to recommendations to conservation organizations and individuals, it urges them not to tackle the population problem.

The great leaders of the American conservation movement of 30 years ago, Fairfield Osborn and William Vogt among them, would have been appalled; conservation and population were inextricably intertwined in everything they did and thought. Such a leader as Robert C. Cook in the population stabilization movement has never failed to point out the close interconnections between human over-crowding and the degradation of the living environment.

MOST OF THE AMERICAN conservation organizations, and perhaps those of other lands, are dangerously ignorant of demography. They have failed to grasp the destructive impact of massive illegal immigration into the United States on all their domestic efforts. The Strategy reflects the same disdainful withdrawal from any responsibility for population stabilization and reduction. And yet, almost every paragraph in the Strategy cries out that conservation problems cannot be solved unless the pressure of human numbers can be reduced.

One has the feeling, on reaching this point in the text, that an anonymous authority reached over the shoulder of the author and knocked the pen from his hand. Who was the moral censor, unconsciously harbored? Was he of ecclesiastical, financial, or merely parental *mein*? Persons responsible for the environmental future of mankind should free themselves of such aberrations and face the facts: the planetary ecosystem will not be saved unless human numbers can be brought under control, and conservationists ought to say so.

—Anthony Wayne Smith



ALASKA. Now is our last chance to preserve vast, unspoiled areas for wildlife habitat, wilderness, and new national parks. But forces that would exploit these areas have mounted an intensive and well-financed campaign to hinder preservation. We at NPCA are working hard to save as much of Alaska as we can. And YOU CAN HELP. Your support now could mean the difference between a Last Frontier and a lost frontier.

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