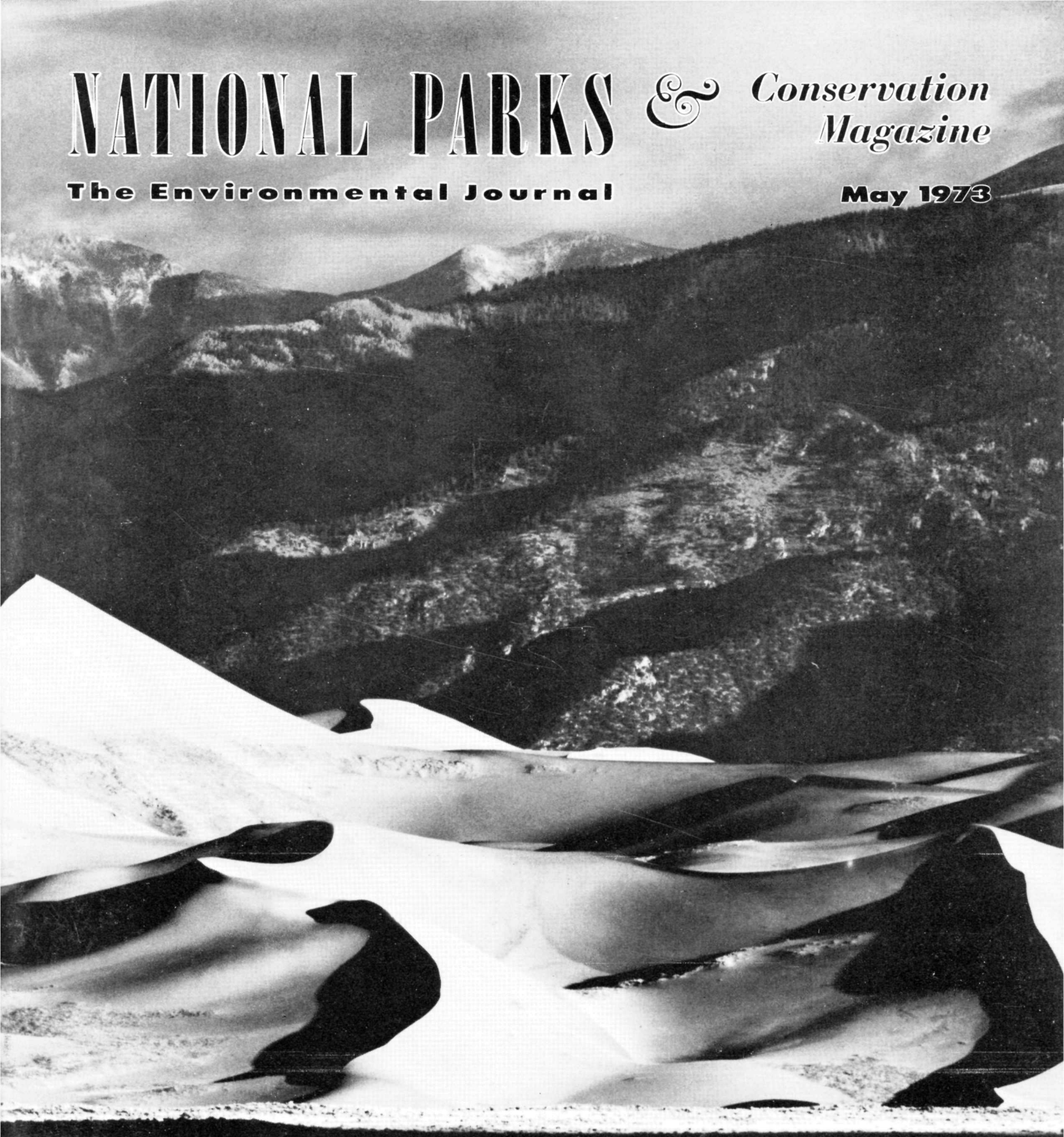
NATIONAL PARKS & *Conservation Magazine*

The Environmental Journal

May 1973



NPCA • National Parks & Conservation Association • NPCA

RESCUE the REDWOODS!

ONE would have thought that by now America might have saved the California Coast Redwoods.

A century ago, when pioneers were pouring across the Sierra Nevada from the east, *Sequoia sempervirens* was the dominant tree on the coastal strip from above the Oregon border to well south of San Francisco Bay. It climbed, mixed more and more with Douglas-fir, to the crest of the coastal range and beyond. It thrived in the dense fogs which poured across it most of the year from the Pacific. The oldest and largest of its patriarchs could count 3,000 years of life and 350 feet of height. Its glades, as we know from the surviving monumental groves, harbored a cathedral-like beauty.

Valued above all for durability in construction, redwood lumber was sought after eagerly during the building of cities like San Francisco. As continental commerce grew, so the uses of the forest, for everything from grape stakes to structural timber. Early extraction was onerous, the size of the trees being so great, and transportation so difficult. No thought was given to sustained yield, and the forest gave way rapidly to agriculture and other forest types.

EARLY in the century the Save the Redwoods League began its historic efforts to acquire representative groves of outstanding quality for permanent preservation. Working always against time, it solicited gifts year after year, with donors naming groves as memorials. From these noble efforts came four famous state redwoods parks, Jedediah Smith, Del Norte Coast, Prairie Creek, and Humbolt. Protected by a network of covenants and the vigilance of the State of California, these groves, which remain even now under State authority, have conserved many of the more majestic regions of the forest.

But in the meanwhile, destruction has moved like a crown fire through the unprotected portions of the forest, by far the largest in area. And with a remorseless vengeance, the ruin which has been visited on the upper slopes has poured down the watersheds into the precious parks, bringing floods, erosion, siltation, and debris, to the point where the patient protective work of many decades may eventually be brought to naught.

The horrors of clearcutting with modern equipment in a forest like the Coast Redwoods, in soils and on slopes which are characteristic of this terrain in too many places, can hardly be imagined. Visualize the logging of a slope so steep that it can hardly be climbed on foot, and the felling of trees four feet in diameter and more, breast-high, until nothing remains on the land, the dragging of the huge boles down the slopes, bringing all the earth with them, and the final bulldozing of the area, uprooting the stumps from which sprouts would have arisen, the blades digging into the loose soil to brake the descent, driving the silt into the stream beds, and thence downstream, with consequent floods into the state parks and the new National Park, and you have the tragedy which beseeches mercy of the nation.

TWENTY-FIVE YEARS AGO a movement arose in California and across the country to purchase the entire forest and place it in a Redwoods National Forest under selective-cutting sustained-yield management, except for the state parks and extended park areas around them which would be protected against cutting. *Sequoia sempervirens* regenerates easily in the shade. Normally it requires no replanting or seeding, but produces a new generation of trees from sprouts around the stump. Individual trees can be removed, or small groups of trees, and the beauty and productivity of the forest remains almost undisturbed.

THE NPCA has recently published a study of ecological forestry in the coast redwood forest which describes how these operations can be conducted by high-lead cable or small-tractor logging methods.° There has never been any excuse for clearcutting *Sequoia sempervirens* nor for the destructive logging practices which have been going on for 100 years.

Among the sponsors of the proposal for a Coast Redwood National Forest was Gifford Pinchot, the father of American forestry. It had the support of the U.S. Forest Service, and of major labor organizations, including the Congress of Industrial Organizations, the International Woodworkers of America, and the California Federation of Labor. Nearly half of the California delegation in the United States House of Representatives sponsored the bill. Opponents called it radical, although many new national forests had been created from private

Continued on page 35

°Peter A. Twight, *Ecological Forestry for the Coast Redwoods*, NPCA, 1973.

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COVER *Great Sand Dunes Monument, by Ed Cooper*
A reversal of the prevailing wind direction the previous evening has heaped the sand in sharp ridges, which shadows cast by the morning sun emphasize dramatically. (See page 4.)

National Parks & Conservation Association, established in 1919 by Stephen Mather, the first Director of the National Park Service, is an independent, private, nonprofit, public service organization, educational and scientific in character. Its responsibilities relate primarily to protecting the national parks and monuments of America, in which it endeavors to cooperate with the National Park Service while functioning as a constructive critic, and to protecting and restoring the whole environment. Life memberships are $500. Annual membership dues, including subscription to National Parks & Conservation Magazine, are: $100 sustaining $50 supporting, $15 contributing, and $10 associate. Student memberships are $8. Single copies are $1. Contributions and bequests are needed to carry on our work. Dues in excess of $10 and contributions are deductible from federal taxable income, and gifts and bequests are deductible for federal gift and estate tax purposes. Mail membership dues, correspondence concerning subscriptions or changes of address, and postmaster notices or undeliverable copies to Association headquarters in Washington. When changing address, please allow six weeks' advance notice and send address label from latest issue along with new address. Advertising rates and circulation data are available on request from the Advertising Manager in Washington.

weathered american chestnut trunk
jack jeffers photograph

A bit of "Sahara" nestles in a remote valley in Colorado

Travelers often are surprised to learn that the largest sand dunes in the United States are found not near the sea but far inland, in a valley of the Rocky Mountains. These dunes and the surrounding area have been included since 1932 in one of the most striking units of the national park system. This is Great Sand Dunes National Monument, a 36,000-acre preserve of sand, sagebrush, and scrub forest at the foot of the towering Sangre de Cristo Mountains in southern Colorado.

Few other places epitomize the vastness of the American West so convincingly. The approach offers a thrilling sequence of interconnected vistas: first, the view from a distance of the jagged mountains rising vertically from the floor of the San Luis Valley, with miniscule tawny dunes at their base; next, many miles later, the rippling forms of the dunes with the trees tiny before them; and at last a full-scale dramatic exposure of the overwhelming size of the dunes. Only at the visitor center of the monument do most observers realize the immense size of the dunes. From this vantage point the vast dunes stretch across some ninety degrees of vision and dwarf to near-insignificance the rows of cottonwood and pine in the foreground.

One usually is able to discern tiny forms moving slowly over the surface of the dunes, but only through binoculars do they become recognizable as the figures of human beings. The most popular activity in the monument is walking on the dunes. Children and energetic adults often like to tumble in the sand; and many people attempt to hike to the top of the highest dune in sight, although few are aware what a strenuous endeavor this turns out to be. Some climbs that appear from a distance to require fifteen minutes in fact normally will take the better part of two hours.

One of the unexpected pleasures at the monument is a wade through Medano Creek. This lovely stream flows vigorously from melting snows high in the mountains and disappears into the sand after traversing the dunes for several miles. Its cool and sparkling waters are a foil for the unremitting intensity of the noonday sun in a sternly arid region.

How has this tremendous accumulation of sand occurred? The answer lies in the configuration of the San Luis Valley, the profile of the Sangre de Cristo Mountains, and the prevailing direction of the winds. The valley is bordered on the east by the mountains, toward which winds sweep steadily from the southwest, laden with sand from the sandy soil of the San Luis Valley. As they approach the mountains, the winds funnel through a series of gaps in the range, the most important of which are Mosca and Medano passes. The winds lose speed as they rise over these passes and are forced to drop their loads of sand near the base of the mountains. For tens of thousands of years air currents have heaped sand in this corner of the valley until today the highest of the sandy summits approaches a thousand feet. The entire mass of sand has a volume estimated at eight cubic miles.

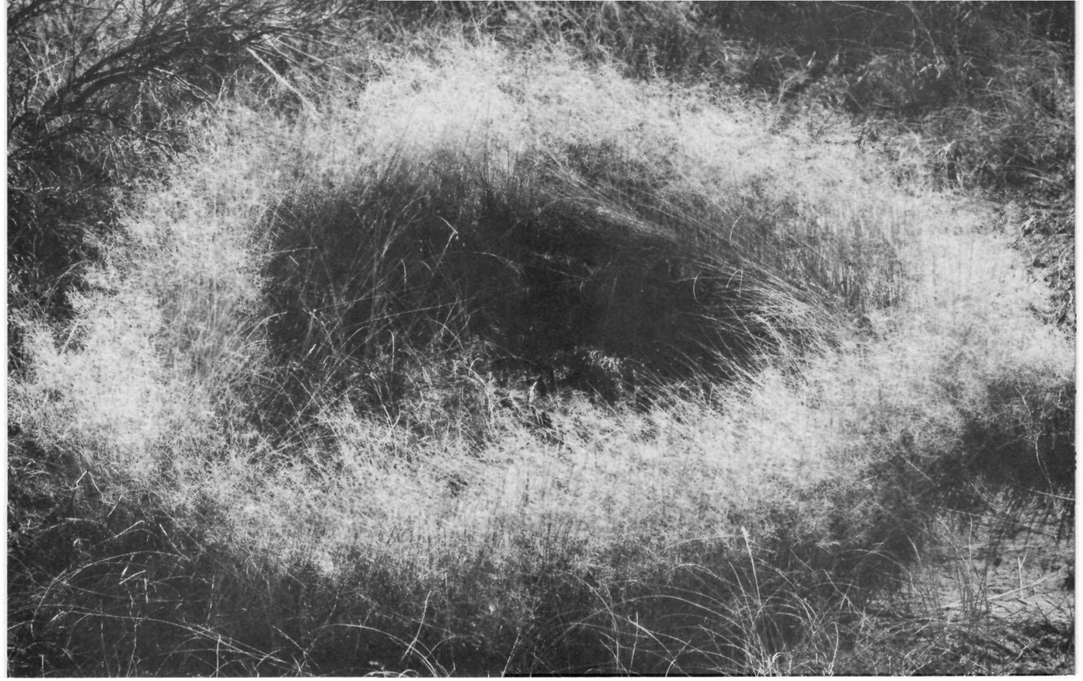
ED COOPER

At Great Sand ...es, as elsewhere, the visiting photographer does his best work with the first light of dawn or in the long shadows of a late afternoon sun.

Handiwork of the Wind

Daniel Henry Ehrlich

GREAT SAND DUNES NATIONAL MONUMENT



ED COOPER

The species of grass known as ring muhly or ring grass creates its own special pattern in southwestern areas of low rainfall and, to the photographer's delight, also occurs within the national monument.

The really large dunes actually are one to two miles from the Sangre de Cristo range and have shown remarkable stability over the years. Comparing their present appearance with photographs from the early years of the century reveals little change in the main dune mass. Only in an area between the major dunes and the mountains do noticeable quantities of sand migrate actively. There the wind moves the sand one way and then back the other way, burying trees and subsequently exhuming them. Several groves of dead trees, collectively referred to as the "Ghost Forest," stand gauntly against the sky in particularly arresting contrast to the green, timbered lower slopes of the range.

The monument supports a fascinating variety of plant communities, some of which adapted to singularly harsh and forbidding environments. The related processes of plant succession and dune stabilization are well illustrated along the margin of the mountains, including the areas of the visitor center and the campground. The dynamics of plant succession are complex but may be summarized as the evolution from pioneer to climax vegetation, and various stages of this progression can readily be identified. The pioneers are the hardy grasses with low water requirements that occur in isolated clumps on otherwise bare dunes; whereas the climax association is essentially dry-land forest. The dunes at the immediate base of the mountains, where sand is often mingled with rocky debris transported from the foothills in flash floods, are shaded in most spots by pines and junipers, which comprise the climax association. Somewhat farther from the base of the mountains the sand is largely covered by grasses. These grasses, representing an intermediate stage of plant succession, serve to stabilize the sand and anchor it against transportation by the wind. Isolated groves of trees can be found in some otherwise grassy areas because of high spots in the water table, and trees line the banks of Medano Creek. Trees close to water sources but not surrounded by grass-stabilized dunes are particularly liable to burial under masses of shifting sand.

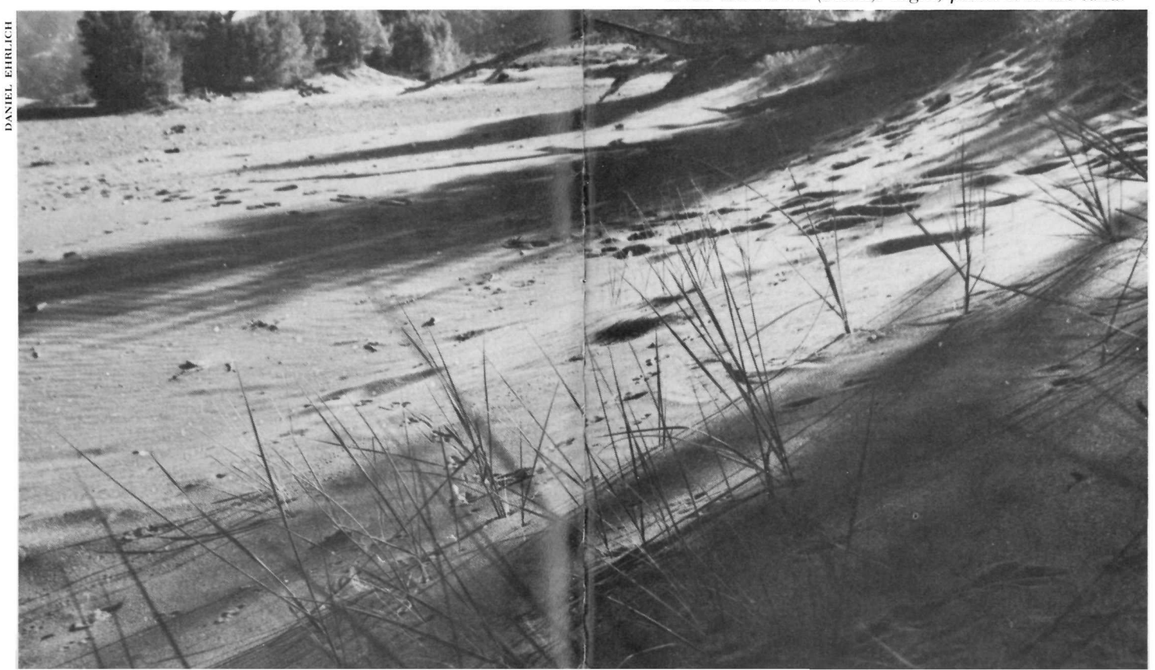
Visitors who are primarily interested in seeing wildlife seldom leave the Great Sand Dunes disappointed. Great numbers of deer come down from the mountains to browse, and the openness of most of the terrain in the monument makes them easy to observe. They are frequently spotted feeding in groups on the sagebrush and grass and are almost as often found at close range in the areas near the campgrounds. The monument also affords an opportunity to observe indirectly the actions of the natural community by way of the countless tracks of birds and small mammals that are found on bare sand early each morning before the rising breezes obliterate them—ample evidence that the struggles that maintain nature's balance do not cease at sundown.

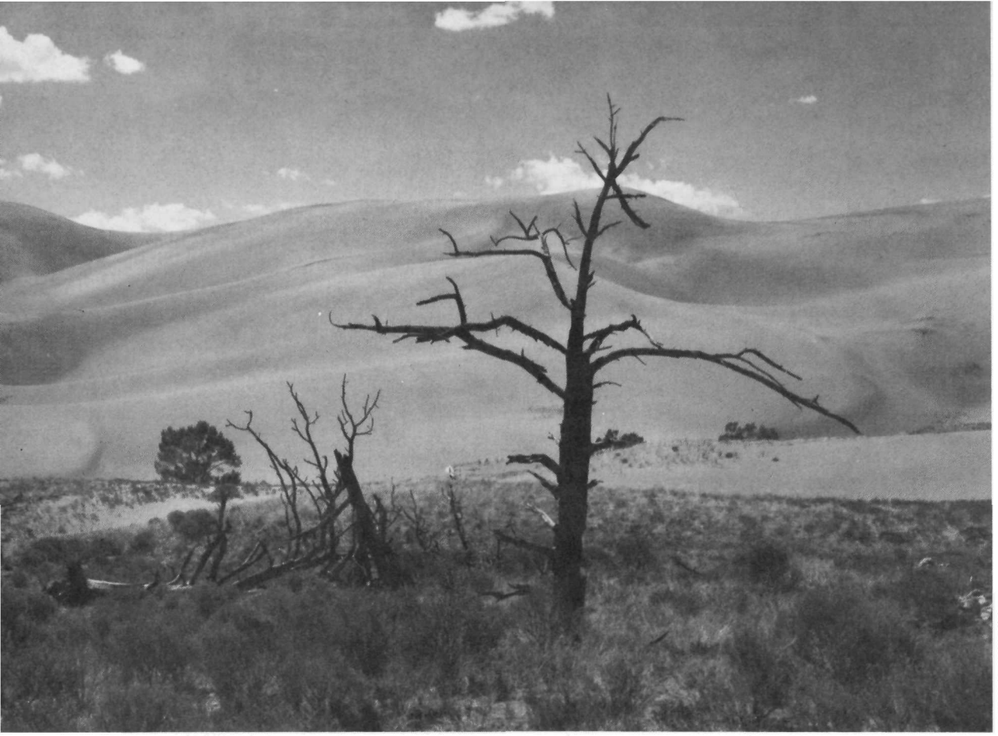
The monument and surrounding land offer a variety of recreational opportunities for adventurous visitors. The San Luis Valley is one of the oldest regions of European colonization in the United States, antedating many parts of New England and the South. The famous pioneer Zebulon Pike crossed the Sangre de Cristo Mountains in the vicinity of the monument. Visitors with a bent for history can hike to the ghost town Liberty in the roadless area north of the monument boundaries. Rugged hikers can ascend the summits of Blanca, Lindsey, and Little Bear just outside the monument to the south.

The unusual geography of this region imparts a special drama to the procession of the daylight hours. The wise visitor is awake at the first light of dawn. For some minutes after sunrise the valley lies in the miles-long shadow of the Sangre de Cristo. This shadow rapidly shortens until beams of sunlight sud-

Much nonhuman activity goes on during nighttime hours in Great Sand Dunes National Monument, as fresh tracks in the sand show (below). Right, patterns in the sand.

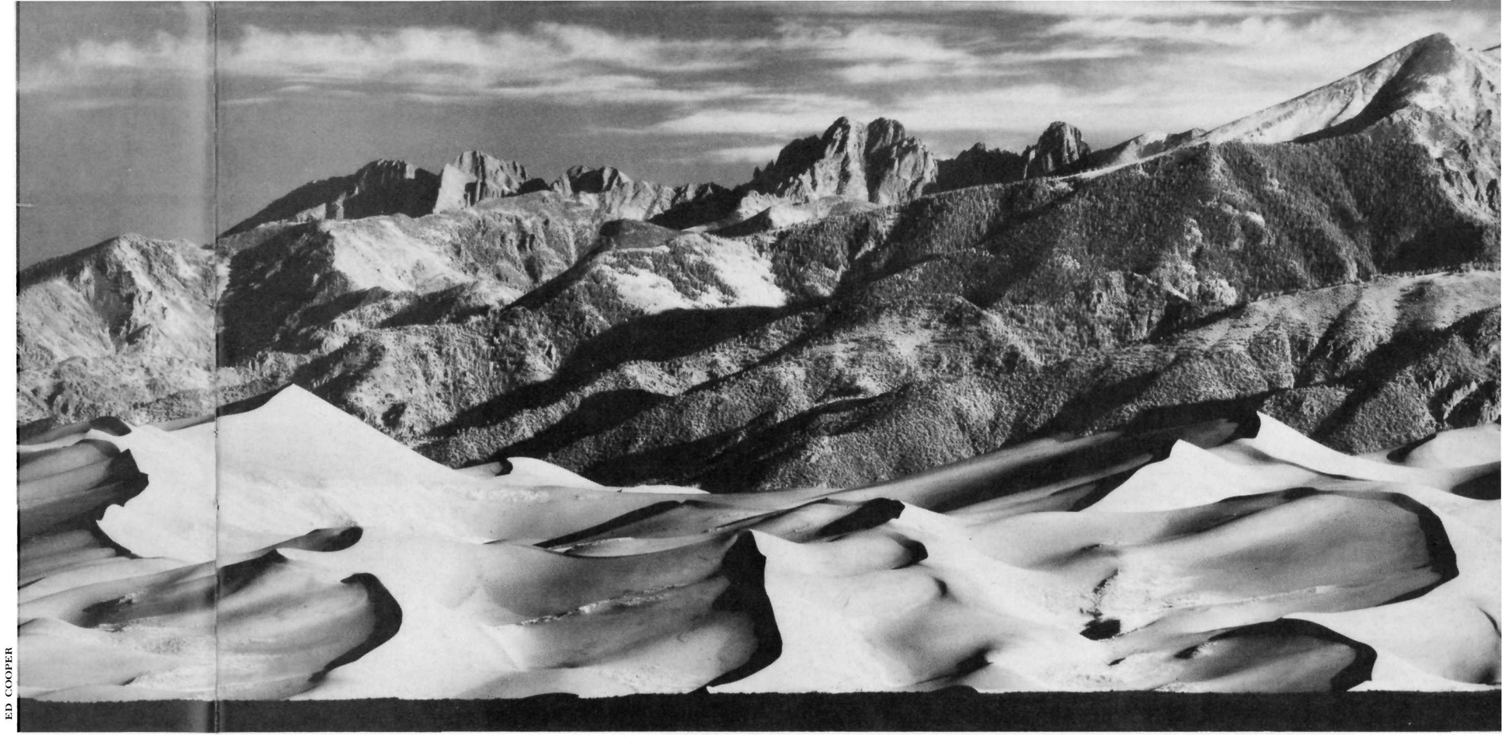
DANIEL EHRLICH





DANIEL EHRLICH

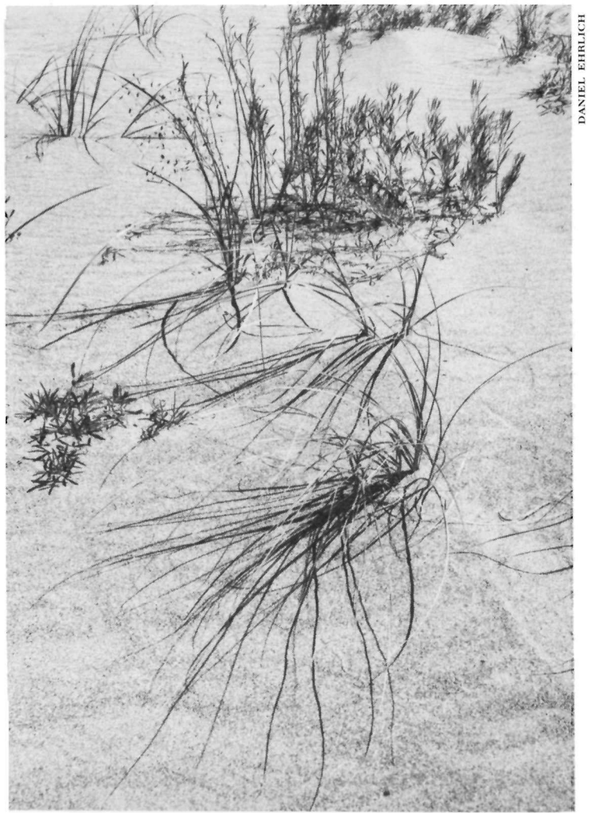
Plants of the stabilized parts of Great Sand Dunes National Monument live a precarious existence and face the ever-present threat of disaster by burial. Tree skeletons mark the scene of such a disaster; living trees were buried under a wave of shifting sand, later to be exhumed as the sand moved on.



ED COOPER

Below, along the margins of actively moving sand, pioneer plants adapted to a harsh environment obtain precarious footholds and, if successful, may stabilize a dune and secure it for a succession of other less venturesome plants. Above, for thousands of years the west base of the Sangre de Cristo Mountains in south-central Colorado has proved a natural trap for sand carried by prevailing southwesterly winds of the region, and Americans have set aside this scenic geological oddity as the Great Sand Dunes National Monument.

denly stream over the mountains, transforming the dunes from dull brown to luminous gold. These are precious moments for the photographer, for the endlessly varied hollows and ridges are separated into starkly contrasting scenes of shadow and light. The delicate textures of wind-sculptured ripples formed during the previous day are highlighted by the oblique rays of the sun. The show fades quickly as the sun gains altitude until, in the fierce heat of noon, the dunes become a uniformly blinding and glaring mass that is almost painful to look at directly. Breezes that have acquired strength in the forenoon hours often gather into strong westerly winds in mid-afternoon, whipping tons of sand high into the air. Thunderheads often build up to imposing dimensions, especially over the mountains, as rising currents of air from the superheated dunes are carried by the strong winds. Although precipitation seldom falls within the monument itself, one frequently hears claps of thunder reverberating among the bare crags above timberline. As the sun slides into the west, the most spectacular vista of all takes shape, reaching its climax between the hours of five and six in summer. From the visitor center the rays of the descending sun skim the face of the dunes, highlighting their arresting profiles as light and shade alternate in irregular patterns. Perhaps no other landscape in the United States responds with more visible intensity to the twenty-four-hour cycle of



DANIEL EHRLICH

darkness and light that people so often take for granted in their daily routine. The shadows grow rapidly as the sun dips behind the massive dunes, but the display is still not ended. More often than not the great clouds above the Sangre de Cristo remain in position until the final light of day, turning successively from white to cream to gold to magenta and mauve and finally to gray with the deepening blue of the sky above them.

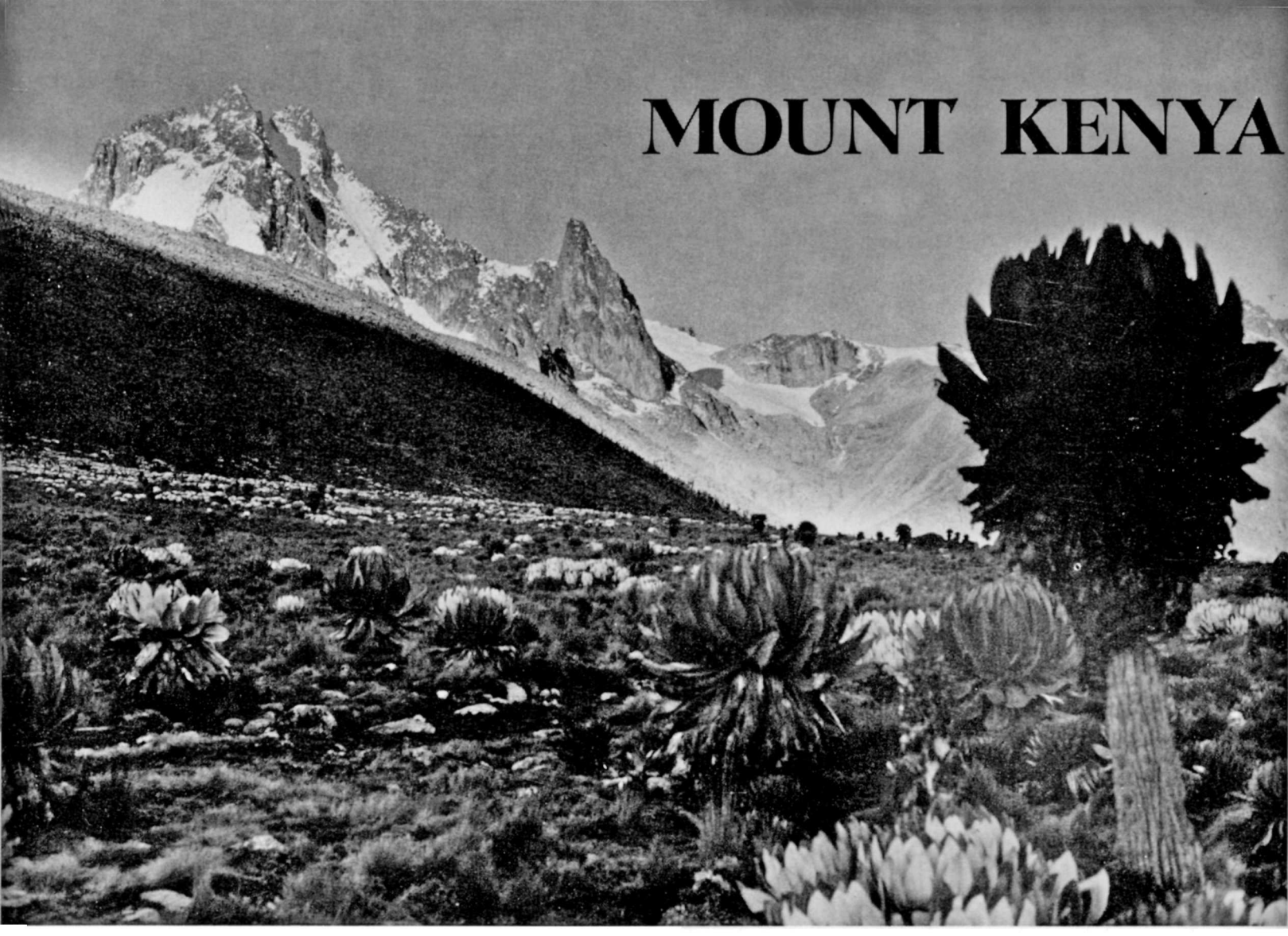
During the closing hours of the day the prevailing wind often reverses itself to produce another fascinating effect. The rapid cooling that takes place on the surface of the dunes and in the mountains causes air to descend swiftly from the mountains, and sometimes this counterflow is especially vigorous. On such occasions sand is heaped high on the ridges of the dunes in such a way that their westward-facing sides become markedly steepened. When this happens they remain deeply shaded the following morning for a period of several hours after sunrise. The effect is not particularly noticeable from the visitor center; but it is most pronounced to observers who are on the dunes during these hours, and it also attracts great attention from motorists who happen to be approaching the monument from the west.

Like the majority of preserves in the national park system, the Great Sand Dunes area attracts most visitors during the summer months. Nevertheless, more and more people are discovering that the monument offers a rewarding experience during other times of the year as well. In autumn the shrubs and deciduous trees turn from green to brilliant red, yellow, and orange before shedding leaves for the long winter that will follow. Winter can be spectacular, particularly when the beige of the sand mingles with the dazzling white of newly fallen snow in brilliant morning or afternoon sun. Prospective winter travelers are cautioned, however, to bring their warmest outfits, because the San Luis Valley can become piercingly cold during these months.

Whatever the season, the visitor is guaranteed an unforgettable sight. Great Sand Dunes National Monument is one of the supreme unconventionalities of the American landscape—an area whose comparative isolation and stark eccentricities place it away from the mainstream of tourism. Increasing numbers of visitors, however, are becoming aware of its unique and often haunting appeal. No one can come to this area without being moved by the scale of its setting and by the endless variety of the artistry of nature on display. ■

Mr. Ehrlich, most recently an instructor of geography at the University of Nebraska, Omaha, now is working toward a degree as master of urban planning at the University of Washington, Seattle. He says, "I have always been fascinated with the national parks and have visited nearly all of them, but Great Sand Dunes is one of my favorite units."

MOUNT KENYA



backpackers discover some extraordinary facets of natural history as they ascend the 17,000-foot peak in the first of Kenya's national parks

Imagine, if you can, a majestic mountain straddling the equator, complete with alpine flowers, glaciers, and cold, barren rock. Then throw in a bamboo forest, a moorland, a number of plants that grow nowhere else in the world, and a few elephants and leopards for good measure. Mix them all together and you come up with East Africa's Mt. Kenya, or to the Kikuyu tribe, Kere-Nyaga, the mountain of brightness. No wonder the first European to see and describe Mt. Kenya in 1849, a German missionary named Johann Ludwig Krapf, was dismissed by a distinguished geographer of the period as suffering from hallucinations! It was not until fifteen years later that poor Krapf's "hallucinations" were verified by other explorers.

Mt. Kenya's twin summits, Batian and Nelion, rise to heights of 17,058 and 17,022 feet. On the entire African continent only Mt. Kilimanjaro in Tanzania is higher. The peaks of Mt. Kenya comprise the plug of a long extinct volcano, which scientists believe may once have risen to a height of 23,000 feet. Extensive glacial erosion during the ice ages of the late Pleistocene Epoch wore away the outer cone and ground the mountain down to its present size. Today it is deeply dissected by valleys radiating down from the peaks, which are mantled by fifteen permanent glaciers.

Mountain of Brightness

article and photographs by
David J. Books

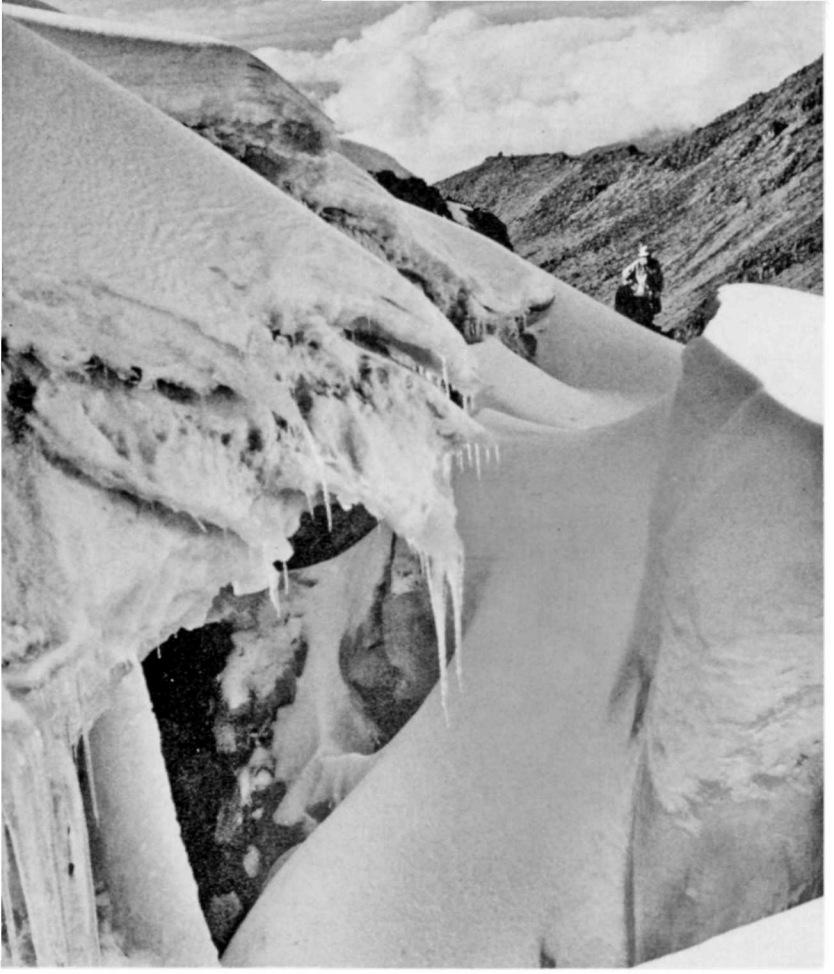
Left, Batian and Nelion, Mt. Kenya's highest peaks, tower 17,058 and 17,022 feet, respectively, above the Teleki Valley in Kenya. The plant on the right is Senecio keniodendron; *the silvery leaved plants are* Senecio brassica. *Above, the Teleki Valley from above.*

For centuries Mt. Kenya has held magical and religious significance for the people living near it. To the Kikuyu it is the earthly dwelling place of their god, Ngai. It is not strange, then, that it was selected to become Kenya's first national park in 1949.

During December 1971 I was fortunate enough to visit this unique preserve while traveling in East Africa. Dr. Joe Elliott, an American friend who was then a visiting lecturer in plant physiology at the University of Nairobi, invited me to join him for a three-day hike on Mt. Kenya for a firsthand look at the unusual flora and fauna. Our plan was to enter the park from the west, drive up to the end of the Naro Moru track, then hike from there up into the Teleki Valley. Eventually we wanted to climb Point Lenana, which at 16,355 feet is Mt. Kenya's third highest peak.

At the entrance gate we filed our itinerary, a necessary precaution in case of accident or illness. Then we began winding up and up through the dense forest, our diminutive Volkswagen alternately falling in and climbing out of the deep Land Rover ruts. The belabored little car wheezed with the increasing altitude as we climbed through the gnarled, moss-draped trees and finally into the bamboo forest. Fresh animal tracks crisscrossed the road in many places, but it was midday, an unlikely time to see game, and we saw none. Elephant, buffalo, rhinoceros, giant forest hog, and several species of antelope—including the elusive bongo, East Africa's largest forest antelope—roam the forests of Mt. Kenya.

Finally the slope became so steep that the car refused to go farther, and it became clear that one of us would have to get out and walk. My companion suggested that it be me, inasmuch as he was driving. I quickly pointed out that he weighed more, but to no avail. I reluctantly got out, and the car, somewhat relieved, chugged around the bend and out of sight. I had gone no more than ten steps before I realized that something was wrong—namely, I was having a hard time breathing. We were at an elevation of almost 10,000 feet, whereas my native haunts in Minnesota boast a lowly 600; I clearly didn't have enough red corpuscles. With my heart pounding in my ears, I trudged slowly up the dirt track, wheezing like the departed Volkswagen. I was in no way encouraged by the knowledge that the road ended soon, and that to reach the top of Point Lenana I would have to climb another 6,000 vertical feet, the air growing thinner with each step! Neither was I encouraged by the grim

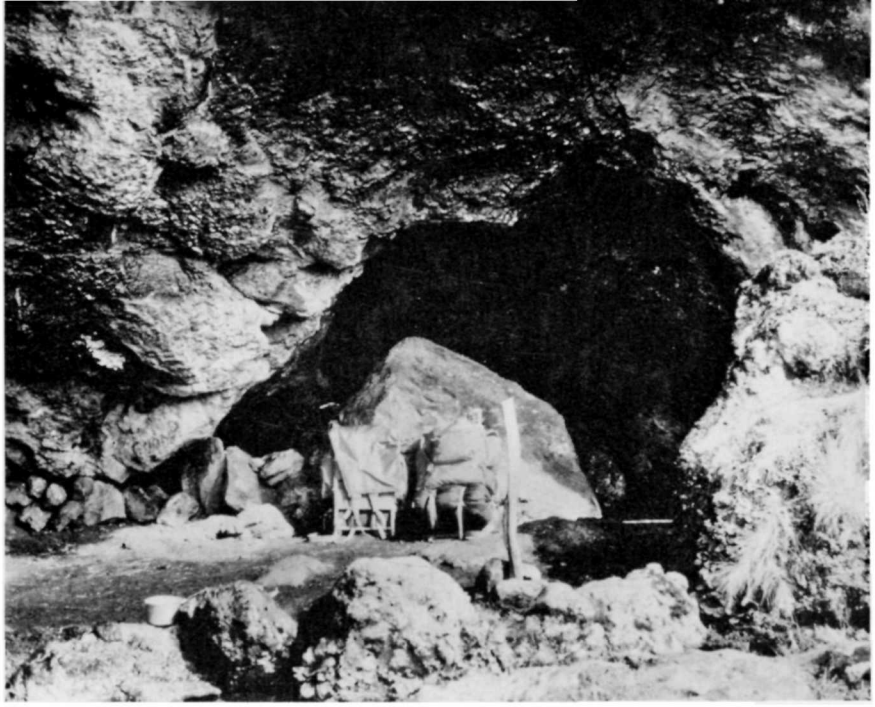


warning notice handed to us at the park gate, explaining that a number of people have died on Mt. Kenya from a type of lung failure called pulmonary edema. In fact, I was convinced I already had the early symptoms.

After a ten-minute hike, I arrived in the clearing at the end of the road, where the good Dr. Elliott was filling our backpacks with three days' worth of the essentials of life. Everything but oxygen, that is. The packing accomplished, we shouldered our loads and started up the muddy trail through the lush forest. Before long the trees began to thin, and we soon emerged at the base of the moorland zone. Often referred to as a "vertical bog," this part of Mt. Kenya is a damp morass; the ground is covered by large tussocks of grass and sedge interspersed with mosses and small herbaceous plants. Heath trees reminiscent of a Scottish moor dot the landscape, often rising to heights of twelve feet or more. There are a few flowers scattered about, and the everlasting bushes, with their red, pink, and white strawlike blossoms, add color to an otherwise bleak setting.

After struggling upward through the mud for a few hours we reached our first destination, a cave where we could spend the night at least partially protected from the elements. And none too soon, for we had barely pitched camp when a heavy cloud bank rolled in from the valley below, enveloping us in fog and mist. Darkness descended, and an eerie, sodden hush fell over the mountain. My imagination began conjuring up all sorts of dangers lurking in the gloom beyond

Above, Dr. Elliott looks over a crevasse in Lewis Glacier, one of the fifteen permanent glaciers on Mt. Kenya. Below, two hikers in the "vertical bog" or moorland zone. The heath trees in the background make it reminiscent of a Scottish moor.



Left, a Mau Mau stronghold only a few years ago, this cave now serves as a shelter for hikers on Mt. Kenya. Above, the silvery hairs on the backs of the leaves of the Senecio brassica *are used for nest-building by the scarlet-tufted malachite sunbird.*

the cave entrance. Elliott made matters worse by regaling me with tales of the Mau Mau terrorists who used Mt. Kenya—indeed, this very cave—as a stronghold during the "emergency" of the 1950s.

Although a steady drizzle persisted most of the night, it was warm and dry inside the cave. Joe had warned me to come prepared for the unusual weather on Mt. Kenya, which meant bringing along winter clothing, rainwear, and a down-filled sleeping bag. Due to its location on the equator, Mt. Kenya does not experience the seasonal changes in climate typical of mountains in higher latitudes. Instead it has a marked daily temperature fluctuation throughout the year, which can best be summarized as "winter every night, summer every day." Temperature varies with altitude, but at 14,000 feet the daytime maximum temperature averages about 40°F and the nighttime minimum about 25°F. Radiation from the sun is intense in the thin atmosphere; and when the sun goes down, the temperature may fall 20 degrees in less than an hour.

By the next morning the rain had stopped, and we resumed our trek upslope. Soon we were above the moorland and into the alpine zone, which begins at an altitude of about 11,500 feet. It is here that the giant senecios and lobelias dominate the landscape. These bizarre plants, which have small herbaceous counterparts around the world, attain heights of twelve feet or more on Mt. Kenya. For instance, senecio is best known in the United States as groundsel, a bothersome weed of farm fields. The *Lobelia* genus is represented in North America by the brilliant cardinal flower, among others. But on Mt. Kenya these groundsels not only have attained gigantic proportions but also have developed special adaptations that enable them to survive the drastic day-night temperature fluctuations.

Senecio keniodendron, a large plant with cabbage-like leaves at the end of its cork-covered branches, may grow up to eighteen feet in height and ten inches in diameter. Nearly two inches of cork insulate the

Above, the leaf rosette of this lobelia is adapted for catching and holding rainwater. The leaves secrete a gelatinous substance that mixes with the water to form a viscous fluid, lowering the freezing point and protecting the plant from the nightly frost. Below, the rock hyrax, a peculiar creature with hooflike feet, lives in colonies high in the rocks of the alpine zone. Although it resembles a marmot, the hyrax is actually a distant cousin of the elephant.

stem, and after dark the leaves curl up forming a tight "night bud" to protect the growing points from frost. The Teleki Valley also is the home of the two giant lobelias found on Mt. Kenya—*Lobelia keniensis*, an endemic, and *Lobelia telekii*, named for a Hungarian count who was the first European to reach the alpine zone of Mt. Kenya. These plants consist of stemless leaf rosettes with erect, lancelike flowering stalks up to four feet in height. The leaf rosettes, in addition to closing at night, are arranged in a way that allows them to catch and hold rainwater. A gelatinous substance secreted by the leaves mingles with the rainwater to form a viscous fluid, lowering the freezing point and affording further protection from the cold.

The giant groundsels play an important part in the life cycles of many creatures on Mt. Kenya, among them the scarlet-tufted malachite sunbird. This striking metallic-green bird has a long tail and scarlet shoulder patches and frequently can be seen hovering in front of lobelia flowers collecting insects with its slender, down-curved bill. It also strips the dense layer of silvery hairs from the backs of *Senecio brassica* leaves to line its nest.

By noon we had reached a hut built and maintained by the Mountain Club of Kenya, where we ate lunch sheltered from the raw wind. A rock hyrax colony was located in the rocks nearby, and a number of its residents were sunning themselves or scurrying about the rocks. This peculiar, rodentlike creature has long fur to protect it from the cold and rubberlike pads on its feet for gripping rock. Actually an ungulate, the rock hyrax resembles a rabbit with hoofs. Count Teleki mistakenly called it a marmot, not knowing that zoologically its closest relative is the elephant! Owls, eagles, and leopards all help to keep the rock hyrax population in check.

Luckily for us, the Mountain Club's hut was unoccupied for the night, and we were able to sleep dry under a roof. Because the peaks are often clear in the morning, we wanted to get a good night's rest and an early start for Point Lenana the next day. Both Joe and I had been bothered by headaches during the day's hike and were exhausted from the combination of exercise and altitude. Even the scurrying about of the little groove-toothed rats with which we shared the hut couldn't keep me awake.

When morning came, the peaks stood out dark and sharp against an azure blue sky. We started up the trail—and discovered fresh leopard tracks in yesterday's bootprints. I consoled myself with the knowledge that leopards are nocturnal and rarely attack a full-grown man. Slowly we inched our way up the steep talus slope at the head of the valley, stopping often to rest and admire the stark beauty of Lewis Glacier and the emerald-hued tarn at its base. Two and one-half hours later we were at Top Hut, the Mountain Club's base camp at an elevation of 15,720 feet. By this time the clouds from the valley below had caught up with us, and Point Lenana could only be glimpsed occasionally through the fog. The last leg of the climb was an exhausting scramble up a steep, snow-and-ice-covered slope. The mountain was now indulging in one of its temper tantrums, and intermittent showers of wind-driven sleet stung our faces, limiting visibility at times to less than thirty yards. We reached the top, which is marked with an iron cross bearing some tattered flags, and collapsed in weary jubilation.

Sitting on this cold, barren pinnacle, surrounded by glaciers, I found it hard to believe we were in equatorial Africa. I could now understand why Mt. Kenya has stood out as a bizarre and mysterious paradox to scientists and African tribesmen alike. I thought of a passage from Jomo Kenyatta's book, *Facing Mt. Kenya*, in which the tribal life of the Kikuyu is outlined: ". . . in their prayers they turn towards Mt. Kenya, and with their hands raised towards it, they offer their sacrifices. . . ." Suddenly it seemed to me most fitting that these stark, inhospitable heights should be known as the dwelling place of a god. ■

Free-lance writer and photographer David Books presently is an associate editor with the Forest Service's North Central Forest Experiment Station in St. Paul. After securing a master's degree in forestry from Yale University, he is now working toward a doctorate in forest policy and mass communications at the University of Minnesota.

The objective—Point Lenana—viewed through the mist. Point Lenana is Mt. Kenya's third highest peak.

BOLLWORM (*HELIOTHIS ZEA*)

Skirmish in the Cotton Patch

A research program in Texas is studying the use of ecological controls to suppress the destructive cotton bollworm

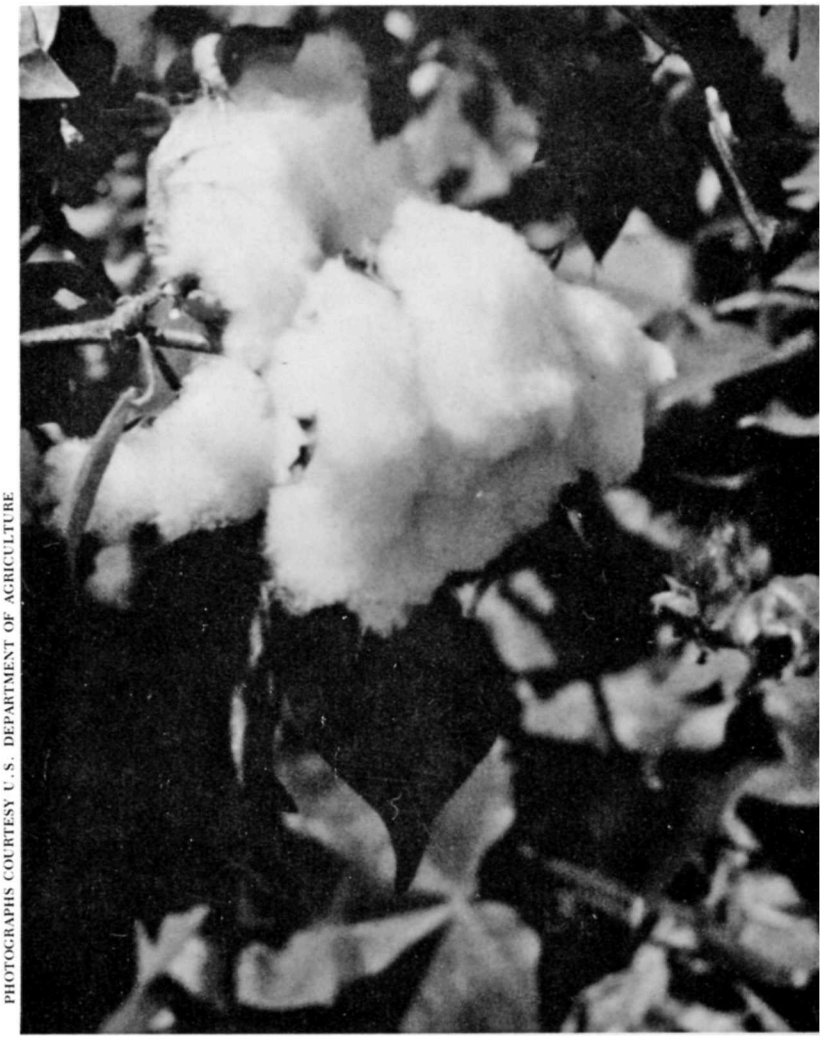
by Leo Burden

The cotton bollworm is one of agriculture's costliest pests. For years the bollworm has taken a heavy toll among the cotton fields of the South and Southwest. Traditionally growers have attempted to control the insect with pesticides, but of late the bollworm has shown increasing resistance to commonly used chemicals. As a consequence researchers have begun seriously seeking alternate methods of control.

The destructive bollworm is in fact the larval stage of the moth *Heliothis zea*. The pest should not be confused with the similarly named boll weevil, another infamous enemy of the cotton crop. The boll weevil migrated to U.S. cotton fields from Mexico at the end of the nineteenth century. The bollworm probably is a native of the United States, having been known to science here since 1796. Under several common names the bollworm feeds on a number of cultivated and wild fruits in addition to the cotton boll, which is the fruit of the cotton plant. On corn the bollworm is called the corn earworm; on the tomato it is known as the tomato fruitworm. The pest also attacks grain sorghums, peas, alfalfa, beans, soybeans, flax, peanuts, and other commercial crops.

When the bollworm hatches from the eggs of *Heliothis obsoleta*, it eats its way into the bolls of the cotton plant (or other fruit), where it feeds until it reaches maturity. Once inside the bolls the pests are difficult to control, and for this reason many growers consider the bollworm to be the cotton plant's greatest threat.

Agriculturists have long recognized the role played by the bollworm's natural enemies in controlling it.



PHOTOGRAPHS COURTESY U.S. DEPARTMENT OF AGRICULTURE

A 1941 study recorded twelve species of insects that can feed and survive on the egg stage of the bollworm. However, populations of the beneficial insects vary from year to year and from place to place, and until recently growers relied almost entirely on applications of pesticides for control. Unfortunately, most pesticides kill indiscriminantly, and the beneficial insects die along with the pests. Badly timed applications of pesticides can wipe out the populations of pest enemies and leave the field free for new crops of pests to grow.

Within the past several years, as pests have developed immunities to many insecticide formulas and as many insecticides have been taken off the market, scientists have begun studying other methods of pest control. This search has produced some auspicious results down in the heart of Texas. The U.S. Department of Agriculture, under the direction of Dr. R. L. Ridgway, is developing a program of "integrated controls" directed against the cotton bollworm. Two of the pest's deadliest enemies are being aided and abetted to carry on the battle.

One of the cotton bollworm's natural enemies is the larval stage of the green lacewing, *Chrysopa*. This warrior, commonly called the "aphid lion," resembles a hairy alligator in miniature and is about as voracious. The "aphid lion" feeds by piercing the bollworm and siphoning out the body fluids.

A major part of the research program is directed to increasing, by artificial means, the numbers of naturally occurring *Chrysopa* larvae. At the research facility at College Station, Texas, location also of Texas A&M University, the techniques of incubating, growing, and releasing *Chrysopa* larvae on a mass scale are being perfected. Millions of these bollworm predators are being packaged in a sawdust mixture for release in the cotton fields. In recent tests the release of 100,000 *Chrysopa* larvae per acre reduced the bollworm population at a lesser cost than is required for pesticides to do the same job.

An ally of the "aphid lion" in the fight against the bollworm is the tiny wasp, *Trichogramma*. This insect plays havoc with the eggs from which the larval bollworm emerges. Using its needlelike ovipostor, the wasp lays its own eggs in the eggs of the moth *Heliothis*, the adult stage of the bollworm. Thus the wasp insures food for its progeny while at the same time eliminating the would-be bollworm. Test results show that the release of 100,000 wasps per acre destroyed about 60 percent of the bollworm egg crop.

The work being done with the *Chrysopa* larva and *Trichogramma* wasp is a hopeful sign that in the future growers will rely more on the natural enemies of an insect for pest control. Some of these natural enemies, in the form of predator and parasitizing insects, are already at work but need reinforcements. Others may have to be imported from the natural habitat from which the pest migrated, although importation of foreign species is risky business and is not attempted without years of careful study.

The task of reinforcing nature calls for integrated use of alternate insect controls. Such methods can include the mass production and programmed release of predators and parasitizers, the feeding and coddling of those species already on the scene, and the release of microbial agents detrimental to pests.

A program of integrated controls may also require the judicious application of pesticides, insofar as federal regulations permit. Those pesticides injurious to beneficial insects, of course, would be severely restricted. Dr. Ridgway views the use of pesticides in such programs as a transitional measure leading to a system of strictly ecological controls.

More research is needed before the economic feasibility of controlling pest populations through an integrated program can be evaluated accurately, although preliminary indications are promising. The numbers of predator and parasitizing insects required for complete control, the cost of generating them on a large scale, and the logistics of distribution are still unanswered questions for the most part.

As the hazardous side effects of chemical pesticides become known, it seems almost certain that naturally occurring enemies of pest insects will play an increased role in pest control. People are rediscovering that nature is a pretty wily old general. Left to herself, she would eventually restore all the imbalances created by man, but man can help speed up the process. The bollworm research at College Station points up the advantages to be gained by working with nature rather than against her. ■

Leo Burden grew up on a cotton farm in Haskell County, Texas, where he had first-hand experience with the widespread damage caused by the cotton bollworm in the late twenties and thirties. In those days, he says, "control" meant hand-picking bollworms and dunking them in kerosene, or spraying "Paris Green" from an orchard backpack sprayer. Although not a botanist by profession, Mr. Burden recently began independent study at Texas A&M University in entomology and range ecology.

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Report to the General Membership by the
President and General Counsel 1973

Report of the President and General Counsel, Anthony Wayne Smith,
to the General Membership of the

NATIONAL PARKS & CONSERVATION ASSOCIATION

on the Occasion of the Annual Meeting of the Corporation and Trustees, May 25, 1973

THE PURPOSE of the National Parks Association when it was founded 54 years ago was to help in the protection and enlargement of the national park system. The organization has broadened its interests and activities since that time and, as the National Parks and Conservation Association, is active in the entire conservation and environmental field.

The NPCA works with parks, wildlife, forestry, and wilderness. It tackles problems of air and water pollution, river basin management, energy, transportation, the urban environment, land use planning, and the crucial underlying issue of population.

Working with the executive branch of government, in the courts through well-considered environmental litigation, with Congress by gathering information for the public, and by responding to invitations to testify, and on currently vital questions of national budgetary policy, it functions as an expert critic and a spokesman for its membership in all governmental relations.

THE MAIN educational vehicle of the NPCA is *National Parks and Conservation Magazine: The Environmental Journal.* Here we present interesting articles regularly on parks, wildlife, forestry, international affairs, and the other subjects of our concern. We report to our readers through special departments on the work of NPCA, conservation news, and calendars of forthcoming events in Congress, the executive branch, and the courts.

We work also through coalitions with other conservation organizations. Notable among these groupings has been the Everglades Coalition, which stopped the giant jetport proposed for the Everglades in Florida. The president of NPCA serves in his personal capacity as chairman of the Environmental Coalition for North America, which has opposed the Trans-Alaskan pipeline and comparable projects, and as General Counsel to the Citizens Permanent Conference on the Potomac River Basin, which stopped the big-dam program of the Army Engineers on the Potomac.

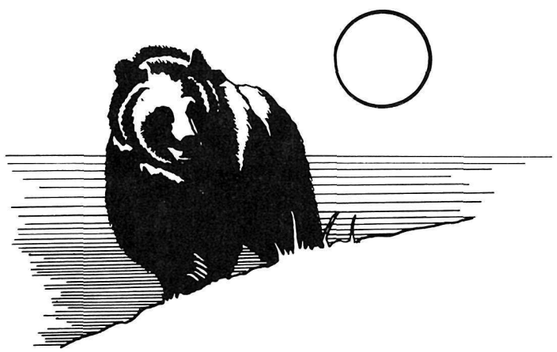
THE NATIONAL PARK IDEA began in America and spread to the rest of the world. It is the concept that regions of outstanding beauty and ecological value should be preserved in pristine condition forever for compatible enjoyment by people. We think of the national parks as models for the life-environment of the future.

Confronted with increasing crowds and traffic in the parks which threaten to destroy the natural beauty and outdoor experiences for which people travel to the parks, the NPCA has developed a strategy which it has been pressing upon government, and which may now be meeting with some success. We are pressing for free shuttlebus systems in the parks; comfortable motorcoach transportation into the parks; a freeze on roads, motels, campgrounds, and other facilities in the parks; the utilization of great regions of public and private lands around the parks for camping; and the development of private recreation facilities outside the

public lands by private business with government encouragement.

We have had a valuable demonstration recently of the workability of the free shuttlebus system in Yosemite National Park. We insist that the problem in the parks is mainly traffic, not people. The NPCA has provided outstanding leadership in this approach to park protection, and we hope to persevere until we achieve general acceptance of this approach.

Specific problems of park management will always remain, and to these, too, we address ourselves continuously. It was the NPCA which was able to reverse the National Park Service policy of toleration for goats in the National Parks of Hawaii and to initiate protective measures which included the exclusion of hunting and the construction of goat-proof fences. More recently we have come to grips with the problem of the survival of grizzly bears in Yellowstone National Park.



The battle to save Everglades National Park continues. The long fight to stop the formerly proposed giant jetport in the Big Cypress, which drains into Everglades National Park and provides it with water, may be nearing a successful close. Not so, however, with respect to the protection of Big Cypress from draining, dredging, filling, and so-called development.

President Nixon has recommended public acquisition of Big Cypress but has declined to budget funds for purchase. The Everglades Coalition, of which the NPCA is a member, and the Environmental Coalition for North America, with which the president of the NPCA serves as chairman in his personal capacity, have protested to the President and urged that acquisition be expedited.

If the new Redwood National Park is to be saved from serious impairment, better forestry practices must be established on commercial redwood timberlands on watersheds which drain through the park. While the National Park Service has authority to acquire interests in lands which would ensure control over such practices, it has not exercised those powers. It may prove necessary to initiate litigation to force it to do so.

The archeological and historic units of the national park system are vital elements of the whole. A deep interest in historic preservation has been emerging in America. We plan to place more and more emphasis on this aspect of national park protection as time goes on, and on historic preservation and interpretation outside the parks.

The NPCA played a prominent role in all the major National Park Service events and celebrations of the year just past, including the National Park Centennial at Yellowstone, the Second World Conference on National Parks at Grand Teton Park last September, and the General Assembly and Technical Sessions of the International Union for the Conservation of Nature at Banff in Canada.

The president of the NPCA participated in panels at Banff and Grand Teton. Earlier in the year he was a keynote speaker at the Symposium on National Parks for the Future at Yosemite National Park. The NPCA assisted in the preparation of the report on *National Parks for the Future* which followed the Conference. It has cooperated with the National Park Centennial Commission which will develop its own recommendations for public presentation by the end of the present year.

MUCH of the beautiful and valuable wildlife of the world is in danger of extinction. Pollution, the encroachment of agriculture and cities on habitat, and sports and commercial hunting and trapping are among the causes.

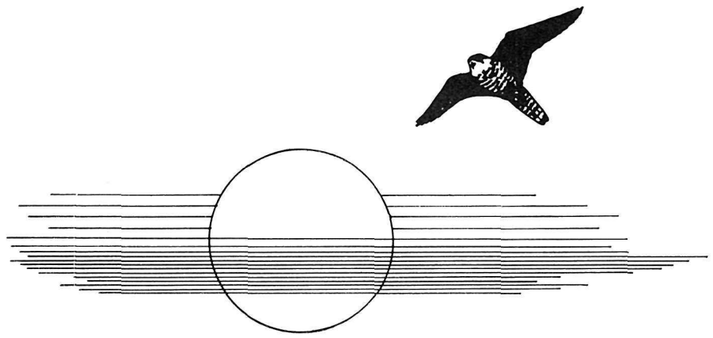
The national parks of the world are among the finest of wildlife refuges. By protecting the parks we aid the survival of endangered species. But the restoration and protection of wildlife everywhere is crucial, beyond the national park systems.

We hope to develop a species approach to wildlife survival. More species should be included on endangered lists than has been customary. We hope to devise specific recommendations for each survival problem.

Meanwhile, however, opportunities arise for protective measures on a larger and broader scale. This has been the case with the recently approved Convention on International Trade in Endangered Species of Wild Fauna and Flora. As a result in considerable part of the NPCA's efforts, the final form of the Convention includes not merely species seriously threatened with worldwide extinction, but others whose viability should be strengthened, or which are listed as needing protection by countries in which they occur, or which are taken at sea.

The NPCA has worked vigorously for the elimination of wildlife poisoning by federal agencies and on federal lands. It has pressed for the abolition of the use of DDT and other hard pesticides, and for a transition to the so-called soft pesticides, and eventually organic or integrated pest control.

The goal of all conservationists, worldwide, as we see it, should be the creation of attitudes and institutions which will result in the preservation of all endangered species of plants and animals and a permanently secure environment for the interesting and beautiful creatures which share this planet with man.



IF THE CROWDS and traffic which endanger the national parks are to be dispersed, greater use must be made of the national forests, by which most of the national parks are surrounded. Such dispersion cannot be accomplished unless the forests are maintained in condition to be acceptable as alternative outdoor recreational areas.

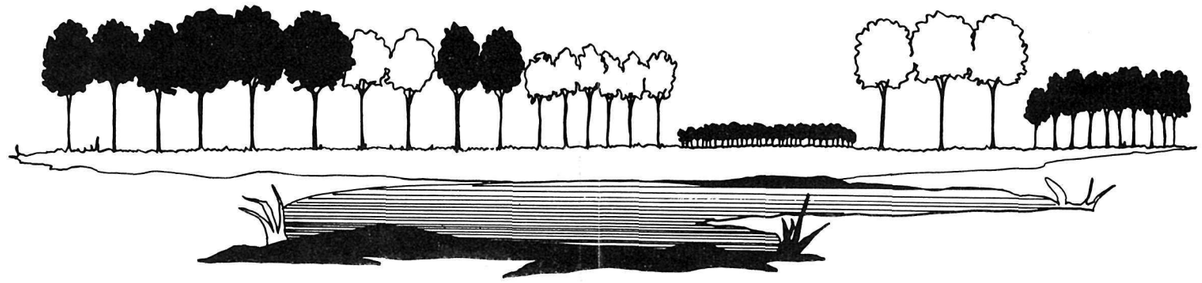
It is possible and desirable to manage forests which are cut for commercial harvest purposes by methods which will leave them essentially unimpaired for recreational use. These methods also preserve the scenery and safeguard habitat for wildlife. Essentially these methods, which can be known as ecological or environmental forestry, make use of individual tree selection, group selection, shelterwood, or small patch clearcutting, but not, as a normal thing, of large block clearcutting.

The NPCA has undertaken to prove by special studies and reports that ecological forestry is feasible from a silvicultural and economic point of view. During the past year we have published three studies—on central hardwoods, northern hardwoods, and coast redwoods—showing that selection methods are practicable in these major forest types. We plan during the coming year to publish studies on ponderosa pine and Douglas fir. The study on Douglas fir should correct much misinformation, disseminated for decades, on the proper management of that species. We hope this year to complete several special analyses of the economic aspects of the particular projects and ecological forestry generally.

Related to our ecological forestry studies have been our projects for the restoration of the American Chestnut, and for the establishment of seed banks and reservations, both in America and abroad, to save the thousands of endangered species of plants, including endangered trees.

THE PROTECTION of the big primeval national parks results necessarily in the protection of wilderness. We approach this problem from several points of view, including support, on invitation, for wilderness areas guaranteed by law, but also for the secure protection of primitive areas in the national parks by master planning. Basic is our strategy for the freezing of facilities in the parks and the diversion of traffic into other recreational regions.

As part of our forestry program, we press for wilderness areas in the national forests. And as part of our wildlife program we analyze and work for the extension of wilderness-type protection within the wildlife refuge system.



GREAT NUMBERS of people have been deeply disturbed, all over the world, in recent years, by the dangerous and manifest pollution of the planet. The NPCA was one of the first private organizations to warn about the pollution problem and to urge that groups which might otherwise have little in common could and should combine to tackle it.

We work to reduce and eliminate the pollution of rivers, lakes, and estuaries by the establishment of controls at source, as distinguished from ambient water quality controls. We have attempted to prevent thermal pollution of lakes and streams.

These efforts involve close contact with and pressure upon agencies like the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the Council on Environmental Quality, as well as testimony, on invitation, to Congress.

The menace of air pollution is well known to all urban dwellers in America and, indeed, around the world, and increasingly to people living in wider open spaces. We hope to expand our efforts in this field.

Closely related to air pollution is the question of a national transportation policy. The private automobile can be a useful servant, but has become a tyrannical master. Its unregulated use has all but destroyed many of our cities, as well as threatening our national parks. Mass transportation facilities must be substituted as rapidly as possible. The internal combustion engine must either be brought under severe control or must be abolished. The railroads need to be rescued from subsidized air and highway travel.

ALSO CLOSELY RELATED to these issues is the question of an energy policy. Here we strongly favor increased emphasis on alternatives to both fossil fuels and nuclear fission, whether nonbreeders or breeders. Solar energy undoubtedly has a much greater potential than has generally been supposed, and vastly greater research and development should be done in this field. Success with nuclear power from fusion may be nearer than previously supposed; also greater than supposed may be the potential of geothermal power.

The hazards of fossil fuel use, impending shortage of the minerals themselves, and the grave dangers of accident and long-lived radioactive waste disposal entailed by nuclear power compel the world to work with determination for substitute processes. The NPCA, by the methods mentioned earlier, lends continuing support to these endeavors.

FROM THE BREAKDOWN of urban policies in recent years and proliferating environmental threats comes the land use planning movement. Concerned with the protection of wetlands, flood plains, urban open space, agricultural land, natural areas and wildlife, historic sites and regions, and a multitude of environmental facets, the movement seeks to place rational controls over speculative abuse of land. The NPCA has been taking an increasingly active hand in programs related to land use planning.

The NPCA has always been involved in urban environmental questions. Beginning with urban park systems, moving into urban open space development and protection, it also confronts downtown parking and traffic problems related to the environment. The protection of the environment means consideration for a seamless web of resources, spreading geographically from the central cities through the suburbs to the countryside and out to the forests and wilderness.

UNDERLYING all of our environmental difficulties we find the population question. During the course of the decade just past, or perhaps even the last two or three years, a realization has spread throughout the world, and certainly throughout America, that the planet is already seriously overcrowded. The explosion of population must be halted if life is to be bearable for the great majority of people on earth. This is a matter of adequate nutrition, of reasonable amenities, of natural resources, and of a natural and spacious environment.

Spreading throughout America is the concept that two children are enough. The result may be that our population could stabilize in a much shorter time than expected. If public opinion crystallizes in this manner, public measures could be taken, such as tax penalties and incentives, to expedite and stabilize practice. The NPCA has advocated essentially this approach for a decade. Within the limits of its resources, such as the space available for the purpose in the Magazine, it carries on educational efforts on this most basic of all survival and environmental issues.

ALL THE GREAT conservation and environmental issues of our day have their international aspects. The earth is now a single ecological and economic community.

Our concern for national parks has always had a broad worldwide aspect. The NPCA is a founding member of the International Union for the Conservation of Nature (IUCN) and supports and participates actively in its endeavors. It participated in the United Nations Conference on the Human Environment at Stockholm last June by official observers and expects to work closely with the Environmental Secretariat of the United Nations which emerged from the Conference. As noted above, we participated actively in the Ministerial Conference on Endangered Species. We have supported the international conventions for the Protection of Wetlands, Islands for Science, and the World Heritage of natural and cultural areas, as well as the recently concluded Convention on Ocean Dumping.

The president of the NPCA serves on the Advisory Committee to the Secretary of State on the Law of the Sea, participating in the preparations for the United Nations Conference on the Law of the Sea in Chile in 1974. Out of this conference, hopefully, will emerge strong international institutions—legislative, judicial, and executive—for rational control over the extraction of minerals from the seabed and the protection of the entire marine environment.

More and more people now understand, on a worldwide basis, that human life is dependent on the preservation and stabilization of the planetary ecosystem. We work in the NPCA toward an even broader understanding of this truth, and to help in developing the policies and worldwide cultural, legal, and financial institutions needed for global environmental security.

THE NPCA is financed almost entirely by its own members. Most of our income is derived from membership dues. This income is constantly at the mercy of changing business conditions and public attitudes. We invite large numbers of new people to become members of the Association every year and remind our existing membership to renew on time. We conduct two campaigns for contributions from our membership each year. And we invite special contributions, including bequests. We are deeply appreciative of the support our members give us.

In the last analysis it is the individual member of NPCA on whom the organization must rely for its moral and financial support. Moral support, incidentally, can often take the form of getting additional members by personal contact, or by passing the Magazine around to others. To all our members: we appreciate what you are doing for NPCA, and we renew our call for all the help you can give us for the vital work with which we are all concerned.

The Morel Mystery

Eileen Lambert

EILEEN LAMBERT

MORCHELLA ANGUSTICEPS

MORCHELLA SEMILIBERA (ALSO M. HYBRIDA)

MORCHELLA ESCULENTA

The annual hunt for this elusive wild mushroom yields enjoyment as well as delicious eating

Mention morels (mo-rels′) to someone in the know and watch his eyes light up and a strange, half-sly "I know a secret" look come over his face. You could get similar reactions from mountaineers, mycologists, doctors, lawyers, young, and old. They might call them merkles, *Morchella angusticeps*, *Morchella esculenta*, corn cobs, honeycombs, spongies, blackies, or whities; but they all agree they're "mighty fine eatin'." Possibly they'll recount a morel adventure, but they may not be eager to tell exactly where to find them. You wouldn't expect a fisherman to tell you where the big ones are biting, would you?

There's some mystery about morels: something causes that strange look in the eye. Surely it isn't just that they're good to eat or easy to identify. Perhaps it's the fun-and-games aspect of a treasure hunt. If we're lucky—and skillful—we might find enough gems for several gourmet meals. And we can't lose. Even if we don't find morels, we'll probably have a good time hunting them, because they're a marvelous excuse to get out into the spring woods. They're an antidote to spring fever. Maybe this is part of their mystique. Or could it be that they're really aphrodisiacs as is sometimes reputed?

We have initiated novices into the morel game—revealed how the little treasures hide their dry-leaf tones blending with old duff on the forest floor—and then have been beaten at our game as the new players "tune in" and spot more trophies than we do. There are excited shouts: "Hey, I found one!" "Here's another one!" or "How come you walked right by this beauty?" But that's part of the game.

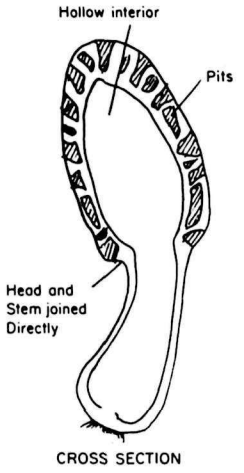
Collecting wild mushrooms for eating has been called the most dangerous of outdoor sports, but anyone who can tell a turnip from a potato can easily learn to identify the main edible morels—positively. They don't fit the usual idea of a mushroom. There's no umbrellalike cap with gills underneath. The foolproof morels have pitted heads that are distinctive. They look a lot like cone-shaped or rounded sponges atop a thick, creamy stem. Head and stem are hollow. The head joins the stem with no skirtlike overhang. This is what you really must know.

To be mildly technical, the main species gathered and eaten in this country are *Morchella angusticeps* and *Morchella esculenta*. They vary in size, shape, and color, ranging from greyish-white to blond to smoky black. There are also other *Morchellas* that fit the description in the preceding paragraph—and when they do, they are safe.

You may, of course, delve deeper into identification and thus find other kinds of morels that are delicious and edible. You will find also mushrooms that have some resemblance to the safe morels but are ques-

tionable—a few even poisonous. This deeper penetration will demand that you master more technicalities. Helpful books and pamphlets are available.

Morchella angusticeps (conic morels or blackies) usually appear first. Tiny, velvety grey cones push up from leaf mold, soon reach an average height of two to four inches, and darken to almost black. The hollow, almost pointed head and the stalk run together; but the head is broader than the stalk, and they are different colors. The stalk is flaky beige. Blackish vertical ridges with short cross ridges separate deep regular pits on the head.



CROSS SECTION

Morchella esculenta (spongies or whities) usually pop up after *M. angusticeps*, although their seasons overlap. The pale-yellow head turns greyish-white with age, or sometimes faintly rusty. The head is more oval than conic, and the pits and ridges are irregularly spaced. It is often larger than *angusticeps*.

Morels are early spring phenomena, but spring arrives at different times at different places and fluctuates from year to year. So morel devotees begin searching the deep coves in Great Smoky Mountains National Park and secret places in southern California in late March and April when it's warm and moist. The farther north you go—and the higher in elevation—the later you find them. April 20 to May 10 is the approximate time around Washington, D.C., whereas May is morel month in Michigan. They're found in Alaska in May, June, and early July; and hikers find them in late August near melting snow over 12,000 feet high in the Colorado Rockies.

Morel hunters use various nature clues. In Virginia we find blackies under tulip trees when—and where—yellow violets, bloodroot, and wood anemones are blooming; in old orchards when pink is showing in apple buds; when Christmas ferns are unfurling their fiddleheads; and when the scarlet tanagers return. Whities seem to pop up when wild ginger and trillium are blooming—about the time poke greens are ready to pick—and they have an affinity for ash and elm trees.

In the North and West morels are found in aspen stands before the leaves come out, under mixed hardwoods when oak leaves are tiny, and in coniferous forests. They're rare in some places and common in others. They're often gathered by the bushel about a year after forest fires in the Northwest. They're so abundant in parts of Michigan that traffic-stopping crowds participate in morel festivals—with guides and prizes. Most collectors don't advertise the good news when and where morels are popping, but perhaps you can use these nature clues to find your own bonanza.

Some of our state and federal lands are good morel-hunting grounds. If you want to hunt on private land, get permission first. Regulations forbid the picking of wild flowers in national parks, but it is permissible to collect morels—for individual or family use only, not to sell. Picking morels, or any mushroom, does not affect future crops any more than picking other fruit affects the plant. The "mushroom" is the fruit of the plant, which is hidden in the soil or leaf mold as an almost invisible mass of threads or mycelium; and its survival depends on the food supply and other conditions. Therefore you can often go back to the same place year after year and harvest the new crop.

A basket is best for collecting, but a plastic bag will do. (We put a bag in our pocket when we go for a spring hike—just in case.) Gather only young, fresh specimens, trim off the bottom of the stalk, and clean off any dirt before putting them in your container. (Saves a lot of work later.) Never let unknown species contact your edible ones. Keep them cool and cook or process them as soon as possible. When preparing morels, cut them lengthwise to be sure they're not sheltering insects.

You can use morels any way you use commercial mushrooms. Morels may upset some people just as eggs, chocolate, or strawberries do; so it might be wise to try a small sample the first time if you're sensitive to other foods.

One easy and delicious way to prepare morels is to toss cleaned specimens into a bag with seasoned flour, then sauté a few minutes. If you don't have enough to serve alone, try adding them to an omelet or sauce. When we're lucky enough to find a batch of big ones, I stuff and bake them. I flush out the caps under the faucet, drain, sauté until limp, then fill with a mixture of cooked, diced onion, hamburger, broken bits of morels and stems, bread crumbs, and sherry, then bake thirty minutes at 350°.

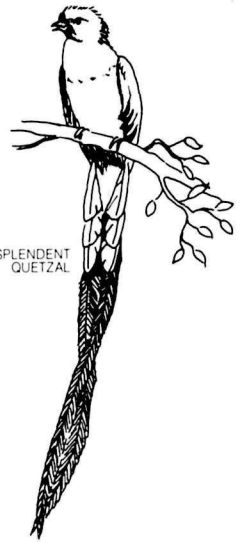
Any surplus may be frozen, canned, or dried. I sauté, then freeze our surplus. They're marvelous to add to stroganoff or spaghetti, or to dress up a stew.

As you hunt morels, you notice things often overlooked: lovely lichens, saucy British soldiers, dainty scrolls of maidenhair ferns unfurling, velvety mosses. Try not to disturb the wild things—birds' nests, emerging flowers—so your visit won't be a disaster to the wild community. Unexpected things often happen, haunting things that may linger with you long after your morels are gone. Perhaps you'll hear the melodic song of a wood thrush floating through the woods on a misty day. Maybe you'll discover some tiny new velvety red oak leaves. Once I saw a pair of redstart warblers mating only six feet away. And a baby squirrel mistook my husband for a tree once and climbed up him as he stood trying to penetrate the morel camouflage. Perhaps the strange "I know a secret" look that steals across one's visage at the mention of morels comes from memories of participation in the annual miracle of spring. ■

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. Her nature-writing appears in both conservation and travel magazines.

NEW HOPE FOR WILDLIFE

NPCA Staff Report on the Convention on International Trade in Endangered Species of Wild Fauna and Flora


RESPLENDENT QUETZAL

IT HAS BEEN SAID that the purchase price of a fur coat is the ultimate survival of the animal; and delegates to the Plenipotentiary Conference to Conclude an International Convention on Trade in Certain Species of Wildlife, meeting in Washington, D.C., in February, seemed to take this message to heart. By the March 2 conclusion of the conference they had hammered out terms of a precedent-setting agreement to protect more than 1,500 wild plants and animals from overexploitation through international trade.

For many years the need for such an international agreement has been obvious, because national laws against killing endangered species are insufficient. First, it is difficult, if not impossible, for most countries to provide enough wardens to adequately patrol the large expanses of country that may be involved. Poachers are well organized and well compensated. And there are ways around export/import restrictions. Animals can be poached and smuggled out of countries where they are legally protected into countries that do not prohibit their hunting. There the valuable parts of the animal—hide, pelt, tusk, oil, or other product—can be sold legally.

Dealers are willing to trade regardless of the origin of the animal. Thus trade can be maintained as long as people are willing to buy articles made from exotic animals and there are big market countries with no trade restrictions. As long as there is a buyer, the poacher is in business, and the smuggler will find a way to get the product to the buyer. Therefore, it has become clear that the only effective way to deal with these illicit maneuverings is to dry up the market by controlling trade. If there are no buyers, poachers and smugglers will have no incentive to kill the animals. And the only practical way to control trade is by international agreement among all the big market and supply nations.

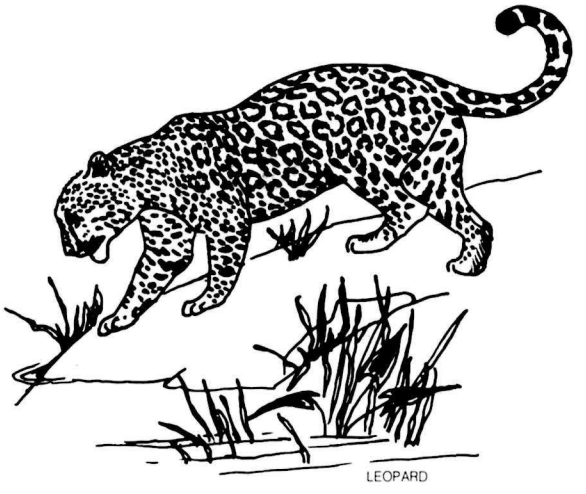
THROUGH the ages innumerable forms of plants and animals have come and gone from the face of the earth. They developed and disappeared, usually, it is presumed, through processes of natural selection. Substantial changes in the earth's climate and geography required them to either adapt or disappear. Man, however, has greatly speeded the process for other animals, first, possibly, by overhunting, and later additionally through changes produced by modern technology.

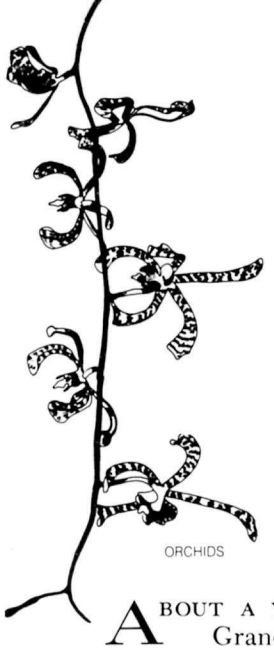
Efforts were made in this country to protect wild species as early as colonial times, usually involving curbs on hunting. With the establishment of Yellowstone National Park in 1872 and, in 1903, the first national wildlife refuge, the federal government assumed an active role in the attempt to protect and manage wildlife.

Programs specifically designed to save native American animals on the brink of extinction began in the 1920s and in a number of instances have been strikingly successful—notably the trumpeter swan, Key deer, néné goose, and elephant seal. Such success stories are encouraging, but they are all too few. They are far outnumbered by the ranks of rare and endangered species, which total in the thousands. It was in response to the seriousness of the situation that a movement was started to secure international protection for many such species.

Much of this effort centered around the positive efforts of the International Union for the Conservation of Nature and Natural Resources (IUCN) to identify and publicize endangered species in its *Red Data Book*. However, a basic inadequacy of the IUCN approach has been its restrictive concept of listing as "endangered" only those species threatened with *worldwide* extinction, which eliminated from recognition many endangered organisms that did not meet that limiting criterion.

More than ten years ago, at a meeting of the IUCN in Kenya, a treaty was proposed to control trade in endangered or threatened species of animals and plants. Subsequently, drafts of the treaty were prepared and studied by IUCN, but little progress was made. In 1970 the proposed treaty received a push in the United States with enactment of the En-


LEOPARD



ORCHIDS

BALD EAGLE

BENGAL TIGER

POLAR BEAR

dangered Species Conservation Act of 1969, directing the departments of State and Interior to host a conference to conclude such a treaty, but arrangements still proceeded slowly.

ABOUT A YEAR and a half ago NPCA's John W. Grandy IV, Administrative Assistant for Wildlife, and Robert Eisenbud, Assistant Counsel, began work with IUCN, other nongovernmental organizations, and the government of the United States to strengthen the treaty. The original draft was inadequate because it was based on the old IUCN approach. NPCA worked to expand and strengthen the coverage under the treaty. The final version, which incorporated many NPCA recommendations, became a part of the working paper used by the conference.

The Plenipotentiary Conference to Conclude an International Convention on Trade in Certain Species of Wildlife met in Washington, D.C., from February 12 to March 2, 1973, and NPCA and some other nongovernmental organizations were invited to attend as visitors. Subsequently, Dr. Grandy was asked to serve as a technical advisor to the representatives of the eighty nations participating at the conference, particularly with reference to the mammals and other fauna to be included under the provisions of the treaty.

The results of the conference are most gratifying, especially because they incorporate many of NPCA's past recommendations. The document that came from the conference is titled "Convention on International Trade in Endangered Species of Wild Fauna and Flora," and its purpose is to control such trade, thereby promoting conservation of the world's endangered plants and animals.

The fundamental concept of the treaty is that endangered species are of concern and value to all peoples of all nations. Thus, all participating nations will cooperate in ensuring the survival of species. The backbone of the treaty is the three Appendices that list the names of protected organisms. Each Appendix requires a different degree of control and offers a different degree of protection. More than 1,500 mammals, birds, amphibians, reptiles, fish, mollusks, insects, and plants are protected under Appendices I and II, which offer the strictest protection.

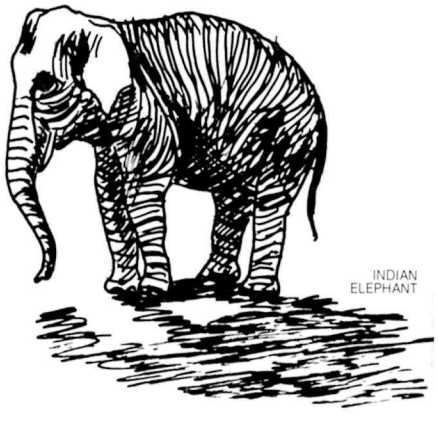
Animals and plants on Appendix I are those considered to be threatened with extinction; they may be traded only under exceptional circumstances and not for primarily commercial purposes, providing that such trade will not be detrimental to survival of the species. In addition, Appendix I organisms can be traded only after nationally designated scientific experts in both importing and exporting nations have issued permits indicating that provisions of the treaty are being followed. Thus, hopefully, trade will be allowed normally only for use by scientists developing programs designed to restore the species. Appendix I species include such commercially important creatures as the leopard, jaguar, tiger, cheetah, vicuña, American peregrine falcon, many parrots, and many crocodilians.

Appendix II species are those which, although not necessarily threatened with extinction, *may* become so. No trade in Appendix II species is allowed if such trade will be detrimental to the survival of the species. In addition, trade in Appendix II species must be carefully monitored by a scientific authority in the state of origin to make certain that each species stays "at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I. . . ." Acceptance of this major focus of NCPA's efforts represents a significant step forward, because it establishes ecological vitality rather than mere survival as the goal of protective and restorative efforts under the treaty. Implementation of this principle

CAPE MOUNTAIN ZEBRA

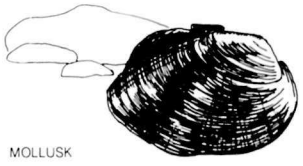
MOUNTAIN APOLLO BUTTERFLY

CHEETAH



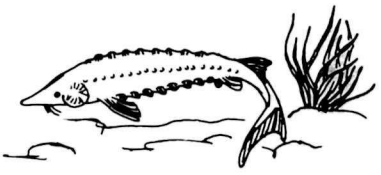
INDIAN ELEPHANT

PEREGRINE FALCON



MOLLUSK

VICUNA



ATLANTIC STURGEON

should help species recover to populations of sufficient abundance that they can be removed from treaty coverage in future deliberations of the convention.

Specimens of Appendix II species may be exported only if the status of the species in question fits the conditions under which Appendix II animals may be traded and when the designated authority in the state of export provides a permit for such export. Other contracting nations must receive the valid export permit before importing the species, but no permit granted by the importing nation is required. Appendix II includes such species as the polar bear, the rocky mountain cougar, Asiatic lion, golden eagle, an Austrian butterfly, many mollusks, and all falcons and orchids not included on Appendix I.

Appendix III will include any species or product thereof that a contracting nation wishes to protect within its own borders but which are not qualified for inclusion on Appendices I or II. Other contracting states then agree to respect the laws of the state concerned and not receive illegal imports of such species, unless they "reserve," a process to be explained later.

An important element of the treaty is the definition of "species." A species is defined as "a species, subspecies, or geographically separate population segment." This definition reflects NPCA's influential efforts to abandon the prior test of "worldwide extinction." Thus, isolated populations of a particular species may be protected, regardless of the status of the remainder of the species. For example, this provision was used to give Appendix I protection to the endangered Italian population of the brown bear and to the East African and Asian population of the dugong, even though these species are relatively plentiful elsewhere.

Certain animals taken in the open sea and brought into a contracting country are covered on either Appendix I or II. Among these animals are the blue, humpback, right, gray, and bowhead whales, as well as the elephant seal and certain other seals. This provision is significant for several reasons. No previous regulations effectively controlled the trade of endangered animals caught in the open sea. Furthermore, the treaty will essentially bind all parties to the moratorium on five species of whales declared in 1972 by the International Whaling Commission (IWC). Presently only eighteen nations abide by the IWC moratorium. NPCA would have preferred listing sea mammals on their own merits and not with regard to IWC rules, inasmuch as IWC has been ineffective in the past. In adopting the IWC approach, the treaty omitted a number of species that NPCA believes deserve protection.

Any readily recognizable product of any of the listed animals or plants also will be regulated by the treaty, including exported products made from raw materials that originally were imported. Also regulated will be articles of personal apparel, such as fur coats, acquired while one is in a country other than that of permanent residence.

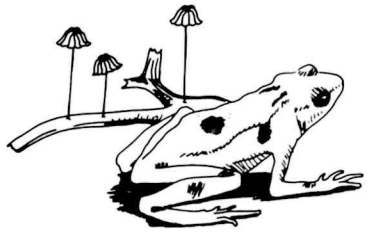
Two loopholes of potential significance are apparent in the treaty:

1. There are no penalties against nations that violate its provisions; success depends on good faith and good intentions.

2. Any nation can reserve (refuse to agree or commit itself) with respect to any or all of the species on the three Appendices. However, in order to do so it must object formally to the listing of the species.

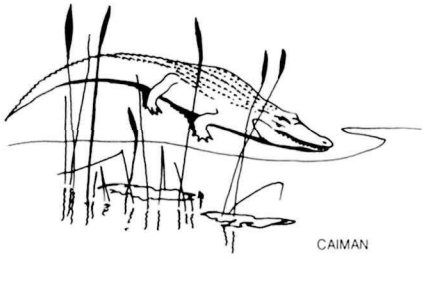
Both these failings, however, are common to international treaties, and it may be noted optimistically that the weight of international opinion normally serves as a sanction to encourage nations to abide by treaty provisions.

We should point out also that the treaty is vague and ambiguous in a few places. These ambiguities were



GOLDEN FROG

LESSER PANDA



CAIMAN

CLOUDED LEOPARD

quite often intentional, inasmuch as they allowed individual nations to interpret provisions in different ways during the negotiations and thus facilitated agreement on a final text; but they may threaten effective implementation because of differing interpretations. Interpretation of all provisions will be important, because implementation of the treaty will require new laws in each country that ratifies. It is hoped that all nations will interpret provisions, regardless of slight differences, in such a way as to ensure that the treaty is effective.

In general, the attitude and desires of the less developed nations were particularly noteworthy. With few exceptions, the less developed nations wanted protection—the maximum protection—for their animals and plants. Delegations from Kenya, India, Indonesia, Costa Rica, Guatemala, and Thailand consistently favored strong provisions and adequate safeguards. Many of the developed and exploiting nations often opposed strong provisions. However, these nations, to their credit, usually gave way to sentiment for stronger protection. The delegation from the United States, usually through its articulate and diplomatic spokesman, Ambassador Wymberley D. Coerr, invariably took strong positions in support of the less developed nations and the necessary conservation measures. It was due largely to strong and effective cooperation between the United States and the less developed nations that the conference was a success.

In spite of differences between nations, there was a great sense of purpose at the meeting. The entire three-week meeting was held without a vote. Every decision was reached by consensus, largely due to the excellent leadership of the Conference chairman, Christian A. Herter, Jr.

Various U.S. delegates reported that the final text contains 90 to 95 percent of the provisions they deemed desirable. As for NPCA, many of its recommendations were incorporated into the U.S. position and the final text, indicating the success of NPCA's efforts in helping to develop both the U.S. position and the drafts. Given the circumstances and the competing interests represented, the final document represents a good compromise won by hard negotiations.

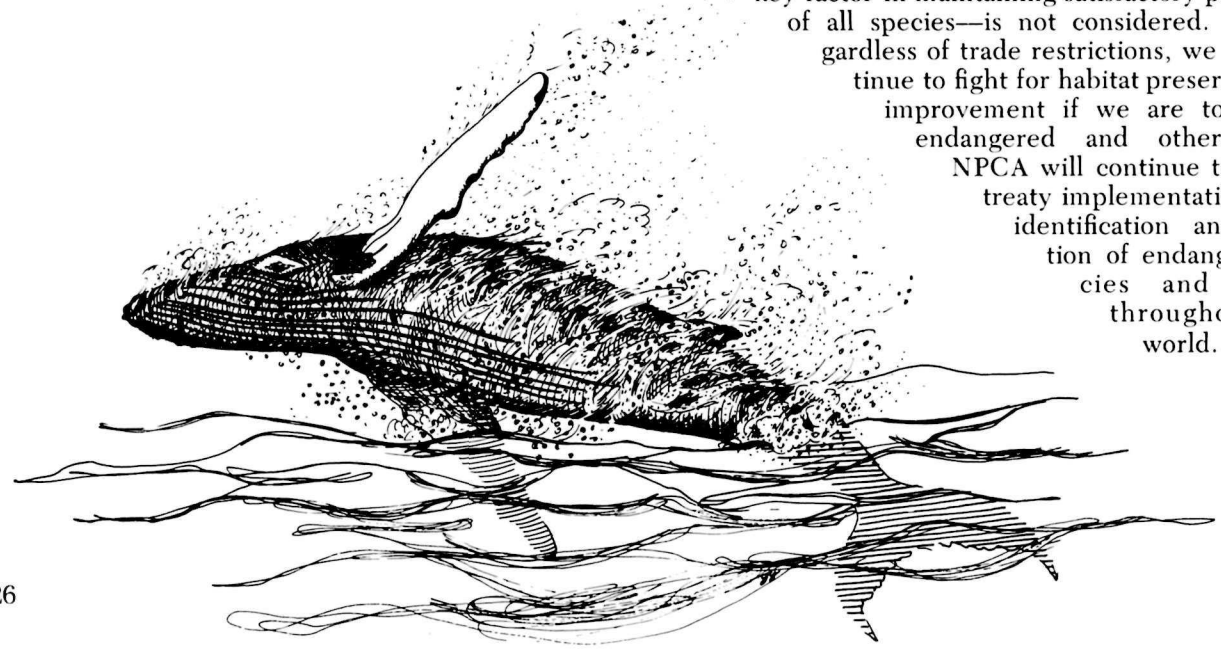
As this report is written, the treaty has been signed by twenty-three countries, among them such nations as Costa Rica, Argentina, Brazil, Guatemala, South Africa, and Venezuela, which provide habitat for many commercially popular animals. Animal importing and processing nations that have signed are the United States, the United Kingdom, France, Denmark, the Federal Republic of Germany (West), and Italy. It is hoped that formal ratification and submission of papers to Switzerland, the depository government, will follow rapidly. Ninety days after ten instruments of ratification have been deposited, the treaty will come into force.

The new United Nations Environmental Secretariat, to be located in Nairobi, Kenya, will serve as the secretariat for the states contracting to the convention. Meetings of the contracting states will be held at least every two years after the date the treaty comes into force, or any other time if a third of the contracting states request such a meeting. At these meetings, the convention may be changed and the Appendices revised, based on the current status of the organisms.

Although the treaty is a significant tool for protecting endangered wildlife, a few cautionary comments are in order. The treaty will protect only commercially exploitable species. It will not prohibit killing of endangered species. Nor will it prevent destruction by pesticides or other pollution. Incidents like the eagle killings in Wyoming will not be prohibited by the treaty; only subsequent commercial trading in the eagles would be prohibited. However, the treaty will, by prohibiting primarily commercial uses, remove many incentives for killing or capturing animals.

This convention probably will not become effective for at least a year, and it is feared that the lists of animals and plants on Appendices I and II may become shopping lists for fur traders and other exploiters between now and the implementation of the treaty. Thus it becomes even more necessary that ratification and implementation by the United States and others be accomplished as soon as possible.

As good as the treaty is, habitat preservation—the key factor in maintaining satisfactory populations of all species—is not considered. Thus, regardless of trade restrictions, we must continue to fight for habitat preservation and improvement if we are to preserve endangered and other species. NPCA will continue to work on treaty implementation and for identification and protection of endangered species and habitats throughout the world. ■



HUMPBACK WHALE

NPCA at work

Pipeline right of way We reported in April that a federal court decision on maximum right of way widths for pipelines on public lands, as prescribed by the Mineral Leasing Act of 1920, had thrown the question of the trans-Alaska oil pipeline into Congress for further consideration. Since that April report the Senate Committee on Interior and Insular Affairs has held public hearings on a group of bills designed to amend the act. Two of the bills would remove right of way width limitations and make construction of the Prudhoe Bay–Valdez route feasible on the reasonable assumption that the Interior Department would immediately issue a permit to construct.

In behalf of NPCA on invitation, and for the Environmental Coalition for North America, A. W. Smith, president of NPCA and chairman of the Coalition in his private capacity, recommended against empowering the Interior Secretary to grant broader right of way for pipeline purposes than are presently authorized by the Mineral Leasing Act until Congress had had the opportunity to inquire into the merits of the several proposed alternative routes. Blanket authorization to the Secretary would, he said, prejudge the issue, and the question of the best route would be moot before Congress could consider it. "The courts will still have the issue before them as to the adequacy of Interior's environmental impact statement, but presumably will not consider the merits of the statement as distinguished from its adequacy," he pointed out. "Congress will have denied itself any opportunity to look into the merits."

The testimony made it clear the organizations were not saying that Prudhoe Bay oil should not be tapped or that there is no fuel problem in the lower states, although origins of the problem and best ways of alleviating it might be open to discussion. It was pointed out, however, that as a practical matter the Valdez line will not alleviate the present fuel shortage because construction will take too long, and that for a number of reasons either of the alternative routes might move much faster.

"Incidentally," said Mr. Smith, "some of us still are not satisfied as to the question whether oil coming through Valdez will not go to Japan. This committee might wish to look into that question before it gives blanket authorization to the Secretary of the Interior to widen the Valdez right of way. If any of the oil is going to Japan, the argument about the fuel crisis in the lower states becomes rather transparent."

The Gettysburg tower In an article in this Magazine for June 1972 *(Second Battle of Gettysburg)*, the complex history of a developer's attempt to build a high observation tower on private land adjacent to Gettysburg National Military Park in Pennsylvania was detailed to that time. Subsequently, NPCA's assistant general counsel, Robert Eisenbud, wrote the National Park Service suggesting that the memorandum of understanding between the Interior Department and the developer, which granted the developer a right of way over park land and made construction of the controversial tower feasible, was a major federal action significantly affecting the environment and required an environmental impact statement. Late in the same year a Park Service spokesman replied that the Interior Department disagreed and that no impact statement would be prepared.

More recently NPCA again has written the Service saying that a second major consideration connected with the tower matter relates to the legality of Interior's memorandum granting the developer a right of way across park lands. In behalf of NPCA, Mr. Eisenbud has pointed out that the developer voluntarily has ceased all construction activities pending a decision in Pennsylvania courts of litigation brought by the state to enjoin construction, and that this turn of events offers the Department "a new opportunity to comply with the National Environmental Protection Act and salvage responsible and rational decision making in the public interest from the jeopardy in which previous decisions have put it."

Park transportation Environmentalists all over the country have been gratified over President Nixon's stated position that highway trust funds ought to be tapped for municipal mass transportation purposes. In connection with the general concept NPCA has written the new director of the National Park Service, Ronald H. Walker, saying that it would be consistent with the President's view in the matter if the Service were to take the same position with respect to mass transportation to and into the parks.

Three parks presently have a shuttlebus service for visitors, with prospects for a fourth by summer 1973. The service has by all accounts been popular but, as NPCA's letter pointed out, may encounter a funding problem since it is conducted without charge to the public. Also, said the letter, "this is not just a question of shuttlebuses in the parks but a question of long-lines transportation from outside the parks, so that we can cut down on private automobile traffic, which is the main problem in the parks." The letter concluded with the suggestion that Director Walker might well obtain the President's support for the idea of tapping highway trust funds for mass transportation in and into the parks, with the further thought that all conservation organizations and many other groups would be delighted to support such an approach.

Offshore structures In early March the Senate Committee on Commerce held public hearings in Washington on a Senate measure (S 80) that would provide the National Oceanic and Atmospheric Administration with authority to certify construction of offshore struc-

tures such as deepwater ports, powerplants, and airports. Of particular interest to environmentalists at present in this connection are efforts by several groups of oil companies to move forward with deepwater "island" ports for supertankers and foreign oil. The possibility of offshore powerplants and airports has been under discussion for some years.

NPCA submitted its views on the measure, on invitation, in a joint statement with the Sierra Club, Environmental Defense Fund, Natural Resources Defense Council, Environmental Policy Center, and Friends of the Earth. Testimony of the six organizations, which have a combined membership of more than a quarter-million, was presented by attorneys Robert M. Hallman and Eldon V. C. Greenberg, of the Center for Law and Social Policy.

Summarized briefly, the organizations testified that offshore development of deepwater ports, powerplants, and airports should not be permitted to proceed until fundamental questions of need and environmental effects are resolved and until a coordinated policy approach to development of the coastal zone is established; that any deepwater development undertaken should proceed cautiously and perhaps first be limited to a pilot project.

Since only a limited number of deepwater port facilities appear ready for consideration in the near future, the testimony suggested it may be appropriate to have Congress approve each facility rather than leave determination to a federal agency. Overall planning and coordination of deepwater port development should be done, however, by a single federal agency.

The testimony indicated that state and regional authorities should be involved in the planning process, and any deepwater port project should be subject to their approval on land use planning and environmental grounds; there should be a uniform scheme of regulation of deepwater port development, whether in the territorial sea or on the Outer Continental Shelf. Financing, ownership, and charges for use of deepwater port facilities should be subject to governmental regulation, and authority to regulate vessel design should be extended to such facilities.

In concluding, the statement said that deepwater facilities should be located at substantial distances from bays and estuaries, and that transport of oil from offshore terminals be done by buried pipelines rather than small tankers and barges.

Wildlife reintroductions For many years NPCA has advocated reintroduction of native American wildlife to natural habitat in which it has been exterminated for one reason or another. Society, the Association has said, must concern itself increasingly with the restoration and protection of all the life that surrounds it; new habitat must be found and old habitat restored.

In furtherance of this philosophy, and after careful preliminary study and discussion with specialists in interested agencies, NPCA has submitted to U.S. Forest Service Chief John R. McGuire the names of three American mammals it feels should be introduced into appropriate former habitat—the fisher, a close relative of the marten; the porcupine, and the eastern timber wolf.

In a letter to Mr. McGuire NPCA's president, A. W. Smith, has said that introductions of the fisher, which might be obtained from the White Mountain National Forest in New Hampshire, could be made into the Monongahela National Forest in West Virginia and the Jefferson and George Washington national forests in Virginia. (A small fisher release program was carried out by the West Virginia Department of Fish and Game several years ago; it seems to have been successful, but needs more time for evaluation.)

All three national forests were original habitat for the porcupine, on which the fisher preys in part, and it was suggested that for these two animals the Forest Service also might work with the Park Service in restoring them to appropriate parts of Shenandoah and Great Smoky Mountains national parks and the Blue Ridge Parkway. Mr. Smith cited the excellent cooperative program of the two agencies for bighorn sheep reintroduction at Lava Beds National Monument in California as an example of what can be done in this important work. Porcupines for these projects could be secured from federal or state agencies in New Hampshire or Massachusetts, it was said.

Concerning the eastern timber wolf, of which there presently is a supposed "surplus" in Minnesota—with attendant problems for the animal—the letter recommended Forest Service consideration of a transplant into the White Mountain National Forest. It was pointed out that the Office of Endangered Species of the Bureau of Sport Fisheries and Wildlife in Interior is preparing a recovery plan for timber wolves that recommends reintroductions, and that the Minnesota Fish and Game Commission has indicated its willingness to furnish wolves for a transplant program.

"Obviously, any program will have to be well organized politically, socially, and biologically," the letter said. "However, potential difficulties are certainly not insurmountable."

Big Cypress Swamp The recent disclosure by the Office of Management and Budget of its decision to withhold recommendation of federal funding for acquisition of the Big Cypress Swamp in Florida, adjacent to and north of Everglades National Park, has deeply disturbed environmentalists all over the country. Protection for Big Cypress

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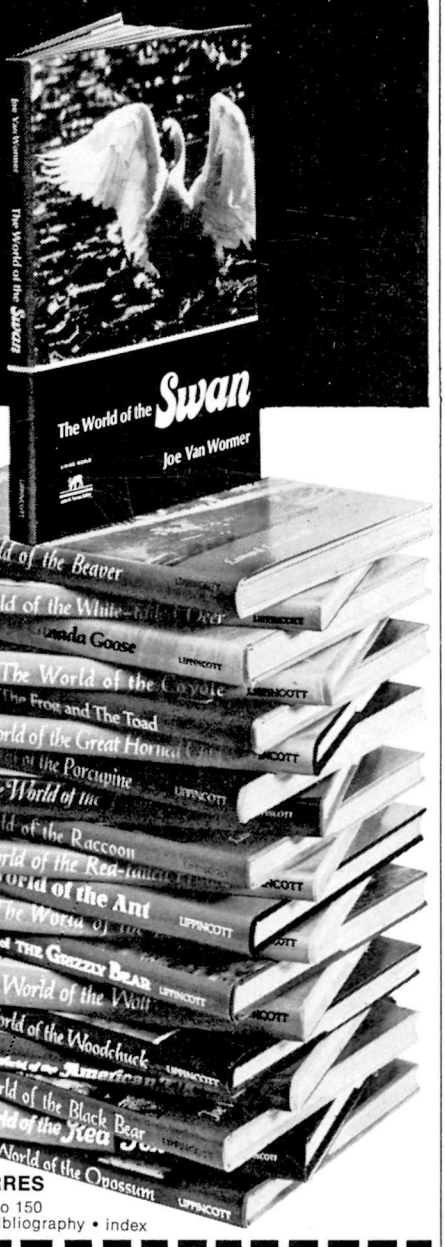

Did you know that swan hunting has been legalized in several states? Of course the trumpeter swan, which has made a remarkable recovery from a low of 69 individuals to several thousand, is not legal game anywhere. But do you think the average hunter could distinguish between a trumpeter and a whistling swan? Can you? Identification of different swan species and questions of their survival are just part of the fascinating story told in *The World of the Swan,* a recent addition to the famous LIVING WORLD BOOKS series.

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A CITIZEN'S VOICE IN GOVERNMENT

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

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

The best source of information for such purposes is the official *Congressional Directory*, which can be bought through the Government Printing Office, Washington, D.C. 20402. It tells you who your senators and congressman are and lists the membership of the various Congressional committees. It also gives full information on the personnel of the various executive bureaus of the government whom one may contact about administrative programs and policies.

The *Congressional Directory* for the First Session of the 93rd Congress now is available from the Government Printing Office in three editions, prices of which include postage: bound in hard cover, $6.80; paperback, $5.50, and thumb-indexed, $9.35.

long has been seen as a worthy end in itself; as a guarantee of fresh water for Everglades National Park, its acquisition has been viewed as vital. In a message to Congress in late 1971 President Nixon said "it is now essential for the federal government to acquire this unique and vital watershed"; while in an early 1973 message to Congress the same Administration view was presented.

In a letter to the President on this apparent change of attitude leaders of the Everglades Coalition, a broad coalition of major conservation and labor organizations, have asked Mr. Nixon to direct the OMB to reconsider its decision. The Coalition, co-chairman of which are NPCA's president A. W. Smith and the National Audubon Society's president Elvis J. Stahr, said that "the surprising announcement that the Administration does not intend to recommend funding of the Big Cypress Swamp in fiscal year 1974 is both terribly disappointing and difficult to understand." It was pointed out that purchase of the Big Cypress watershed is unanimously supported by Florida's Congressional delegations, its governor, and all conservation organizations in the state as well as by every important national conservation organization.

While Florida has approved a very large bond issue for purchase of environmentally endangered lands, the letter pointed out, it would be neither practical nor possible for the state to use the entire sum for a single purchase such as Big Cypress, and that the matter would have to be handled at the national level. "Delay in funding the Big Cypress acquisition can only result in unnecessary damage to the whole fragile area," the letter said. "This is not hysteria, it is a simple, solid fact. Delay will also increase substantially the cost of acquisition at any later date."

In conclusion the letter said: "We respectfully urge you personally to review and to order reconsideration of this distressing decision and to act with your customary vigor to acquire the Big Cypress now."

NWC statement The National Water Commission's draft report, which contains some highly commendable proposals for improving national water resource planning (as well as others not so commendable, from the environmentalist point of view) has been discussed in a number of recent issues of the Magazine. Response to the commission's invitation to submit comment on its report has been broad from all quarters.

NPCA's own comment has made several important points. In summary, they are:

That the discount rate for use in water resource projects should be the opportunity cost of capital in the open market, presently 10 percent or higher.

That all projects previously authorized on which substantial construction has not yet commenced should be reevaluated at the 10 percent rate. This would result in deletion of projects having little or no economic validity.

That the NWC is to be congratulated on its proposal to make those who receive the benefits of water projects pay their costs—an inherently just proposal deserving the support of all concerned with wise use of water resources.

That NWC's proposal that the National Environmental Policy Act and judicial review procedures be bypassed in the development of water resource projects is completely unacceptable, and that at a minimum all projects should be required to comply with NEPA's provisions.

And that substantial emphasis should be given to recreational uses of natural rivers and streams. NPCA pointed out in this connection that the NWC report stresses the values of reservoirs but has neglected to stress recreational values of ecosystems containing natural, free-flowing water.

Marine mammal protection The Marine Mammal Protection Act of 1970 imposed a moratorium on taking and importation of marine mammals for scientific research and public display except under permit of the National Oceanic and Atmospheric Administration on recommendation of a Marine Mammal Commission and a Committee of Scientific Advisors on Marine Mammals. Neither of these bodies has been established as yet, and NOAA operates under interim regulations that treat applications for permits as exemptions from coverage of the act.

NPCA has been keeping a watchful eye on applications for exemptions, as published from time to time in the *Federal Register*, with particular regard to requested exemptions for public display, in which the Association is insisting on genuine showings of "undue economic hardship." A number of other concerned environmental and humane organizations likewise are being alert in this respect.

In the April Magazine (p. 29, *Marine Mammals Act*) NPCA asserted that the procedural aspects of interim applications to NOAA for exemptions have been far from satisfactory, among other reasons for lack of documentation that may be inspected by the public for comment. Since that report NPCA has had further occasion to object to NOAA's procedures, this time over a West Coast application for exemption that would permit taking of 300 sea lions for sale for display purposes. The applicant would suffer undue economic hardship if the permit were to be denied, it was said.

In comment to NOAA, NPCA insisted that the applicant has made no case for the claim, and that actually his argument focused attention on what were claimed to be existing protections for captured marine mammals rather than on any economic hardship that might be suffered. "The question at hand," said NPCA, "is not what protections are afforded animals already captured, but whether to permit their capture at all." NPCA also criticized the

procedure whereby NOAA's exemptions are granted to captors rather than the institutions that will display the captured animals. The Association recommended that until the application could be reviewed by the prospective Marine Mammal Commission it should not be granted. NPCA's comments in the matter were prepared with the assistance of Mr. James Thompson, of the Environmental Law Program, National Law Center, George Washington University.

(Those members of NPCA who have regular access to the *Federal Register* may wish to make their own comment on such applications for exemptions under the Marine Mammals Act, which will be appearing from time to time.)

Law of the Sea In late February and again in late March and early April the State Department's Advisory Committee of the United Nations Conference on the Law of the Sea, of which NPCA's president A. W. Smith is a member, met in Washington and New York to discuss positions and plans for the Conference. Another preparatory session of the Advisory Committee is scheduled for July and August this year in Geneva, Switzerland. The first and organizational phase of the Conference is scheduled for two weeks in November and December of 1973 in New York City; an eight-week substantive session is to be held in Santiago, Chile, in April and May of 1974.

During the two sessions already held Mr. Smith has been working toward a structure that would protect environmental values as the resources of the seabeds are utilized. Important to this aim is the proposal that seabed resources beyond the 200-meter depth line should be regarded as a world heritage on which there would be no national claims, to be used with a concern for the entire marine environment. Under such a structure, a world authority would be established to license extraction of minerals from the seabed and promulgate regulations for protection of the oceans from pollution caused by the activity. There would be machinery for the peaceful and compulsory solution of disputes, and there would be a peripheral zone between the 200-meter depth line and the limits of continental margins within which an ocean resources authority would share its power with the coastal nations in trust.

PIPELINE BULLETIN Just prior to presstime the Supreme Court declined to review an appellate court decision now blocking an Interior Department permit for construction of the Trans-Alaska oil pipeline. Interior and Justice had requested reversal of the appellate court decision on grounds of the national interest. Thus the pipeline question remains in Congress for decision.

Lead Poisoning of Waterfowl: Members Can Help!

The joint NPCA–Humane Society of the United States petition, filed under the Administrative Procedures Act with the Secretary of the Interior advocating substitution of iron shot for lead shot by June 1974, and detailed in our April issue, has not been favored with a reply.

Therefore, NPCA's President A. W. Smith has written Interior Secretary Rogers C. B. Morton saying that the excessively delayed response threatens to deny the petition by default and frustrate the intent of the act. "Time is of the essence in this matter," he said, "since an estimated two to three million birds [waterfowl and marsh birds] die annually due to lead poisoning." Denial of the petition by default also would represent an abdication of the duties of the Interior Department to protect and conserve waterfowl as required by pertinent law, it was pointed out.

Obviously, the current footdragging by Interior is causing the destruction of millions of additional waterfowl at a time when habitat is rapidly being destroyed. Members of NPCA who feel strongly on this issue should write the Secretary and tell him that immediate action is needed to halt the waste of waterfowl by switching to iron shot by January 1974. His address is Department of Interior Building, Washington, D.C. 20240.

conservation news

Big Cypress Swamp Among the national organizations that have urged President Nixon to direct the Office of Management and Budget to reconsider its decision to recommend against federal funding for acquisition of the Big Cypress Swamp in south Florida is the Environmental Coalition for North America (ENCONA), Washington-based public service organization which promotes consultation and cooperation among environmentalists.

In a recent letter to President Nixon officers of ENCONA urged that preservation of the swamp is essential to the unique values of the watershed that includes Everglades National Park, and that its protection has enjoyed wide support in Florida, in Congress, and in the White House itself. Postponement of the decision to fund acquisition will put the entire watershed in jeopardy from drainage and development, and make later acquisition more expensive, it was said.

The letter was signed by A. W. Smith, chairman of ENCONA in his private capacity and president of NPCA; W. Lloyd Tupling, vice-chairman of the Sierra Club; and Sam Love, secretary-treasurer of Environmental Action.

Baxter Park agreement A bothersome problem in Maine's Baxter State Park, the great wilderness preserve created for the people of Maine by former Governor Percival P. Baxter, recently has been resolved in favor of the park.

The problem was an old agreement that gave the Great Northern Paper Company timber-cutting rights on two tracts in the heavily used southern portion of the park, valid until the end of 1973. Early this year the company commenced to cut timber, but the move met with heavy resistance from Maine environmental organizations and many residents of the state. The Baxter State Park Authority then arranged an exchange of rights in the southern lands for similar rights in the remote northwestern part of the park; but this move met with two separate lawsuits—one by the Natural Resources Council of Maine, the other by the state's attorney general—plus a temporary court injunction that halted all cutting.

Then, in mid-March, all parties agreed to a settlement of the timber claims for approximately three quarters of a million dollars, to be paid out of income from a trust fund set up for the park by the late Governor Baxter. An order approving the agreement was signed by a Superior Court judge.

The matter was not an easy one to resolve, involving the company's cutting rights as against Governor Baxter's expressed desire that the great state park remain "forever wild," and it would seem that all involved in the settlement—prominently Governor Kenneth M. Curtis, State's Attorney General Jon A. Lund, the Maine NRC, and the paper company—are to be commended on the outcome.

Local scenic roads The charming backcountry dirt or gravel roads which, with their inevitable stone walls, so often followed the courses of earlier carriage roads through the fields and backwoods of New England are becoming harder to find today. Some of them became well-nigh impassable for a month or two in spring, but many residents, to say nothing of visitors, liked them anyway. They have been mostly eliminated in favor of straightened, cut-and-fill successors of blacktop that better conform with the engineering concept of what a road should be.

The process by which this has happened was recently described in *New Hampshire Profiles.* "When a town wanted to repair a narrow, winding country road and needed state funds, the results all too often had been the cutting of trees, removal of stone walls, and the straightening of curves. When work was completed, the 'scenic' or picturesque value of these roads was often destroyed and what may have been a relatively little used, low speed byway was turned into a well traveled, higher speed road."

A Scenic Roads law now in effect in New Hampshire (since the fall of 1971) permits a town, by vote of its residents, to declare certain roads "scenic," meaning that repairs may be made without the usual straightening, cutting and filling, tree removal, destruction of stone walls, and general bulldozing ordinarily prescribed by the state's highway commission to qualify an unnumbered town road for state financial aid. Many towns in the state have taken advantage of the act. Some have set aside a few roads, others many, and a few are protecting all eligible roads within their boundaries.

We think this idea ought to spread, although with the realization that New England townships enjoy a greater degree of autonomy than is common elsewhere in the country, and that the mechanics of implementation would necessarily have to be shaped to suit other forms of local government.

conservation docket

BIG CYPRESS SWAMP
PUBLIC HEARINGS

The House Subcommittee on National Parks and Recreation will hold public hearings on HR 46, a bill to establish a Big Cypress National Fresh Water Reserve in Florida, May 10 and 11, 1973. Members wishing to testify in person should deliver 80 copies of their testimony to the Subcommittee at Room 1324, Longworth House Office Building, Washington, D.C. 20515. Members wishing only to submit a statement for the record should submit 10 copies of the statement to the Subcommittee; the record will remain open until May 20. The hearing starts at 9:45 A.M.

National park system legislation recently introduced in Congress has included:

BIG CYPRESS: S 783, to establish the Everglades–Big Cypress National Recreation Area in Florida. To Senate Interior and Insular Affairs Committee.

SEWARD NRA: S 829, to establish the Seward National Recreation Area in Alaska. To Senate Interior and Insular Affairs Committee.

CEDAR SWAMP: HR 3788, to authorize establishment of a Cedar Swamp National Monument in Ohio. To House Interior and Insular Affairs Committee.

BIG THICKET: HR 4270, to establish the Big Thicket National Park in Texas. To House Interior and Insular Affairs Committee.

LOWELL PARK: S 943 and HR 4514, to provide for establishment of an urban national park known as the Lowell Historic Canal District National Cultural Park in Massachusetts. To committees on Interior and Insular Affairs.

TOYON PARK: HR 4596, to establish the Toyon National Urban Park in California. To House Interior and Insular Affairs Committee.

SPRINGFIELD ARMORY: S 979, to establish the Springfield Armory National Historic Site in Massachusetts. To Senate Interior and Insular Affairs Committee.

SHENANDOAH PARK: S 988, to designate certain lands in Shenandoah National Park as wilderness. To Senate Interior and Insular Affairs Committee.

LINCOLN HOMESTEAD: HR 4992, to authorize the Interior Secretary to establish the Lincoln Homestead National Recreation Area. To House Interior and Insular Affairs Committee.

SEQUOIA PARK: HR 5272, to enlarge the Sequoia National Park in California. To

House Interior and Insular Affairs Committee.

EGMONT PARK: HR 5282, to establish the Egmont Key National Park in Florida. To House Interior and Insular Affairs Committee.

CALIFORNIA DESERT: HR 5288, to establish the California Desert National Conservation Area. To House Interior and Insular Affairs Committee.

Legislation concerning fish and wildlife matters:

BRIGANTINE REFUGE: S 777, to designate certain lands in the Brigantine National Wildlife Refuge, New Jersey, as wilderness. To Senate Interior and Insular Affairs Committee.

PREDATOR POLICY: S 819, to authorize a national policy and program with respect to wild predatory mammals; to prohibit the poisoning of animals and birds on the public lands of the U.S.; to regulate the manufacture, sale, and possession of certain chemical toxicants. To Senate Commerce Committee.

WILDLIFE FUND: HR 4690, to create a fund in the U.S. Treasury to be known as the Fund for Endangered Wildlife, to be administered by the Interior Secretary. To House Merchant Marine and Fisheries Committee.

ANIMAL TRAPS: HR 4712, to discourage the use of leg-hold or steel jaw traps on animals in the U.S. To House Interstate and Foreign Commerce Committee.

Bills introduced into Congress are referred to standing committees of House or Senate, which may then refer them for initial consideration to appropriate subcommittees. Public hearings on bills may be called both by subcommittees or standing committees. NPCA members, as citizens, may write committee and subcommittee chairmen asking that they be placed on lists for notification in the event of hearings. Members may also submit statements for the hearing records if unable to appear in person. Copies of bills may be obtained from the House Documents Room, Washington, D.C. 20515, or the Senate Documents Room, Washington, D.C. 20510. In the Conservation Docket, HR indicates a House bill, S a Senate bill.

Forestry legislation recently introduced or acted upon by the Congress has included:

WILD AREAS: S 22, to establish a system of wild areas within the national forest system. Ordered favorably reported, with amendments, by the Senate Agriculture and Forestry Committee.

FOREST MANAGEMENT: HR 3961, providing comprehensive management of the nation's forest lands through the application of sound forest practices. To House Agriculture Committee.

EASTERN FORESTS: S 938, to amend a section of the Wilderness Act, to provide for the addition of certain eastern national forest lands to the national wilderness preservation system. To Senate Interior and Insular Affairs Committee.

MINING IN WILDERNESS: S 1010, to amend the Wilderness Act to preserve the unique and irreplaceable ecological values of wilderness areas by providing for termination of the application of mining and mineral leasing laws to and of continuous mineral prospecting activities in such areas. To Senate Interior and Insular Affairs Committee.

Other bills and actions touching on conservation and environmental matters:

REAP: HR 2107, to require the Agriculture Secretary to carry out a rural environmental assistance program. Passed the House by a record vote of 251 yeas and 142 nays. Passed the Senate by a record vote of 71 yeas and 10 nays.

MINING: S 923, to provide for cooperation between the federal government

and the states with respect to environmental regulations for mining operations. To Senate Interior and Insular Affairs Committee.

LAND USE: S 924, to establish a national policy encouraging states to develop and implement land use programs. To Senate Interior and Insular Affairs Committee.

PIPELINE RIGHTS-OF-WAY: HR 4707 and S 993, to authorize the Interior Secretary to issue rights-of-way and special land use permits for construction of pipelines in Alaska under certain circumstances. To Senate Interior and Insular Affairs Committee.

ALASKAN PIPELINE: S 1081, to authorize the Interior Secretary to grant rights-of-way across federal lands where use of such rights-of-way is in the public interest and the applicant for the right-of-way demonstrates the financial and technical capability to use the right-of-way in a manner which will protect the environment. To Senate Interior and Insular Affairs Committee.

MINERAL LEASING: S 1040, to reform the mineral leasing laws. To Senate Interior and Insular Affairs Committee.

NATURAL RESOURCE LANDS: S 1041, to provide for the management, protection, development, and sale of the national resource lands. To Senate Interior and Insular Affairs Committee.

GEOTHERMAL ENERGY: HR 4963, to promote the exploration and development of geothermal resources through cooperation with the federal government and private enterprise. To House Interior and Insular Affairs Committee.

HAZARDOUS WASTE: S 1086, to assure protection of public health and living organisms from the adverse impact of the disposal of hazardous wastes and to authorize a research program with respect to hazardous waste disposal. To Senate Public Works Committee.

ENVIRONMENTAL PROTECTION: S 1104, to promote and protect the free flow of interstate commerce without unreasonable damage to the environment; to assure that activities which affect interstate commerce will not unreasonably injure environmental rights; to provide a right of action for relief for protection of the environment from unreasonable infringement by activities that affect interstate commerce; and to establish the right of all citizens to the protection, preservation, and enhancement of the environment. To Senate Commerce Committee.

SOUTH ATLANTIC BASIN: HR 5306, to amend the Soil Conservation and Domestic Allotment Act to provide for a South Atlantic Basin environmental conservation program. To the House Committee on Agriculture.

SST: HR 5328, to prohibit commercial flights by supersonic aircraft within the U.S. To House Interstate and Foreign Commerce Committee.

Continued from page 2

land in the east, and the program went down to defeat in the anti-communist hysteria of the period.

IN THE SIXTIES a new plan was evolved. Increasingly widespread horror at the devastation brought plans for a Redwood National Park which would bring some of the remaining redwood lands of outstanding beauty into federal ownership. The protected areas were to be enlarged, both in the Mill Creek region to the north and the Redwood Creek region to the south, and in a narrow coastal strip linking the two major areas. There were differences among conservationists as to whether the northern or the southern regions should be favored. The NPCA recommended generous boundaries in both localities.

In our testimony on invitation at that time, we also resurrected the old proposal for a Redwood National Forest. By that time clearcutting, agriculture, and urbanization had claimed portions of the old forest irrevocably, but much of it still remained. We urged also that the experimental forests operated by the government be retained, and that the two National Forest purchase units, where acquisition had been authorized for many years, be activated.†

IN THE END, the result was compromise. While the outcome was a great achievement as contrasted with the previous state of affairs, the boundaries were inadequate. The National Forest idea was ignored. Provision was made for incorporation of the state parks into the National Park, but California has not acted. Meanwhile, the destructive operations are proceeding apace on Redwood Creek and elsewhere; not only will the remaining virgin forests be liquidated within a few short years, but the side-effects of clearcutting and bulldozing are being felt in the destruction of the priceless woodlands which have been placed for protection in the state and national parks.

THE REDWOOD NATIONAL PARK ACT confers authority on the government which if exercised would prevent the destruction of the Redwood National Park and the state parks, and at the same time get a substantial portion of the Coast Redwood Forest under good silvicultural management. The Act gives the government power to acquire interests in land on the periphery of the National Park and on watersheds tributary to streams within the Park to assure that the consequences of forest management, timbering, and land use will not adversely affect the timber, soil, and streams within the Park.

Because all the streams arising on Redwood Forest slopes east of the Park flow through the main portions of the Park or the coastal strip, the government has the power to acquire such interests throughout the entire forest paralleling the Park. It could require the practice of ecological forestry, which is to say individual tree selection or group selection, throughout that entire portion of the forest, which would then become a model of environmental forestry for the world to admire. The forest would produce redwood products from now on to eternity and yet leave the woods essentially intact for their recreational value and their beauty.

WHY DOES the government not proceed to take the protective measures which it has the power to take and ought to take? The legal device available is the so-called declaration-in-taking: the government determines the nature and location of the interests in land which it needs in order to protect the forest and proceeds with a formal declaration of acquisition. The matter then goes to court for an appraisal of the value of the interests taken.

In this situation a single interest might be sufficient: the right to require the use of ecological methods of harvest. These methods of management would actually enhance the value of the land on a long-term basis, and the debt might actually run from the landowner to the government. In any event, no burdensome financial outlay by the government would seem to be involved.

True, there is an immediate killing to be made by the logging industry by rapid clearcutting. What matter that interests of the nation in the Redwood National Park may be sacrificed? What matter that the soils may be washed from the denuded slopes, and the region may never recover? What matter that a priceless forest which could be productive century after century may have its roots ripped out and its fruitfulness extinguished by these methods of violence and avarice? We say that the time has long since passed for the federal government to exercise the powers conferred on it by the Redwood National Park Act and put an end to this intolerable ruin.

—Anthony Wayne Smith

†The proposal was published in *National Parks Magazine*, November 1966.

The scenic grandeur of the Great Sand Dunes National Monument, pictured above, should remind each member of the National Parks and Conservation Association of the real importance of his or her membership. No other national conservation group has remained so deeply involved, so whole-heartedly committed to the protection and enlargement of the National Park System of the United States.

Please help us to enlist new support for this and other vital environmental work. From among the people you know, will you enroll just one new member?

Life membership is $500 with no additional dues. Annual membership categories are: Sustaining $100; Supporting $50; Contributing $15; Associate $10; Student $8. Membership Applications in letter form may be sent to the Membership Department.

NATIONAL PARKS AND CONSERVATION ASSOCIATION
1701 Eighteenth Street, N.W., Washington, D.C. 20009

NATIONAL PARKS & Conservation Magazine

The Environmental Journal

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