
NATIONAL PARKS & Conservation Magazine
The Environmental Journal
August 1970

AN OCEANS TREATY

President Nixon is to be commended on his recent proposal for a protective treaty for the oceans and seabeds. The adoption of such a treaty by the nations of the world would strengthen the forces of conservation immeasurably everywhere. It would also further the emergence of planetary social and political order generally.

The key proposal is that the nations renounce all national claims over the natural resources of the seabed beyond the 200-meter depth. Beyond that line the resources of the seabed would be regarded as the common heritage of mankind.

An international agency, referred to as a regime, would be established for the management of seabed resources beyond this limit. The regime would have the power to promulgate regulations to protect the oceans from pollution, among other abuses. Machinery would be established for the peaceful and compulsory settlement of disputes; the word *compulsory* should be noted.

Sharing the authority of the world regime in part, coastal nations would act as trustees for a marginal area of the world heritage zone, consisting of the continental margins beyond the 200-meter depth line. The continental margins contain the continental shelf, falling away gradually from the shoreline; the continental slope, which plunges more precipitously into the depths; and the continental rise, which is the talus area at the foot of the slope, its toe touching the deep seabed.

Revenues from the common heritage zone would accrue to the world regime for use in economic assistance to developing countries. Each coastal state would receive a share of the world revenues from its trust zone and could impose additional taxes.

We have certain doubts about the desirability of the trusteeship arrangement. The attractive aspect of the plan as a whole is the common heritage idea. But we are well aware of the practical difficulties of moving even as far as the President has proposed. Most conservationists, in our judgment, would support broader authority for the proposed ocean regime. Moreover, a more generous boundary than the 200-meter line might be in order for the heritage zone.

Of greater significance is the proposal that agreed international machinery be developed to authorize and regulate exploration and exploitation of seabed resources beyond the continental margins. This authority, in our judgment, should extend to the 200-meter depth line, or even closer to the shores. Trust arrangements in the trusteeship zone should be subject to determination by the world agency.

But it is the proposed regulatory power which is of immediate interest. The treaty would set up a regulatory agency with jurisdiction to enact binding rules in the nature of world statutory law. This is the general course the nations must follow if a democratic world order is to replace the present widespread world chaos.

Implicit in the proposal for regulation is the necessity for the creation of judicial institutions to interpret the regulations. The procedures should include final adjudication on a compulsory basis by the International Court of Justice.

Realism in these matters also demands the establishment of police authority to enforce the regulations. The regime must obviously have the essential administrative equipment: survey, research, and management powers, among others. But it must also have powers of inspection, patrol, arrest, and penalty; there are many ways to work out such enforcement authority, but the authority must be clear.

As institutions of this kind are developed in various fields, the protection of the oceans and seabeds being but one, the domain of democratic law and order may spread gradually around the globe.

Essential to the substantive powers of a world regime for the oceans and seabeds is a mandate to preserve the entire marine ecosystem. The proposed licensing power, presumably intended to conserve mineral resources and mitigate disputes over their discovery and exploitation, will be excellent. But the grave danger to human life on the planet, and much other life as well, presented by current explorations, is the all-too-familiar progressive destruction of the environment.

The oceans and seabeds regime, in our opinion, should have authority, for example, to regulate commerce in all threatened species, including, among others, the whales. Such a proposal would test the sincerity of many prospective participants in the convention.

True, world institutions for such purposes could be established by the amendment of existing conventions; but a more imaginative plan may be essential to get the necessary improvements. True, also, Congress has instructed the Administration to seek to convene a ministerial conference on an international convention to protect endangered species; but everyone is dragging his feet. Action of some kind is needed.

We proposed in these pages last month that environmentalists work to set up an Environmental and Population Organization within the structure of the United Nations, open to nonmembers. An EPO would shoulder responsibility for aiding education in problems of environment and population everywhere and for helping the development of world law in these fields.

If some of these responsibilities can be assumed by the oceans regime the President proposes, well and good, and progress may possibly be faster; but in the end a top-level worldwide Organization with comprehensive powers will be needed.

The President announced that the United States would introduce specific proposals at the next meeting of the United Nations Seabeds Committee. He noted that the adoption of the treaty he proposed, and related international agreements, would be a fitting achievement to mark the 25th anniversary of the United Nations. Thus, acceptance of the aegis of the United Nations appears to be an essential part of the President's plan; we trust that participation will be open to non-members as well.

The cutting edge of modern technology presses rapidly into the deep seas. Men have learned to their horror that this technology, once thought naively to be always beneficial, carries too large a measure of death and destruction with it wherever it goes. The beneficence of applied science will be questioned increasingly by more and more people until effective public and private institutions can be established with power to direct scientific knowledge into socially, ecologically, and economically viable collective policies.

The President's plan is a new bit of hope, a promise of some better things, a lamp against the darkness. Environmentalists and humanitarians all around the globe should lend their help, through their private organizations and their governments, toward the realization, in general outline, of the program the President has proposed. —*A.W.S.*

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The Environmental Journal

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COVER *The seashells of Padre Island, by A. & L. Dexter*

Padre Island off the coast of Texas may be the only "completely natural seashore in the nation that still can be preserved," write the authors of the article beginning on page 14. Now part of a national seashore, the island's beaches offer solitude, the chance for reflection, and the opportunity to study a natural barrier-island community of life. All that would be doomed by strongly backed proposals to open the beach to mass recreation with a road.

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: $80 sustaining, $40 supporting, $12 contributing, and $8 associate. Student memberships are $6.50. Single copies are 75¢. Contributions and bequests are needed to carry on our work. Dues in excess of $8 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 include old address (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.

THE TREES on the

In the deepest Depression days of the 1930's, a desperate Alabama farmer got the bright idea that he might be able to pull out of his miserable straits if he could somehow convert his farm to an orchard and grow oranges. Florida orange growers, he reasoned, weren't doing too badly, and the freight charges would be about the same.

The only problem was that there weren't any oranges that would grow in Alabama. It gets too cold.

Any shrewd landowner in America knows, however, that agriculture is the one industry that can get most or all of its research done for nothing. The Alabama farmer contacted a friend named Troyer, who worked for the Department of Agriculture in Washington. Troyer was willing, but he didn't know anything about oranges either; so he, in turn, contacted the Riverside campus of the University of California—a campus that began life as an experimental station for citrus research by the university.

The only hope that the Riverside scientists could see was in the Poncirus, which is not actually an orange tree at all, but a related ornamental tree. Poncirus, however, grows in the northern islands of Japan, and it gets a lot colder in the northern islands of Japan than it does in Alabama. Possibly, the men at Riverside reasoned, they could cross the Poncirus with a navel orange tree, and the Poncirus' "cold-heartedness"—that's the word they use—might be imparted to the top of the orange tree, so that the man in Alabama could have a new cold-hearted orange species.

It all worked. The two newly bred trees were healthy, they were coldhearted, and they bore fruit. Unfortunately, the oranges were almost all seed, with virtually no pulp and no juice. There's no record of what happened to the Alabama farmer, but there's still no citrus industry in Alabama. The total result of the experiment was that as the Riverside campus grew, the two lonely trees—called Troyer citranges after the man in the Department of Agriculture—sat on a back lot, forgotten by everyone but the gardeners.

Until fifteen years later.

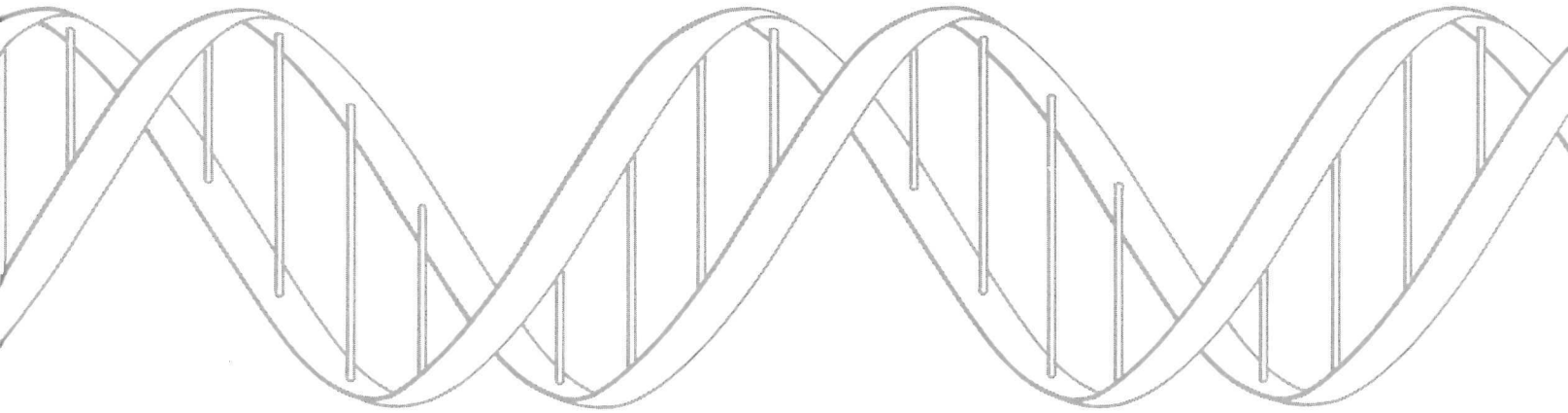
In the 1940's, virtually every botanist and entomologist in California was enlisted to study and to fight a strange —in fact, unprecedented—blight that struck the state's orange groves. Nobody knew what it was or how it worked —but they knew that in midsummer, with foliage and fruit desperately hanging on, the orange trees were dying. There wasn't even a name for the disease.

It took two years, with Riverside scientists leading the fight, to discover that the villain was a virus, transmitted by an aphid. The virus' name was tristeza, and there didn't seem to be a variety of orange tree anywhere that was resistant to it. In desperation, entomologist Alfred M. Boyce somehow remembered the Troyer citranges, still growing, neglected, on the back lot.

You've guessed it. The citranges were, indeed, resistant to tristeza. The grafted rootstock saved the orange industry —and since grafting and cross-breeding aren't at all the same thing, it didn't hurt the oranges. A year or two ago Boyce told a reporter: "Almost every orange tree planted in the past ten years has been Troyer citrange rootstock. About two-thirds of the two million citrus trees propagated each year are offspring of these two no-good trees."

Diagram above is of a tiny portion of a molecule of deoxyribonucleic acid (DNA), the substance of which genes are made; a single strand of human DNA may be more than a yard long, although so thin as to be only barely visible under an electron microscope. These fine "tapes" carry in their structure all the information needed to build a human body, or a rhinoceros, or a blade of grass.

BACK LOT



Gene Marine

And oranges, in the 1967–68 season alone, were worth about $80 million to California growers.

The Troyer citranges, good for nothing for fifteen years, might as easily have been rooted out and tossed away to make room for an office building or a dormitory. Certainly nobody was interested in "conserving" them. That they weren't rooted out, and that they proved in the end to be as important as they were, is as good an illustration as I can find for an idea that rarely enters the head of even the most devoted conservationist: the need for the conservation of genetic information.

The conservationist movement began in America with the simplest and possibly, in some senses, the noblest of motives: to preserve that which is beautiful or unique. The two Audubon Society wardens who were killed in Florida trying to save the snowy egret from poachers knew nothing of genetic information and little if anything of ecology—they simply knew that egrets were beautiful and rare, and should be preserved.

Today, we are motivated also by ecological concerns; possibly an ecological consciousness feels better to Americans who pride themselves on their pragmatism. We want to conserve now because of the way in which life forms, and the elements of their environment, fit together in a weblike maze of interrelationships so delicate that the elimination of a single species of animal or plant or microbe, the overexploitation of a single mineral resource, may have repercussions far beyond anything imagined in advance.

Despite the efforts of some politicians and some industrialists to limit the growing concern to its narrowest possible applications, it will not be limited; and a growing ecological understanding has become a part of the movement's concerns from the Everglades to the Barrier Reef.

But the concept of conserving genetic information—a concept still more pragmatic and almost equally complex—is one that has yet to reach the public mind. No farmer and no botanist could possibly have foreseen the value of the Troyer citrange, that abortive failure of an attempt to make somebody rich in Alabama, to the orange growers of California fifteen years later; but had the trees—and the genetic information they contained—not been preserved, an entire industry might be dead in California.

The phrase, "genetic information," bothers some people, although there's no reason why it should. It refers, simply, to the "information" carried in the genes of any living thing, the coded material that is passed on from one generation to another and which determines that each succeeding generation shall have substantially the same characteristics as the one that went before.

Blue-eyed parents have blue-eyed children; Pinot Chardonnay grapes do not grow in a vineyard planted to Cabernet Sauvigon; Jacqueline Kennedy roses and Black Angus cattle, Samoyeds and sweet peas breed true because of the transmission of information from one generation to the next by genetic means.

The importance of *conserving* genetic information lies only in the fact that we never know when we're going to need it, nor what we're going to need. Beauty and rarity may be reasons enough to save the California condor, but it is at least an additional reason, and for some people perhaps a crucial one, that there may be in the existence of the condor some unsuspected boon for tomorrow.

And because we are the way we are, it is true, if regrettable, that we are much more likely to get excited about saving the condor, or the African leopard, or the whooping crane, than we are about a tundra lichen or a strain of microbe, a presently unused strain of avocado or Florida's

epiphytic algae. The Grand Canyon is obviously important; an ordinary-looking chunk of prairie grass rarely excites us. Remembering the need to conserve genetic information may provide the motivation we need to keep from the wanton and unthinking destruction of entire ecosystems.

In his superb 1967 book, *The Frail Ocean*, Wesley Marx describes a plan, proposed by Representative Edward A. Garmatz of Maryland, to spend $10 million on the elimination of stinging jellyfish from beach swimming areas—which might mean the elimination of some species entirely. And yet, Marx notes, it was at just about the same time that Dr. Frank Johnson of Princeton found in the jellyfish "a rare substance that glows green in the presence of calcium"—and which, therefore, can determine calcium levels in the human bloodstream and thus serve to indicate the presence of parathyroid disorders.

For some reason, the idea of conserving genetic information seems easier to deal with when we talk about plants—although even the most careful plant breeders often forget about it. Almost all the corn grown commercially in the United States is of hybrid varieties—types deliberately "created" by cross-breeding to provide full yields and resistance to known diseases—but because other, older varieties of corn can no longer compete commercially, many have come near being lost, and some have been. Each one that *is* lost makes it that much more difficult to experiment with new hybrids, to discover possible new disease-resistant strains, or to make any other use of the genetic information stored in the lost variety.

There are other reasons, too, for conserving genetic information. The recent discovery of the horrors we have wrought throughout the world because of our widespread and thoughtless use of DDT is example enough that we may need neglected plant forms and almost forgotten microbes to develop pesticides less destructive to the planet. And of course there is no way to tell what may be the raw material or the essential catalyst for tomorrow's new industries.

Dr. Rezneat Darnell of Marquette refers to our "native species of plants, animals and microbes" as representing "untapped sources of antibiotics, medicines, drugs, natural pesticides, industrial raw materials, foodstuffs and ornamentals. They include our hopes for successful biological warfare against crop pests. Since these species are already adapted to the American environments they are potential sources of hereditary material for improvement of production and disease resistance in our crop species."

Of course there is more to it than that. Genetic information is contained in life forms, and with this subject as with any other, when we talk about life forms we should, and must, talk not about species but about ecotypes. To preserve lions in a zoo, bison in a "controlled" herd in a countryside without wolves, microbes in a laboratory culture, is not necessarily to preserve the same genetic information at all. We must preserve life forms in their natural ecosystems, or, whether we know it or not, we will change them.

The ring-necked pheasant, introduced to North America less than a half century ago, may already have evolved into two distinct, genetically different birds despite their having common ancestors. The remaining bison herds are "thinned" to keep their numbers within the capacity of the range—but there is no way to know that they are being thinned in the same way they would be thinned by a herd of predatory wolves. And if different individuals survive under artificial conditions, different patterns of genetic information are transmitted.

Ducks who live in hunting areas "learn," and then "teach" their offspring, the periods of the hunting season and the kinds of behavior that lead to survival. In the process, ducks become more herdlike, less individually adventurous; the adventurous do something different, get shot and don't breed—and the genetic information of the species changes, gradually, over time.

Just as we can breed a resistance to cold into the roots of orange trees, or breed out of them a susceptibility to a particular virus, so without realizing what we're doing we can breed other kinds of information out of lions or tomatoes or microbes even though we keep the individuals alive and "preserve" them. For years scientists believed that homosexual behavior was widespread among baboons—because the only ones they ever saw were in zoos. In their natural habitat, this behavior pattern doesn't appear. The loss of genetic information is almost inevitable if we fail to preserve the ecosystems of which life forms are normally a part.

And while it is a more difficult idea and not nearly so scientific, I believe that it is possible to speak of there being "information" in an ecosystem itself, above and beyond the genetic information contained in every plant and animal and microbe within that ecosystem. For every such system may tell us something about any other system; the relationships can themselves be seen as information which may be useful in studying, or even in planning, other relationships elsewhere.

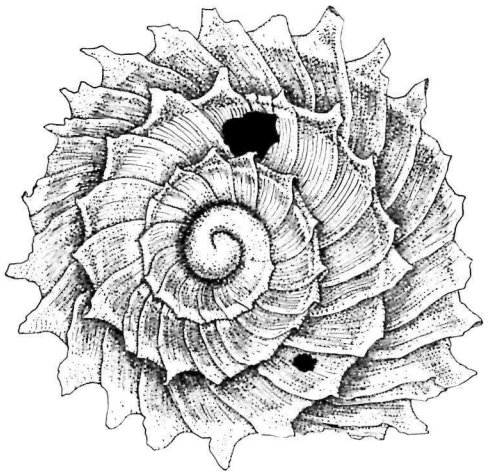
It does not seem far-fetched to me that by paying close attention to the complex ecosystem that is an estuary on the Georgia coast, we may learn better how to build a safer space capsule (if we must build them) or a more functional pod for studying the bottom of the sea.

Genetic information is information as surely as any item in an encyclopedia or a textbook; ecological relationships are as real and as fixed as the mathematical formulas in any library. We recoil in horror from the burning of books, from the destruction of libraries—although by burning books or destroying libraries we do not necessarily destroy knowledge.

It is more certainly final to allow any species, however seemingly insignificant, to pass out of existence—to permit any ecotype to disappear. For we will never know what information has been destroyed, and the loss to mankind may be far more drastic than the one we suffered when the Arabs burned the manuscripts of Alexandria. ■

Gene Marine, a senior editor of *Ramparts* magazine, is author of *America the Raped*, in which he raises the issue of the conservation of genetic information.

WIPED OUT & UNSUNG



ALAN SOLEM

Drawings Courtesy of the Field Museum

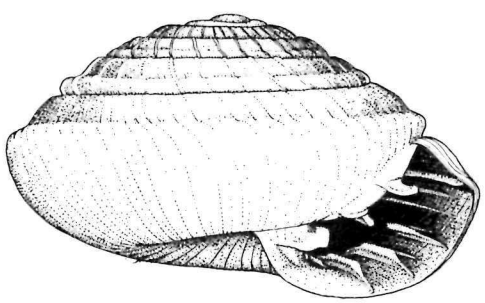
Perhaps the saddest aspect of being the curator of a biological collection today is the glum knowledge that each year more of your special world vanishes forever. Its passing causes not a ripple.

Sure, some things are saved. Heroic publicity measures and dedicated fund raising saved for the "Prairie State," Illinois, one scrap of virgin prairie, Goose Lake in Grundy County. One stand of white oaks, Beall Woods, stands near the Wabash River rather than lying as charred barrels in Scotland aging whisky.

I like Scotch whisky, but I also like forests. Our world needs both. The passenger pigeon is gone and books are written about it. The whooping crane barely survives. *Life* magazine (January 9, 1970, p. 84) includes under "trivial trends that point the way" the fact that whooping cranes increased from 33 in 1960 to 55 in 1970.

Yet, when I say that man has wiped out 10,000 species of insects and snails in the last 200 years, at most there are raised eyebrows. "So what?" is the usual comment. Even those most devoted to the preservation of natural areas and the saving of rare and endangered species are unaware of this fact. Under my Christmas tree this winter was a copy of the beautifully produced *Wildlife in Danger*—by James Fischer, Noel Simon, and Jack Vincent. This book surveys the current status of endangered species as determined by the International Union for Conservation of Nature and Natural Resources. It has 149 pages on mammals, 152 on birds, 14 on reptiles, 3 on amphibians, and 13 on fishes. There is no mention of lower organisms.

It is unrealistic to expect otherwise. Western man long has operated with the view that the world is here for human exploitation. This is epitomized by Pope's "The Proper Study of Mankind is Man." We are more than uncaring. We are almost totally anthropocentric [man-centered]. More like man, more interest; less like man, less interest. This shows in our language, our actions, and even the staffing of Field Museum (see table). Yet cracks appear in our egocentric armor. *The Naked Ape* and *The Territorial Imperative* became best sellers by calling attention to the animal aspects of human behavior. Pollution is past the point of being ignored. It is a basic fact that no organism can live on its own excrement. Look at our rivers. Breathe our city air. We have been trying very hard. The tidal waves of debris from our sewers, smokestacks, automobile exhausts, garbage cans, and factory waste outlets threaten disasters. Lip service to a clean environment replaces flag and motherhood in political speeches.



We are learning a lesson known to primitive tribes for many centuries. Man *shares* this world with other organisms. We need them, and they need us. The oxygen we breathe is a waste product of plants. The carbon dioxide plants use is a waste product from animal bodies. Energy from the sun is used by algae and land plants to make organic chemicals. Animals get their organic chemicals either by eating plants or by eating animals that have eaten plants. Decay organisms, mainly bacteria and fungi, reduce the dead bodies of animals and plants to simple chemicals. These are then used again in the cycle of life. All life on earth is linked in a vast interdependent *ecosystem*.

If we break this chain of inert to living to inert, life on earth will cease. Warnings by ecologists of dangers from pesticides, thermal pollution, and habitat destruction appear in mass circulation magazines. By 1972 the words "ecology" and "ecosystem" may be as familiar as "astronaut" and "spaceship." We must have plants, and animals, and birds, and even snails and insects. Yet exploding human populations con-

The anthropocentric staffing of Field Museum

Group of species	No. of species	No. of curators
Man	1	—
Mammals	4,190	2
Birds	8,590	3
Reptiles & Amphibians	8,500	2
Fishes	40,000	1
Lower Invertebrates	175,000	1
Land Arthropods	910,000	2

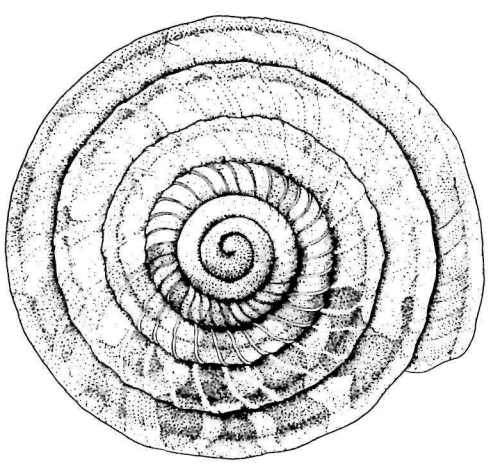
If Field Museum decided to have as intensive a study of land arthropods as we do of mammals, we would need 436 curators for land arthropods. Actually, only about 50 percent of the insect, mite, and spider species are known, while nearly all mammals have been described. A more realistic need would be for 872 curators for land arthropods.

tinue to encroach on the environment—a fancy way of saying wipe it out.

It occurs in big ways. And in small ways. The next 30 years will see all forests in Central America cut down and gone forever. Incredible and pessimistic? Not to a biologist who has been there. Urban areas grow. Suburbs build up to uninterrupted vistas of manicured grass, concrete, and asphalt, at most sprinkled with trash. Many biologists of my generation were weaned on vacant lots, redolent with dusty weeds on hot August days, singing with myriad insects and birds. Between digging forts and playing hide and seek in the long grass, our eyes were caught by the red and black of a milkweed beetle, the grace of a fluttering butterfly, or even the shimmering back of a resting slug beneath an abandoned cardboard box. Curiosity, interest, avocation, profession followed in tidal sequence. Now these lots have houses, or at best are neatly asphalted play lots, routinely sprayed against mosquitoes.

Bit by bit the environment changes, variety lessens, and species disappear. It may be robins from a city, buffalo from the Great Plains, or snails and insects from "some enchanted islands" rising dot-like from the vast Pacific. For here alone our 10,000 species vanished, mostly within the span of living centenarians. Item: In the 1870's an American missionary, Andrew Garrett, collected 13 species of endodontid land snails on Rarotonga in the Cook Islands; in 1965 there were only two remaining. Item: Living endodontid land snails were found on Mangareva, Gambier Islands in the 1840's; in 1934 only the dead remains of 25 species were found. Item: Of perhaps 125 species of Hawaiian endodontid land snails still living before 1850, probably less than a dozen exist today. Item: In 1948 a Hawaiian entomologist, Elwood Zimmerman, could state concerning the native insects "that to say a third or more of the species are now extinct would be no exaggeration." Inasmuch as there are perhaps 6,000 species of Hawaiian insects known from collections in this century, this means a mere 3,000 species were gone by 1948. More have vanished since. Add another 2,000 for the Marquesas, denuded of forest to 3,000 feet by the mid-1920's, plus the loss of 2,000 species from the Society Islands—Tahiti, Moorea, Bora Bora. There are still the Austral Islands, Cook Islands, Samoa, Fiji —their vanished species unreckoned. The leeward dry regions of the Hawaiian Islands contained 60 percent of the native tree species. These have been stripped to nearly 5,000 feet. How many species gone? We don't know. But plants, and snails, and insects combined? Ten thousand is a modest estimate.

Why did they go? It was not only by deliberate hunting. It was not all the fault of Western man. When the Maoris reached New Zealand about 950 A.D., there was a bird fauna of perhaps 150 species. The large and edible moas were hunted and killed, but this covers only about 20 species. Another 30 species disappeared by 1900 because of habitat disturbance.



Habitat disturbance brings visions of bulldozers and factories. On islands it is much simpler. Cattle trample through native forest. An ornamental garden fern goes wild and chokes out thousands of acres a year in Hawaii. A potted garden plant from overseas had a few unnoticed ants; within a decade *Pheidole megacephala*, a voracious species of ant, occupied lowland Oahu, destroying insects and snails alike. For several years I've been studying endodontid land snails. On Pacific Islands there is a neat and simple equation: Introduced ants = no ground-dwelling endodontids. Even more so for many insects.

So I'm writing about the species that were, or occasionally (still) the species that barely are. On Upolu, Western Samoa, a beautiful little land snail called *Thaumatodon hystricelloides* was common in the woods behind the port of Apia in 1865. In 1965 it was restricted to high mountain peaks, the only areas from which introduced ants were still absent. The question is not *will* it become extinct, but *when*. Islands were treasure troves of evolution, but the carelessness of man's introductions threatens to turn them into wastelands. Eighty-five of 94 bird species thought to have become extinct since 1900 lived on islands.

But extinction strikes closer to home. A new subdivision in California results in bulldozing the only known habitat of a land snail into oblivion. Colorful Florida tree snails become extinct over thousands of acres in the Miami-Homestead area as the tangles of trees and vines are replaced by houses. Resorts and retirement houses fill the Florida Keys, and more snails are nearly lost. They are gone from their original home, but survivors have been transplanted into the Everglades National Park by a few dedicated naturalists. So some were saved.

Even land snails have a few partisans. And I plead guilty to a somewhat malacocentric outlook. But many, many land snail species are on the verge of extinction. There are only a handful of malacologists. Should the few of us collect and preserve samples from populations of the vanishing species? If we do this, there will be a bottled remnant in museum jars for our successors to study. But if we scramble to snatch these samples of vanishing forms, there is not enough time for study of what we get, nor for attempts to save and preserve. If we study some, then many will be lost without a trace. If we try to save a few, then neither collection nor study is possible.

No choice is easy. The island snails that I now study are vanishing rapidly. Saving them is not possible. Introductions of domestic animals, plants, and insects have set in motion habitat changes that doom the snails to extinction. Unlimited money, help, and cooperation would not be sufficient to reverse the trends. So I collect and I study. When I can, I help efforts to save natural areas and preserve endangered species. This still is little compared with the need.

"Can man survive?" is the question now raised. Environmental catastrophes are predicted and occur. Crash programs on ecology will be called for and organized. The call of "relevance" in teaching and social work is being extended to science and research. The need for practical results to aid man's survival reduces the funds for basic research in the middle of inflation. Our awareness of dependence on other life forms ironically is breeding a new round of anthropocentrism. Will there be room on earth for insects and snails? Will there be room for students of them? ■

Alan Solem is Curator of Lower Invertebrates at Field Museum of Natural History in Chicago.
This article is reprinted from the April 1970 issue of the museum's monthly Bulletin.

LAST CHANCE FOR THE WHITE CLOUDS

By Max Dahlstrom & John Merriam • Photos by Ernie Day

Idaho's White Cloud Mountains, within the Challis and Sawtooth National Forests, are a magnificent part of the fraction of our natural scene that has remained virtually untouched by "progress." The highest summit of the range is Castle Peak at 11,820 feet. The streams that form on its snow-covered slopes flow through mountain meadows to join the East Fork of the Salmon River, the "River of No Return." A few Forest Service trails enter the area, but they are used as much by deer and elk as by man. From the high crags, bighorn sheep and mountain goats look down on the more than 50 lakes that dot the area. Things are much as they were over a century ago when Lewis and Clark passed a few miles to the north on their exploration to the Pacific.

But it may not always be so serene in the White Clouds. Today several mining companies are poised on the edge of the White Cloud wilderness, waiting for the signal to crank up their bulldozers and chew into this choice chunk of the public lands. The heavyweight among the mining interests is American Smelting and Refining (ASARCO), a billion-dollar corporation headquartered in New York. ASARCO has staked mining claims running into thousands of acres near the base of Castle Peak. The prize is molybdenum, an element used mainly to harden steel. Idaho Governor Don Samuelson favors the mining project, as do many local residents. For Custer County, Idaho (where the mine would be located), there might be as much as $750,000 in taxes per year of operation. Custer is not a rich county, and the promise of new tax revenue is akin to the offer of beefsteak to a hungry tiger. Besides the taxes, ASARCO says, there might be about 350 jobs for local residents. Custer County is buying. When the Forest Service asked for advice on the mining road application, 80 percent of the favorable opinion came from Custer County.

Others in Idaho are not as ready to exchange the wilderness for a few dollars. Arguments against the mining proposal are typified by those of the Greater Sawtooth Preser-

vation Council, formed in response to the mining threat to the region's wilderness. To begin with, the Council maintains that there is no shortage of molybdenum, that known reserves are estimated to last 100 years even without recycling, that the United States now exports one-third of its molybdenum production, and that the economic "boom" Custer County avidly awaits will be a "bust" when the ore eventually runs out or if new discoveries make the low-grade deposits uneconomical to mine.

Many conservationists maintain that an access road and open-pit molybdenum mine would destroy the beauty and untouched solitude of the White Clouds as well as permanently damage the fragile ecosystem of this high alpine area. They argue that a few dollars for a few people does not justify further destruction of our vanishing wilderness.

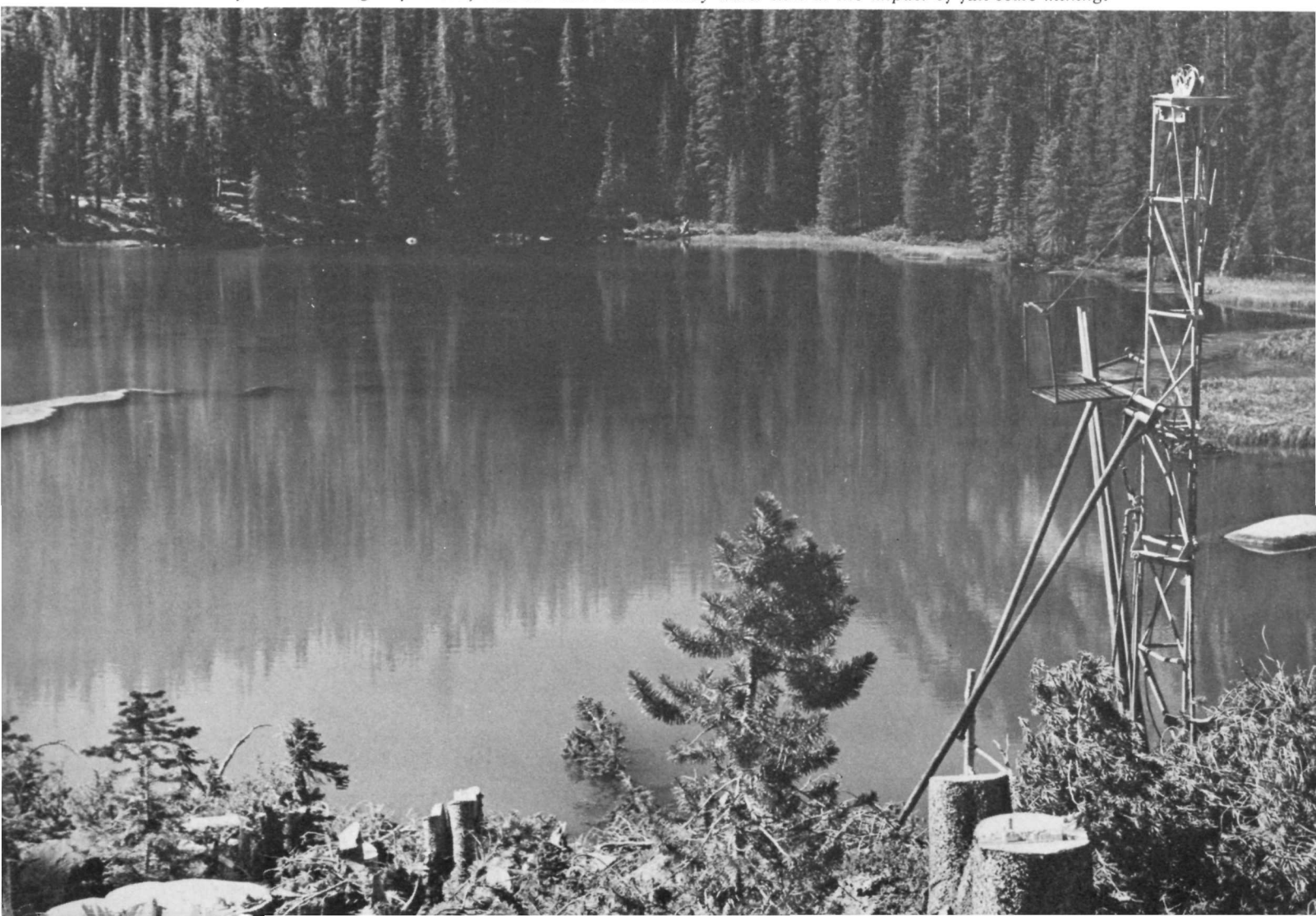
ASARCO promises to "restore" the area when it is through with it. The ore is low-grade, however, containing only about 0.2 percent molybdenum, so that 99.8 percent of the material mined would end up as waste or "tailings." These pulverized tailings would be pumped as a sludge into a gigantic settling pond at the rate, according to the *Idaho State Journal*, of about 20,000 tons a day. In addition the mining company would have to dispose of the vast tonnages of overburden or non-ore rock that in this kind of mining must be stripped away to expose the ore body. The prospective site of the mine dump is a green meadow just below Castle Peak. Based on ASARCO's estimate of the size of the ore body, the mine dump would stretch for 1.75 miles and cover the meadow to a depth of 300 feet. A 400-foot-high dam would contain the pond. Restoration after this kind of mining would amount to rebuilding a mountain. The Preservation Council and other conservationists view such an undertaking with considerable skepticism.

In July 1969 the scene of action shifted to Washington, D.C. After several meetings with the U.S. Forest Service, Idaho's congressional delegation placed the White Clouds in a National Recreation Area bill. The bill (S.853) would not prevent mining and road building in the White Clouds. Under S.853 previously staked claims (such as ASARCO's) would not be subject to regulation, and new claims could be staked subject to "reasonable" controls. The bill passed the Senate but has run into heavy going in committee in the House.

The Greater Sawtooth Preservation Council proposes establishing a national park/national recreation area complex, similar to that of the North Cascades in Washington. The total area involved would be approximately 1.3 million acres and would be divided about evenly between park and recreation area.

The Council argues that the combination of park and recreation area has a variety of advantages. The fragile high country can best be protected by national park status. These alpine areas are most susceptible to damage from

Three of 12 Little Boulder Chain Lakes (opposite). Some may be drained by miners. The lowest of the group (below) already has been visited by crews drilling to find ore; slashed timber and muddy water hint at the impact of full-scale mining.



The well-named Sawtooth Range, also under siege by miners, would be protected in proposed park.

uncontrolled use and also are the target of the current mining threat. Inasmuch as nearly all the land in question is federally owned as national forest, there would be little cost for land acquisition.

National park status would confer automatic condemnation authority, and claims could be bought out at market value. Forest Service administrators, on the other hand, can proceed only with "friendly condemnation"; that is, claims can be bought out only if the owner is willing to sell. Park status also would cause the land to be "withdrawn from mineral entry"—no new claims or prospecting would be permitted. Mining claims not proven valid as of the date of withdrawal could be challenged, and additional prospecting and mining to prove the claims would be prohibited. Most new claims in the White Clouds are still unproven and could thus be challenged.

Existing valid claims in a national park, even if not bought out, are subject to stricter regulation than in a national forest. The National Park Service prohibits on-site ore processing; and no additional land would be provided for mine dumps, mill sites, tailings ponds, a mining town at the site, land for power transmission lines, and so on. To be economically feasible, these free "fringe benefits" may be required to mine the low-grade molybdenum in the White Clouds. Thus park status could effectively prevent operation of the open-pit mine.

The Council claims that national park status would generate greater and more lasting economic benefits than would a mining operation. Professor Ernst Swanson of North Carolina State University has estimated that Yellowstone National Park brings over $57 million per year into areas surrounding the park. Tourists pay taxes, but Idaho would not have to educate their children nor build roads for their ore trucks.

Recreation area status for the valleys and foothills, the Council maintains, would permit the existing and traditional uses of ranching and grazing. Logging and mining also would be allowed, *provided* they do not interfere with the primary use of recreation. Most of the big game is in the lowlands (proposed recreation area) during the fall, where hunting would be allowed under the regulations of the Idaho Fish and Game Department.

One of the immediate threats to the Sawtooth Valley is land speculation to sell small parcels of land for vacation cabins. Already, transplanted urban sprawl is beginning to appear. Recreation-area status could provide for scenic easements and control over unsightly or overcrowded real estate developments.

The Council and other advocates of the park and recreation area complex see this proposal as the best solution for protecting the area and still satisfying existing users of these federal lands.

Considerably more than the preservation of a single wilderness area is involved in the struggle to save the White Clouds. This controversy could well become the test case with which to challenge the archaic laws that govern mining on nearly all federal lands. In essence, a miner has but to stake his claim, show that it contains a "valuable mineral," and he can mine it as he sees fit and receive access to his claim across other federal lands. There are no provisions for considering alternative uses or the best use of the public domain. Mining has first pick. These laws have sanctioned tragic misuse of our wilderness areas.

The Forest Service maintains that it is powerless to prevent mining and access in the White Clouds. But conservation lawyers disagree.

Bruce Bowler, a Boise lawyer, contends that the Forest Service has not only the right but the obligation to deny any road permit. "Tradition in mining activities on public lands, which had origin with federal laws as early as 1872, persists under the wrong assumption that circumstances and law are the same today. Under modern administrative law principles the White Clouds road permit applied for should really present easy test for denial of permit."

Bowler cites U.S. Supreme Court decisions supporting his position. "In light of the statutory law and court decisions, to say we are stuck with only inadequate 1872 mining laws is just not true, and to express sorrow about inability to do what is obviously in the public interest would have to be administrative deficiency and abandonment of duty." As to the "right" of the company to a road into the White Clouds, Bowler says: "The common law of equity will not support this. Miners persist in acting like they are equitable owners of the public lands, which, in fact and law, they are not. Their thinking needs to be brought up to date."

Considerable legal research now is going forward with a view to challenging any road permit that the Forest Service might issue. When and if the case goes to court, it could be a landmark decision assuring the rights of the public in our irreplaceable natural treasures.

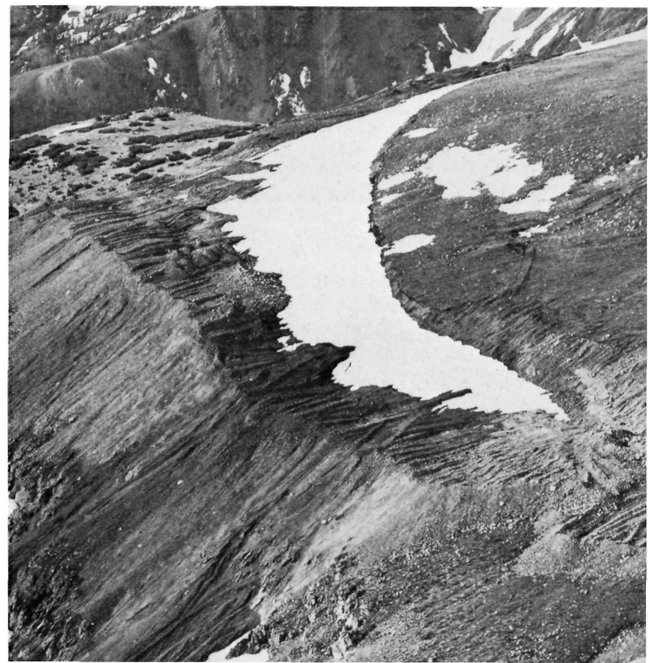
Ultimately our mining laws may require reforming. Proposals already have been introduced in Congress to do this. Provisions include allowing mining on a lease basis as is done with oil and requiring that all interests—watershed management, fish and wildlife, recreation, and preservation of wilderness, included—must be considered before mining is allowed to proceed. For the White Clouds, such changes may not come in time; conservationists are pinning their hopes on a lawsuit to block a road permit and on creation of a national park and recreation area.

Mining companies realize that the days of unrestricted claim-staking are nearing an end. Some are redoubling their efforts to claim as much land as possible. In Idaho, these claim-staking rushes have not been restricted to the White Clouds. The more famous Sawtooth range is also under siege, as are the Boulder and Pioneer mountains. (These ranges lie within the proposed national park and could be protected if action is taken in time.)

The mining companies have spoken. But who speaks for the wildlife, clinging to an ever-shrinking habitat? Who speaks for the Chinook salmon, making his last stand in the upper reaches of the River of No Return? Who speaks for the wilderness? Let us hope that someone speaks, for the next year or two will be the last chance for the White Clouds. ■

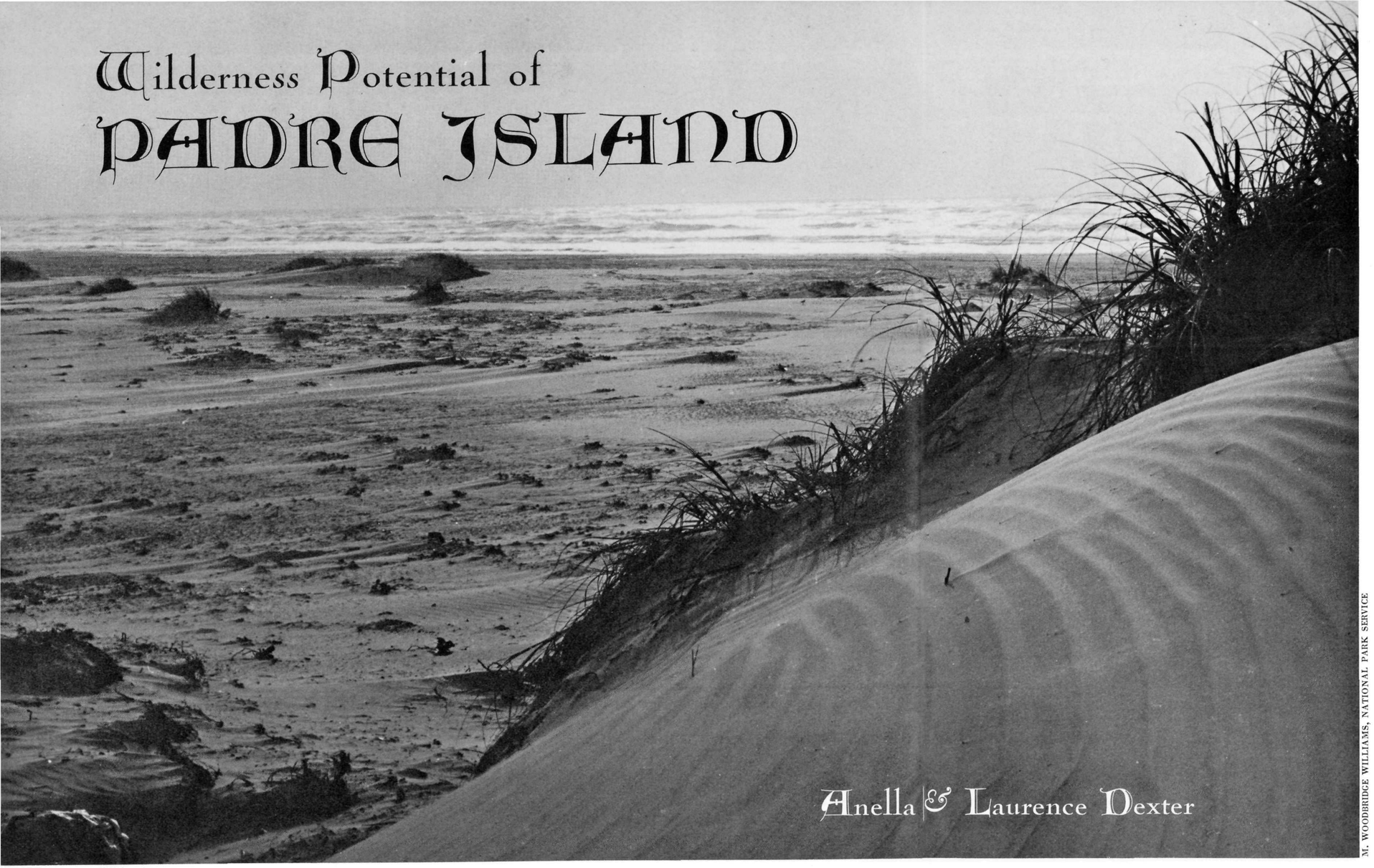
If you want more information about the threat to the White Clouds, write to the Greater Sawtooth Preservation Council, Box 1156, Idaho Falls, Idaho.

Prospecting bulldozer leaves its mark in the White Clouds.



Max Dahlstrom is a native Idahoan and a director of the Idaho Environmental Council. Dr. John Merriam is chairman of the Department of Economics at Idaho State University and president of the Greater Sawtooth Preservation Council. Both have been active in the effort to preserve the White Clouds.

Wilderness Potential of PADRE ISLAND



M. WOODBRIDGE WILLIAMS, NATIONAL PARK SERVICE

Anella & Laurence Dexter

Man's desire to climb a mountain "to see what he could see" has always been matched by a longing to go down to the edge of the sea. The Wilderness Act of 1964 insures that there always will be large, completely natural tracts of rugged, mountainous country for future Americans to explore, but natural, unspoiled seashores have already become almost nonexistent in the United States. One exception is Padre Island National Seashore off the coast of Texas.

The 117-mile-long island was isolated by natural barriers and frequent hurricanes so that it was still as wild as the winds and waves when we came to South Texas in 1937. The only way to get there was by boat. We frequently crossed onto Mustang Island from Aransas Pass by way of a combination of fills, rickety one-way bridges, and a ferry and then drove about 20 miles down the beach to where Corpus Christi Pass separated this island from Padre. About 2 years later storms filled the pass and it was possible to drive approximately 20 miles down Padre, where the character of the beach changed to a loose mixture of sand and small shell fragments. This 5-mile stretch of beach is known locally as the Little Shell.

An ordinary automobile bogged down here, but the temptation to explore more of the fascinating island was so strong that we tried to go on several times and had to dig ourselves out. One day we found that a gulf storm had packed the sand so firmly that the beach was as hard as a pavement. We drove past the Little Shell and even the Big Shell, where the shell fragments were larger, without realizing where we were. Several sets of car tracks led on down the island, so we kept going. When the last tracks turned back, it suddenly occurred to us to check our fuel. We did not have enough gasoline to go back. The map showed a ferry at the southern end of the island, so we decided to go on even though we were a bit worried because we recalled that a pilot had once reported 48 open passes on the island after a hurricane. There were no open passes, but neither was there a ferry! Fortunately there were several fishermen who had come by boat, and one of them got us some gasoline, so we were able to return as we had come.

A year or so later we were stationed at Aransas Pass, and for the next 15 years we prospected for oil all up and down the Texas coast on land, in the shallow waters of the bays, and in the open gulf. Our boys loved Padre, and we spent many weekends camping on the island. Generally we were alone there so far as we knew, and we thoroughly enjoyed the island's remoteness and its solitude.

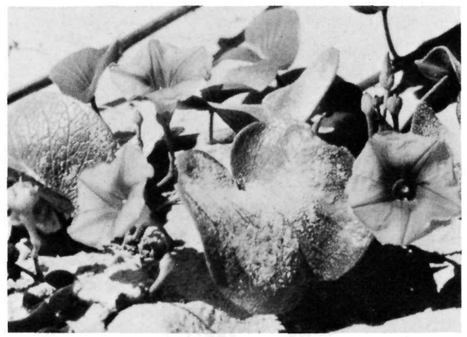
Padre is one of a series of sand barrier islands that parallel and protect the Texas coast. These islands were built entirely by wind and wave action on a sandy sea bottom. High winds carry the sand across the islands, and, were it not for the Intracoastal Canal, they would extend the island westward until they became a part of the mainland. This is the natural sequence of events; it happened perhaps 100,000 years ago as indicated by the elongated shapes of the bays that indent the mainland in a number of places and by the ever-increasing amount of accretion land on the western sides of the islands. Meanwhile other barrier islands are forming offshore but are still below sea level.

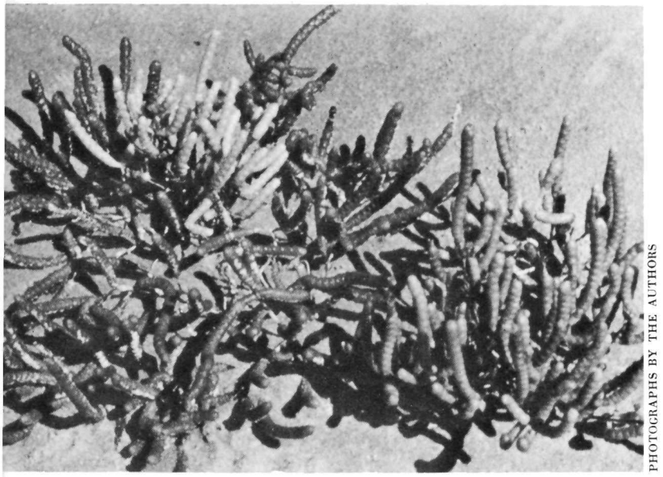
Padre is by far the longest in the island chain. It is separated from the mainland by Laguna Madre and the Intracoastal Canal. The island is somewhat wider at the north and varies in width from about ¼ mile to 3 miles. The Laguna has a maximum width of about 5 miles, but the water seldom reaches a depth of more than 6 feet; much of it is little more than mud flats. The beach is a broad expanse of sand and broken shell with a uniformly gentle slope that makes it ideal for swimming, surf-fishing, and general recreation. The climate is mild enough for year-around enjoyment, and the tides are seldom over a foot or two in height.

A characteristic feature of the island is the line of windswept dunes that march down it in a belt 300 feet to a mile wide. The maximum height of the dunes is about 40 feet. Some of them are stabilized by vegetation; others are migratory and change size and contour with every passing storm. Conditions for plant growth are rugged. The sand contains little organic matter and is porous as a sieve. The plants also have to contend with high winds and a high concentration of salt. Sea oats, sea morning glory, sea purslane, seaside sunflower—each has its special structures for survival.

Behind the main line of dunes is an irregular area of lower dunes and beyond this a sandy rolling plain covered with an assortment of grasses and low shrubs. This area

Laurence Dexter is a geophysicist, and Mrs. Dexter was a university instructor in chemistry before they started traveling to hunt for oil. By avocation they are naturalists working with the Texas Conservation Council to protect the environment.





PHOTOGRAPHS BY THE AUTHORS

Vegetation helps stabilize some sand dunes. However, conditions for growth are rugged, and plants have developed various structures for survival. Above, sea oats are adapted to life on the dunes because their extremely long roots supply them with moisture and their stems bend before the wind. The sea morning glory is called the "railroad vine" because its stems often run 30 feet in a season. Its waxy leaves protect it against rapid evaporation. It is a dune builder. Salicornia, *or saltwort, is one of the first plants to appear in the transition of mud flat to grassland.*

is covered with a profusion of wildflowers in spring and again in the fall. There also are extensive mud flats, salt marshes, and occasional lakes and ponds, which are fresh or salt depending on whether they are filled with rainwater or with salt water blown out of Laguna Madre. It is interesting to observe the transition of salt flat to grassland, beginning with the *Salicornia*, or saltwort, where the flat is frequently inundated with salt water, and progressing to masses of sea lavender and finally to pastureland.

Shorebirds and water birds are common; gulls and terns of various kinds are always seen on the beach, and sandpipers dart in and out with the waves. The peregrine falcon is on the endangered list, but Dr. Clarence Cottam, of Welder Wildlife Foundation at Sinton, Texas, told us he saw 15 of them on Padre one day last October. The brown pelican became very scarce about 10 years ago. A few of them were sighted last year, but they were probably migrants from Mexico. White pelicans, egrets, herons, and many other species of water birds nest on the islands in Laguna Madre. At least a hundred kinds of birds are said to be residents of the area, and of course there are many migrants. Ducks and geese are abundant in the fall and winter, and Laguna Madre is a popular hunting area.

Coyotes are heard at night and occasionally seen in the daytime, but most of the mammals on the island are small rodents, spotted ground squirrels, and jackrabbits. Rattlesnakes are found in the salt grass but are seldom seen on the beach or in the dunes. The ridley sea turtle has been seen nesting on Padre, but we have seen only one dead one. Ghost crab holes are everywhere on the beach and in the foredunes, and at night these little scavengers literally cover the beach.

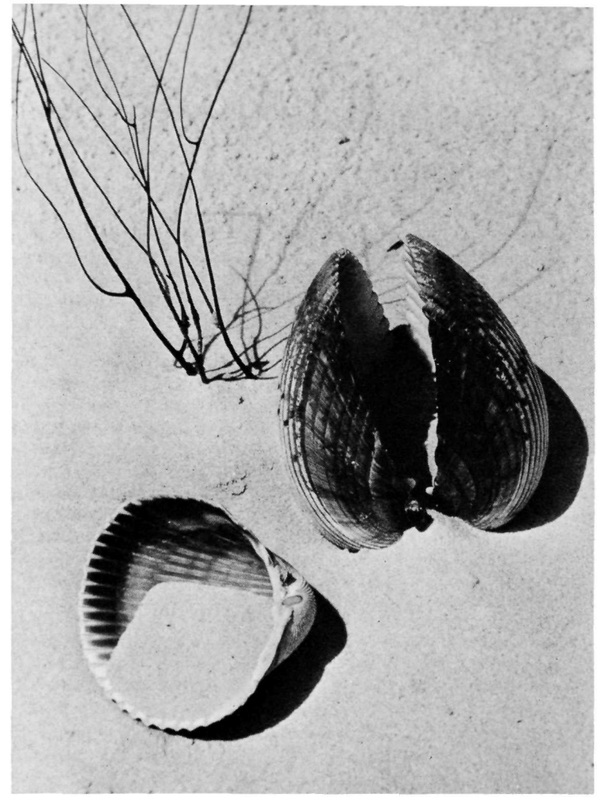
Marine life is abundant. Both the gulf and Laguna Madre are outstanding areas for sport fishing. Porpoises are seen occasionally in the surf. Shelling is a popular pastime. The great quantities of shells found on the beach testify to the richness of the mollusk population; and starfish, sand dollars, and other shallow-water forms may be found alive at low tide.

The island's recorded history dates back to 1519, when Alfonso de Pineda cruised along the coast and prepared the first map of the area, but Texans are more apt to think of it as beginning with the ill-fated voyage of a fleet of 20 treasure ships that sailed from Vera Cruz in Mexico for Spain in 1533. A hurricane cast several of the ships upon Padre's offshore bars, and some 300 of the passengers and crew managed to reach the island only to die of thirst, starvation, and Indian attacks. Many other proud galleons and ships of various kinds have been wrecked on these offshore bars, and occasionally coins and trinkets are found on the beach.

Padre Island was first known as Isla Blanca and a bit later as Isla de Las Malaguitas, probably for the Indians who fished there about the middle of the eighteenth century. About 1800 Padre Nicholas Balli obtained title to the island from the King of Spain and established a ranch near the southern end. The last of the Balli heirs left the island in 1844, but it continued to be known as the Padre's Island. There are tales of a number of little settlements there after that. Some of them have been authenticated, but the actual buildings were either swept out to sea or buried by the shifting sand.

After the Civil War the King and Kennedy interests established Los Tres Corales Ranch near the southern tip of the island, ferried cattle across Laguna Madre, and turned them loose on the island. From then on the island was used continuously for grazing. Pat Dunn, the self-styled "Duke of Padre Island," came in 1881 and lived there until 1935. The ruins of his ranch house and corrals may still be seen back of the dunes near the center of the National Seashore.

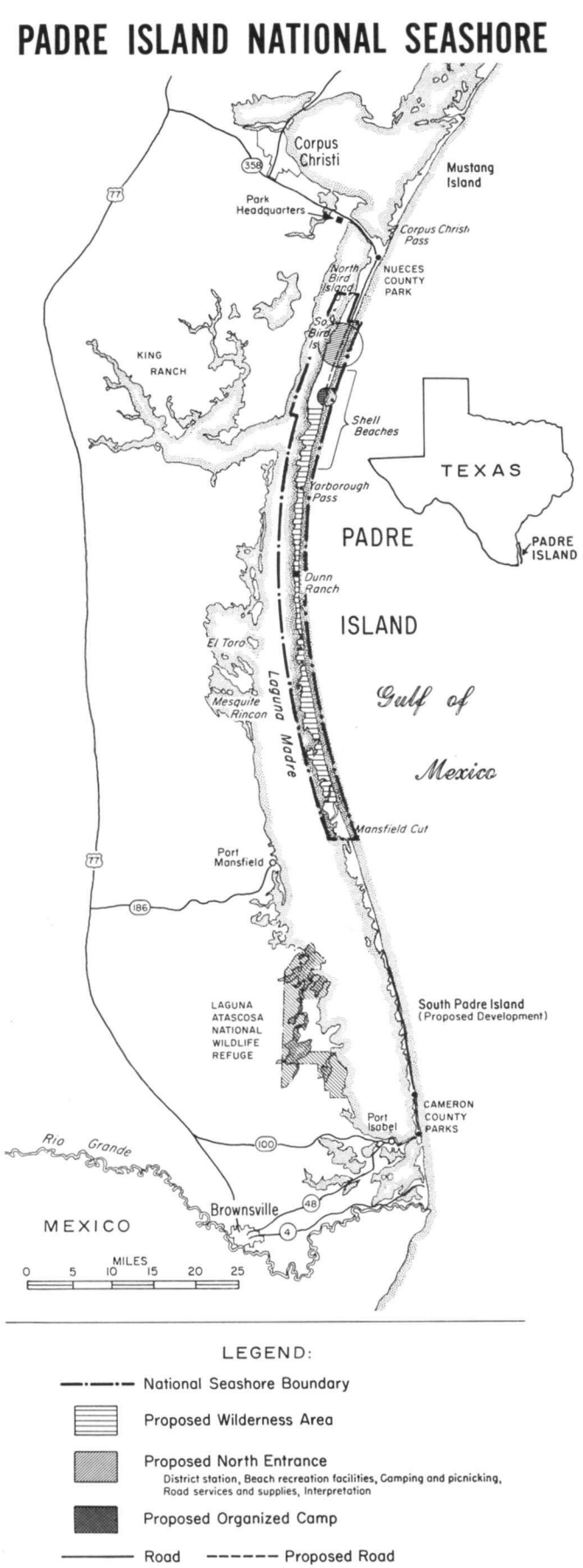
The first big changes came to the island in the 1950's. In 1957 a channel was dredged across the island about 25 miles from its southern end to permit fishing boats to go from Port Mansfield to the gulf. Two modern causeways to the island were constructed in 1950 and 1955, the one at Port Isabel and the other at Corpus Christi. Resort development began immediately at the southern end of the



The heart cockle is a common large Gulf Coast shell.

Black skimmers nest on the beach and in the foredunes. The young birds are well camouflaged.

Above, ghost crabs are scavengers that live in holes on the beach and in the foredunes. They literally cover the beach at night. Left, nest and young of brown pelicans on spoil bank formed by dredging. These birds almost disappeared from the Texas coast about 10 years ago. Biologists blame DDT.



FEDERAL GRAPHICS

island and called up visions of "development" all along the island. Those who wanted others to enjoy Padre's unique beauty, its fascinating plant and animal life, and its solitude worked for national park status for the island, and in 1962 Congress passed Senator Ralph Yarborough's bill for an 88.5-mile Padre Island National Seashore.

The northern and southern ends of Padre were left for private development, but a narrow 11-mile strip of beach and dunes south of the Port Mansfield Channel was included in the national seashore authorization. The National Park Service planned to develop it for mass recreation, but this narrow strip proved to be so costly that the Park Service returned it to its owners. Under the Texas Open Beach Law the public will have access to the beach in this area, but there will be no park facilities unless the state or the county provide them. As finally established, Padre Island National Seashore includes 69.5 miles of beach north of the channel and extends inland to include approximately 133,000 acres of dunes, flats, and marshes, two bird nesting islands in Laguna Madre, and a few small islands formed by dredging.

The Padre Island National Seashore Act states that the Seashore is established "to save and preserve it for purposes of public recreation, benefit, and inspiration." This is a big order. The same areas cannot be preserved for their inspirational and educational values and used for mass recreation. The two uses simply are not compatible.

Geologists have long studied the action of winds, waves, and currents on Padre, where conditions for deposition and erosion were not altered by groins, piers, and seawalls, and applied this information to the interpretation of the subsurface. Biologists will attest to the value of an unspoiled beach and dune area for studying plant and animal life. The very existence of seashore life is threatened by mass recreation, and the inspiration to be derived from a natural beach is something man will be able to experience only by reading the literature of the past unless some beach areas are protected against mass recreation.

Below, shelling is best at low tide on a cold winter day. Right, dunes are fragile and easily destroyed by people.

PHOTOGRAPHS BY THE AUTHORS

The Wilderness Act of 1964 requires that the Secretary of the Interior review every roadless area of 5,000 or more acres in the national park system to determine whether it is suitable for wilderness preservation, but so far no such study of Padre Island has been authorized. The extent of recreational development planned for the long, narrow seashore is appalling. Some construction has already been completed, but any further development should await the results of such a study.

We believe that the area between the Little Shell beach and the Port Mansfield Channel is ideal for wilderness preservation because it has natural boundaries that have so far protected it from mass recreation. The Little and Big Shell make beach travel southward impossible by automobile except for four-wheel-drive vehicles; the Port Mansfield Channel forms an effective barrier on the south; the gulf protects it on the east; and Laguna Madre and a broad expanse of mud flats protects it on the west. This strip of beach is not nearly so good for water recreation as the park area to the north of the Little Shell because there are places where the undertow is dangerous, but it is excellent for plant and bird study, shelling, and the enjoyment of solitude.

We propose that the wilderness area begin about 5 miles south of the Little Shell to allow for a gradual tapering off of visitors rather than an abrupt halt where beach driving becomes impossible for the ordinary automobile. In line with this, we believe that the road beyond the park entrance should be narrower than the entrance road and should stop altogether at the Group Camp Area shown on the park plan. This is about 8 miles north of Yarborough Pass, which was dredged in 1941 in a futile effort to reduce the salinity of Laguna Madre. The pass filled up immediately, but this remains a low place in the dunes. It would be extremely costly and almost impossible to maintain a road beyond this point because there are a number of other low places that also become open passes when there are heavy rains or hurricanes.

The wilderness area should probably end about 5 miles north of the Port Mansfield Channel. These 5 miles would serve as a buffer to protect the Wilderness Area from channel activities and to permit people who dock along the channel to enjoy the beach there. They should not be permitted to bring motorized equipment onto the island here.

In a sense Padre Island does not fully meet all the requirements of a wilderness area, but neither does a national seashore meet all the requirements of a national park. The "national seashore" designation was used because there are some requirements for national parks that can no longer be met by any of our seashore areas. For example, there were villages at Cape Hatteras more than 200 years before it became our first national seashore. On Padre Island oil development poses a problem. There had been oil exploration and some development on the island before it was considered for national seashore status, and it soon became apparent that the federal government would not be able to acquire any of the island without permitting further oil development.

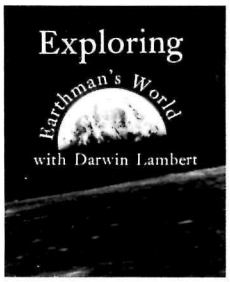
Mineral development is not permitted in any wilderness area approved to date—and rightly so, because mineral development would cause permanent damage in most scenic areas, but this is not necessarily true in a national seashore. Oil wells have a finite life, and on Padre's sandy shores all traces of oil operations will be quickly obliterated by the blowing sand once a well ceases to produce. Also, because wells can be drilled directionally, a drilling well need not be located where it will disturb the beach or the dunes.

Another requirement for a wilderness area is that it be roadless. The part of Padre we are recommending for wilderness status certainly is roadless, but a few 4-wheel-drive vehicles presently travel the beach all the way to Port Mansfield.

The heat, the lack of fresh water, and the frequency of storms discourage back-packing and would decidedly limit the use of the area if all cars were barred from the beach. Some driving on the beach probably would not create a serious problem inasmuch as the beach renews itself every day. The wind and the sound of the surf minimize both the air pollution and the noise caused by motorized equipment. If four-wheel-drive vehicles are permitted, it should be strictly on a permit basis. Perhaps public carriers could be used. Under no conditions should visitors be permitted to drive or camp in the dunes, and, for obvious reasons, they should be required to take their trash back with them when they leave.

Establishing a wilderness area on the Padre Island National Seashore will be the only guarantee that the area will remain roadless. There has been considerable agitation for a road the full length of the narrow island and a bridge across Port Mansfield Channel, primarily to serve the developers on both ends of the island. A wilderness area on Padre is a must if any of its natural features are to be preserved for posterity. Texas has nearly 300 miles of sandy beaches for public recreation. Certainly it is not too much to ask that approximately 40 miles be protected from mass recreation. Padre Island seems to be the only truly significant, completely natural seashore in the nation that still can be preserved. It is now or never. ■

A series of short articles examining man's relationship to nature.



LOSS OF SOUL WITHOUT NATURE

CHRISTIAN I. SCHNEIDER

We suffocate in the no longer breathable air of the machine world and the barbaric necessities which surround us. . . . We do not conceal that the soul of mankind is in danger and near the abyss; neither do we conceal that we believe in its immortality.—Hermann Hesse

Hermann Hesse (1877–1962) is at present perhaps the most widely read German-born author in the United States. English translations of his major novels are available in paperbacks from coast to coast. He is being discussed by teachers and students of many disciplines. His work has become of almost cultic value to young people, as shown by Timothy Leary's "Castalia Foundation" in the Hudson River Valley and the bar called "The Steppenwolf" (after Hesse's catastrophically misunderstood book) on the edge of the Berkeley campus. Hesse's popularity here is the more astonishing as the poet's fame in his own country seems to have decreased steadily after he received the Nobel Prize in 1946. He was considered even during his later life (similar to Goethe with whom he is often compared) "half a legend, half an object of mockery by youth"—a quotation from his poem, "The Organ player," which a critic characteristically used as the title for a Hesse necrology in 1962.

What are the reasons, then, for Hesse's resurrection in the United States? At first glance, his basic thoughts seem to be all but "catching" or "radical." Politically, he was neutral like Switzerland, whose citizen he became in 1923. His language and style are classically simple and transparent, reminding one of the Bible by which he was deeply influenced through his parents, both German missionaries in India. At the same time he venerated Mahatma Gandhi as one of the greatest spirits of our age. Theodor Heuss, the first president of the German Federal Republic (himself an eminent scholar and artist), once praised Hesse for writing "the most beautiful German" among the contemporary German authors. More closely examined, however, Hesse proves to be a highly complicated character, being both an autodidact, a social outsider with a strongly self-developed philosophy of life, and—like his friend and peer Thomas Mann—one of the most literate, tradition-conscious, and rather conservative poets of the German language. As a whole, he might well be regarded as a symbol for the complexity of the modern mind; as such, he appeals to all sorts of readers, young and old, intellectual and hippie likewise.

There is another reason why Hesse all of a sudden struck the Americans. It is closely related to the issues discussed particularly in this Magazine. To be sure, Hesse never wrote expressively on conservation, pollution, overpopulation, or ecology in general; but he was very much concerned with the basic problem underlying all these phenomena—the problem (and possible solution) concentrated in Darwin Lambert's concept of *earthmanship*. For earthmanship, understood as man's rediscovered instinct for his vital dependence on nature without which he will never be completely himself nor achieve a truly integrated life—this is indeed a major theme in Hesse's works.

His heroes—representative of modern man—suffer from a disturbed relationship between spirit and nature within and outside themselves. They start as (or become first) overdeveloped "intellectuals" before they realize having neglected something important: the *Magister Ludi* (1943), the "world" outside the Castalian republic of scholars; *Narcissus and Goldmund* (1930), their mother-world; *The Steppenwolf* (1927), his sexual life; *Siddhartha* (1922), nature itself as the necessary "environment" for obtaining further wisdom. In the end the voices of the woods and the river become his greatest teachers—an expression of Hesse's own Franciscan love for "Sister Water" and trees, which he called "the most impressive preachers." The search for himself leads *Peter Camenzind* (1904) from an urban and overly "cultured" life back to the rural world of his native mountain village—as with the poet himself, who lived from 1919 to his death in Montagnola high above the Lago di Lugano in Italian Switzerland, meditating, gardening, writing, hiking, studying. (He was also a painter and musician.)

Harmony between spirit and nature, individual and society, God and world was Hesse's goal. Like J. J. Rousseau, D. H. Lawrence, and other so-called "romantics," he had an early presentiment of the dangers hovering over a society that seriously believed in "the European-American fashion-religion of the independent modern man who had come so far," as Hesse ironically explained in a letter of 1932. "How an American, Canadian, or Californian farmer would laugh," he wrote on the occasion of a hike near Lugano in 1923, "if he saw this poor, tiny dwarf agriculture completely managed by hand; these little fields ploughed with a spade by hand, sown by hand, harvested with a scythe. . . . I, however, the retrospective romantic, the infantile, like very much both the straw rooted out by hand and the uncorrected creeks and irrationally planted forests. . . . I regret each new highway, each concrete building, each iron pole which intrudes into this backward world. . . . Several of us know, too (in their intellect or heart), that we have to do here neither with progress nor romanticism . . . but with outside and inside, that we do not shy away from railways and cars, money and reason; it is rather the forgetting of God and the becoming shallow of the soul. . . ."

In the final analysis, Hesse—as Jacques Barzun claims of J. J. Rousseau—"never intended that we should return to living in caves and wearing skins. He clearly saw that this is neither possible nor desirable, but he also saw that the complication of life resulting from civilization disturbs or destroys something valuable, something that cannot be flouted with impunity." Rousseau called it "nature"; Hesse, "soul"—two aspects of the same invaluable thing that we hope can still be saved. Hesse might then really come into his own in the United States. ■

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BARBARA SMITS

Green Bay Wildlife Sanctuary

SUCCESSFUL COMMUNITY PROJECT

Thank God for far-sighted men. What little we would have without them, especially in the field of conservation.

It is sad but true that large projects and events, by their sheer splendor, overshadow many smaller but equally important and inspiring local projects that bring joy to many.

Such a small but inspiring local project is the Green Bay Wildlife Sanctuary in the Fox River Valley area of Wisconsin. As a child, teenager, and adult, I have always found a special joy in visiting this sanctuary. It is pervaded by such an aura of peace and naturalness, as if laid out in the original plan of things, that only recently did I question how and why it had come to be. Far from removing my joy in its apparent natural origin, the story behind its creation has given me a greater faith in men and in what they can do when they set their minds and hearts on a future goal.

Well situated in the Mississippi Flyway, Green Bay should have seen many migratory birds in the fall of 1935. But there were few. The problem was nationwide, however, arising from years of marshland drainage and removal of wetland breeding areas in the United States and Canada, followed by a period of drought in the 1930's that further reduced wetland breeding areas.

Noticing the extreme scarcity of birds, and seeing the same marshland drainage being practiced in Green Bay, Chester Cole, a local biology teacher and conservationist, was aroused. "I watched the ditch being dug that would drain that wonderful haven for ducks, 250 acres of marshland owned by the city of Green Bay. It seemed a perfect spot for a natural sanctuary where people could go to watch and feed waterfowl and upland game. I began talking about the project to every individual and group I thought might be interested."

The actual beginning was made on a Saturday afternoon in February of 1936. Given permission to experiment on a 6-acre area near the Bay Beach Recreation Park, Cole, his father C. F. Cole, Lyle Kingston, and Judge Henry Grass dug a small pond by hand and put out feed to see if ducks could be attracted to stop within close proximity to people and buildings. Enough of them to be noticed did stop at the little pond.

Elated by their success, Cole, Kingston, Frank Vaughn, and A. J. Goedjen met a short time later, deciding that the best way to begin work on a larger area would be to form a club charging a 50¢ membership fee to raise initially needed funds. On April 23, 1936, papers were filed incorporating the Green Bay Wildlife Sanctuary, Inc., a nonprofit organization under the laws of the state of Wisconsin. Original officers included Chester Cole, president; Judge Henry Grass, vice-president; Mrs. Elda Grebel, secretary; and Miss Emmeline Andruskewicz, treasurer, with six directors.

Members were constantly on the lookout for donations of money, labor, excavating equipment, feed, or anything useful to the development of the sanctuary, but progress was slow. In August of the same year, the project was given a tremendous boost when Blake Posey, local supervisor of the National Youth Administration and very much interested in waterfowl (he later became foreman of the sanctuary), obtained permission to use development of the sanctuary as an NYA project.

The NYA boys hand-dug a small pond and a series of streams, planted trees and shrubs, and built a duck coop and tool shed. Later, when ducks began to stop, they cared for many sick and wounded birds.

Realizing that heavy equipment would greatly accelerate pond construction, club members began a new membership drive and solicited funds and donations of a crane. In answer to their continued pleas, several offers were forthcoming. The Brown County Highway Commission sent a caterpillar and dug 1,400 feet of meandering stream. The Northwest Engineering Co. of Green Bay decided the project would be a good testing ground for new equipment; and, experimenting with a dragline, they dug about 8,000 yards from the largest pond. Ed Schuster of Denmark agreed to supply a dragline and operator if the club would pay for gasoline and oil and one-half the expenses for broken equipment. While Schuster's dragline did the heavy work, men supplied through a small WPA project trucked and leveled the loose earth. A pond 285 by 300 feet, with a depth to 7 feet resulted from this operation.

Except from a financial standpoint, the sanctuary at this time was beginning to take shape. In order to create more enthusiasm among city residents, Cole went on WTAQ radio in Green Bay, conducting a series of 25 weekly broadcasts on wildlife and conservation in general, always promoting the sanctuary. Membership increased to 200.

In 1937 Cole and Blake Posey decided the sanctuary was far enough along to be entered into national competition in the 1937 "National Waterfowl Refuge Contest" sponsored by "More Game Birds in America, Inc." The sanctuary took fourth place, and along with a silver trophy and certificate the club received a much appreciated $50 for their treasury. Entering the contest actually had been postponed for 1 year. Early in 1936, Cole had sought to enter the project into that year's competition but later decided against it. In a letter dated June 6, 1936, to "More Game Birds in America, Inc.," Cole described the long process of development: "When I first started work on our project, I was confident that we would get a lot done this year and that we would wish to enter the contest right away. It was a bigger job than we suspected with the result that about the most we can expect this year is a start—one pond and some landscaping. You see, we are going to do as much as we can with proceeds from 50¢ and $1 memberships."

The years 1937, 1938, and 1939 were fund-raising years. Through donations, benefit shows, and stamp sales enough money was collected to clear up $1,800 in debts. The stamp sales, netting about $400, were held in conjunction with National Wildlife Restoration Week on a profit-sharing basis; 25 percent of the proceeds went to the Green Bay Wildlife Sanctuary, 10 percent to the State Wildlife Federation, and 65 percent to the National Federation. Area schools were the biggest promoters of wildlife stamps.

Interest by then was running high among citizens. More people visited and talked about the sanctuary than ever before. In order to increase the number of ducks, club members began raising ducklings from eggs donated by a private sanctuary nearby. Hens were first tried out on glass eggs to see if they would stay on the nests, then real eggs were substituted. Also, in July of 1938, Chester Cole and Blake Posey were granted a permit by the Secretary of Agriculture to capture sick or wounded waterfowl for the purpose of helping them recover. This project worked very well, as most of the birds did recover and nested in the sanctuary the following spring, many of them returning during the following years. In general as many birds stayed through until spring, a steam boiler was used to keep the pond water from freezing during the harsh Green Bay winters.

In October of 1938, the city of Green Bay realized the full value of the sanctuary as an attraction. Because work

was needed for people on relief and on the Works Progress Administration, a $450,000 WPA project was set up through which the original plan of the sanctuary was completed in 1941. The Green Bay Park Board also took over the care and management of the area during this period.

Duck recovery programs continued and increased each year, with many local hunting clubs using their dogs to pick up wounded birds. Swans, ill from lead poisoning, were rescued from Green Bay, and some were successfully "doctored" back to health. Several of these swans, rescued more than 25 years ago, still add grace and beauty to the sanctuary.

The tale of work is endless. There were bouts with botulism, water pollution on the Bay, and problems with hunters invading the sanctuary. There were countless pieces of correspondence concerning feed brought in from around the state, medical information from conservation officials, and numerous ideas gathered from other clubs over the entire country. These men stuck to their goal and saw it through, giving us the chance to know, appreciate, and gather knowledge from the birds and animals who have favored the sanctuary with their presence for many years.

Today, many birds visit the sanctuary; mallards, black ducks, scaups, teals, redheads, pintails, canvasbacks, baldpates, and Canada geese are among the species that stop. Approximately 3,000 birds winter here, with the number increasing to around 7,000 during migration months.

An average of 500 persons per day enjoy the sanctuary during summer months, with between 3,000 and 5,000 coming on Saturdays and Sundays. Small children seem particularly fascinated by the strange, waddling creatures; and an adult, especially an occasional nun, resembles a modern-day St. Francis of Assisi, with the ducks gathering around quacking hungrily for the can of corn purchased for a dime from the caretaker. In 1969, 60 tons of shell corn in all were fed by the caretakers and visitors.

Although a popular spot, little has been done to improve the sanctuary since its completion in 1941. Much-needed repairs and improvements were made to the access road and parking lot during 1969, but Green Bay Park Board officials seem more inclined to spend their hard-won budget dollars on city park systems and swimming pools, and no one can deny their usefulness. Looking at the shabby appearance of the sanctuary buildings, however, one cannot help but envision it as the real showplace it could be.

Fencing to encircle the entire sanctuary grounds was purchased in 1969 and will be erected during 1970. According to caretakers Elmer Pigeon and Bob Siebert, this was urgently needed to keep out young mischief-makers who often invade the secluded ponds and frighten the ducks during breeding time and steal or break their eggs. Besides keeping the mischief-makers out, an enclosure will serve to keep numerous deer and other small animals who share the secluded areas from wandering out onto roads and into unfriendly surroundings.

For years, the public was allowed to rent rowboats and visit the secluded areas, but the youngsters got out of hand, and the boats had to be discontinued. One boy was caught trying to leave the grounds with eight birds hidden in a gunny sack! Shortly thereafter, the boats were put up for sale.

Fishing, which was once a big attraction for children on several of the ponds, is now confined to one that the caretakers can keep an eye on. The children liked to practice casting at the ducks, whose feet sometimes became entangled in the nylon fishing lines. Nylon does not rot away as ordinary string would, and the ducks' feet would fall off because their circulation had been stopped.

Early in 1970, a new pumping system went into use, whereby fresh spring water can be pumped into the sanctuary lagoons if water levels should drop because of lack of rain or improper drainage. This will prevent an occurrence of low water and exposed shorelines, one of the major causes of avian botulism and other wildfowl diseases.

Plans to purchase a pontoon boat for guided tours were dropped by the park board after they decided it would endanger the primary purpose of the sanctuary to have it given over too much to public recreation. All that is really needed are a few improvements to the present buildings and the mud yards used by deer and flightless birds. The buildings need brightening up with paint and a new seating arrangement for the glass observation building would be very worthwhile. The mud during wet weather could be eliminated by filling these areas with gravel or other suitable material.

In 1936 and for five hard years, a group of dedicated men worked to give us a place of beauty that can last forever. It will always be a part of them because they built it with their own hands.

Today we use it and abuse it but never really think about it as being *ours*. We leave it to the park board to decide the time and nature of improvements, improvements that may cost many times their actual worth due to high labor costs and professional planning. But this seems to be the American Way. We leave it to others to take care of things, never thinking that perhaps our welfare and our own action might go hand in hand.

But how long can we wait to begin? Very few birds were in evidence in the Green Bay area during the 1968 and 1969 hunting seasons. Perhaps they will be more abundant this year—perhaps not. Many factors are involved in the making of a good or a bad year. Hopefully, however, ducks will continue to thrive in our sanctuary; and people will always have the opportunity to show their children live ducks rather than stuffed ones and to thrill to the sound of "honkers" flying low over safe water.

Undoubtedly, many communities across the nation have suitable resources to attract ducks and other forms of wildlife. All they need are leaders willing to give of themselves for an urgent cause.

Thank God for dedicated men. What little we would have without them. ■

PEOPLE PROBLEMS ON THE RIVERWAYS

James P. Jackson

The headwaters of famed Current River, deep in Missouri's Ozark hills, are spawned mostly of large springs. Montauk, Welch, Cave, Pulltight, Round—their names are as diverse as their flow characteristics and their intrinsic beauty. Over the centuries their waters have carved a picturesque valley, one framed by towering bluffs and heavily timbered slopes, endowed with a rich flora and fauna. It beckons with many attractions.

One attraction is that the river is easy to navigate, especially down its headwaters, so its popularity with canoeists has grown to floodlike proportions. This has been so especially since the Current and its lovely tributary, the Jack's Fork, were designated in 1964 to become the first of a kind: the Ozark National Scenic Riverways.

One Saturday in June I estimated just how popular canoe floating had become on the upper Current River. First I watched the floaters putting into the river at Akers Ferry; then I drove to Cave Spring, where many of them stop for lunch, to observe and tally the passing flotillas of canoeists.

Cave Spring, which issues from the dark recesses of a streamside cavern, has a moderate flow but a unique importance. Geologists consider it a model spring due to a discovery made some years ago up in the hills, a mile back from the river. Up there a farmer had secured the help of Missouri state geologists to determine what was at the bottom of a deep, black hole in the pit of a woodland sink near his house. The hole (indicated as "Devil's Well" on Horace Graf maps), it was discovered, widened into a water-filled chamber the approximate size of a football field. Scuba divers found that the water was nearly 100 feet deep and that two smaller but similar chambers were connected by underwater passages. Dye placed into this underground reservoir soon showed up at the mouth of Cave Spring. In other words, the entire subterranean complex proved to be a huge natural sump to sustain the spring's constant flow. Geologists believe that other Ozark springs may be sustained from similar reservoirs.

A tall bluff hides the early morning sun over Cave Spring; and when I arrived there that Saturday morning, cool breezes emanated from the cavern. A nesting phoebe protested my visit by nervously twitching its tail from a nearby perch. Swallows darted back and forth between the bluff and Current River; meanwhile there was a lazy buzzing of warblers high in the tall sycamore and maple trees. There is an enchanting and pristine quality about Current River, especially when early morning mists are still over the water, and I nearly missed noting the first canoeists to go by; they drifted by in perfect silence.

Not so later on, as they arrived with increasing frequency. Many beached their canoes at the cavern entrance, to swim or explore, and their shouts echoed over the river as they groped their ways into the cavern as far as light would permit. Floaters included overnighters with mounds of camping gear, flotillas of Scouts, family groups, and gaggles of frolicsome teen-agers. I tallied only seven fishermen and judged that to catch a fish amidst all the dunking of paddles, the swimming, and the noise would require a stroke of monumental good luck. When I left the area of Cave Spring at noon, three sizeable parties of floaters were picnicking in an undeveloped, trampled, and dusty clearing half the size of a tennis court.

I had stopped counting after 4 hours, and my tally added up to 476 persons floating in 214 canoes plus one rowboat. River traffic had averaged slightly less than one canoe per minute. Later when I showed my totals to a National Park Service ranger, he estimated that an all-day tally would have accounted for 450 to 500 canoes. He then explained that over half of such canoes are rented locally and that one concessionaire could boast that most—if not all—of his 130 canoes were out on the river every summer weekend. "What you saw," the ranger concluded, "is typical of summer traffic on the upper Current."

It is only fair now to explain that other portions of Ozark National Scenic Riverways do not suffer quite as much human congestion. The tributary Jack's Fork is less accessible and has less water; during periods of drought it is hardly floatable. The lower Current River, due to its inflow of huge springs, is broader and can support more boat traffic. Though it carries its share of canoes, it is too swift for novices and is better known as the realm of Ozark johnboats. These unique craft—long and narrow and unwieldy—demand experienced hands to navigate. They are best suited for luxury-type float fishing excursions, with guides to navigate, to prepare meals on gravel bars, and to spice up the outing with their unique drawlings of Ozark humor.

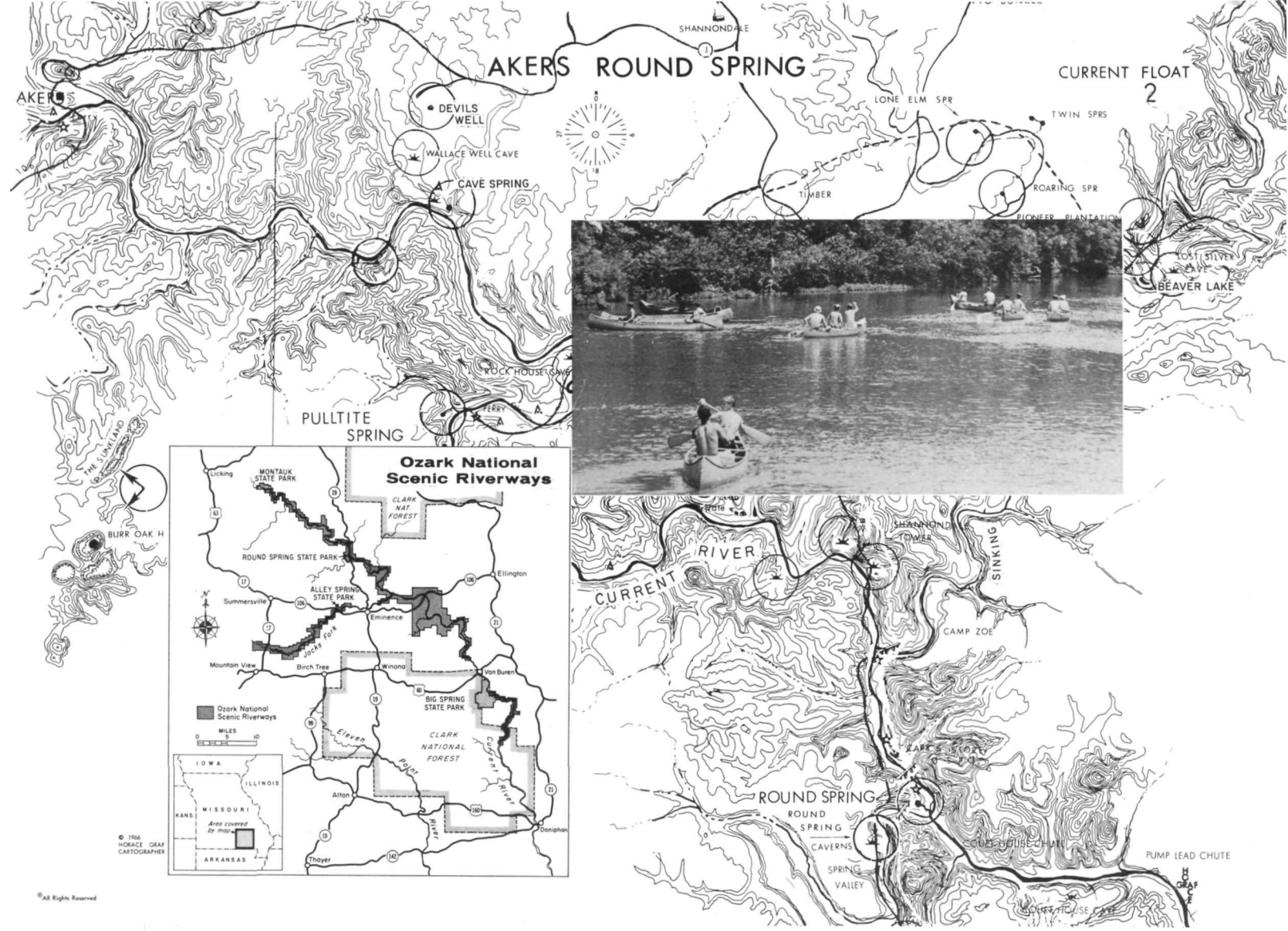
Obviously, then, the Ozark National Scenic Riverways can support a variety of floating adventures: short canoe floats on the upper Current, guided johnboat trips on the lower Current, and limited wilderness-type floats on the Jack's Fork. But I wonder whether all should be allowed to deluge the same stretches of water with no restrictions. The congestion I witnessed that Saturday on the upper Current River warns that the growing tide of popularity of all river excursions soon may destroy precisely the qualities that people seek so eagerly from their hopefully preserved rivers.

If present trends continue, not only may such rivers become as crowded as city park lagoons but—like many besieged national park scenic areas—they may suffer the scourge of irreparable ecological damage. Some of the floaters may tolerate excessive crowding, and their litter may regularly be picked up; but the attendant service roads will grow too numerous, the campsite clearings too trampled, the banks too eroded, the total environment too beaten back for mediocre recreation.

Formerly an educational representative for the Missouri Department of Conservation, James P. Jackson left that job several years ago to teach high school biology in the winters and devote his summers to freelance writing and photography on conservation topics.

PHOTOGRAPHS BY THE AUTHOR

Floating enthusiasts await the early morning services of canoe-renting concessionaires at Akers Ferry on the upper Current River.



Admittedly, the Ozark National Scenic Riverways is not a national park. It is too small and its natural features have suffered too much from man's past encroachments to qualify as any sort of primeval wonderland. It is, in fact, more in the nature of a national recreation area. But, according to Section 6 of the law that created it, the Riverways "Shall be administered in accordance with the provisions of the Act of August 25, 1916." This refers back to the original National Park Service mandate to preserve its lands "in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." In effect it dictates a delicate balance between preservation and development, between use and abuse.

Other scenic riverways now being proposed—the one on Arkansas' famed Buffalo River, for instance—will surely be subject to the same mandate. And each will become a direct reflection of how the Ozark National Scenic Riverways comes to be managed during the next few years. Congress, back in 1964, was fully aware of this when it created the legal framework for a prototype unit. Then it stipulated that the Riverways for its first 10 years is to be served by an advisory commission to consult with the Secretary of the Interior or his designee in matters of planning. The commission's current chairman is former Congressman Thomas B. Curtis.

National Park Service administrators are aware that the push for mass recreation threatens to destroy natural values; but they are vulnerable to the ever-growing demands of more and more people. Riverways Superintendent David Thompson not long ago showed me a management plan that outlines each site to be developed for auto camping, picnicking, nature and historical interpretation, and concessionaire activities. These sites are to be distributed, I was told, so as to spread out the public while at the same time leaving reasonably long stretches of river in undisturbed condition. But how many miles long these undisturbed stretches should be is, of course, open to challenge. So is the question of what to do when picnic and camp sites become so crowded that the public demands more of them along the rivers.

During my meeting with Superintendent Thompson, he outlined tentative regulations for control of boats, motors, and firearms on the rivers. Some of them bear discussion.

The use of firearms, for instance, though strictly forbidden in national parks, is allowed on the Riverways because of a clause in the original law permitting hunting, as well as fishing, according to applicable state and federal laws. The concession to hunting was deemed necessary for state and local support of the 1964 law. It was agreed that in such an area—ostensibly preserved for recreation—no person should be deprived the pleasures of a locally popular sport. But this concession may yet prove to have been a big mistake.

It is not that legal hunting might endanger the game species, but that it might prove incompatible with other human activities. Within the narrow river corridors—2 to 4 miles wide—that encompass some 80 percent of the Riverways, hunting

Note: We are indebted to Horace Graf for permission to reprint a portion of one of his detailed maps of the Ozark National Scenic Riverways floats. These fine maps are available from Horace Graf, 334 Tuxedo Boulevard, Webster Groves, Mo. 63119.

bodes to threaten the safety of floaters and to shatter the tranquility of those who seek the rivers as escapes from urban stresses.

As Thompson outlined tentative regulations for me, he explained his wish to prohibit all loaded and uncased guns from boats and canoes on the rivers. Then, as an expression of ecological concern, he voiced his contempt for the many pistol-packing floaters who seem to take great pleasure in plinking at every turtle, snake, and other cold-blooded form of wildlife observable from their craft. Without a doubt, problems related to hunting will grow as the tide of river traffic grows. And if hunting the narrow river corridors bodes impractical on Missouri's original Riverways, the same problems will occur on similar areas to be developed elsewhere.

The floating public may, by its own needs and demands, force hunters away from the rivers. Yet the basic problem still will be overcrowding of people and their craft upon the rivers. Those who seek solitude or a wilderness adventure may give up on the Riverways. But the majority of floaters—like those I tallied that summer Saturday—will likely continue to tolerate their own congestions by force of habit; they will exchange crowded conditions in the city for crowded conditions on the river. And the "undisturbed" stretches of river will deteriorate accordingly.

Somehow, the numbers of floating craft on the Riverways eventually will need to be limited. This is a matter that the administrators already have debated at great length, I am sure. It might help for the canoe-renting concessionaires—hopefully through their own cooperative efforts—to restrict the number of canoes each one can make available. But any restrictions on canoe rentals would offer only a partial solution. Because there appears no legal way to limit the numbers of private craft on the Riverways, it might help to restrict access to the rivers by roads.

Access roads are presently too many. The Riverways act allows scenic easements to prior deeds of riverside land and precludes the final closing of many roads into the valleys. Owners of such lands can allow free use of their roads even if they cannot commercialize and charge trespass fees. Some of them do, in fact, allow unlimited river access for the unjustified fear of jeopardizing their easement contracts if they do not. Then also, there are old roads now on Riverways land that are merely left open; as long as they remain passable, there will be public pressure to keep them open. Leading down to the Current River are many roads that are open invitations for a freewheeling public. The one that led me to Cave Spring and my Saturday tally of floaters is a good example. After dropping out of the hills, it skirted the riverbank for nearly a half mile; while driving it, I noted a party camping from a pickup truck, a carload of fishermen, plus a teen-aged lad who was roaring up and down the valley on a motorcycle. We were all intruders along an "undisturbed" stretch of river.

Some access problems will surely be solved when the Ozark National Scenic Riverways becomes an officially recognized administrative unit. Right now, although land acquisition is nearly 90 percent complete, restrictions on use of firearms, boats, and access roads cannot be enforced until the Secretary of the Interior can pronounce the Riverways a fully practicable administrative unit.

In the meantime, planning must remain anchored to some ideals of quality recreation. It must not be cast adrift with the rising flood of public pressures. If, for instance, the upper Current River is best suited for short weekend and summer canoe floats, then it should not be compromised by the snorting of motorboats, nor riverbank camping from every access road, nor the seasonal blasts of hunters' shotguns. And if the upper Jack's Fork is best suited for wilderness-type overnight floats, it should not suffer intrusions of development that would dilute the quality of that experience.

The popular tide of river floating by canoe is on the rise. The tally on upper Current River soon may be several per minute on weekends. Perhaps by that time enough people will tire of the crowding and canoe collisions to beg for restrictions. In the meantime there is need for planning a reasonable control of river usage.

Another need is for development of more riverways units, wherever quality rivers still exist. If enough Americans demand the right to a free-floating experience on a lovely river, then we need to put as much money and effort in river preservation as we already have in building dams. ■

Canoeists form a constant procession on the upper Current River during summer weekends.

A Night on Current River

Mary Louise Cheatham

We fell asleep to the cries of whippoorwills
And chuck-will's-widows echoing in the night,
Wakened to dawn obscuring the mountains with mists
    heavy above the river;
To venison and hush puppies for breakfast;
The river waiting and appearing with the sun,
Its rapids dancing in the light,
    the deep, slow currents green
    to match the green of Tip-Top and of Jerk-Tail,
    rising high above the clear, swift motion;
Revealing again to us the gravel bars, clean washed,
    the white sand mounds,
    the hidden camps below the willows;
The sound of water hurrying, hurrying,
    eager to carry the silver canoes
    to their destinations.

So far away, so far, from traffic on our corner;
    from the drugstore window plastered over
    with its signs of aspirin SPECIAL.
We felt like two new people.
Fresh as mists. Mysterious as faroff cry
    of whippoorwill.
    Sparkling as sand mounds in the sun.
    Tall as mountains.
    Refreshed as trees.
    Alive as rapids.
We brought it home with us, all this,
    gift of the river. Sometimes it
    turns the rushing traffic into water.
    The sirens into whippoorwills.
    White drugstore signs to mists.

news & commentary

HUNTERS NO MATCH FOR *CANIS LUPUS*

The annual elk hunt in Grand Teton National Park will soon be on us. Between October 24 and November 30 from 2,000 to 2,500 hunters, thinly disguised as special deputy park rangers, will be turned loose in the park.

The rationale is that the elk need thinning. Unmolested, it is true, elk will quickly outbreed their winter food supply, with massive dieoffs and stripped vegetation the result. Habitat damage can take years to repair.

Nature, of course, dealt with the problem long before man even thought of it. Wolves kept elk numbers down in line with their food supply. Further, they kept the herd healthy by culling diseased and genetically inferior animals. They harried migrating elk so that they did not dawdle and overbrowse along the way. And the "predation pressure" per elk, the ratio of prey to predator, stayed remarkably constant. When severe winters cut back elk numbers sharply, the wolves somehow whelped smaller litters. The smaller number of wolves preying on the surviving elk gave the herd time to build back up. As the herds got larger, the wolves' litters got larger, until the system balanced again.

Hunting cannot even begin to substitute for this natural system. Unlike wolves, hunters select the biggest and best, not the sickest and scrawniest and easiest to catch. Far from keeping the herd healthy over the long run, hunting promotes mediocre stock. Hunting does not keep migrating elk moving as they should. And artificial management, dependent on necessarily inaccurate censuses and responsive to political demand for a hunt, can never maintain the even pressure of the natural predator.

All of these practical points, of course, ignore the fact that killing animals in the national parks is directly opposed to the founding principles of the parks. Herd control by natural predators, on the other hand, is the very sort of natural order that the parks are supposed to preserve. Surely it is time to restore wolves to the national parks where they used to range. Past highly emotional arguments for extirpating wolves were based partly on the livestock depredations of prairie wolves deprived of their natural prey, the bison, and partly on pure fantasy. Wolves in the habit of preying on elk herds in the mountains would not be so likely to threaten livestock. At that, as far as Grand Teton and nearby Yellowstone are concerned, nearly all the surrounding land is owned by the public. Any livestock grazing there does so at a quarter the open market cost, the rest being a fat subsidy. Perhaps a few losses to wolves should be considered just part of the cost of business on multiple-use public lands.

NEW BLM FOREST MANAGEMENT PLAN

A new plan for managing public forests in Oregon has been proposed by Interior Secretary Walter Hickel. The plan involves 2.4 million acres in western Oregon that are run by Interior's Bureau of Land Management.

The scheme aims at preserving scenic and recreational values where they are paramount by excluding or restricting logging. Where timber production is the principal use of a tract, the area will be intensively managed to yield as much wood as possible and so make up somewhat for the loss of output in the scenic areas. BLM maintains that intensive forest management would not be allowed to conflict with continued multiple use.

Under the plan the annual timber yield would be reduced from the present 1.323 billion board feet to 1.165 billion board feet. This decrease is less of a reduction than it sounds, as the present yield has been inflated by timber salvaged from recent fires and windstorms; even without the plan there would have been a reduction in yield, as the salvageable timber now has been removed.

There is a general tendency in government-managed forests to cut more each year than is replaced by growth. Some conservationists believe the cut on these BLM lands should be held below 1 billion board feet. Nevertheless the plan generally is regarded as being a step in the right direction in public land management. Of the 2.4 million acres, 397,000 acres consist of lakes, streams, scrub woodlands, rocky areas, and roads, where commercial timber cannot be grown. Of the remainder, 49,000 acres would never be logged, and logging would be limited on another 154,000 acres. The rest would be intensively managed by using improved strains of trees for reforestation, by thinning, by brush and hardwood elimination, and by recovery of "hardwood-encroached" conifer sites.

The 49,000 acres excluded from logging break down as follows: 15,000 acres for recreation and tree nurseries, 15,000 acres for 2,000 miles of streamside scenic corridors and 47 miles of corridors alongside wild rivers, 16,000 acres for roadside corridors and buffer zones, and 3,000 acres of scenic areas. The 154,000 acres open to limited logging follow a similar breakdown. The plan also provides for improved wildlife and livestock forage.

A lot of the environmental benefit of this plan will depend on how it is administered in the field. Intensive forestry management, if carried to the technical limit, can render land esthetically barren and good for few uses but logging, claims of multiple use notwithstanding. Conservationists ought to support this proposal, but with their eyes open.

NPCA AT WORK

The Omnibus Rivers and Harbors bill is again before Congress, containing approximately 50 projects to be constructed by the Army Corps of Engineers. Testifying by invitation recently at Senate subcommittee hearings on the bills, NPCA President Smith challenged the fiscal and ecological integrity of the Corps' proposals for the Potomac River basin. The Corps proposes dams at Verona (Staunton), Virginia, and Sixes Bridge, Maryland, which would cost a total of $50 million. These dams would be the first in a network of sixteen dams proposed for the Potomac that would approach $1 billion in construction costs. Speaking for the National Audubon Society as well as NPCA, Mr. Smith questioned the water supply justification used by the Corps: "If the communities in the affected localities need to store water in reservoirs for local water supply purposes, this can be done more quickly and cheaply by watershed management impoundments under local control." He recommended a supplemental intake in the estuary which could be built for $5 million, in contrast to the Corps' $50 million proposal.

Sam Love, editor of *Environmental Action*, joined NPCA in its opposition to the Corps' proposals. Love charged that the plans ignore ecological consequences of the dams. "To not deal with ecology or environment at this hearing violates the letter and spirit of the National Environmental Policy Act of 1969 signed into law by the President in January of this year. . . . Section 102 authorizes and directs all agencies of the federal government to 'include in every recommendation or re-

port on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on the environmental impact of the proposed action, and any adverse environmental effects which cannot be avoided should the proposal be implemented.' "

The Corps proposal contains no such detailed environmental statement. It only promises to report two studies of Washington's water supply problem in the fall, *after* passage of the Omnibus Rivers and Harbors bill. Love asked the subcommittee how it could possibly evaluate the proposals without benefit of these reports.

Other organizations opposing the Corps' plans include the Sierra Club, Nature Conservancy, National Grange, Citizens Committee on Natural Resources, Citizens Permanent Conference on the Potomac River Basin, Potomac Basin Federation, and Potomac Valley Conservation Council.

• NPCA participated in the First National Congress on Optimum Population and the Environment in Chicago, June 7–11. NPCA delegates include Robert Cook, the Association's population consultant; Lawrence Merriam, vice-chairman of NPCA's board of trustees and professor of forestry at the University of Minnesota; and Louise Dunlap, administrative assistant. The congress consisted of hundreds of organizations with interests so diverse that consensus in identifying national priorities was difficult to obtain. Twelve workshops, as well as the women's caucus and black caucus, presented resolutions for approval by the entire congress. Resolutions called for "attaining zero population growth through elimination of all laws that restrict the availability of family planning information, contraception, sterilization, and abortion." The Congress agreed that in reaching zero population growth we must "avoid coercion and compulsion" and that the movement must "be voluntary and consistent with human rights, individual conscience and freedom of choice."

It was agreed that government programs must "improve the status of all women and encourage satisfying roles for women that would be alternatives to motherhood." The women's caucus reminded the delegates that women are the childbearers, currently the major consumers, and comprise over half of our population. The black caucus said that "birth control is no solution for the present day problems of the living vis-a-vis comprehensive health care. . . . The elimination of dangerous species such as rats, roaches and other vermin is of more immediate concern to the black people than the preservation of brook trout, buffalo,

and bald eagles. Black people's lives are already being destroyed through exploitation, overcrowding, disease, starvation, and drugs." Philip Hauser, University of Chicago demographer, told the Congress that "it is more important to clean up the slums of Chicago than Lake Michigan," while a delegate from the audience cried out that all the cleaned-up slums of Chicago would still depend upon the ecosystem of Lake Michigan.

Speakers included Hubert Humphrey, Senator Gaylord Nelson, Senator Joseph Tydings, Senator Robert Packwood, Stewart Udall, Willard Wirtz, Garrett Hardin, Raymond Dasmann, and Mrs. Walter Washington. The congress brought together an unprecedented diversity of groups involved in environmental problems, laying the foundations for a widened network of communication.

• NPCA has recommended a wilderness plan for Great Sand Dunes National Monument in Colorado. In the plan NPCA recommends a larger area for wilderness status than does the National Park Service under provisions of the Wilderness Act. NPCA has called for the National Park Service "to pursue a policy of encouraging private entrepreneurs to construct and operate visitor facilities outside the monument on private land. Such a policy would strengthen the local tax base and preserve the monument in its natural state."

CONGRESSIONAL REPORT

The Public Land Law Review Commission has completed its $7-million, five-year investigation of past, present, and future uses of 755 million acres of public land. The commission's final report, "One Third of the Nation's Land," containing an updated public lands map, is available through the Government Printing Office. The commission has made 18 basic recommendations, supported by 137 major and 250 supplementary recommendations, to the President and Congress. The recommendations cover all aspects of public land use, administration, and disposition. The report reveals that over one-third of the total domestic production of wood comes from federal lands, and that over one million acres of federal land are leased each year for crop production. The following uses produce annual revenues for the federal government (in millions): grazing $11.3, timber $238.1, nonfuel minerals $12, oil, gas, and coal $217.6, recreation $11.1, and agriculture $5.7. Annual revenues from the outer continental shelf alone constitute $1.6 billion. Total annual revenues from federal lands are $2.1 billion.

• Interior Secretary Walter Hickel recently placed a ban on the use of 16 types of pesticides on lands administered by his department, which manages nearly 70 percent of all federal lands. Included on the list are DDT; aldrin; 2,4,5-T; dieldrin; endrin; heptachlor; lindane; and toxaphene. Meanwhile Senator Philip Hart's Commerce Committee is conducting hearings to consider strengthening governmental control over pesticides and herbicides. The hearings will try to determine what constitutes "imminent hazard" and what agencies possess authority to set and implement controls.

• The fate of the Cross-Florida Barge Canal remains uncertain; Secretary Hickel recently called for a 15-month moratorium on construction, but within 2 weeks the House Appropriations Committee approved $6 million for immediate construction without a halt for further ecological studies to determine the environmental effects of the Army Corps of Engineers' project.

• The Chesapeake and Ohio Canal Na-

tional Historical Park, proposed for the historic and scenic 184-mile canal built in 1850 between Washington and Cumberland, Maryland, has received Interior Department endorsement for legislative enactment. A Voyageurs National Park proposal for an area east of International Falls, Minnesota, containing 80,000 acres of lakes and waterways has also been given Interior approval. Secretary Hickel also favors the establishment of Sleeping Bear Dunes National Lakeshore on 71,000 acres along Lake Michigan.

• President Nixon has named a new panel to examine the problems involved in obtaining an adequate supply of softwood lumber and plywood to meet housing needs without wreaking havoc with the ecosystems of our nation's forests. Early last year the President appointed a task force to study means to increase supply and lower prices. Some day government may face the fact that the national forests already are being made to yield more than true sustained-yield, multiple-use management allows.

• Senator Alan Cranston of California has introduced a bill (S.3888) to protect endangered species and sub-species. The Nature Protection Act would implement the 1966 Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. The list of species is based on the Convention's annex as revised in 1967, as well as those rare and endangered species listed by the Fish and Wildlife Service of the United States. It would prohibit hunting, killing, capturing, taking, transporting, selling, or purchasing all species on the list. The bill has been referred to the Senate Commerce Committee.

YOU CAN'T WIN 'EM ALL

For some time this magazine went out to NPCA members clad only in its cover. Often it arrived in wretched condition; in one case only the front cover and contents page were delivered. In response to a steady stream of complaints, we adopted the present wrapper.

Immediately we began getting another kind of complaint; we were wasting paper and contributing to air pollution, the solid waste disposal problem, timber overcutting, and a lot of other sins cardinal in our book. We would like to reconcile the two categories of complaint.

Therefore we suggest that our new wrappers be removed and put to further use or recycled. One complaint about the wrapper was written on the wrapper itself. Not only does the earthy paper make an attractive, unusual medium for letters, but it is sturdy enough to mail without an envelope, thus saving more paper. If properly folded, the wrapper's label can serve as the letter's return address. The wrapper might line a bird cage, be used to drain bacon, or serve as a canvas for children's paintings and drawings. These are random suggestions that we are sure our readers' ingenuity can supplement.

AFRICA TOUR

Game preserves and national parks in Kenya, Uganda, and Tanzania will be part of the itinerary of four tours of Africa sponsored by the National Parks & Conservation Association. Each of the 3-week-long tours will be limited to 24 people and will have experienced guides. There will be considerable opportunity for talks with local conservationists.

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CONSERVATION POSITION WANTED. Also Association Management, Public Relations, Legislative Relations. Volunteer First Vice President, ten years, major conservation organization. Paid outdoor recreation Association Manager five years, published outdoor recreation directory. Box A, NPCA Magazine.

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Castle Peak in Idaho's White Cloud Mountains unfortunately sits over a low-grade molybdenum deposit. American Smelting and Refining Company would dig an open-pit mine at the foot of the long ridge leading from the summit into the valley; they would dump an estimated 20,000 tons a day of mine waste sludge onto the valley floor, foreground. (See page 9.)

You can help your Association in its studies of vital environmental issues in several ways: by helping secure new members, by contributing to the Association over and above regular dues, or by remembering the Association in your will. Such contributions and bequests are deductible for federal tax purposes.

National Parks & Conservation Association ■ 1701 Eighteenth Street, NW ■ Washington, D.C. 20009

PHOTOGRAPH BY ERNIE DAY