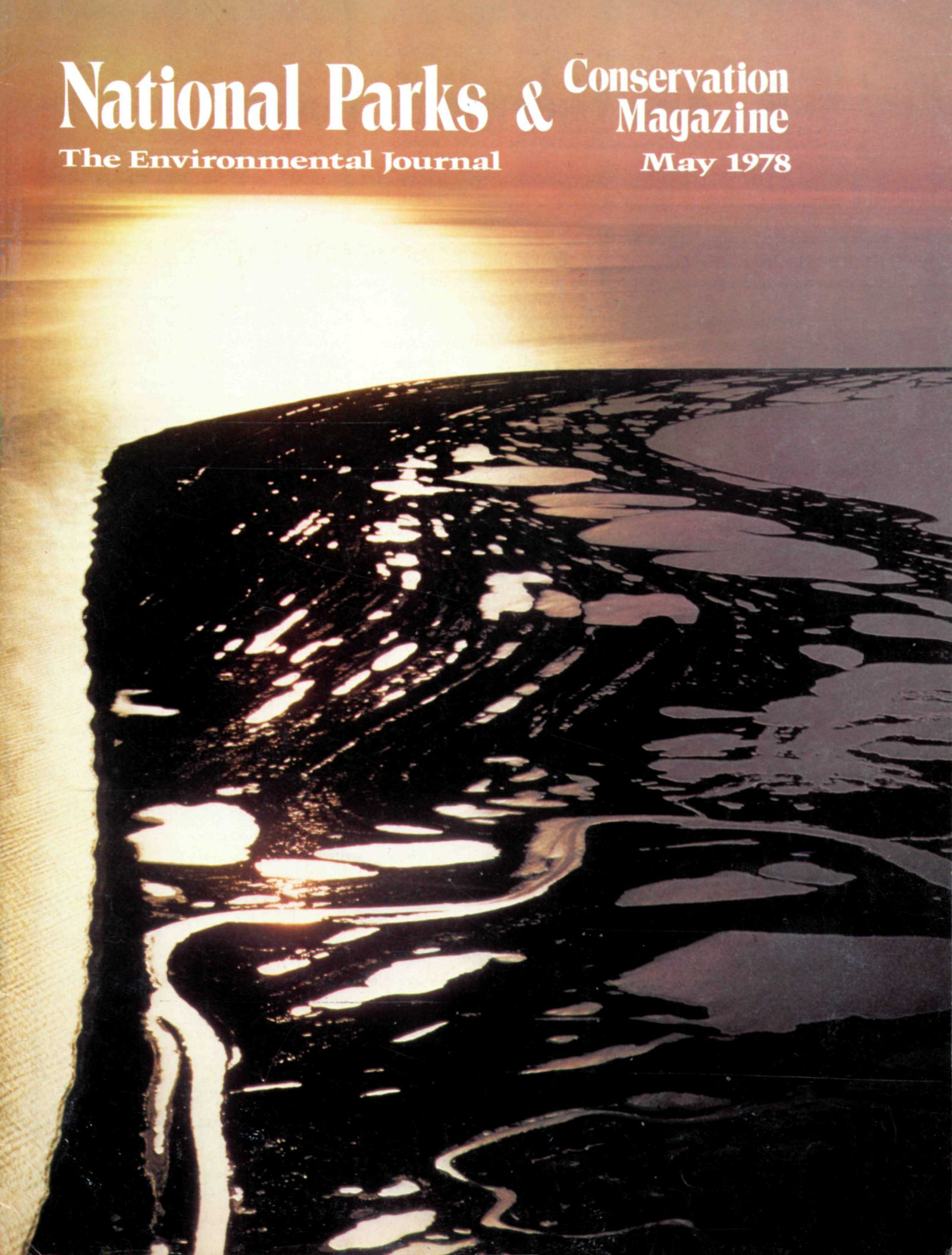
National Parks & Conservation Magazine

The Environmental Journal

May 1978



Our Undefended Borders

TO A THOUGHTFUL conservationist, a member, perhaps, of an environmental, farm, labor, or population organization, concerned with one or another aspect of the human environment, the impending overcrowding of America becomes a more and more central and serious problem.

Turn any way you wish, the pressures of a steadily rising population preclude adequate long-term solutions to conservation issues: air and water pollution, water supply, energy, minerals, open space, farmland, critical areas, parks, forests, wildlife, wilderness, and central city rehabilitation.

As our iron ore resources are exhausted, for example, we turn to taconite, with disastrous consequences for human health and the life environment. As our energy consumption mounts, despite all we try to do in conservation, we turn toward nuclear power, while the deadly dangers of radioactive waste disposal still have not been met. As our farmlands come under increasing pressure to supply our own people and burgeoning populations abroad, they are being destroyed by reckless sprawl from the big cities; no doubt the urban explosion can be converted in some measure to implosion, but the need for living space is real, both inside and outside the cities.

For our part, we have a central responsibility to help protect the primeval national parks for the use and enjoyment of all the people. We find annual visits mounting toward a quarter of a billion. The National Park Service and all the supporting private organizations together must work under great stress to protect the parks against such pressures of crowding.

NO LONGER can the trouble be attributed to an excessive domestic birthrate. The young women of America have decided on small families; the average is now running about 1.8 children per woman; with 2.1 required for replacement, present rates will lead to a slowly falling population after a brief period marked by large numbers of women in childbearing years as a result of the baby boom of the 1940s and 1950s. In due course the nation should settle down to a stable population in balance with the environment.

Unfortunately, this excellent prospect of stability and harmony between man and environment, brought about by the common sense of the young people of America, will vanish like a mirage unless vigorous measures be taken to stem the tides of illegal immigrants which are sweeping across our undefended borders. The natural increase of our population is now about 1.2 million a year; this will dwindle and vanish in time; the increase by immigration is also about 1.2 million a year, 400,000 legal and at least 800,000 illegal.

THE NPCA, with the support of major labor organizations, conservation groups, and population associations, has recently convened sessions of the Environmental Coalition for North America, well known in past years for its defense of Everglades National Park and Alaska, and its work on many other conservation issues, as a center for consultation and cooperation on the illegal immigration problem.

We have put before the coalition for discussion, and if possible for agreement and action, proposals along the following lines:

1. Protection for employers, including farmers, against the unintentional hiring of illegal immigrants, by establishing just and workable means of identification.
2. An adequate choice of methods, to avoid a national identity card.
3. A forgery-proof social security card as one means, not obligatory, of identification.
4. A forgery-proof Immigration and Naturalization Service card as an alternative.
5. A tamper-proof passport-visa system as a third choice.
6. A telecommunications system to help employers verify credentials.
7. Penalties for employers hiring illegal immigrants.
8. Withholding of social security, unemployment compensation, and welfare payments from illegal immigrants, after a period of grace.
9. A compassionate but effective procedure whereby illegal immigrants arriving before a cut-off date (say January 1, 1970) would have an opportunity to establish legal residence.
10. An equally compassionate and generous procedure whereby illegal immigrants arriving

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FRONT COVER Cape Krusenstern, Alaska, by M. Woodbridge Williams
BACK COVER Seal Hunters at Cape Krusenstern, by Robert Belous
Ancient beaches at Cape Krusenstern show up as a succession of low ridges interspersed with ponds. Archeological excavations there reveal a wealth of information about early Eskimo cultures. Although modern Eskimo seal hunters use rifles and outboard motors, they are continuing a tradition more than four thousand years old when they venture out on the ice floes of Kotzebue Sound and the Chukchi Sea each spring in search of the bearded seal. Such traditional subsistence uses will continue in the proposed Cape Krusenstern National Monument. (See page 4.)

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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, promoting, and enlarging the National Park System, in which it endeavors to cooperate with the National Park Service while functioning as a constructive critic. In addition, the Association engages in domestic and international programs involving parks, forests, wildlife, wilderness, recreation, open space, rivers, oceans, pollution, pesticides, ecology, environment, population, transportation, historic and archeological preservation, natural resources, and related or comparable matters. Life memberships are $750. Annual membership dues, which include a $7 subscription to National Parks & Conservation Magazine, are $150 Sustaining, $75 Supporting, $30 Contributing, $22 Cooperating, and $15 Associate. Student memberships are $10. Single copies are $2. Contributions and bequests are needed to carry on our work. Dues in excess of $7 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 National Parks & Conservation Association, 1701 Eighteenth Street, NW, Washington, D.C. 20009. When changing address, allow six weeks' advance notice and send address label from latest issue along with new address. Advertising rates are available on request from headquarters in Washington.

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Archeological remains at Cape Krusenstern on the Chukchi Sea reveal a long history of human survival above the Arctic Circle

article & photographs by ROBERT BELOUS

Cape Krusenstern: Cultural Chronicle of the Arctic

WHILE TENT CANVAS snapped in the brisk southwest wind, Eskimo seal hunters and their families cast a wary eye toward the frozen sea. Huge wind-driven ice floes bit into the shoreline and climbed one over the other, carrying loads of beach gravel high above the surf line—unsettlingly close to tents, food caches, and equipage for the spring hunt. For several days in mid-June 1975, the process continued amid squeals and growls that made sleep all but impossible. Elders were consulted. The signs were ominous, and retreat from traditional campsites was discussed. Yet this was not the first time wind and ice had conspired in this way. Indeed, this spectacle of natural forces was actually the rarely witnessed process that has shaped Cape Krusenstern's two-to-four-mile-wide plateau of ancient beach ridges. One by one, each ridge became the shoreline of its day. The outermost beach provided an ideal site for hunting camps from which the forebears of today's Eskimo people wrested their living from the sea. Thus each beach was a repository for the tools and artifacts, hearths and caches of the prevailing culture, and the cape became a page-by-page chronicle of human survival and cultural evolution in arctic latitudes.

THE BEACH BUILDING process began about five thousand years ago. With the melting of the Wisconsin glaciers, the ocean level rose and submerged the Bering land bridge that had connected what is now Alaska with the Asian land mass and left water levels close to what they are today. The plateau of rolling beach ridges at the cape was absent then, with only a small mountain forming the cape and the waters of the Chukchi Sea at its base. But the newly created coastline made an abrupt bend away from the sea, forming a catchplace for wave-driven gravel. Driven by the prevailing northwest wind, gravel trickled southward along the coastline and accumulated offshore where the shoreline turns eastward. At approximately fifty-year intervals—possibly triggered by periods of heightened solar activity—predominant southwest winds occur in the springtime that shove the gravel onshore.

Wind-driven ice floes act like bulldozers, scooping up the gravel mass and depositing it above the normal tideline. Once high and dry, the new beach ridge becomes a waiting niche for salt-resistant plants such as lyme grass and beach pea, whose root systems bind and stabilize the newborn gravel mound. Later, the detritus of these pioneer plants forms the thin veneer of soil that allows a succession of tundra plants to creep seaward and add to the cape's carpet of wild berries, dwarf birch, willow, wild sour dock, and a host of plants still used today in the intricate subsistence patterns of local Eskimo people. The process cautiously watched by seal hunters in 1975 was only the latest episode in the creation of the cape's ongoing series of 114 beach ridges.

THE ARCHEOLOGY of Cape Krusenstern's beach ridges was pioneered by the late J. Louis Giddings of Brown University. Beginning in 1958, Giddings, his students, and native assistants meticulously probed and pieced together telltale signs of long-vanished cultures. Giddings envisioned the relationship between the cape's geological process and patterns of human survival in the far north.

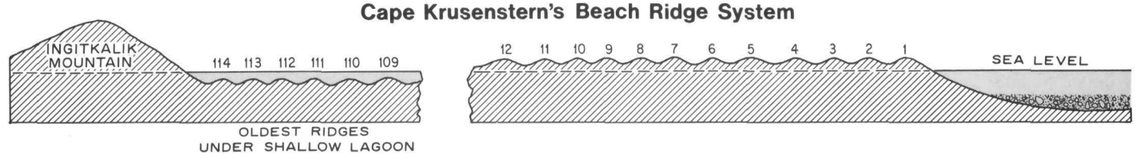
Working inland from the active shoreline with its signs of recent occupation, he unearthed from the ninth to nineteenth beach ridges signs of deeply dug houses of driftwood construction. Amid the hearths and middens were found harpoon heads of whalebone and ivory, as well as snow goggles and other tools adorned with simple utilitarian markings and scenes of stick figures holding atlatls, a device for throwing a spear. These and the shards of clay pottery with distinctive curvilinear markings depicted the wares and lifestyle of the wide-ranging Thule tradition that dominated the arctic coast from 600 to 1400 A.D.

Farther inland, at beaches 29 to 35, telltale signs of the Arctic's most fascinating prehistoric culture —Ipiutak—began to emerge. First discovered in 1939 at Point Hope, some 150 miles north of the cape, artifacts of the Ipiutak Eskimos told of highly imaginative artisans who took part in elaborate burial ceremonies and fashioned mystical—even bizarre—designs. Intricate, pretzellike ivory and bone carvings of no conceivable practical use were possibly the talismanic figures of shamans extant at the dawn of the Christian Era. Carved skull figures with eyes of ivory and jet were interred with the dead. Pebbles etched with elaborate featherlike symbols and glyphs resembled the early writings on augury or "oracle" bones of 2000 B.C. found in central Asia. Oddly, the Ipiutak people did not use pottery, as did cultures be-

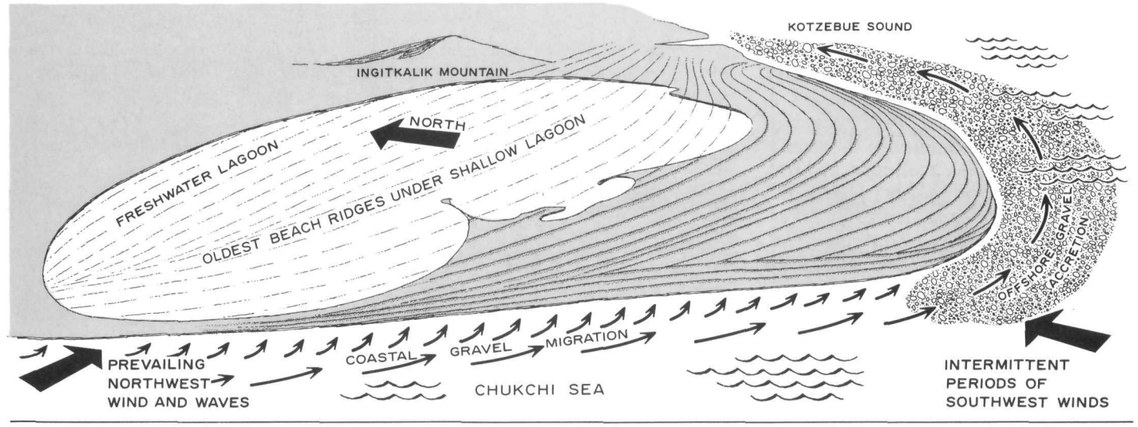
Waves driven by winds from the northwest trickle gravel southward along Cape Krusenstern. Where the cape abruptly bends eastward, the gravel accumulates offshore. Every fifty years or so the winds shift to the southwest in the springtime, when the sea ice is breaking up. Then, giant ice floes gouge out the gravel from its offshore reservoir and drive it onshore above tideline, where it forms a new beach. This series of events has occurred many times during the past five thousand years, as attested by 114 beach ridges from the outermost beach to Ingitkalik Mountain, where waves of the Chukchi Sea once lapped. If Congress approves, the area will be preserved as Cape Krusenstern National Monument.

M. WOODBRIDGE WILLIAMS

Cape Krusenstern's Beach Ridge System



Beachbuilding Process at Cape Krusenstern



DRAWINGS BY FEDERAL GRAPHICS

fore and after this strange period of arctic history.

Still farther inland, earlier beaches 36 to 44 gave up rough-hewn tools of soft slate surrounded by remains of snug rectangular huts of the Norton people who occupied the cape's beaches for at least six hundred years around 500 B.C. Norton pottery, never discovered by the succeeding Ipiutak culture, bore a distinctive check-stamped design. By contrast to the fanciful artwork of Ipiutak times, the tools and artifacts marked a simple and practical people uncomplicated by religious and artistic elegance, their one adornment being huge lip labrets of stone, bitumen, and jet. Yet even this utilitarian period had its unusual exception. Local legends recalled a fearful combat between powerful shamans of Point Hope and those of the cape at a coastal outcrop fifteen miles north of the cape known as Battle Rock. Within a fifteen-foot-diameter excavation Giddings discovered a stone-lined grave holding more than 250 weapon heads, all in an excellent state of preservation. It marked the ceremonial interment of three adult males—with no sign of jawbones or skulls. As a Norton gravesite it was, in Giddings' words, "set apart from all others in the Arctic."

Huge, oval depressions between beaches 44 to 51 emerged as the dwellings of the Choris people, residents at the cape about 1000 B.C. Evidence showed that they boiled meat in small, round-bottom, cord-marked pots of clay, the clay exhibiting a fine texture perhaps achieved by mixing with the down of ducks. Knives of coarsely hewn slate were used with only the edges polished. Spear points were leaf-shaped, diagonally flaked, and serrated along the edges. Delicate needles of bird bone, with eyes that could accommodate only the finest sinew, told of excellence in the fashioning of skin clothing. Shoulder blades of caribou were found curiously charred and cracked along the widest part from exposure to fire. This finding, Giddings postulated, might relate to the practice of scapulimancy, or scapula divining, a form of fortune

Archeological remains in the cape's old beaches tell a fascinating story of the cultural evolution of the Eskimos, and even more information is awaiting discovery. Above, a modern Eskimo woman skins a seal at Cape Krusenstern with an ivory-

More than 1,300 years ago Ipiutak artisans crafted these delicately decorated ivory snow goggles and the ivory harpoon point and its blade of chert.

handled ulu, *or woman's knife, just as a Western Thule woman did a thousand years ago with this ancient* ulu *(above) found in one of the old beach ridges. The old blades are fashioned of slate, but modern knives have metal blades.*

Strangely unrelated to any other culture, the Old Whaling people hunted the earth's largest mammal 3,500 years ago with only primitive weapons (below).

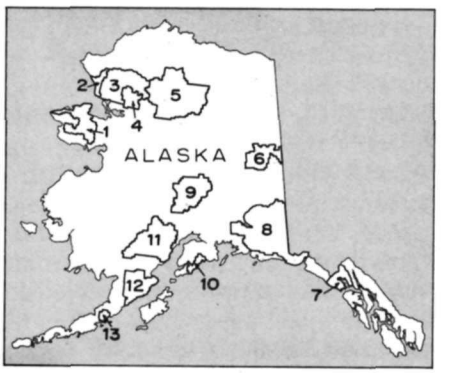
Beach Ridge Sequence of Cape Krusenstern

Ridge	*Culture*	*Dates**
1–8	Recent	A.D. 1400–Present
9–19	Western Thule	A.D. 900–1400
29–35	Ipiutak	A.D. 0–600
36–44	Norton	500 B.C.
44–51	Choris	1500–600 B.C.
53	Old Whaling	1600 B.C.
78+	Denbigh Flint	2300–1600 B.C.

* These dates are a recent refinement by radiocarbon analysis by Douglas D. Anderson, Brown University, of the late J. Louis Giddings' date sequence.

NPS PROPOSALS IN ALASKA

1. Bering Land Bridge National Preserve
2. Cape Krusenstern National Monument
3. Noatak National Preserve
4. Kobuk Valley National Park
5. Gates of the Arctic National Park
6. Yukon-Charley National Preserve
7. Glacier Bay National Park
8. Wrangell-St. Elias National Park
9. Mount McKinley National Park
10. Kenai Fjords National Park
11. Lake Clark National Park
12. Katmai National Park
13. Aniakchak National Monument



PROPOSED CAPE KRUSENSTERN NATIONAL MONUMENT

telling practiced by peoples dwelling on both sides of the Bering Strait.

Along the fossil beachline numbered 53 by Giddings came one of his most unusual discoveries, that of a heretofore unknown cultural period in Eskimo prehistory. The archeologist's trowel brought to light broad stone points and lance blades, and large multichambered dwellings of wood and sod unlike those of neighboring cultural periods. In fact, they are separated from connective cultural sequence by some seven hundred years of curiously sparse human occupation. The prevalence of remains of whales and the comparatively large size of weaponry conjured a people who, with primitive tools, stalked the largest of the earth's mammals. Giddings dated this Old Whaling period at 1800 B.C., but it has recently been redated at 1600 B.C. by radiocarbon analysis.

Even farther inland, between the remains of Old Whaling and the cape's bluffs and mountains, are the oldest beach ridges, with the signs of those early people who first turned to the arctic seas for survival—the Denbigh Flint people of 2300 B.C., the earliest Eskimos. Objects made of bone, skins, and wood, which mark later cultural sites, do not survive from Denbigh times. Yet the few artifacts that do remain depict intricate workmanship in the fashioning of jewellike microblades used as side blades along arrow shafts made of antler, still deadly sharp after four milleniums.

From evidence of hearths and fire rings, the first people to walk the young beaches of the cape lived in small tents and probably hunted passing seals from the shorebound ice. There is no sign that Denbigh hunters ever dug their dwellings into the ground to protect themselves from the icy blasts of winter. The hallmark of their period, however, remains the meticulously worked blades, arrow points, scrapers, and burins of chert and occasionally obsidian.

The furrowed rows of Cape Krusenstern's ancient beach ridges represent an unbroken chronicle of every major phase of Eskimo prehistory. Moreover, the cape's stable limestone bluffs and mountains offer a high potential for additional discoveries that could illuminate even earlier phases of human occupation above the Arctic Circle, as well as details of seasonal movement of more recent phases, such as Old Whaling and Choris.

Dr. Douglas Anderson of Brown University, a former student of Dr. Giddings, has continued excavations at the cape. During one recent field project an archeological site along low bluffs north of the cape yielded primitive implements associated with pre-Eskimo hunters of about 6000 B.C. and possibly even earlier. These artifacts are distinct from, and much earlier than, those associated with the beach ridge sequence of the cape itself.

CAPE KRUSENSTERN and its environs have long been recognized as a cultural resource of national and international significance. An "Archeological District" of some 2.3 million acres has been designated around the cape and placed on the National Register of Historic Places as a national landmark. Along with Onion Portage on the Kobuk River, Cape Krusenstern is widely recognized as one of the two archeological sites by which all others in the Arctic are measured.

To preserve this unique cultural resource, Cape Krusenstern is now proposed as a national monument. The proposal would include most of the shoreline involved in the beach-building process still vital to the stability and integrity of the beach ridge system. It would also allow customary and traditional subsistence use of the cape's resources to continue within the constraints of sound biological management and modes of past usage, for the cultural values of Cape Krusenstern are not all in the past.

The latest episode in the cape's long chronicle is still being written. Eskimo hunters venture out each spring on the tricky ice floes of Kotzebue Sound and the Chukchi Sea in search of the bearded seal, or *ugruk*. In autumn, local Eskimos still harvest fish, ducks, and wild plants as their ancestors have done for centuries. Many of these food items are irreplaceable elements in the nutrition of native people long dependent on such resources.

Eskimos have been coming to the beach of Cape Krusenstern each spring for more than four milleniums to hunt the bearded seal, or ugruk. *This species is essential to the livelihood of many modern Eskimos, as it was to that of their ancestors. Such traditional subsistence use of resources will be allowed to continue in the proposed Cape Krusenstern National Monument. The most prominent feature of the landscape, Ingitkalik Mountain–which means "mirage"–serves the hunters as an important weather indicator. As here, hunters out on the ice keep a wary eye on the mountain. If it begins to shimmer and seem to float above the horizon, they must hurry to shore, for that means the wind has shifted to the east and may blow them out to sea on the floating ice floes.*

The airplane has made Cape Krusenstern's fossil beaches accessible to today's traveler. The town of Kotzebue, some thirty-five miles from the cape, lies at the end of a one-hour jet flight from Alaska's major population center at Anchorage. Because of the growing attraction of northwest Alaska, Kotzebue is now visited by more than ten thousand tourists each summer.

In contrast to the wastefulness of Western civilization, Eskimos utilize every bit of the seal. Its meat provides protein; the fat is rendered into oil to provide much-needed calories throughout the long Arctic winter; its skin is used as leather for the soles of mukluks. Here Napaaktuk, an Inupiat Eskimo woman, trims intestines for use as kaahk, *a nutritious dish prepared only in early spring. They will be chopped, mixed with seal oil, and eaten raw.*

From the hotel windows of Kotzebue, Cape Krusenstern's mountain, Ingitkalik, can be seen some thirty miles to the northwest.

Although human history is Cape Krusenstern's central theme, visitors will also find a distinctive outdoor experience awaiting them there. Migratory birds abound in the summer. The cape's many ponds and lagoons are some of the northernmost nesting sites for the Aleutian tern. The yellow wagtail is one of its summer visitors from Siberia across the Chukchi Sea. Jaegers and Arctic terns swoop at approaching hikers along tundra swales, and a wide variety of waterfowl nest and moult along the cape's lakes and ponds. Occasionally both red fox and Arctic fox can be seen prowling the ocean edge; and, even more rarely, a lone grizzly bear wanders off the tundra in search of a beached seal or walrus. Offshore, pods of milk-white beluga whales ghost quietly by, and spotted seals are often sighted.

Along the cape's inland tundra, an odd-looking, oblong mound catches the visitor's eye. It is a geological oddity of the very first water —an esker, or glacial gravel deposit of Illinoisian age, or some 225,000 years ago. Although the many eskers from that ice age have been destroyed by later glacial action, this esker escaped that fate because Cape Krusenstern was untouched by later Wisconsin-age glaciers. The cape's Illinoisian esker is the only one known to exist in Alaska.

THE AMBIENCE at Cape Krusenstern unavoidably speaks of the long chronology of man's survival at the outer edge of human habitat. Walking from back beach ridges where the now-distant ocean once lapped, one senses the ghosts of long-vanished hunters on their journey to the present: the Denbigh Flint people, the very first Eskimos; Old Whaling spearmen and a culture strangely disassociated with those that preceded and followed it; the Choris and Norton people and their utilitarian artwork and practical tools; the emergence at about the time of Christ of the Ipiutak Eskimos, mystical artisans as well as hunters; and the wide-ranging people of the Western Thule period, who carried the Eskimo language as far east as Greenland.

As in no other single location, the cultural landscape leads to a shoreline where the spring camps of Eskimo seal hunters still luff in the arctic breeze as they have for more than four thousand years. Along the cape's outermost beach the chronicle is still being written, and hard-won techniques for survival acknowledge a debt to beaches of the past. The sounds of Eskimo voices still blend with the whisper of surf and shifting gravel as the next beach ridge is made ready. ■

Robert Belous has been involved with the planning of proposed d-2 areas for the National Park Service's Alaska Area Office in Anchorage since 1972. In addition to his responsibilities for research and planning for Cape Krusenstern, Bob also maintains liaison with native people on matters relating to the Alaskan d-2 proposals.

The ancient technology of wind may yet be used to alleviate modern energy problems

by LEE STEPHENSON

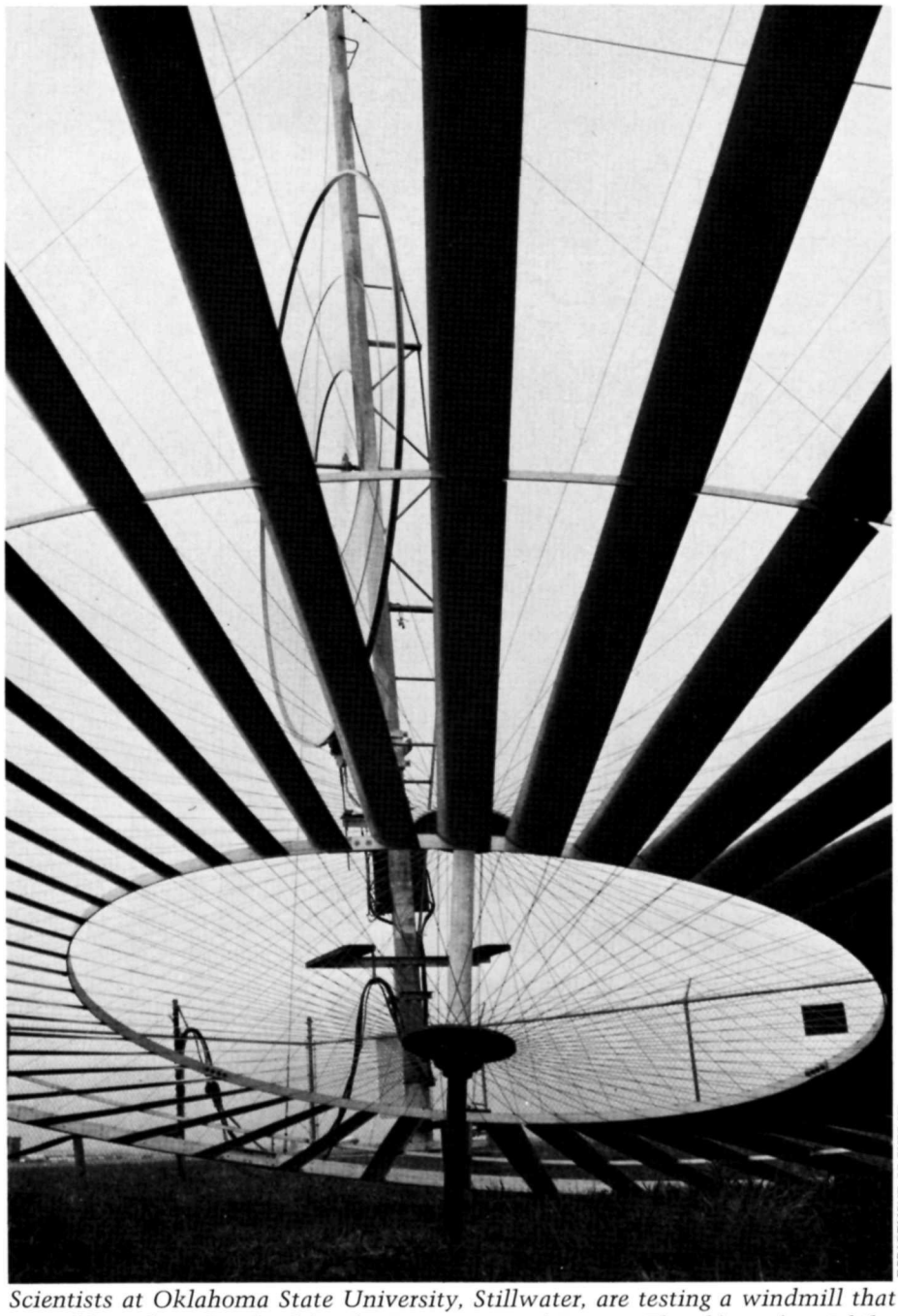
Harnessing the Wind

WIND is generated by our sun, that thermonuclear marvel that is close enough to Earth to pour life-giving rays of energy upon it but far enough away to prevent our big blue marble from roasting to a crisp. Variations in the sun's heating of the Earth's surface and atmosphere due to differing cloud, climatic, and landscape conditions cause air to move. This movement has tremendous power —equal, according to estimates, to several times the yearly total of energy used in the United States.

But can the power of the wind be harnessed to relieve the current energy crisis? The answer is still uncertain. Wind power is attractive because, unlike fossil fuels, its supply is constantly renewed and the process of capturing it is virtually nonpolluting. Unfortunately, however, the same variations that guarantee that wind will blow on Earth as long as the sun exists also make the wind an unpredictable, undependable source of energy—at least as a single substitute for the powerful and reliable but fast-disappearing fossil fuels upon which industrial society desperately depends.

Fossil fuels are a highly concentrated form of energy that can be stockpiled to provide continuous power. But wind is a dispersed form of energy that is difficult to store and seldom blows with consistent force. It varies widely from place to place (even at sites only a few hundred yards apart); it changes direction frequently; and sometimes it doesn't blow at all.

These characteristics add up to one major obstacle to producing power from the wind for mass consumption: high cost. Storage or the need to maintain backup systems seem to make most wind power



DEPARTMENT OF ENERGY

Scientists at Oklahoma State University, Stillwater, are testing a windmill that resembles a bicycle wheel for the Department of Energy. This fifteen-foot 5-kilowatt windmill can generate enough electricity for a rural home or farm and is providing the basis for design of a scaled-up thirty-foot model.

installations more expensive to users than conventionally produced electricity. Such comparisons are misleading, however, because mass production cost of wind generators is still undetermined and because the many federal and state subsidies given to the fossil fuel and nuclear power industries are overlooked in most analyses.

In spite of these problems, governments, private companies, and hundreds of inventors are now attempting to find less expensive ways to harness the wind. The basic technology has changed little since windmills were first used in Persia more than two thousand years ago. Blades or other objects are used to catch the wind, turning a shaft that powers a grinding wheel, a pump, or an electric generator. Gears are often used to increase the rotational speed of the shaft. Some of the earliest windmills operated on a vertical axis to capture wind blowing from any direction, but most have been horizontal-axis machines that must be turned, either automatically or by hand, to face the wind as its direction changes.

Officials of the U.S. government's Department of Energy (DOE), which now has the largest known wind-power development program in the world, believe that the best way to ensure that wind power will make a significant contribution to the nation's energy needs is to make it economically competitive with conventional power sources. While experimenting with small systems, DOE sees large wind turbines as offering the greatest potential contribution. One of its major goals is to make it economically attractive for electric utilities to purchase large machines and connect them to existing power

What Makes the Wind Go

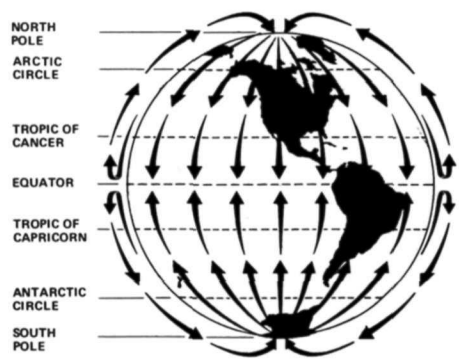
Variation in the sun's heating of the Earth and its atmosphere is what makes the wind blow. Clouds block sunlight, and different materials on the surface of the Earth reflect and absorb the sun's rays in varying degrees. For example, the oceans, from which millions of tons of water are evaporated by the sun each day, absorb less heat than land masses do. Therefore, cooler air above oceans and lakes tends to blow inland during the day as the warmer air over the land rises. At night the process is reversed because the land cools more quickly than the water.

Topography also affects these movements. Warm air over sun-absorbing mountainsides rises during the day, but cool air over these slopes drops at night. Hills, mountains, buildings, trees, people, and everything else protruding from the landscape also deflect and alter wind currents.

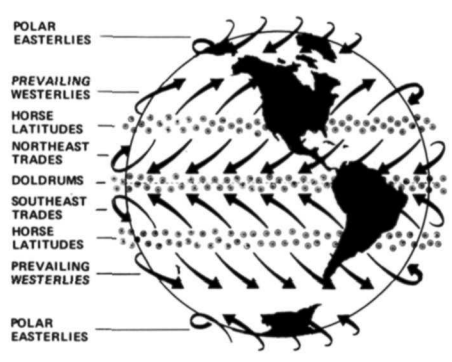
These and other variations create air masses at different temperatures and pressures that expand and contract, rise and fall, and move laterally as one mass fills the space vacated by another.

Wind movement also follows significant patterns. Due to the Earth's orientation to the sun, the equator and middle latitudes receive much more sunlight than the poles do. This situation creates a general pathway of movement as warm air from the middle latitudes rises and is replaced by cooler air moving in along the ground from the north and south. Once the warm air has risen into the atmosphere, it tends to be pulled toward the poles to fill the vacuum created by the departing cool air.

This simple oval pattern is complicated by the rotation of the Earth. Because the planet is largest in diameter at the equator and tapers toward the poles, the land surface spins faster in the middle latitudes. When a fast-moving air mass from the equator moves toward one of the poles, its rotational momentum causes it to curve toward the north or south. ■



HOW WINDS WOULD BLOW IF THE EARTH DID NOT ROTATE



HOW THE EARTH'S ROTATION AFFECTS WINDS

THE MITRE CORPORATION

systems. Others, including the growing number of small wind turbine manufacturers, claim that small wind generators purchased by individual households, office buildings, or neighborhoods are the most promising application.

All these approaches have been tried and abandoned in the past; but contemporary wind-power enthusiasts hope that modern, lightweight metal alloys and new manufacturing techniques—as well as the constantly rising cost of electricity generated by fossil fuel and nuclear power will spell success for wind generators. Windmill technology was used in the Middle East in the eleventh century and in Europe in the thirteenth century, and Dutch settlers brought the windmill to America in the mid-1700s. More than six million small wind machines were built and sold here between 1850 and 1950. These machines were primarily water-pumping units, but several hundred thousand electricity-producing machines were sold after 1900. The demise of this early domestic windmill industry came after the formation of the federal government's Rural Electrification Administration in the 1930s, which brought power lines to much of the rural United States for the first time. Thousands of these early windmills, some of which remain functional, can still be seen on farms in many areas of the nation.

LARGE-SCALE generation of electricity also has a long history. Around 1900 the Danish government produced the first of a generation of giant experimental wind turbines. Mounted on an eighty-foot tower, the Danish machine had four blades with a diameter of seventy-five feet and produced from 5 to 25 kilowatts of electricity. (A kilowatt is equal to 1,000 watts; a watt is a unit of power equal to 1/746 horsepower.)

The Russian government followed in 1931 with the construction of a 100-kilowatt wind generator that was connected by electric lines to a conventional power plant twenty miles away. The largest wind machine of this period was designed by a U.S. engineer, Palmer Putnam, and was constructed in 1941 near Rutland, Vermont. Connected to the Central Vermont Public Service Company's electric system, Putnam's generator produced its maximum power of 1,250 kilowatts in a thirty-mile-per-hour wind. The project was abandoned in 1945 because replacement parts were unavailable during and after World War II and because of doubts that the generator could ever be economically competitive.

The British, French, Danes, and Germans also built large-scale experimental wind machines between 1940 and the early 1960s. All these programs, however, were scrapped by the late 1960s because none of the generators could produce power at a cost competitive with then-inexpensive fossil fuels. Now a number of nations, including Germany, Sweden, and Denmark, have begun new wind research programs.

After a review of the past attempts, U.S. scientists designed a two-blade, horizontal-axis, 100-kilowatt test generator that was constructed in 1975 at a government research center near Sandusky, Ohio. Based on those tests, three similar but more powerful wind generators are being installed in three existing utility power grids. The first installation, at Clayton, New Mexico, has been completed; the local electric utility will soon begin using the wind turbine. The other sites are Culebra Island, off Puerto Rico, which is scheduled to begin operation later this year, and Block Island off Rhode Island, scheduled to be completed in 1979. Each of these 200-kilowatt generators will produce enough electricity to supply about sixty homes when the wind is blowing at least nineteen miles per hour. Also in 1979 DOE plans to install a much larger machine at Boone, North Carolina —a 1,500-kilowatt (1.5 megawatt) generator with two-hundred-foot-diameter blades that could supply electricity to five hundred homes in winds of twenty-two miles per hour or more.

One island community off the coast of Massachusetts has bought and installed its own 200-kilowatt wind generator from a New York company. Cut off from electricity lines on the mainland, the citizens of Gosnold are tired of paying high prices to ship in oil to power diesel generators, and they hope to get cheaper electricity from their wind turbine when it begins operation in mid-1978. The diesel generators will supply backup power during times of insufficient wind.

An advanced concept in the DOE research program that some think is as promising as these horizontal-axis units is a modern version of the first vertical-axis windmills in Persia. Called the Darrieus rotor, it has the advantage of catching wind blowing from any angle.

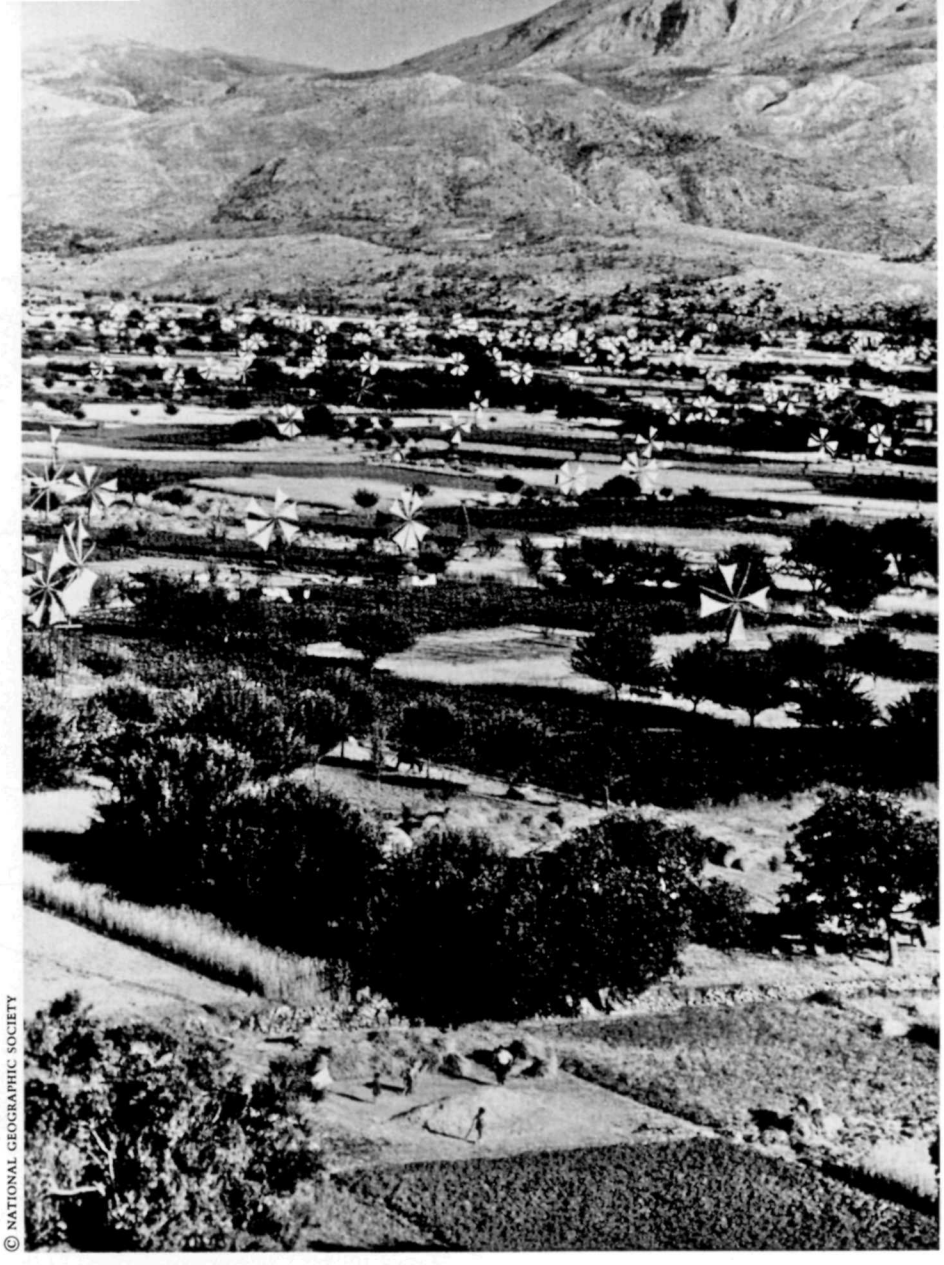
From an environmental perspective, wind energy is especially attractive. Although pollution is always released in the processes that use energy, wind generators themselves create virtually no pollution. One might question the esthetic impact of having large numbers of windmills spread over the landscape, and some concern has been voiced that birds may be killed in collisions with wind machines. Also, significant pollution may be created in the manufacture of wind generator equipment.

MOST OF THE WORK of the DOE wind program, including studies to determine development priorities, has been conducted by aerospace corporations under contract to the department. This arrangement has led to criticism of DOE because most of these companies are experienced only in complex, centralized technologies. Until recently only a minor portion of DOE's wind power budget was devoted to small wind machines—those that produce less than about 100 kilowatts. The reason for this early bias, according to Donald Teague, a program manager for the DOE wind project, was that government decisionmakers believed that large-scale field tests were needed to demonstrate the potential of wind power. Teague says it will be difficult to make small machines competitive enough to gain widespread public use. He points to the $8 million in

funds earmarked for small machine development and testing in 1978 (25 percent of the wind program's total budget) as the beginning of a major effort to find out if this widespread use can be achieved.

Ironically, sales of small windmills, manufactured by a host of new companies, are booming. Only one or two manufacturers survived the 1960s, but today at least seventeen new U.S. firms, primarily very small companies, are selling a variety of small water-pumping or electricity-generating wind machines. The DOE has estimated that 2,500 water-pumping and 1,100 electricity-generating wind machines were manufactured in the United States in 1976. The electric models cost from $2,000 to $15,000 or more to purchase and install; water-pumping models run from a few hundred to several thousand dollars.

A number of the small manufacturers, as well as some distributing companies and consumers, have joined forces in the American Wind Energy Association, based in Bristol, Indiana, to promote their goals to the federal government and to provide information to potential buyers. Rick Katzenberg, the current president of the group as well as the president of Natural Power, Inc., a New Hampshire distributing company, says the group supports the work of the federal government



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U.S. DEPARTMENT OF AGRICULTURE

Primitive windmills like these in the Valley of Ten Thousand Windmills in Crete (above) have been used for centuries in Europe and the Middle East to help irrigate the fields. American farms, too, once widely used windmills to pump water (left), but they were abandoned after electricity became widely available. Now the Department of Energy is experimenting with wind power systems capable of meeting the needs of today's large, modern farms.

on large machines. He adds, however, that the association's members believe that small wind machines are equally deserving of federal attention because they may offer the opportunity to reduce the need for expensive regional power systems and give those people who want it the means to produce their own power. "We've pushed for more of a balanced approach," Katzenberg said, "and the gap is narrowing significantly."

The best evidence for DOE's increasing support for small wind machines, according to Katzenberg, is the establishment of the Rocky Flats federal testing center at Golden, Colorado. The DOE-funded center has purchased a number of the available small-scale wind machines and will conduct standardized tests on each. Plans call for the testing of all available U.S.-manufactured wind units and for publishing of the test results.

Rocky Flats is also the project manager for the development of nine new systems by private industry. These systems include three 1-kilowatt, four 8-kilowatt, and two 40-kilowatt units.

STORAGE SYSTEMS remain a problem for both small- and large-scale wind generators. Many home or farm wind systems have used batteries to store power, but they are very expensive and must operate on direct current power, making the systems incompatible with most modern appliances. Other potential storage systems are being studied, but so far costs are very high and many technical problems still exist.

One unique "storage system" now being used in several locations is a device called a synchronous inverter, which permits the owner of a wind generator to feed surplus alternating current electricity into existing utility power lines. Any power supplied to the utility can show up as a credit on the wind generator owner's electric meter. This connection also allows the individual to buy power from the utility on windless days.

Although this system works well, it does create some new problems. If a large number of wind generators were connected to a utility grid, the power company would sell much less power on windy days but still would need enough generating capacity to serve all the customers on days when there is little or no wind. Unless a special rate structure were used for the wind generator owners, other customers would pay more than their share of the cost to build generating plants.

A recent test case on this issue resulted in a victory for wind power enthusiasts. The New York State Public Service Commission ruled in 1977 that Consolidated Edison must allow a Manhattan wind generator owner to sell excess power to the utility and buy power from it during windless periods. The company was given permission to charge the wind generator owner a higher rate to reflect special costs.

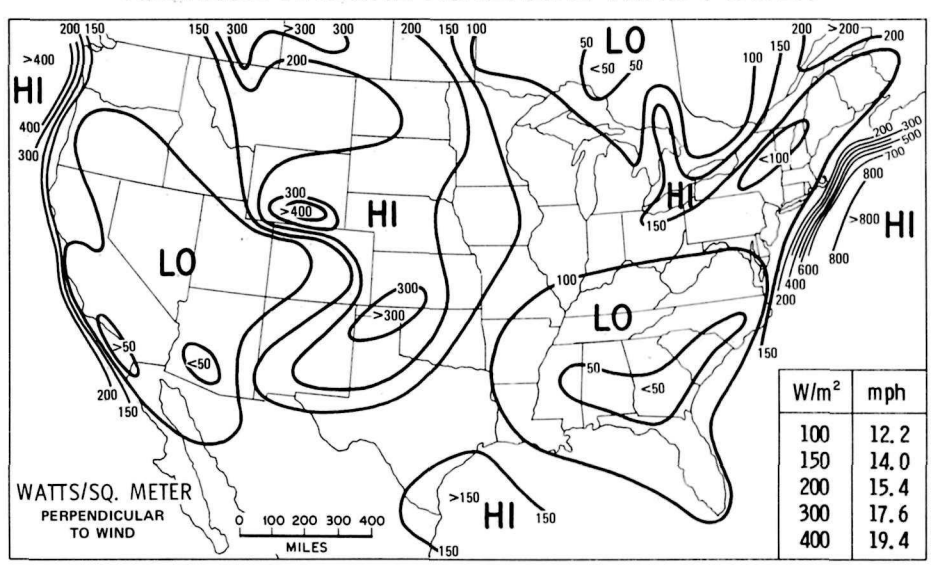
The least expensive arrangement for small wind generators may be no storage at all and the use of oil-powered backup generators for windless times. Also, it may be most cost effective to use large wind generators without storage to augment the capabilities of existing electric utility plants. Or, if large generators were spread over a big enough area in a power grid, one location's windy times might compensate for another's windless ones.

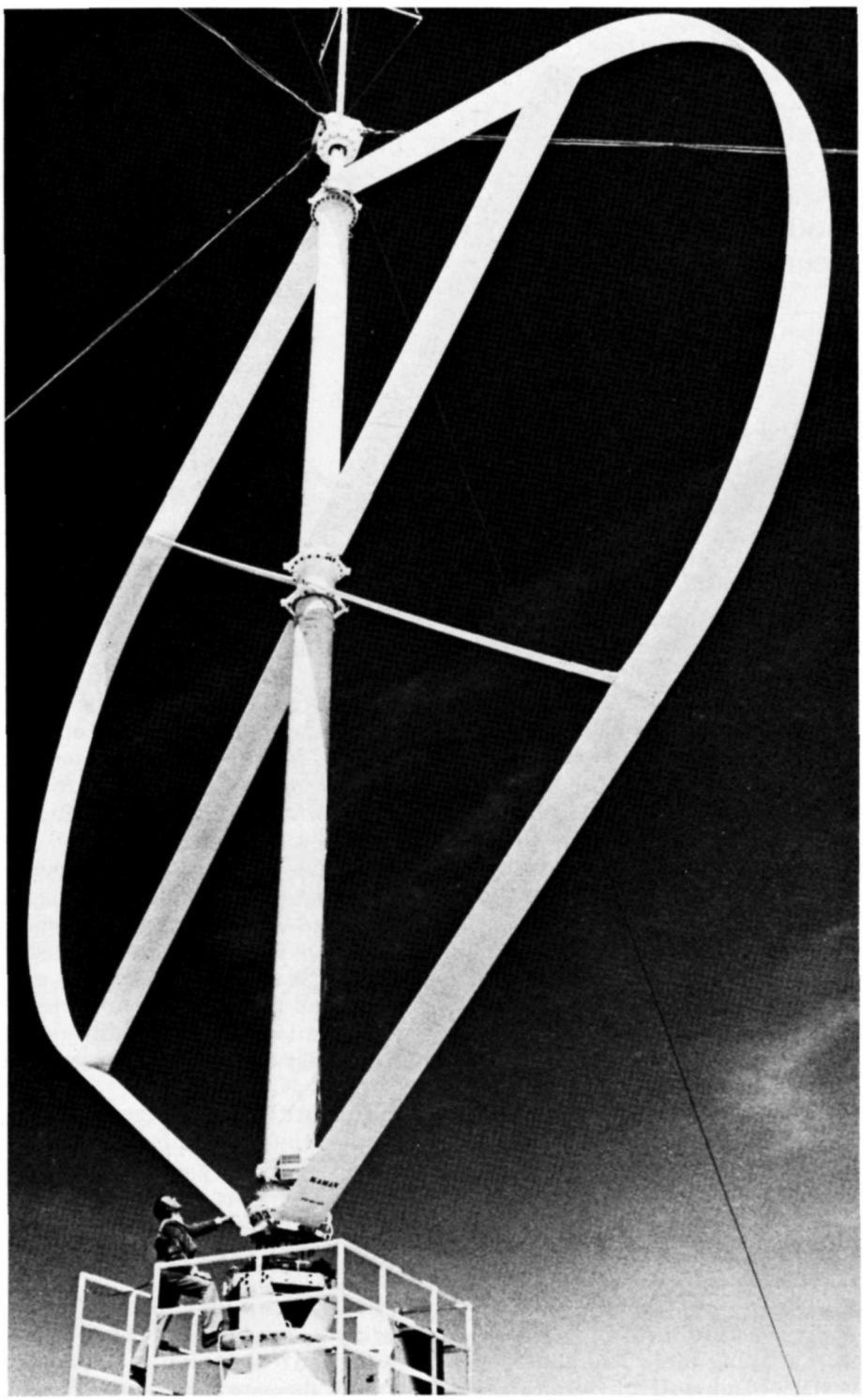
DOE's Donald Teague points out that it would take up to ten thousand large wind generators to make a significant contribution to the U.S. supply of electricity. The agency's current cost estimates predict that 1,500-kilowatt generators produced in that quantity today would cost about $860 per kilowatt —about $350 per kilowatt more than a new fossil fuel plant completed today and about $200 per kilowatt more than a new nuclear plant. The estimated cost of power per kilowatt hour from these wind machines is about six cents when distributed through power lines. This is about two cents more than the current national average. Costs for smaller wind generators now on the market are higher; a preliminary study for DOE estimates a minimum cost of $1,500 for each kilowatt of capacity.

Naturally, as the price of oil, natural gas, coal, and enriched uranium increase, wind machines will become more competitive. In addition, new studies that reflect accurate mass production costs for wind machines and include costs of special subsidies given traditional forms of energy may show wind power to be more attractive.

Trying to estimate the percentage of our energy use that wind power can provide in the year 2000 or at any point in the future is sheer guesswork. Teague believes that most of these questions can be re-

AVERAGE ANNUAL AVAILABLE WIND POWER





SANDIA LABORATORIES

The average annual wind power flux, based on long-term velocity-frequency data, indicates areas of high wind power potential in the United States (opposite). A seven-story-high vertical-axis wind turbine generator (above) is being tested at the Department of Energy's Sandia Laboratories in Albuquerque, New Mexico, to determine whether it can be made a technologically and economically practical energy alternative for windy areas of the United States. The basic design for this eggbeater-shaped machine was conceived in the 1920s by G. J. M. Darrieus of France. With a rotor 17 meters in diameter, this machine can produce 30 kilowatts of power in a 22-miles-per-hour wind and up to 60 kilowatts in a 28-miles-per-hour wind. It can be operated with either two or three curved rotor blades.

solved in the next five to ten years.

Some people say the answers could come sooner if the federal wind program had more money. Even though the United States probably has the largest wind research program in the world, wind and other alternative energy forms are still small projects compared to nuclear power development in the federal budget. In fiscal year 1978, wind power comprises $37 million, slightly more than 2.5 percent of DOE's $1,473 million budget for research, development, and demonstration programs. Solar energy is allotted $374 million, some 25.4 percent of the budget; but nuclear energy is granted $1,062 million, 72.1 percent.

A legitimate question can be raised as to how fast such a program can grow without wasting money. Teague says he has mixed emotions on this subject but believes the program could probably advance faster with more funds, particularly for personnel. The entire federal project is now managed by Teague and three others.

WIND ENERGY alone will probably never replace fossil fuels, but it may be an important means to conserve those dwindling supplies. And it is possible that other alternative technologies such as solar heating, photovoltaics, bioconversion, and conservation could be used in combination with the wind to offset one another's weaknesses.

Experts generally agree that wind power is much closer to being economically feasible than most other alternative energy technologies. If costs are reduced to a competitive level, wind is likely to play a major role in supplying our future energy needs. Even if costs remain higher, society may choose to utilize wind energy widely to benefit from its much less environmentally destructive generating process. ■

Lee Stephenson works as a free-lance writer on energy and environmental topics. He has written a book on energy in the parks for the Department of the Interior and formerly worked as editor of *Environmental Action*.

With a total population of about 150 birds, the Everglade kite is precariously close to extinction in the United States

by DOREEN BUSCEMI

THE EVERGLADE KITE

FLYING LOW over the sawgrass, the slaty-black bird flapped slowly toward our boat. Its wings kept up a steady beat as it searched intently for its prey—the apple snail. Not far from our boat it spotted its quarry and dropped downward with outstretched legs. Then, clutching a snail in its talons, the bird flew to a distant clump of willow bushes to consume its meal.

We had just seen one of the rarest birds in the United States—a species of hawk called the Everglade kite *(Rostrhamus sociabilis plumbeus)*. Once abundant throughout southern Florida, the population today numbers approximately 150 birds. Severely restricted by its diet and habitat, the kite is an unfortunate example of a bird that cannot adapt to the encroachment of civilization.

In the past the kite could be found in almost any extensive freshwater marsh in Florida and was considered common until the 1920s. In that and the preceding decade widespread draining of the marshes began; as the marshes disappeared, so did the Everglade kite. This raptor feeds only on a single species of freshwater mollusk—*Pomacea paludosa*, the apple snail. In order to survive, this snail requires standing water—as found in a large marsh during much of the year. In the past the Everglades fulfilled this requirement. As people have poured into Florida, however, much of the Everglades has been drained for use as homesites and farmland; and what little water remains is often tapped to meet the needs of a constantly growing human population.

When the marsh dries out, some apple snails will burrow into the mud; but time is required for the population to return to normal. When drainage is permanent, the extended dryness quickly kills them off. As the apple snail population diminishes, the area becomes unsuitable for the Everglade kite.

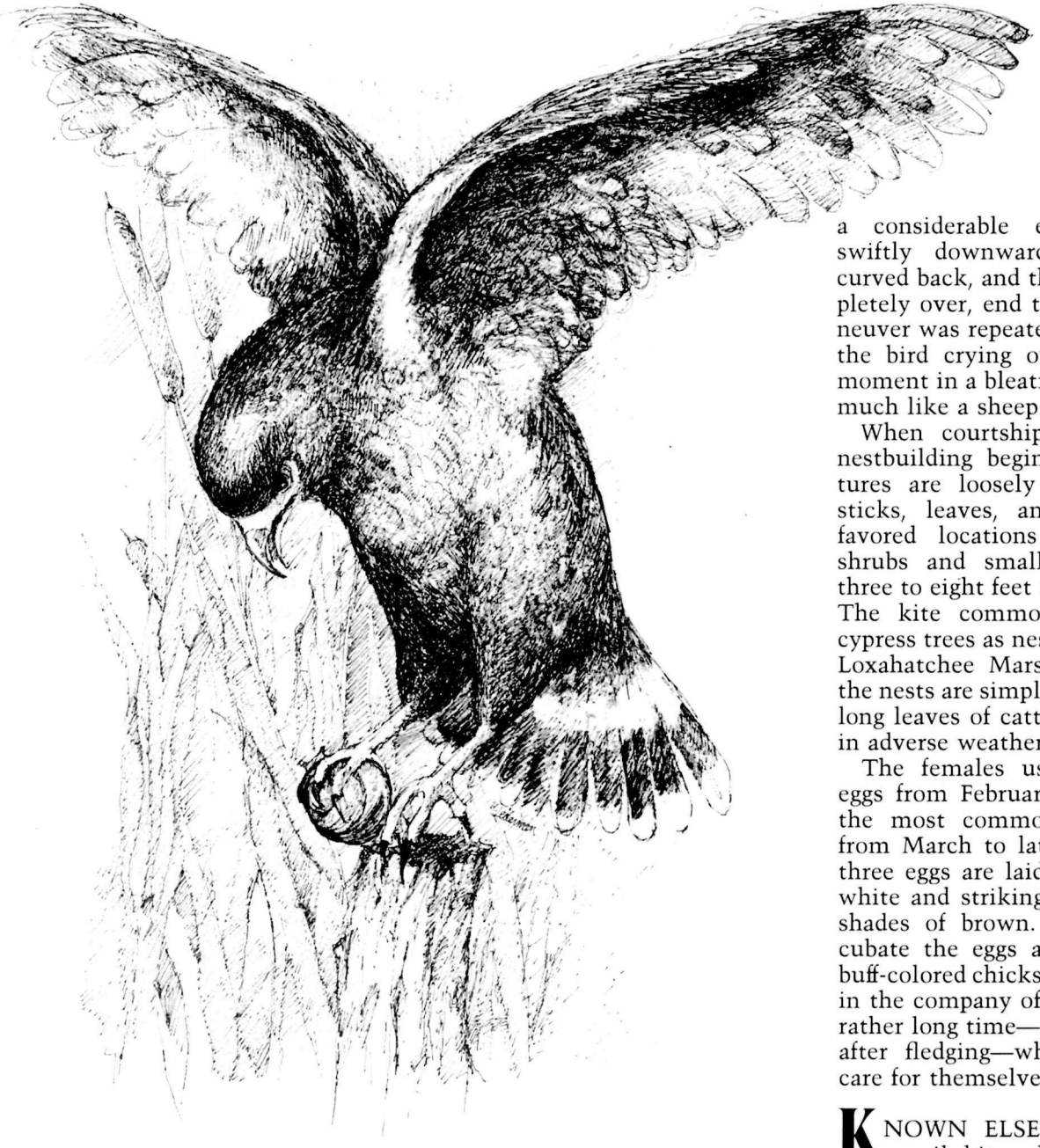
The scarcity of snails was not the only factor involved in the precipitous decline of the kite population in earlier years, however. A few careless hunters often take a toll of the birds. In the past as many as five dead kites have been found floating in front of one duck blind on Lake Okeechobee.

THE EVERGLADE KITE is a striking bird. The adult male is slaty-black with a white patch at the base of its tail. The cere at the base of the bill, the bare skin in front of the eyes, and the eyes themselves are bright red, as are the legs and toes. The adult female and the immatures are more subdued in color, being brown above and streaked with brown and buff underneath.

The flight of the kite over its wetland home is distinctive. It flies slowly, flapping its wings lazily like a heron. When hunting, the Everglade kite flies low over the marsh —usually at fifteen to twenty feet above it—with its head pointed downward as it searches for its prey. After successfully capturing a snail (misses are infrequent), the kite flies off to a favorite perch, which might be an old dead snag in the marsh, a small bush or tree, or perhaps a clump of cattails or sawgrass. The same perch is often used again and again, and sometimes as many as two hundred empty snail shells may accumulate beneath one perch.

The kite has an exaggerated hook on the tip of the upper bill, which it uses to forcibly extract the snail from its shell. It removes the snail with ease and eats its meal in one gulp or, if the snail is large, tears it into small pieces.

Everglade kites are usually gregarious, roosting together and often nesting in loose colonies. The courtship of the kite is a dramatic sight. Dr. C. W. Townsend, as Arthur Howell reports in *Florida Bird Life*, describes the ritual: "Presently . . . the other two [kites] circled about, darting at each other from time to time. Occasionally one would turn on its side and stretch out its legs as if to grapple. After playing in this way for a short time, one of the kites circled upwards and, reaching

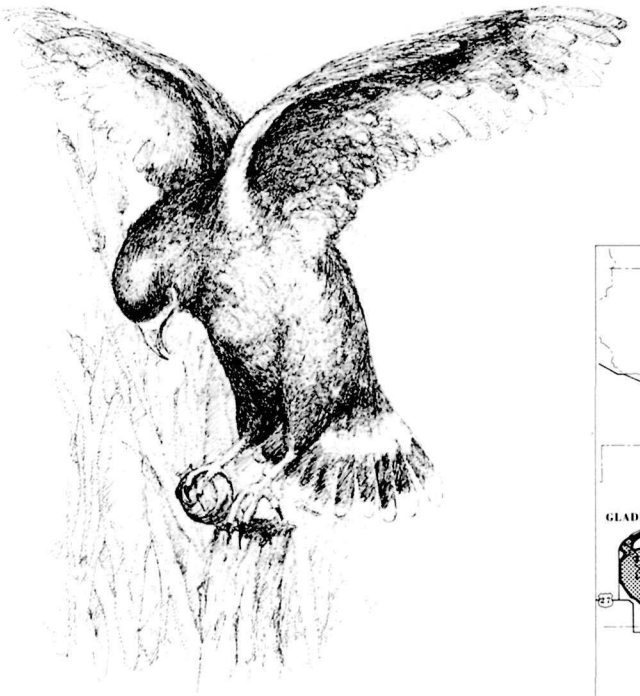


a considerable elevation, dove swiftly downwards with wings curved back, and then turned completely over, end to end. This maneuver was repeated several times, the bird crying out at the same moment in a bleating fashion, very much like a sheep."

When courtship is completed, nestbuilding begins. These structures are loosely constructed of sticks, leaves, and grasses. The favored locations for nests are shrubs and small trees, usually three to eight feet above the water. The kite commonly uses small cypress trees as nesting sites in the Loxahatchee Marsh. Occasionally the nests are simply fastened to the long leaves of cattails and are lost in adverse weather.

The females usually lay their eggs from February to June, with the most common period being from March to late May. Two to three eggs are laid, which are off-white and strikingly marked with shades of brown. Both sexes incubate the eggs and care for the buff-colored chicks. The young stay in the company of the adults for a rather long time—thirty days or so after fledging—while learning to care for themselves.

KNOWN ELSEWHERE as the snail kite, this bird is also found in Cuba and from eastern Mexico south through Central and



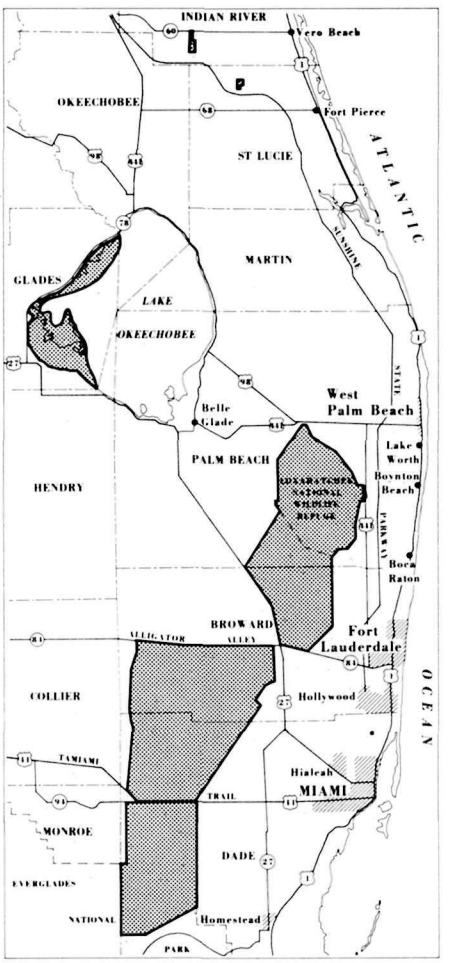
South America to northern Argentina. Because the freshwater marshes of Cuba are also being drained, the rapid disappearance of the kite from that island nation is probably inevitable. Fortunately, the snail kite is common throughout much of South America.

Several factors at last seem to be working in favor of the Everglade kite in the United States. The shooting of hawks in Florida is now illegal; as a result, shooting of kites has diminished in recent years. In addition, public education, especially of hunters, has led to greater appreciation and understanding of the kite and its fight for survival. Moreover, the Everglade kite was listed in 1966 by the U.S. Department of the Interior as an endangered species, and the Endangered Species Act of 1973 afforded the kite and its habitat further federal protection. Areas of critical habitat were officially identified and established in August 1977.

Meanwhile various types of research and management are being conducted on the Everglade kite and its habits and habitat. For example, U.S. Fish and Wildlife Service biologist Paul Sykes has been studying the status, history, breeding biology, and ecology of the kite in Florida for the past ten years to provide basic information for the management of the species. For several years manager Tom Martin of the Loxahatchee National Wildlife Refuge in south-central Palm Beach County, Florida, has been working to develop management techniques to provide suitable areas of habitat with an abundant apple snail population to ensure kite survival during periods of drought (as was experienced in 1971) when most of the remaining natural habitat is too dry to support the birds. Rod Chandler of the National Audubon Society has been placing kite nests that are built in cattails at Lake Okeechobee into artificial nesting structures to prevent them from being toppled by strong winds or driving rains; this effort has improved nesting success in the lake area.

In addition, a four-man Everglade Kite Recovery Team has been formed. Composed of federal, state, and National Audubon Society wildlife biologists, the team will continue to recommend research and management projects in an effort to save the Everglade kite. With the support of an informed public, they may yet be able to rescue this magnificent bird from extinction in the United States. ■

Free-lance writer Doreen Buscemi has published articles in various publications including *National Parks & Conservation Magazine*, *Natural History*, and *Wildlife*. Ms. Buscemi has lived in south Florida for many years and has spent many hours watching kites.



Critical Habitat of Everglade Kite

Message to Members

You Can Help the Kite

NPCA members in Florida must be vigilant and must oppose any efforts to further drain or divert freshwater areas in Florida.

In addition, all concerned members may write the Secretary of the Interior to commend him on the agency's wildlife protection programs and to urge him to continue with fervor to support research and protective management programs on behalf of the Everglade kite.

Hon. Cecil D. Andrus
Secretary of the Interior
Washington, D.C. 20240

Bicycle touring is economical, ecological, healthy, and fun

by PAT PATERA

Cycling the National Parks

THE CLOUDS OF EXHAUST expelled by the passing traffic burned my nose and stung my eyes. My position for experiencing the pollution and congestion clogging the byways of the U.S. national parks was a good one—perched atop a lightweight ten-speed bicycle. I had intended to enjoy the unspoiled beauty of the national parks, but in some places I was disappointed.

A friend and I took a bus from Chicago across the Great Plains to South Dakota. Buses, trains, and even planes will ship a passenger's bicycle for little or no fee, provided it is boxed. (A check with the individual company on allowable maximum dimensions is advisable.)

We began our tour in the Black Hills National Forest, admittedly not the easiest locale to begin. Steep grades, hairpin curves, and heavy traffic were consistent throughout the forest. The beauty of verdant hills flanking the roads throughout the Black Hills, however, and the campgrounds conveniently spaced a day's ride apart compensated for such problems.

Just south of the Black Hills, Custer State Park and Wind Cave National Park, South Dakota, ease the cycle tourist down from the mountains and onto the open prairies. These two areas are prime bicycling areas, offering fairly level roads that snake through a golden grassland rich in varied life forms, including eagles, prairie dogs, and bison. Best of all, these areas, unlike the traffic-congested hills to the north, are lightly traveled.

Four hundred miles west of the Black Hills—a week's ride through the saga of the Old West—Yellowstone National Park spreads over a high plateau in the northwest corner of Wyoming. We entered the park at the east entrance and crossed Sylvan Pass, 8,541 feet above sea level. A less taxing way is to take the shuttlebus from Cody through the east entrance to the Lake Hotel on Yellowstone Lake.

The terrain of the Yellowstone Plateau must have been designed as a bicycling haven. The lofty altitude ensures a cool summer climate, the roads are relatively level, and the scenery is peaceful. Campgrounds are nicely spaced throughout the park, so that a well-planned route brings the bicyclist to camping facilities nightly.

We found, however, that most nights we shared campsites with sympathetic strangers. On bicycles we could not reach the next campground each day in time to get a campsite because most campgrounds were filled by noon. Moreover, the automobile traffic is very heavy. Comparing the concentration of traffic, Yellowstone's Grand Loop is beginning to resemble Chicago's Loop.

About six miles south of Yellowstone lies Grand Teton National Park. The absence of foothills makes Teton country ideal for bicycling. Although the craggy, snow-covered peaks soar skyward more than 12,000 feet above sea level, Jackson Hole Valley is level. As in Yellowstone, though, the campgrounds are comfortably spaced but filled by speedy auto campers by noon.

Nearly four hundred miles north of Yellowstone—a week of riding through wheat, wind, and western sunsets—Glacier National Park rises grandly above the Montana prairies. Glacier offers possibly the most thrilling bicycle ride to be found in all the parks. From the east, Going-to-the Sun Road leads the cyclist along the shore of lovely pale blue St. Mary's Lake and lurches along ridges balancing on the edges of sheer precipices, all the while climbing beside ever-deepening valleys en route to 6,664-foot-high Logan Pass. No joyride for amateurs, Going-to-the-Sun Road gains two thousand feet in elevation during the course of eighteen miles, then, even more precipitously, descends three thousand feet during a fifteen-mile stretch down the west side of the Conti-

nental Divide. The route offers determined cyclists unsurpassed mountain vistas capped by a fabulous flying descent.

A major drawback to touring Glacier National Park is a regulation barring bicyclists from the road between 11:00 a.m. and 4:00 p.m. —the hours of heaviest auto traffic. Again, it seemed that the exhaust-belching autos, crawling along like a parade, were far more numerous than the park roads should accommodate.

A PEACEFUL JOURNEY through gently rolling wheatfields and luscious apple orchards and over the Cascade Range took us from Glacier to Olympic National Park, Washington. The vast sanctuary of lush vegetation and wilderness this park encompasses is largely unscarred by roads. A loop road encircles the entire Olympic peninsula, touching frequently on the Pacific Coast and ducking regularly back into thick forests of Douglas fir and Sitka spruce.

Campgrounds on the peninsula are rather spread out, and bicyclists may find it necessary to stay at a motel, to ask permission to camp on private land, or—if darkness finds them still on the road—simply to pull off on an old logging road.

Under no circumstances should a bicyclist attempt to ride at night in order to reach a campground, for to a speeding motorist a bicycle tail light is about as obvious as a darting firefly. In general, traffic around the Olympic Peninsula is light except in peak summer tourist season, with the unpleasant exception of rushing, rumbling logging trucks.

Our journey continued down the Oregon Coast, through the lofty redwood forests of northern California, and terminated in San Francisco. There we boarded another bus and traveled quickly back East, but we saw little of the vast distances we covered. We had developed such empathy with the outdoors while on the bikes that the nearly forgotten experience of motorized travel seemed stale and sterile. Cycling slowly through the open air, we could hear the roar of a river rushing through its canyon; smell the scents of pine, clover, and freshly mowed fields; and see individual wildflowers along the road.

I THINK the national parks, monuments, and forests could employ several measures to encourage more sightseeing via bicycle, while cutting down on automobile congestion.

Parks could reserve walk-in campsites at every campground for hikers and bikers, set off from the mass campgrounds so that non-motorized campers need not listen to the eternal hum of motor home generators throughout the night.

A system of bike lanes could provide access to most areas of the park. This system would protect cyclists from traffic and the dangers of oversized motor homes passing them.

Every park could establish a bike rental concession, with repair facilities for bicycle tourists. This measure would encourage people who arrive by automobile to bicycle within the park and would encourage more people to tour exclusively by bicycle.

Lodgings, restaurants, and other facilities could be established *outside* the parks, offering full hookups, concessions, and other creature comforts; and travel within the park proper could be limited to backpackers, bicyclists and shuttle buses.

Innovative measures to enable people to experience the national parks firsthand, unencumbered by sheaths of steel, will help preserve the natural environment as it should be and will enrich the visitors. People who really want to know their national parks should get a bike and get going! ■

When Pat Patera and her husband Jim are not gardening, making maple syrup, keeping bees, or building something, they write magazine articles about cycle touring, camping, backpacking, and other outdoor sports. Pat also works in advertising layout and writes feature stories for local newspapers.

Cycle in Comfort

A bicycle tour should be relaxing and enjoyable, not an endurance test. Twenty to thirty miles a day over flat country or ten to fifteen miles a day in mountainous terrain is as much as novice cyclists should plan to cover in a day, increasing these distances comfortably as they become more experienced.

We relied on lightweight equipment to keep the load manageable, yet to equip us for any campsite and occasion: 6¼-pound nylon tent, two down sleeping bags, two Ensolite pads, 1½-pound gasoline stove, 1-pound (full) fuel container, set of nesting pots, 1-gallon collapsible water jug, two 1-pint canteens mounted on the bicycle frames, first aid kit, bicycle repair kit, warm and cool weather clothing, rain gear, riding shoes, hiking boots, and an emergency freeze-dried food supply in case we failed to reach a grocery store on schedule. This load was split between us according to weight and bulk. Two of the rear panniers were reserved for items that might smell of food and hung high between two trees at night to prevent animals from reaching them.

We strapped day packs on the front of the bicycles between the handlebars, with the weight resting on the front carrier racks. This innovation allowed us to remove and repack the knapsacks and take to the trails for three-day backcountry hikes. Some panniers on the market convert to a full-frame backpack, enabling the bicyclist to transform into a backpacker.

Some bicyclists scoff at carrying a twenty-pound load, preferring to take to the road with only a sleeping bag, plastic tarp, and change of socks in the interest of a light load. We felt that a comfortable dry bed and adequate hygiene provisions made a four-month existence in the outdoors more enjoyable and worth the effort of carrying the added weight. ■

NPCA at work

CONCESSIONS

Will Big Business Call the Shots?

Under pressure from business interests the Park Service has watered down a proposal to assert its legal authority to control private concessions within national parks.

In 1976, after congressional oversight hearings on concessions found that Park Service policies discourage competition and give concessioners too great a voice in concession management, the Park Service drafted proposed language for a standard concessions contract—Proposed Revision I—that would assert more control over concessioners, as intended by the Concession Policy Act of 1965. At present each contract is negotiated separately, which favors large conglomerate concessioners and has resulted in "sweetheart" contracts that put an inordinate amount of control in concessioners' hands.

NPS field offices and outside interests such as NPCA reacted very favorably to this proposal; but, predictably, concessioners responded unfavorably. After considering these reactions, NPS prepared a second proposal more favorable to concessioners. After further consultation with the business community, which is pressuring for retention of the status quo, NPS prepared a third proposal—Proposed Revision III—yet more favorable to business.

The Concession Policy Act of 1965 intended that concessions would operate only where necessary in the public interest and in the interest of protecting park resources. More and more national park concessions today, however, are managed by large conglomerates primarily concerned with profit, not park protection; and they wield considerable political clout. For instance, TWA Services (owned by TWA Airlines), which has operations in nine parks, undermined an NPS effort to phase out concessions at Bryce and Zion national parks in Utah.

The current variability of concession contracts renders NPS administrators virtually powerless over certain decisions that affect park management. Often, NPS is not even informed when a concessioner sells its business to another corporation. Most concessioners currently hold long-term contracts and operate on the assumption that they have a monopoly right to all additional or new services that the NPS finds necessary for a park. Moreover, current contracts require concessioners to invest money in construction and building improvements, which gives them "possessory interests" in these facilities. This means that the NPS has to buy out the concessioner if the NPS wants to terminate the contract. Seldom can the NPS come up with the kind of money necessary to do that, so the concessioners become ever more entrenched in the parks, and the NPS is virtually powerless to exert control over their services and activities.

In a recent statement on Proposed Revision III, NPCA protested the dilution of the sound principles contained in the Proposed Revision I. Specifically,

Continued on page 23

GRAND CANYON

NPS Moves to Ban Motorized Craft from Colorado River

Motorized craft will be banned from the scenic Colorado River in Grand Canyon National Park if a Draft Management Plan recently released by the National Park Service is approved.

The proposed management plan is the product of a three-year-long research program initiated by NPS because of problems resulting from a dramatic increase in the number of people running the river—from two thousand in 1967 to fifteen thousand in 1973. (See pages 13–16, March 1977 issue of this magazine.)

According to the NPS, the research program demonstrates that visitor use river trip experience without increasing visitor safety or visitor enjoyment, NPS notes. On the other hand, elimination of motors will result in an equally safe but slower, more esthetic, and more intimate river experience.

Although the new system increases the total visitor use of the river and increases the number of private permits issued, the number of people on the river at one time should decrease because the plan distributes use throughout the entire year by establishing a winter season.

ROBERT DOLAN

Grand Canyon National Park will negotiate new commercial permits with applicants who submit the best offers in the judgment of the NPS. Permit applications for private trips will be accepted and scheduled on a first-come-first-served basis. A lottery will be established to accommodate the expected flood of applicants when the permit system is initiated.

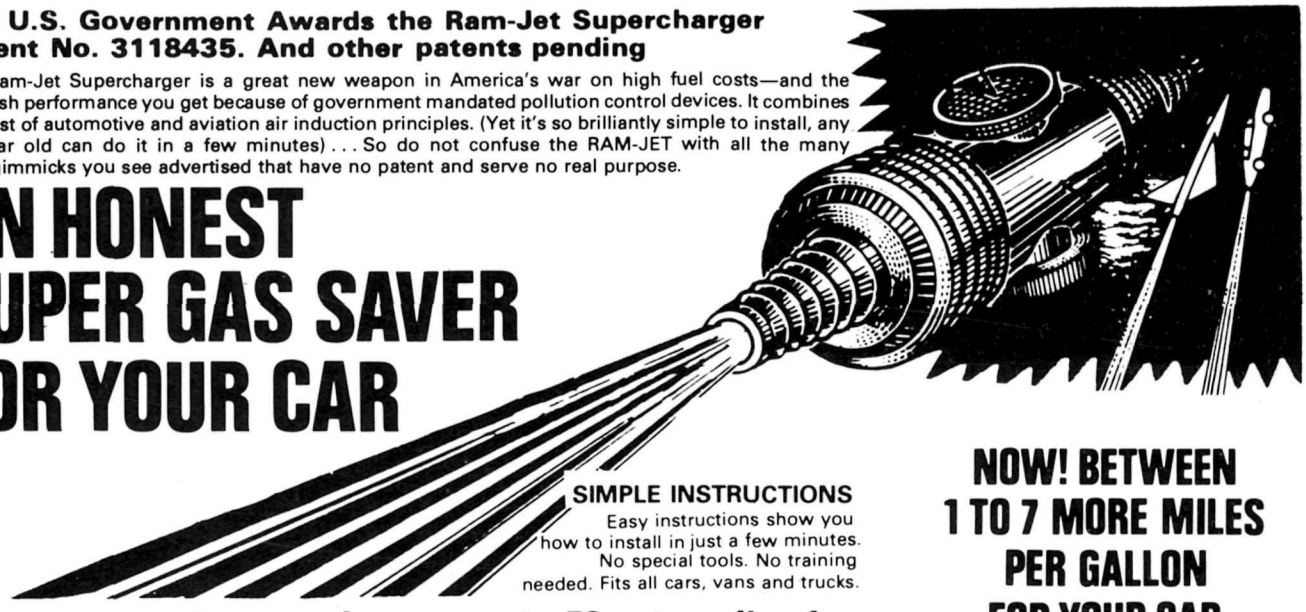
The proposed management plan also establishes much-needed measures for resource protection, including the prohibition of wood fires during summer months (camp fires currently cause serious deterioration of the beaches); the requirement that all human wastes—now buried in the beaches and adding up to more than

Continued on page 24

The U.S. Government Awards the Ram-Jet Supercharger Patent No. 3118435. And other patents pending

The Ram-Jet Supercharger is a great new weapon in America's war on high fuel costs—and the sluggish performance you get because of government mandated pollution control devices. It combines the best of automotive and aviation air induction principles. (Yet it's so brilliantly simple to install, any 12 year old can do it in a few minutes) . . . So do not confuse the RAM-JET with all the many auto-gimmicks you see advertised that have no patent and serve no real purpose.

AN HONEST SUPER GAS SAVER FOR YOUR CAR



SIMPLE INSTRUCTIONS
Easy instructions show you how to install in just a few minutes. No special tools. No training needed. Fits all cars, vans and trucks.

NOW! BETWEEN 1 TO 7 MORE MILES PER GALLON FOR YOUR CAR

New economy plan can give you up to 50 extra miles for every tankful. New Ram-Jet Actually "Jet Assists" Your Car Engine . . . Makes It Burn Up To 15 Gallons Of Air For Every Gallon Of Gas . . . And Gives You As Much As 15% More Clean Power! Jet Like Acceleration!

We believe Ram-Jet is the most exciting piece of high-performance automotive equipment since the V-8. Yet it weighs only a few ounces. Installs in a couple of minutes (No special tools or training needed. You won't even get your hands greasy). Costs less than a tankful of gas. And **saves you so much gas, it's like getting up to one gallon in every ten FREE!**

The brainchild of Ed Almquist, internationally famous automotive engineer and the "Thomas Edison of high-performance accessories" . . . The Ram-Jet took over 20 years to develop and perfect. And now—only after proving itself beyond a shadow of a doubt—at Pocono and other stock car races, as well as in a national test of thousands of ordinary cars in normal driving situations . . . NOW, AT LAST, THE RAM-JET IS READY FOR YOU!

READY TO TURN POLLUTION INTO FREE POWER!

How does it work?

Just as a jet engine requires a certain supply of air to operate . . . so does the gasoline combustion engine in your car. And it's the carburetor that mixes this air with fuel to fire the cylinders and make your car go. The problem is that carburetors were invented over 50 years ago when gas was plentiful and cheap and air pollution wasn't even talked about. The carburetor hasn't changed much since then: It's still a big compromise! It only works perfectly on those rare occasions when all driving conditions are perfect. (Which averages only a couple of minutes at the most out every driving hour). Your carburetor just cannot efficiently adjust itself to your stop-and-go driving, sudden bursts of speed; or to put it in technical terms . . . those many occasions when your engine is operating under 0-10" high-load conditions. When this crucial mixture of air and gas is not right on the money, the result is a loss of power with a lot more gas being burned than is really necessary!

JOIN THIS NATIONWIDE ENERGY-SAVING RESEARCH PROGRAM. Do your part to help America beat the energy crisis . . . simply by sending us a brief report of the kind of gas savings and increased power you enjoy once you add the RAM-JET Supercharger to your car. Many thousands of participants are needed for this most worthwhile research The results of which will be tabulated and released to the engineering departments of major American universities, automotive companies, the U.S. Government and the general public.

NOW WITH GOVERNMENT INSISTENCE ON POLLUTION CONTROL DEVICES, THE WASTE IN POWER AND GASOLINE IS EVEN GREATER THAN EVER, BECAUSE THE BLOW-BY POLLUTION THAT USED TO BE RELEASED INTO THE AIR IS NOW FED BACK INTO YOUR ENGINE.

If you've ever wondered why the newer cars seem to have even less power than the older ones, well now you know. Today, you can pay as much as $10,000 or $20,000 (or even more) for a new car and still find it lacks real oomph when you need it, hesitating and even stalling out on you frequently.

Now, at last, the Ram-Jet to the rescue! It solves both problems at once.

It brings your 50-year-old-carburetor design into the Jet Age.

1) It works like a "mini-computer" to automatically adjust the air/gas mixture to your every driving need. It thus steps up gas molecularization . . . reducing the over-rich mixture **before** it becomes wasteful. Just as a jet engine sucks air into it . . .

2) It captures the polluted air that would ordinarily be fed back into your engine . . . and re-energizes it into a "Jet Stream" that is once again ignited into **useful clean power** instead of clogging up your engine and making it hesitate and stall and waste gasoline and power.

The Ram-Jet is virtually indestructible—made of a fantastic DuPont space-age material. It never needs replacing. Is guaranteed for at least 100,000 miles. The Ram-Jet automatically and safely jets air into the gas mixture the very split *second your driving conditions require it.*

*All performance claims are based on actual user reports (which may not be typical). Your results may be more or less, depending on vehicle make, age, condition, optional equipment; and when, where and how the vehicle is driven.

GREATEST GUARANTEE IN AUTOMOTIVE HISTORY: THE 100,000 MILE 100% MONEY BACK GUARANTEE. Anytime within the next 100,000 miles you put on your car, if you don't think the Ram-Jet Supercharger is the best automotive investment you've ever made, simply return it to us for a full money back refund. No questions asked.

WHAT DO PEOPLE SAY ABOUT THE RAM-JET SUPERCHARGER?

An airline pilot writes: "Suddenly my little six cylinder engine seems to have the power of an eight. Yet it saves gas like it was a four. That little Ram-Jet is amazing!"
—Phillip Shade,
Plymouth, Connecticut

"I have a Ram-Jet. And so do many of my parishioners. We found out that we average from 2 to 6 more miles per gallon with much more engine pep and acceleration."
—The Rev. P. Mick Harvey, Illinois

Turn You Car Into A Money-Making-Machine. Enquire About Unique Ram-Jet Dealer Program.

FREE
DOUBLE YOUR GAS MILEAGE REPORT and MILES PER GALLONS CALCULATOR

NPCA at work

Concessions—*Continued from page 21*
NPCA objects to any provision requiring concessioners to invest money in facilities because of the consequent accumulation of possessory interests. Instead, new construction or building improvements should be carried out by the NPS with funds appropriated by Congress, thus bringing decisions about such matters under public and congressional scrutiny. Otherwise, the new contract language should at least stipulate that the Secretary of the Interior can set an upper limit on costs and will have final authority to determine the necessity of any building program.

NPCA also criticized a provision that would relax restrictions on assignment or transfer of a contract or a concession. NPCA maintains that concessioners should not be permitted to transfer or assign *any part* of their obligations under a contract without prior written approval from the Interior Secretary.

Furthermore, NPCA reiterated its opposition to granting concession contracts to firms that are extensively involved in other areas of business.

NPCA also opposes substitution of obscure language for the "termination for convenience" clause that was included in the first proposal. Termination for convenience is a standard government procurement contract term indicating that the government has total discretion to terminate a contract that, for whatever reason, it determines not to be in the best public interest. This clause should be included in the standard contract language.

NPCA members who believe that preservation—not profit—should be the chief consideration in the management of our national parks may support the wording of the "Proposed Revision I—NPS Standard Concession Contract" and express their objections to "Proposed Revision III" by writing

William Whalen, Director
National Park Service
Department of the Interior
Washington, D.C. 20240 ■

Grand Canyon—*Continued from page 21*
twenty tons annually—be hauled out by the river parties; construction of trails in sensitive areas now marked by erratic footpaths, soil erosion, and plant damage; increased protection of many historic sites; and establishment of an NPS-sponsored education and licensing program for commercial and private guides.

NPCA commends Grand Canyon National Park for the decision to eliminate motorized craft from 240 miles of the Colorado River corridor and concurs with the other management strategies outlined in the plan. NPCA has urged the NPS to continue monitoring the effects of visitor use levels and patterns as the new policies go into effect and to make changes as necessary to ensure preservation of what is perhaps the most spectacular section of river in this country. ■

LABOR & ENVIRONMENT

Conference Examines Illegal Immigration Controversy

Once more, NPCA is playing a leading role in rallying environmentalists and labor organizations together around pressing issues of common concern.

On March 9, the NPCA and the Environmental Coalition of North America (ENCONA) sponsored an informal meeting on illegal immigration at NPCA headquarters.

A. W. Smith, President of NPCA and chairman of the coalition, presided while invited representatives from environmental, population, and labor organizations discussed the impact of population growth escalated by increased illegal immigration. It was generally perceived that attempts to conserve resources, upgrade the environment, and reduce chronic unemployment are undermined by a steady flow of unsanctioned workers from nations with exploding populations and high unemployment.

Mr. Smith proposed that revisions of government policies must be aimed at the job market and must include issuance of forgery-proof social security cards that can be easily validated by employers. Legislative proposals related to illegal immigration now are being considered by both houses of the Congress.

This informal meeting was just part of a more comprehensive ENCONA conference on issues of mutual concern to environmentalists and labor scheduled for March 28. Topics on the agenda were "Jobs and the Environment," "Jobs and Immigration," "Urban Open Space," and "The Safety of the Work Environment." Watch for a future report in these pages. ■

HANDY TIPS FOR PARK TRIPS

This list of publications and information of interest to park visitors is by no means a "compleat" guide, but NPCA hopes from time to time to present helpful information for planning park vacations. Orders for the publications for which a GPO stock number is indicated should be sent to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Include title, stock number, and full payment by check or money order. (Publication titles are italicized.)

Pick a Park—Be Prepared!

National Parks of the United States: Guide and Map: Handy map of the units of the National Park System. Includes a thumbnail reference chart showing whether there is an entrance fee to a given area and indicating the availability of NPS guided tours, various outdoor activities, living history programs, camping, campgrounds and lodging, and other facilities. GPO Stock #024–005–00696–6. Inquire to GPO for price.

Index of the National Park System: Divides the almost 300 units of the National Park System into natural, historical, and recreational areas and for each area gives a brief description of outstanding natural characteristics and history and the superintendent's address. 1977 edition. GPO Stock #024–005–00689–3. $2.30.

Doorway to Adventure: Visit a Lesser Used Park: Features, services, facilities of 132 lesser known park areas offering exciting vacations. GPO Stock #024–005–00589–7. $.70.

"Right Around Home" in the Southwest: A special informational program for potential visitors to parks in the Southwest. Especially designed to help those who live in the region to try a vacation near home, visit lesser used areas, experiment with off-season vacations, and learn more about parks before they leave home. The NPS Southwest Regional Office has identified park attractions within a 300-mile radius of each of fourteen groupings of population centers. Free "trip planners" geared to each particular population area feature a map and brief description of parks. For more information about specific parks, you can then request a free 1977 "visit planner" for any of the thirty-three park units in the Southwest. Visit planners discuss activities, lodging, camping, weather, clothing, gear, safety tips, etc. National Park Service, P.O. Box 728, Room T-100, Santa Fe, NM 87501.

Access National Parks, A Guide for Handicapped Visitors: Describes facilities at NPS areas for blind and deaf persons, those confined to wheelchairs, and other handicapped persons. 1978 edition: GPO Stock #024–005–00691–5. $3.50.

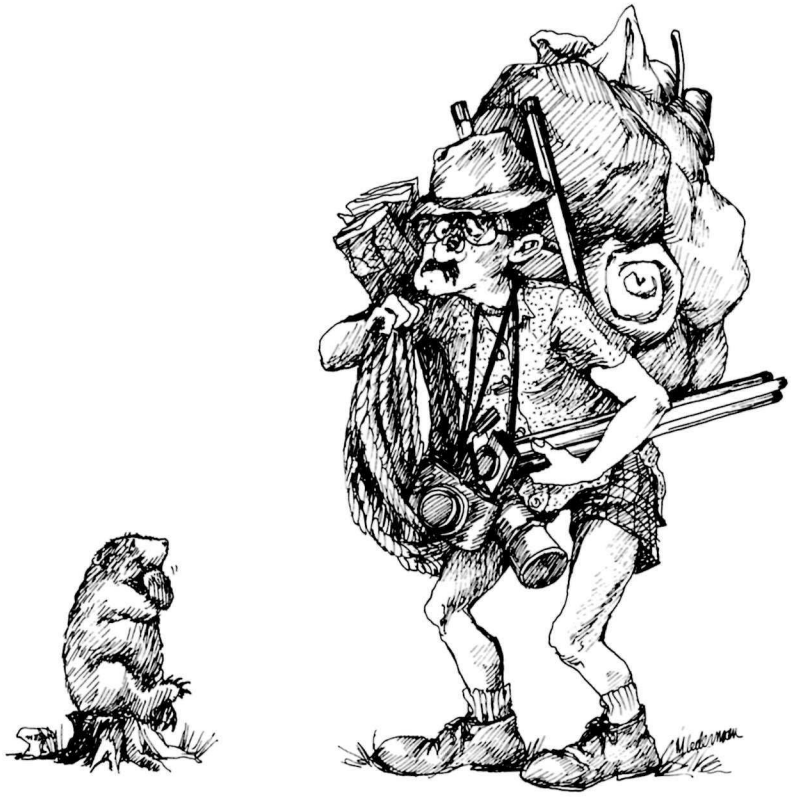
Make an Entrance

In 1978, 67 National Park System units (out of nearly 300) are charging **entrance fees** ranging from 50 cents to $3 per person, and some areas also charge **recreation use fees** of up to $4.

1978 Golden Eagle Passport: For persons under sixty-two years of age. Good for one calendar year. Costs $10 and admits the purchaser and all persons traveling with him (or her) in a private, noncommercial vehicle to all designated federal entrance fee areas at no charge. Does *not* cover recreation use fees such as camping fees.

Golden Age Passport: Good for lifetime of the permittee. Free to citizens or permanent U.S. residents who are sixty-two years of age or older. Provides the same admission privileges as the Golden Eagle Passport, and also provides a 50 percent discount on camping and other recreation use fees and services. Apply in person.

Both passports may be obtained at the designated fee areas. A brochure on the passport program listing all federal entrance fee areas and other offices where you can obtain the passport is free from the National Park Service, Interior Department, Washington, D.C. 20240.



MORE

Be Camp in the Wilds

✔ ***Camping in the National Park System:*** Information on camping facilities, fees, camping seasons, limits of stay, reservations, and recreational opportunities available to campers in 99 NPS areas in 1978. Includes both the more developed campgrounds and group camps and backcountry camping. GPO Stock # 024-005-00700-8. $1.40.

✔ ***Index of National Park Campgrounds in Four Western States:*** Chart listing campgrounds and wilderness camping in twenty-two parks in California, Arizona, Nevada, and Hawaii. Includes info on camping seasons, fees, limits on stay, etc. Single copies free from Public Information Office, Western Region, National Park Service, P.O. Box 36063, San Francisco, CA 94102.

✔ **Permits for backcountry camping:** Permits are required in forty-six National Park Service areas this year. The system is designed to protect fragile backcountry areas and provide solitude. Most areas issue permits on a first-come, first-served basis; when one area is closed, backpackers usually will find that another area in the same park is available. However, to avoid disappointment write for more information ahead of time. Parks indicated by an asterisk (*) will accept advance reservations and should be written immediately for specific details. For instance, some parks have a cutoff date of June 1.

Apostle Islands National Lakeshore, Bayfield, WI 54814
Arches National Park, Moab, UT 84532
Assateague Island National Seashore, Berlin, MD 21811
Bandelier National Monument, Los Alamos, NM 87544
Big Bend National Park, TX 79834
Big Thicket National Preserve, P.O. Box 7408, Beaumont, TX 77706
Blue Ridge National Parkway, 700 Northwestern Bank Building, Asheville, NC 28807
Bryce Canyon National Park, Bryce Canyon, UT 84717
Canyonlands National Park, Moab, UT 84532
Capitol Reef National Park, Torrey, UT 84775
Carlsbad Caverns National Park, 3225 National Parks Hwy., Carlsbad, NM 88220
Cedar Breaks National Monument, P.O. Box 749, Cedar City, UT 84720
Chaco Canyon National Monument, Star Route 4, Bloomfield, NM 87413
Colorado National Monument, Fruita, CO 81521
Crater Lake National Park, P.O. Box 7, Crater Lake, OR 97604
* Cumberland Gap National Historical Park, Middlesboro, KY 40965
Delaware Water Gap National Recreation Area, Bushkill, PA 18324
Everglades National Park, Box 279, Homestead, FL 33030
Glacier National Park, West Glacier, MT 59936
Grand Canyon National Park, Box 129, Grand Canyon, AZ 86023
Grand Portage National Monument, Box 666, Grand Marais, MN 55604
* Grand Teton National Park, Box 67, Moose, WY 83012
Great Smoky Mountains National Park, Gatlinburg, TN 37738
Guadalupe Mountains National Park, 3225 National Parks Hwy., Carlsbad, NM 88220
Haleakala National Park, Makawao, Maui, HI 96768
Isle Royale National Park, 87 North Ripley St., Houghton, MI 49931
Katmai National Monument, Box 7, King Salmon, AK 99613
Lassen Volcanic National Park, Mineral, CA 96063
Mount McKinley National Park, Box 9, McKinley Park, AK 99755
Mount Rainier National Park, Longmire, WA 98397
* North Cascades National Park, Sedro Woolley, WA 98284
Olympic National Park, 600 East Park Ave., Port Angeles, WA 98362
Petrified Forest National Park, AZ 86025
Pictured Rocks National Lakeshore, Munising, MI 49862
* Point Reyes National Seashore, Point Reyes, CA 94956
* Rocky Mountain National Park, Estes Park, CO 80517
Saguaro National Monument, Box 17210, Tucson, AZ 85713
Saint Croix National Scenic Riverway, P.O. Box 579, St. Croix Falls, WI 54024
* Sequoia-Kings Canyon National Parks, Three Rivers, CA 93271
* Shenandoah National Park, Luray, VA 22835
Theodore Roosevelt National Memorial Park, Medora, ND 58645
Whiskeytown National Recreation Area, Box 188, Whiskeytown, CA 96095
Yellowstone National Park, WY 82190
* Yosemite National Park, CA 95389
Zion National Park, Springdale, UT 84767

For more information on regulations, use limitations, and permits, write the superintendent of the park of your choice or the Division of Natural Resources, NPS, Washington, D.C. 20240.

✔ **Reservations:** Campgrounds at Grand Canyon and Acadia national parks, Point Reyes and Cumberland Island national seashores, and Chickasaw National Recreation Area require advance reservations for 1978. Four campgrounds at Mount McKinley National Park require advance reservations. In addition, many areas also require advance reservations for use of group campsites and hike-in campsites in the backcountry. Reservations can be made by writing to the park superintendent. For reservations at Virgin Islands National Park, write to the park concessioner, Cinnamon Bay Campgrounds, P.O. Box 120, St. John, V.I. 00830. Although many Park System units provide individual campsites on a first-come, first-served basis, NPS advises you to check with superintendents in advance for the latest information.

Be Comfortable Inside

Check with the park superintendent or the local Chamber of Commerce for information on comfortable accommodations operated by local business enterprises in locations convenient to the park of your choice. In many National Park System areas, private concessioners provide food and lodging within the park. The Park Service offers a booklet on these concessions: *Visitor Accommodations* is available free from the Office of Public Inquiries, National Park Service, Washington, D.C. 20240.

Play It Safe

✔ ***Outdoor Safety Tips:*** Waterproof guide with general tips on survival, safety, and first aid. Useful to people using national forests, parks, and other areas. GPO Stock #001–000–03427–8. $.35.

✔ In addition, be sure to ask park personnel about particular hazards at the area(s) you plan to visit.

More Tips

For additional information on national parks, write the superintendent of the park of your choice or the Office of Public Inquiries, National Park Service, Washington, D.C. 20240.

The Abner Cloud House

The house needed rescuing. The oldest original building along the Chesapeake and Ohio Canal, it had housed generations of millers who supplied flour first for the city of Georgetown on the Potomac, and later for its rapidly growing neighbor, the capital at Washington, D.C. But it had at last fallen victim to the ravages of time and neglect, not to mention hurricanes and vandals. That was 1976. Today, thanks to a happy mixture of Bicentennial spirit and a mutually beneficial arrangement between the National Park Service and a citizens organization, the Abner Cloud House serves as a public resource for research and education.

The rescue operation for the house, which is part of the Chesapeake and Ohio Canal National Historical Park, began with Chapter III of the Colonial Dames of America. This organization—whose members are descendants of colonial ancestors and work to preserve the traditions of our colonial past and to create popular interest in its history—were looking for an historic house in the District of Columbia to restore as their contribution to the nation's Bicentennial celebration. Their search, aided by the National Trust for Historic Preservation, led them to the Abner Cloud property, whose story dates back to the eighteenth century.

It was on October 3, 1795, that Jesse Baily deeded part of a property he owned along the Little Falls Skirting Canal to his brother-in-law, Abner Cloud—perhaps as a wedding gift. The house with its adjoining mill that Cloud built on this property was well situated for trade next to the growing city of Georgetown and on the banks of the Little Falls Canal—one of the river navigation projects of George Washington's Potomack Company. Later the C & O Canal, begun in 1828, would follow the bed of this canal past the Cloud mill.

With the assistance of local stone masons, and probably using stone from local quarries, Cloud began construction of his house in 1798, completing it in 1801. While it was being built, he and his wife Suzanne probably lived in whatever rooms had been completed until the entire house was finished.

Subsequent occupants of the house also were millers, one of whom, James B. Frizzell, achieved notoriety by his involvement in an unsuccessful attempt to kidnap President Lincoln. Another miller developed what became a locally popular brand of flour—Evermay—at the site. The mill remained active until 1870. By the time the Park Service acquired the site in 1957, it was in ruins and Abner Cloud's house was badly run down. The condition of the house worsened over the next two decades, for there was no NPS funding to remedy the situation until the Colonial Dames became interested.

In spite of the long years of neglect, the Dames found that the Cloud house had great potential for restoration. Solidly built with walls three feet thick, the exterior simplicity of the three-story structure belies the richness of detail and architectural interest within. A large stone fireplace dominates the ground-floor room that was once the kitchen; carefully crafted wooden mantels and niches ornament the fireplaces on the upper floors, which are reached by a handsomely detailed staircase rising from the ground floor to the attic; and large windows command views of the canal towpath and the Potomac River beyond.

Convinced that Abner Cloud's house exactly suited their purposes, the Dames were able to obtain funding from Congress for the restoration, in cooperation with the Park Service, of the exterior of the house as well as the establishment on the ground floor of an information center—long needed—for the national historical park. Located on Canal Road near Fletcher's Boat House, a Washington landmark, the house is highly visible and convenient to the many recreational users of the C&O Canal. The Dames themselves funded the restoration of the two upper floors to use for their meetings, receptions, library, and exhibit area. The entire project has been carried out with the help and supervision of Park Service historical advisors and technicians.

This joint restoration effort points up the benefit to the public when private citizens and public agencies combine their resources. In this case, not only a much-needed park information center but also a lasting historical legacy to the nation have been the results. ■

Boundary Waters Wilderness

House action is imminent on a compromise bill to protect the Boundary Waters Canoe Area in Minnesota. Despite its designation as a national wilderness area, the BWCA is threatened by motorized vehicles, logging, and mining.

In March parks subcommittee chairman Phillip Burton (D-Calif.), along with Rep. Bruce Vento (D-Minn.), released a bill for subcommittee markup. This strong proposal resulted from painstaking consideration of several bills, an Administration proposal, and testimony at extensive public hearings in Minnesota and Washington.

In 1977 Rep. Donald Fraser (D-Minn.) had introduced a bill to give full wilderness protection to the BWCA, whereas Rep. James Oberstar (D.-Minn.) had presented a plan that in effect would open much of the area in question to logging and motorboats. (See October 1977, p. 20, and January 1978, p. 27.)

Burton's bill includes boundaries similar to those of the Administration proposal. It would establish a 1,075,000-acre Boundary Waters Wilderness Area that represents an enlarged BWCA. It would also set up a new 227,000-acre Boundary Waters Recreation Area.

Mining, logging, most motorboat use, and virtually all snowmobiling would be prohibited in the wilderness area. In a compromise move, the bill does allow permanent use of motorboats on twelve peripheral resort lakes in the wilderness. Furthermore, logging and motorboats would be permitted in the national recreation area (NRA).

In addition, the bill provides for assistance to the resorts and local communities as well as for intensified logging and motorized recreation in the area of the Superior National Forest outside the BWCA.

On April 10 the Interior Committee approved the compromise bill minus a provision for cooperative federal-state-local land use planning within the NRA.

At press time it seemed that the bill could work its way to the House floor by May. The main point of contention is expected to be motorboat use. Paddlers account for most of the visitor use in the BWCA, our nation's only lakeland canoe wilderness. However, there is strong opposition to prohibitions on motor use even though outside the BWCA in Minnesota 14,000 lakes are available for motorized recreation.

The timber industry will be out in full force, pushing for a twenty-year phaseout for logging—even though the timber is not really needed. The bill would authorize the Forest Service to locate substitute timber outside the BWCA and compensate companies holding contracts for any financial losses.

Friends of the Boundary Waters Wilderness, an umbrella organization leading conservation forces working for BWCA protection, lauded the proposal as a "fair compromise" but hoped motorboats could be eliminated on two additional wilderness lakes.

Meanwhile, there has been no action in the Senate on a bill identical to Fraser's original proposal. Senator Wendell Anderson (D-Minn.) and Muriel Humphrey (D-Minn.) are the key figures to the legislation's fate there. ■

A Vote for Alaska?

This month the monumental battle over the Alaska National Interest Lands Conservation Act may culminate in a vote on the House floor and result in Senate committee action.

At press time the House Interior Committee had just approved a bill (HR 39) that carved important areas out of previous wilderness proposals, chopped more acreage out of the proposals advanced by Rep. Morris Udall (D-Ariz.) and Rep. John Seiberling (D-Ohio), and slipped in an exemption permitting some hunting excursions into national parks and monuments.

The bill was headed for the Merchant Marine and Fisheries Committee, which has jurisdiction over wildlife refuges as well as mining and transportation questions as related to them. Rep. Don Young (R-Alaska), who serves on that committee, was expected to continue his attacks on the bill. The committee was given until May 3 to consider HR 39, which should go to the floor sometime soon thereafter.

Conservationists beat back a number of weakening amendments in the Interior Committee—such as a move by Rep. Lloyd Meeds (D-Wash.) to delete 50 million acres of wilderness—by quite narrow margins. The battle ahead, therefore, is expected to be even more of an uphill fight.

As approved by the Interior Committee, HR 39 would add about 95 million acres to the national park, wildlife refuge, wild and scenic rivers, and forest systems—down from 116 million in Udall's original proposal. One million acres were removed from the Noatak National Preserve.

Development interests made more serious inroads into wilderness proposals—eliminating 9 million acres in addition to subcommittee deletions so that the original wilderness proposal has been cut in half to a total of about 73.5 million acres.

The attack on wilderness in national forests of Southeast Alaska continued. In a compromise move, the committee eliminated all wilderness study areas and carved acreage out of the scenic Yakutat Forelands and the spectacular Misty Fjords—an area with mining potential that salmon fishermen want protected from development. Although the committee refused to immediately open up the coastal area of the Arctic Wildlife Range to oil and gas development, 1.2 million acres will be subject to a five-year study after which development could occur under the bill's minerals process, which was watered down a bit.

Of particular concern to NPCA members is a grandfather clause allowing commercial hunting guides in Alaska to continue their present trips into national parks and monuments for twenty years. This provision represents an unprecedented allowance of sport hunting in our national parks and could threaten all big game species in Alaska, especially Dall sheep.

In future legislative action, conservationists want to overturn this incursion into protective park policy and at least to hold the line on land additions and wilderness acreages. They hope to restore some of the losses already sustained at subcommittee level as well. (See April issue, pp. 22–27.)

Meanwhile, at press time, the Senate Energy and Natural Resources Committee was planning hearings on Alaska legislation in April and May, and the committee was expected to begin markup on a bill shortly thereafter. Conservationists support S 1500, the counterpart to the original HR 39. ■

ENDANGERED SPECIES

76,000 Bobcats For Sale

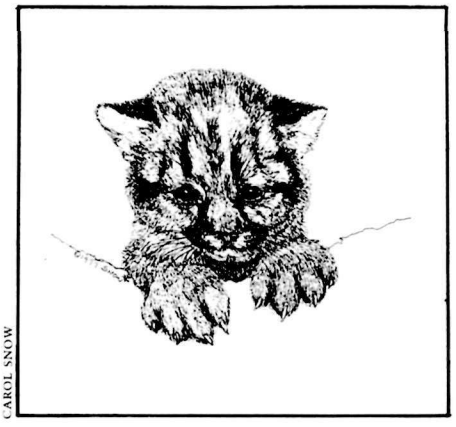
More than 76,000 pelts from bobcats killed in the United States could be exported during the 1977–1978 season to meet the escalating demands of international fur salons.

Conservationists believe that this latest government plan for bobcat exports flies in the face of strong preliminary evidence that bobcat populations are declining because of trapping pressures induced by skyrocketing prices for their furs.

As recently as fall 1977, the interagency Endangered Species Scientific Authority (ESSA) had proposed to ban exports of all bobcat skins. The bobcat is listed under the Convention on International Trade in Endangered Species of Wild Flora and Fauna as a species needing international protection through trade regulation. As of late 1977, ESSA, which administers U.S. responsibilities under the convention, said the treaty would require such a ban because available biological information was inadequate for determining whether the species could withstand continued exploitation without becoming endangered.

Despite a 1977 survey reporting that almost half the states considered the small predator to be in serious decline, the ban came under immediate attack by a number of state wildlife agencies. Many submitted statistics and other information to ESSA contending that bobcats could be taken within their boundaries without harming populations. Within only a few months ESSA had decided that it had enough information to justify quotas in many states. (Several states, however, have taken action on their own to protect bobcats.)

The demand for pelts from these small predators—which stand only about 15 inches high at the shoulder—has resulted from a vacuum in the fashion fur market that was created by prohibitions on sale of other spotted cats such as leopards and jaguars. Ironically, efforts to save those species could be a factor leading to endangerment of the bobcat. The Interior Department is considering a petition for a status review of the bobcat for possible



CAROL SNOW

listing under the Endangered Species Act of 1973, which would provide protection for bobcats within the nation.

Meanwhile, trappers are stepping up their efforts as pelts that brought them only a few dollars a short time ago are now worth several hundred dollars apiece. (Full-length bobcat coats sell for several thousand dollars in the fur salons.) In Texas alone, trappers could take as many as 10,000 bobcats this year. Louisiana apparently believes that its quota of 4,000 pelts is insufficient and is suing ESSA, contending that the group has authority only to monitor trade and not to regulate exports.

The ESSA cannot prohibit trappers or hunters from killing the cats. However, its power to prohibit exports is very important because the great majority of the pelts are being sent overseas at this time.

You Can Help: NPCA members who are not convinced that states have conducted adequate enough research on bobcats to prove that present export quotas will *not be detrimental* to the species can help by protesting the high bobcat export quotas and by urging ESSA to require the states to conduct thorough status and habitat studies before it allows export of pelts. Register your concern with your congressmen and senators as well.

Dr. William Brown
Endangered Species Scientific Authority
% Department of the Interior
Washington, D.C. 20240 ■

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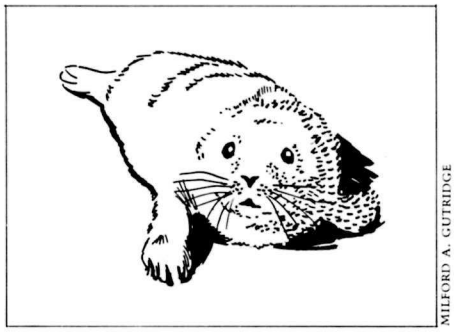

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Continued from page 2
after the cut-off date would be helped financially to return to their homelands and find employment there.

11. Economic aid for poor countries to help them create jobs at home; we are aware that the demographic transition may never occur where population increase exceeds capital formation.

12. Assistance to the overcrowded countries in combatting the population explosion; we are under no illusions that stabilization will occur in, say, Mexico, in time to avert heavy overflow into the United States unless we protect ourselves.

THE NPCA HAS recommended that the President of the United States be urged to initiate action within the Social Security Administration, the Immigration and Naturalization Service, the Labor Department, and the State Department, along the lines of our recommendations, and to support penalties upon employers hiring illegal immigrants.

Conservation organizations which say that illegal immigration and a rising population are none of their concern, should think the problem through. If their function is to acquire wild lands and transfer them to governmental protection, the rising price of land will defeat their acquisitions, and the pressure for development after acquisition will be irresistible. If they are concerned with the preservation of parks, wilderness, forests, wildlife, they must be blind indeed, if they think they can cope with the shock-waves of an uncontained population explosion, of which illegal immigration is now the most important component.

THE AFL–CIO has taken an admirable position against illegal immigration, and has called for criminal penalties on employers who hire illegal immigrants. It has recommended an adequate identification system for legal residents along the lines proposed by NPCA. It advocates a compassionate method for the legalization of the residential status of long-established illegal residents with a demonstrated attachment to their communities. We support this position of the AFL–CIO and urge its component unions to work with us toward these beneficent purposes.

It is argued sometimes that illegal immigrants take only the jobs which American workers will not accept. The unions seek to improve conditions on such jobs. The work might then be more desirable for Americans. But the insecurity of the illegal immigrants makes them difficult to organize.

It has been argued also that the Social Security System needs more young people for its support; hence that heavier immigration should be welcomed. But the compulsary retirement age is being raised, and abolished for government; contributions will rise and burdens will fall. In any case, importing illegals is hardly the answer.

The ranks of the unemployed in this country are enormous. We permit these conditions to continue at a great human and economic cost. Allowing armies of illegal immigrants to cross our borders helps to prevent legal residents from getting the jobs they need and adds to the ranks of the unemployed.

The countryside needs the labor. Are we incapable as a nation of bringing together the unemployed in the cities with the potential jobs in the country under legally protected wage and working conditions?

TO THOSE who believe that all problems can be solved by a constantly expanding economy, we urge that an increase in the national product *per capita*, not the gross national product, be the criterion. It is the goods an economy produces *per person* that count. Adding millions of illegal immigrants to our population results in economic burden, not improvement.

We would say to the guardians of civil liberties, disturbed by identification systems, that we yield to no one in our concern for liberty and justice, but that freedom does not easily survive where social pressures induced by overcrowding mount.

And to those, like us, who are vigilant against discrimination and invasions of civil rights, our proposals are directed exclusively at numbers, not the composition of immigration. The question is how much crowding the ecology and the economy, not to speak of the democratic institutions of this country, can afford, and how much we should tolerate the flouting of our statutes.

It is the present immigration system or nonsystem, where hapless illegals live under threat of deportation if they rebel against poverty and inhuman conditions, that fosters insecurity, injustice, and impending social conflict.

Needed, and not at all beyond reach, are public policies which would at once preserve our freedoms and yet make possible the just administration of our laws.

—*Anthony Wayne Smith*

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