

National Parks & Conservation Magazine

The Environmental Journal September 1977



Two Letters to the Administration

ONE OF THE many excellent proposals in President Carter's Message to Congress on Environmental Protection was to establish a National Heritage Trust to identify, acquire, and protect places and structures having special natural, historical, cultural, and scientific value for the American people.

The NPCA fully supports this proposal and has been participating in public meetings and working groups organized by Interior Secretary Andrus to develop the plan. We commend Assistant Secretary Herbst and Deputy Assistant Secretary Hales of the Department of the Interior and Director Delaporte and Deputy Director Pritchard of the Bureau of Outdoor Recreation for their approaches to the program.

The problem, in our judgment, is to decide on the proper agency to administer the program. Because much of the subject matter is already handled within the National Park Service, the NPCA takes the position that the National Heritage Trust should be located and expanded within the Service. With a view to assisting the Administration further in this important program, the NPCA has set forth its views by letter from President A. W. Smith to Secretary Andrus, printed below.

In another connection, organizations concerned with the general reorganization of the federal government have been invited to submit recommendations to Mr. Richard A. Pettigrew, Assistant to the President for Reorganization. The invitation is very broad, but the NPCA has confined itself for the present to recommendations on water projects and river basin planning, submitted by letter from President Smith to Mr. Pettigrew, also published here. We have urged that the approach outlined by commentary entitled "River Basins" in this magazine in May 1977 be used to restructure federal programs fundamentally with respect to rivers. The time has come to cool the dam-building frenzy and protect the remaining free rivers of America against wanton destruction.

Members of the NPCA who wish to help may write the Hon. Cecil D. Andrus, Secretary of the Interior, Washington, D. C. 20240, in respect to the National Heritage Trust; and to Mr. Richard A. Pettigrew, Assistant to the President, The White House, Washington, D. C. 20500, in respect to river basins.

Hon. Cecil D. Andrus
Secretary of the Interior

Dear Mr. Secretary:

The National Parks & Conservation Association was gratified by President Carter's announcement in his Environmental Message that he had asked you to develop a proposal for a National Heritage Trust. For a long time there has been great need of more effective methods for the protection of outstanding examples of the natural, cultural, historic, and scientific heritage of the American people.

The NPCA has been taking part in the procedures which you initiated at the request of the President. We have been participating in the meetings called by Assistant Secretary Herbst, Director Delaporte, and their associates. It has become apparent in these discussions that one problem will be to decide upon a suitable administrative structure for the National Heritage Trust. The NPCA wishes to recommend to you in the strongest possible terms that these responsibilities be retained and expanded within the National Park Service.

The NPS is well equipped in terms of its structure, experience, and professional staff to carry out these responsibilities; no other existing agency is so equipped; a new office would merely duplicate or displace the NPS. The general pattern of funding for purposes of acquisition and grants through the NPS to states and

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Mr. Richard A. Pettigrew
Assistant to the President for Reorganization

Dear Mr. Pettigrew:

Your invitation to comment on the President's reorganization project was greatly appreciated. You have given us a comprehensive outline of the areas of government in which the President may be interested for these purposes. The area in which an environmental organization such as the National Parks & Conservation Association is most closely concerned, of course, is your paragraph 5 on Natural Resources, Environment, and Energy. In that connection there are a number of subjects in which we are interested, but for the moment I would like to comment on river basin management.

The President is to be commended on his continuing efforts to restrain funding for a number of objectionable river structure projects. The NPCA has joined with other conservation organizations in giving the President all possible support on these issues, and we shall continue to do so. However, the President stated during his campaign that river construction projects of this kind should be halted entirely, or words to that effect.

In our opinion, the problem of river basin management in America will not be solved adequately until a very fundamental effort at governmental reorganiza-

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COVERS Steller's sea lions at Kenai, by M. Woodbridge Williams
The wild, rocky coast of the proposed Kenai Fjords National Monument swarms with fish, marine mammals, seabirds, and mountain goats. Inland, diverse habitats harbor bear, moose, and other land mammals. The Harding Ice Field, crowning the proposed monument, is an Ice Age wilderness of cirques, moraines, nunataks, and vast expanses of snow that spawns glaciers in all directions. Lower elevations of the proposed monument support a dense boreal rain forest. (See page 4.)

Eugenia Horstman Connally, *Editor*
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KENAI FJORDS: Treasure Unveiled

An unduplicated combination of islands, glacier-fed fjords, sea arches, rain forest, ice field, and abundant wildlife graces the proposed Kenai Fjords National Monument in Alaska

article & photographs by M. WOODBRIDGE WILLIAMS

I DOUBT that many people, in or out of Alaska, can locate Kenai Fjords. The last Eskimo settlement on the South Kenai Peninsula probably was abandoned about 1880. Since then the wind, rain, and fog coming off the stormy Gulf of Alaska have guarded the wondrous secrets of Kenai from most people; neither white man, Indian, nor Eskimo now live there permanently. A few fishermen, hunters, pilots, and miners are the only people who have passed through the area.

Yet those of us who have ventured into this misty, everchanging land carved by sea and glacier can attest to a rich, diverse boreal area abundant with wildlife such as sea mammals, sea birds, bear, mountain goat, wolverine, moose, fox, hermit thrush, and ptarmigan. Where the deep fjords cut into mountainous coast, the offshore rocky bluffs and ledges are festooned with colorful puffins and sea lions; and the inside waters shelter sea otters and harbor seals. Surprisingly enough, all the mysteries of the area—from spectacular glaciers to lush rain forests—are within several hours' traveling distance of busy Anchorage. Now the curtain is rising from this isolated Ice Age wilderness; the area is proposed for protection as Kenai Fjords National Monument.

ON A PHOTOGRAPHIC expedition to document the scenery and wildlife of the proposed monument, my companions and I entered the Kenai Fjords through a veil of fog that covered the entrance to Resurrection Bay. Our guide plotted a compass course to avoid the dangerous rocks around Cheval Island. Before us, like waifs from another planet, shearwaters streamed across our bow and faded into the mists. Then, as we idled back for a slow run, the fog in turn dissolved

before the glowing orb of the sun. Disembodied tops of jagged islands appeared, then the entire panorama of a great partially submerged mountain chain lay before us. In the background loomed the Kenai Mountains, part of the massive southern coast system that begins with the St. Elias Mountains to the east, followed by the Chugach, the Kenai, and finally the mountains of Kodiak Island.

Pleistocene ice covered most of these ranges, carving stream valleys into deep U-shaped fjords and shaping island archipelagos. Today the Harding Ice Field, from which glaciers extend down in all directions like the arms of a great white octopus is the most accessible of the four ice fields left in the United States. Exit Glacier drops directly down from Harding Ice Field to within ten miles of Seward, Alaska. Moisture-laden air from the Gulf of Alaska supports, at lower elevations, a rain forest of Sitka spruce and western hemlock carpeted by ferns and mosses. In the Kenai area the forest crowns the islands, to which the plant life of the fjords returned after the retreat of the ice.

Bill Johnston, my guide and skipper of the white Bertram cabin cruiser—the *Sea Breeze II*—which would take us into this little known area, for a time had hunted harbor seal in the fjords around the face of tidewater glaciers, but the Marine Mammal Protection Act put an end to this business. From Bill's experience, however, he knew the good anchorages and unreported sites, such as the sea arch through which he could drive the Bertram. My second companion, Bill Spafford, was an eager young seasonal employee from Palmer in the Mantanuska Valley—one of the first government land settlement projects in Alaska. Now Bill was seeing virgin Alaska for the first time.

Sea Breeze II moved out of the fog to the cover on the south side of Matushka Island. Ahead, a female otter floated unafraid on her back. On her belly lay her baby. As we approached, the female submerged, expecting junior to follow quickly to the safety of the seaweed jungles below.

We had first seen sea otters in Resurrection Bay, and now among these offshore islands were some of the estimated 1,500 otters that live within the study area. For many years only pockets of the fascinating animals were known in the Aleutian Islands, but now they are reoccupying areas from which they had been extirpated by the early Russian fur hunters. Although some relocations have been made in Alaska and Oregon, I suspect the Kenai Fjord population came of a slow natural distribution. As we approached the otters in the cove, "Junior" tried to dive; but with each try, he popped back to the surface like a cork. Finally, he floated before us crying pitifully, his dilemma caused by careful grooming by his mother.

The sea otter's only protection from cold is a forest of some eighty-million fine hairs in the undercoat that trap air and keep the skin dry. If the coat becomes soiled or matted, water reaches the skin, and the otter becomes chilled and may die. Unlike the sea lions bellowing on the rocks above, the otter has no fat layer to protect itself from the cold water. For this reason the female meticulously grooms and fluffs the young—sometimes to the point where the small paws cannot keep the creature submerged against the buoyant force of the air trapped in its fur.

The murre, cormorants, and kittiwakes paid little attention to the drama in the cove. Perched on ledges in jagged fins and stacks jut-

ting out from Matushka Island, the birds were too busy with their own springtime chatter of nesting and feeding to notice the baby sea otter screaming below.

WITH THE baby otter's cry in our wake, we moved out of the cove to look for a landing among the pillars, stacks, and steep shores of Matushka Island. We passed ledge after ledge of nesting black-legged kittiwakes. These small gulls nest among the islands in the spring and summer, and winter far at sea. The shearwaters travel even farther—some from New Zealand.

In such virgin waters the exuberance of life is unbelievable. As we rounded the north side of the island, we came upon a sight that I had never seen before—"black bass" porpoising in a row over the surface of the water.

With such a heavy population of sea lions, how could the waters literally explode with "dancing" fish? A full-grown, two-thousand-pound bull Steller's sea lion requires about one thousand tons of food to reach maturity. Some five thousand Steller's sea lions live within the study area. How can the area regenerate fast enough to keep so many animals well fed? Perhaps the excreta of these sea mammals fertilize the food web. No doubt nutrients also are washed off the high mountains from the fjords. We floated in a textbook example of a natural recycling factory in high gear—one that needs no human engineering. This world without man, a world moving to its own productive rhythms, seems ideal for baseline studies against which marine ecologists could measure designs for areas now being altered by human "improvements."

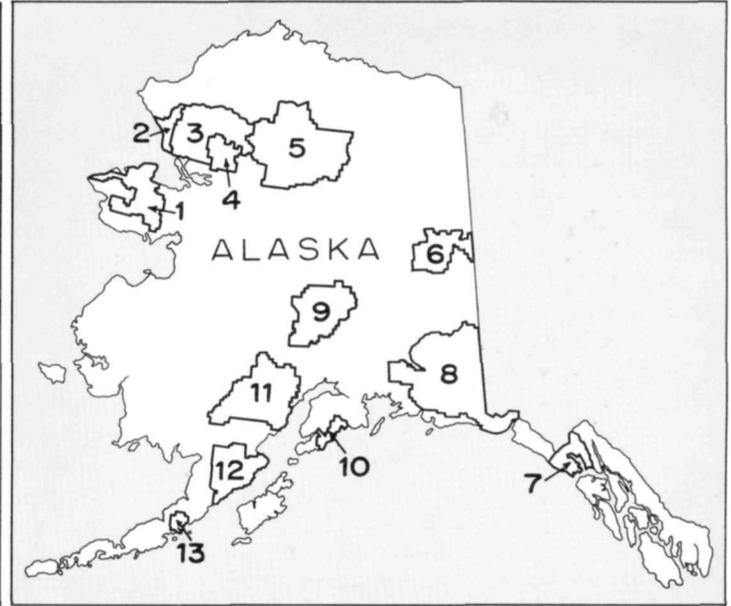
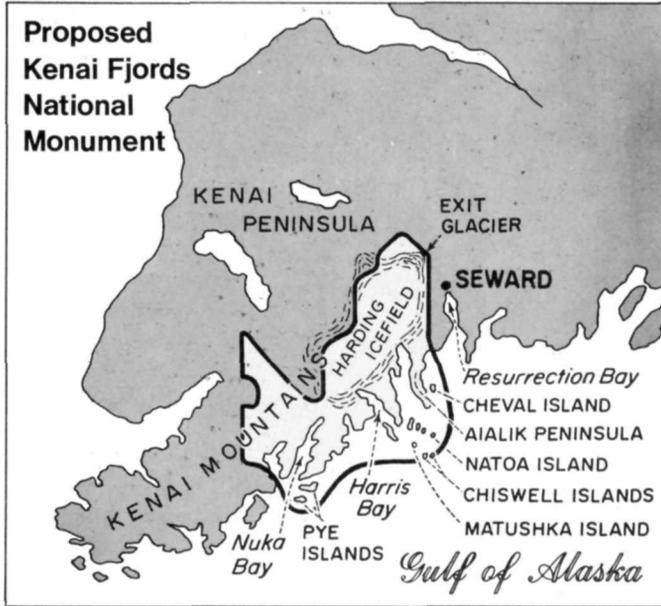
Ahead of our bow wave, puffins, or sea parrots, ran clumsily over the surface in frightened takeoffs. Fi-

NATIONAL PARK SYSTEM PROPOSALS IN ALASKA

1. Chukchi-Imuruk National Monument
2. Cape Krusenstern National Monument
3. Noatak National Preserve
4. Kobuk Valley National Monument
5. Gates of the Arctic National Park

6. Yukon-Charley Rivers National Preserve
7. Glacier Bay National Monument
8. Wrangell-St. Elias National Park-Pre-serve
9. Mount McKinley National Park

10. Kenai Fjords National Monument
11. Lake Clark National Park
12. Katmai National Monument
13. Aniakchak Caldera National Monument



nally the din of the sea lion rookeries seemed to lift them into the air. The most common puffin—the tufted puffin—took off for the steep grassy slopes of the islands. The horned puffin preferred rocky recesses. Overhead, with red and orange shining from their large beaks, they looked like a swarm of butterflies. Many headed for a curious island called Beehive for its unusual shape, perhaps wrought by the overriding of an ancient glacier.

Seaward beyond an unnamed islet stood Chiswell, where a large tilted slab on the inner portion of the island offers home to hundreds of barking, roaring, golden brown sea lions. Youngsters cried as they looked up from nursing, milk dripping from their whiskers. Young Steller's sea lions tobogganed down granite worn slick by their bodies. As they hit the sea, they gathered in pods and swam, dove, and cavorted about our stern, often arising en masse to stare curiously at us.

Above this melee an imperious bald eagle perched like the national symbol guarding Town Hall. The bird looked down on an array of life zones extending up from the surge. First came a skirt of kelp, *Alaria*, rising and falling on the waves, with

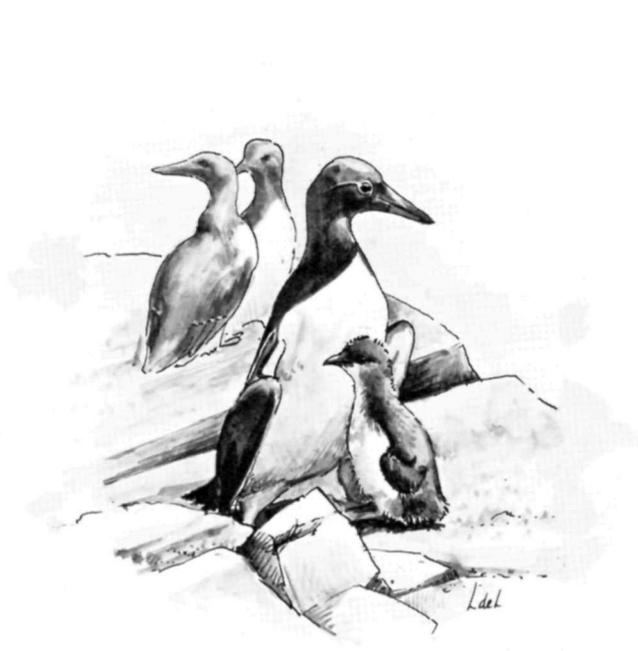
the sea lion band above it. On Beehive a single bull sat on a huge granite block with a few select females from his harem. On Chiswell and again on another splendid colony inshore on the tip of Notoa Island, the sea lion harems merge in great bobbing masses, something like the fur seal harems on St. Paul in the Pribilofs. Above the tideline where grasses and sedges and forbs take over and hold the steep slopes, tufted puffins burrow and nest in uncounted numbers. Topping this array of life is a crown of Sitka spruce. We continued to explore the shoreline of Matushka, looking for a safe landing. Twice we had gone ashore a short distance only to return to the boat because of the dangerous footing.

Finally, Bill found a sheltered lee on the north side of Matushka where he put the bow of *Sea Breeze II* against the first step in a series of ledges that lie exposed during low tide. Here bands of seaweed gardens frame the island. Biologists theorize about why these bands are so precisely delineated. What combinations of immersion, wave action, predation, and protection from desiccation govern each zone? Surely the fjords are a splendid natural

workshop for marine biologists who prefer a wild and isolated shore.

At the lowest level the stalked Laminarians grow, big rubbery plants that sway with the tide. Above this zone we stepped over the *Alaria*, now flat on granite slabs, and onto a band of green finger-shaped plants called *Halasaccion*. Above this band droops the edible *Porphyra*, or red laver. Above these zones grow the ubiquitous and tough rockweed, *Fucus*, which Bill calls Popweed, because the plump fruiting bodies pop underfoot. Finally, comes the layer of bare rock. Within these plant covers, beneath rocky ledges, is another world. We did not discover it until midtide when a row of pocket tide pools under a ledge reflected in miniature an oceanic system.

Here were old friends from California. Half in and half out of one pool hung the ochre star, *Pisaster ochraceus*, a common species south to Baja California. Below the surface spread a ring of powder puff anemones, *Metridium*—circum-polar in distribution—and the sea rose, *Tealia*, which also inhabits both the Pacific and Atlantic. On the floor of the pool I saw the "flower" of a delicate brownish-



COMMON MURRES, BY LUCIA DE LEIRIS

The virgin forest on Matushka Island in the proposed Kenai Fjords National Monument is carpeted with ferns and—in damp areas—giant false-hellebore. The common murre and several other species of birds nest on rocky islands along the coast of the Kenai Peninsula.

orange anemone that I could not identify. What unknown creatures will come to light if and when an extensive biological survey is made of the area?

Pink corallines—calcareous red seaweeds—plastered the pool bottoms. Over this fresco crawled chitons, primitive eight-plated snails, of a type that normally hides under low-tide rocks in more southern climes. Here conditions seemed right for light-shy creatures of low and subtidal zones to live at mid-tide because Kenai Fjords has some cloud cover for 260 days a year. Obviously, we could have observed the fascinating invertebrate life of the fjords just as well at Monterey or San Francisco. In fact, our wild world is connected to the south by a vast ocean current system that tempers this land close to 60 degrees north.

The current picks up heat off the Philippines and Formosa, sweeps by Japan, then turns eastward in a great clockwise circulation across the North Pacific. This so-called Japanese Current strikes our coast in Washington and Oregon. Here it splits. One arm turns south, and the other turns north in a great eddy around the Gulf of Alaska. Thus,

equalizing temperatures spread for a great distance along our shores, extending the ranges of southern marine life into Kenai Fjords. Here an oceanic system of vast dimensions collides with a seismically active shore to produce a world of wild and varied beauty.

Bill Spafford and I gingerly stepped over slippery seaweed to one particularly enchanting part of this world, Matushka Island. We followed the steep slope along a deep ravine through which the sea surged. From this height we looked down on horned puffins dashing in and out of the sanctuary. They perched on small ledges among saxifrages and other flowers, or disappeared among hugh boulders at the head. From the deep recesses we heard slow bullfrog-like croaks that we assumed came from nesting puffins. Higher, the virgin forest was open, with a fern carpet; and in damper areas giant false-hellebore with beautifully parallel veined leaves flourished, a key plant to the boreal jungle.

Finally, we reached the knife edge of the island crest and looked straight down to our sea otter cove. Sure enough, there lay the mother on her back with her baby safely

across her belly, the pair gently rising and falling on the surge. No signs, no initials, no beer cans suggested that our species had ever stood on this ridge. Once upon a time, perhaps, an Unixkugmiut, the southernmost of the Alaskan Eskimo, used this point for surveying the sea mammal populations upon which his survival depended. But that would be long ago.

OFTEN, throughout the year, Kenai Fjords is lashed by the full might of the Gulf of Alaska, among the world's great weather factories. Bill and I had experienced its humor in doubling Aialik Cape in late summer. The boat stood on its stern in climbing the steep waves tossed up by a mix of ocean swell, wind-generated waves, and strong cross-currents. But now it was spring, the best time to visit Kenai Fjords. The tempest gods relaxed to show us the wild coast in all its full, awesome splendor. Back in the *Sea Breeze II*, we saw the mellow light of the setting sun playing across the glassy sea. The gently undulating mirror reflected awesome contours of mountain and glacier. Rocky spires stretched long shadows across the entrance to

Harris Bay, where we planned to spend the night. Then one of the shadows moved with the boat, spreading ripples before it. A large body heaved from the water, a fin toward the back end. We had come under convoy by a fin whale, one of the largest species of whale. Already, we had seen killer whales, or orcas, blowing off the Pye Islands in Nuka Bay. Now another species found sanctuary in Kenai's labyrinth of waters. Such shelters are needed for endangered species such as this popular target of the whaler.

Protection may be necessary even for the most common large mammal in the fjords, the mountain goat, which in spring comes down

close to the water. We had seen a band among the twisted and bent alder on cliffs above Aialik Glacier on another day. The quiet, peaceful setting had seemed so vulnerable. A bald eagle set up housekeeping on an exposed spruce. Glaucous-winged gulls and black oyster catchers stood patiently in the snow, having staked out their nest sites even before the snow had melted. Surely all these creatures—and perhaps man too—need such areas that are free of stress. As we settled in comfortably for the night at Harris Bay, water cascaded musically from the snow fields above, and it seemed that our only companions were the reflections of stars in the water—

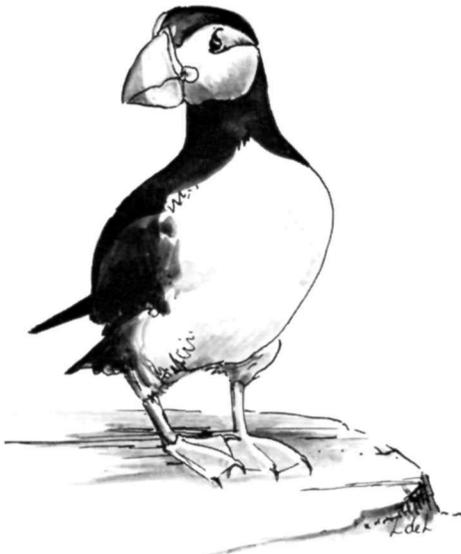
bundles of light that are far older than the life about us. Nowhere are the mysteries of creation better reflected than in Kenai Fjords. ■

From 1972 to 1973 M. Woodbridge Williams was chief photographer of the Alaska Task Force of the Department of the Interior, which was studying public land in Alaska for inclusion in the National Park System. Woody has worked with the National Park Service for sixteen years, and before that with *National Geographic* for six years. His natural history photographs and writings have appeared in several national magazines, including *National Parks & Conservation Magazine*.



LET'S KEEP KENAI WILD

Conservationists are promoting a comprehensive program to protect not only Kenai Fjords but also wilderness areas across Alaska—areas unequaled elsewhere in this nation. In invited congressional testimony NPCA recently backed most of a bill introduced by Rep. Morris K. Udall (D-Ariz.), chairman of the House Interior Committee. HR 39 would protect a total of 116 million acres by adding lands to the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, and possibly the National Forest System.



HORNED PUFFIN, BY LUCIA DE LEIRIS

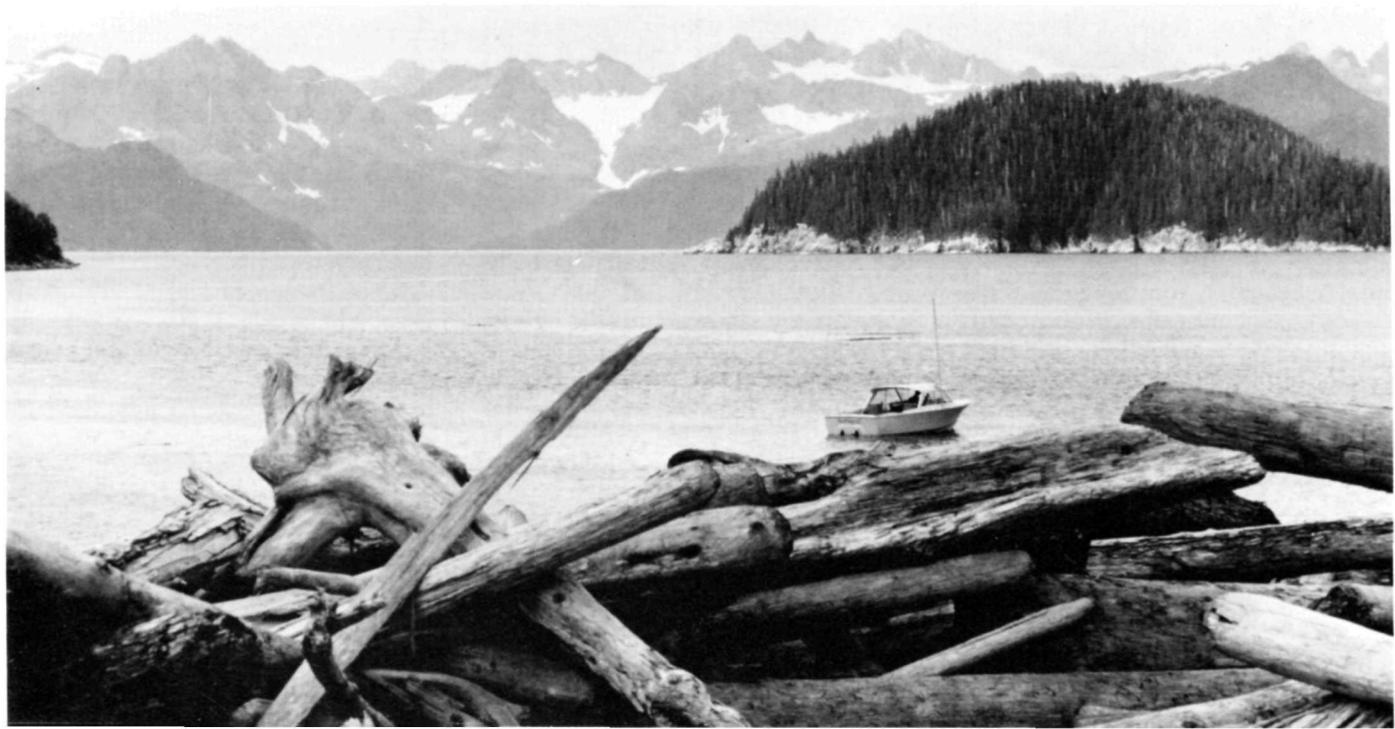
Udall's bill would preserve a 600,000-acre Kenai Fjords National Monument—nearly twice as much land as the amount designated by a 1973 Interior Department proposal that has been reintroduced in this Congress. Unlike that proposal, HR 39 includes one large area rather than three smaller segments. This month the Carter Administration is expected to issue a new Alaska national interest lands package. The new administration proposal for Kenai is likely to be closer to the Udall proposal than to the 1973 plan.

HR 39 would bar sport hunting and commercial exploitation in the

In summer colorful puffins brighten the coastal skies of proposed Kenai Fjords National Monument. In this spectacular Ice Age wilderness the tops of a drowned mountain range rise abruptly from the Gulf of Alaska, and seals cavort where glaciers meet the sea. As much as 400 inches of snow fall every year on the 700-square-mile Harding Ice Field, which crowns the Kenai Peninsula. The icecap spawns glaciers in all directions, and nunataks—protruding summits of nearly buried mountains—rise two thousand feet above it. One of only four such concentrations of ice and snow in the United States, the ice field has the largest central area unbroken by crevasses and mountains.

new National Park System unit. In contrast, Sen. Ted Stevens (R-Alaska) has introduced, separately from his d-2 legislative package, a bill to establish a Seward Recreation Area for multiple-use management under the jurisdiction of the U. S. Forest Service. The Stevens bill would open the door to sport hunting, mineral leasing, logging (scant commercial timber is located in the area), and more intensive recreational development. Management by the Park Service, on the other hand, would ensure proper planning for protecting an area in which recreational tourism is expected to increase greatly. (The proposed monument is less than twenty miles from the port of Seward, Alaska, and only a 2½-hour drive from Anchorage.) Under bills introduced by Rep. John D. Dingell (D-Mich.) acreage in the Kenai Peninsula would be part of a national wildlife refuge and thus would be administered by the U. S. Fish and Wildlife Service (FWS). Although this proposal would offer more protective management than Stevens' bill, the FWS regulations would permit sport hunting in some areas.

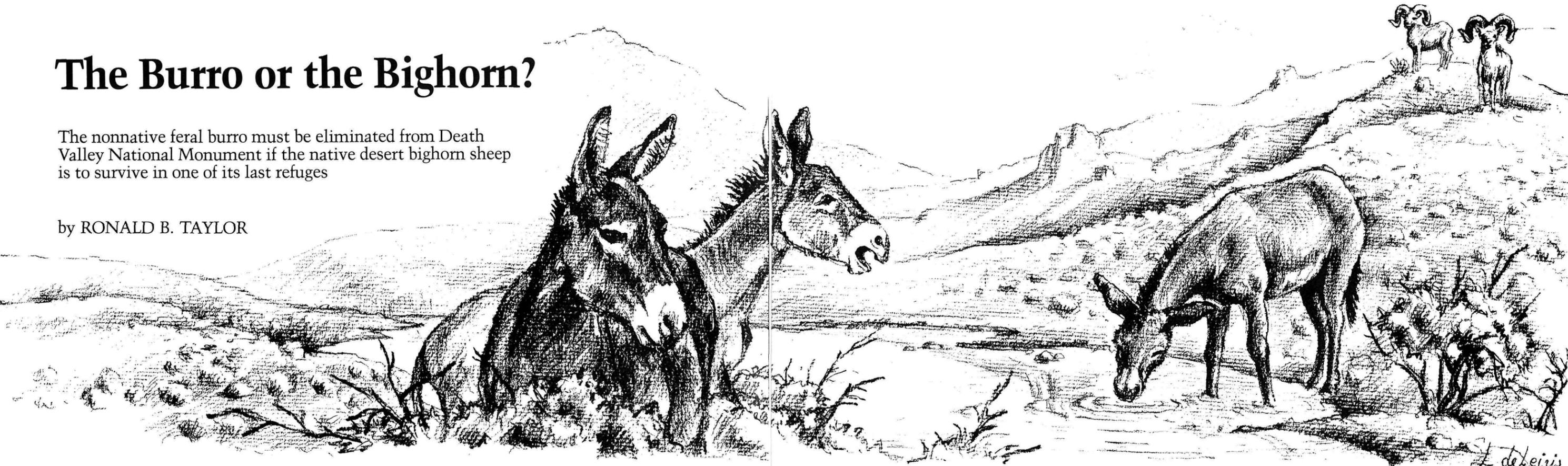
The wildlife of Kenai and other resources of the Kenai Peninsula deserve every possible safeguard against future threats. The area should be designated a national park or monument. For more information about Alaskan national interest lands, see page 26.



The Burro or the Bighorn?

The nonnative feral burro must be eliminated from Death Valley National Monument if the native desert bighorn sheep is to survive in one of its last refuges

by RONALD B. TAYLOR



THE CUTE little burros with the long floppy ears that stand beside Death Valley roads begging for food are not there because they are friendly or domesticated. These aggressive, sometimes cranky creatures have simply eaten themselves out of nearby forage, and they are so adaptable that they will try anything, including begging. Consequently, some tourists have suffered bites; others, who have not seen the burros wandering in the monument's roads in time, have wrecked their cars.

But this is not the reason that the National Park Service has proposed to eliminate burros from Death Valley National Monument and other desert lands in the National Park System. The elimination of the burros is being proposed because these feral animals are rapidly destroying habitat and are crowding out less adaptable native species such as the desert bighorn sheep. The Park Service is waging an uphill battle to

spread the word that nonnative species affect the integrity of and, over the long term, the survival of entire natural ecosystems.

AN ESTIMATED 1,600 descendants of North African asses—imported to the Southwest by Spanish conquistadors and brought into Death Valley and the Grand Canyon by gold prospectors—eat more than ten tons of forage in those areas each day. By 1985 it is estimated that their numbers will have more than doubled and that they will be consuming twice as much forage daily. As a result, National Park Service environmental experts say the native desert bighorn sheep in both Death Valley and the Grand Canyon are doomed unless something is done to eliminate the wild burros.

In Death Valley, where all animal life depends upon a specific, limited number of water seeps and springs, the tough, aggressive little burros

usurp available water supplies. Peter G. Sanchez, National Park Service resources management specialist, reporting in 1974 on the impact of feral burros on the Death Valley ecosystem, wrote, "The amount of available water is the most important factor acting to limit the bighorn herd distribution . . . bighorn survival in some locations has become critical."

Death Valley National Monument records and wildlife studies dating back to the mid-1930s show, for example, that the intrusion of burros in the Cottonwood Mountains, in Butte Valley, and at Eagle Spring in the Panamint Mountains has been an important factor in the disappearance of the sheep herds from these areas. Environmental studies indicate that enough water, food, space, and escape terrain within the monument were available to support a population of 4,800 desert bighorn sheep before the 1850s and that sheep then ranged over a 1,400-

square-mile area. Today, Sanchez, using his own work and that of other scientists, estimates that 520 ewes and rams range over only 384 square miles of monument lands.

Death Valley Superintendent Don Spalding believes that competition between the bighorn sheep and the burros "is the most serious wildlife management problem we have, and it has now reached the critical stages."

Grand Canyon National Park Superintendent Merle Stitt agrees, as do the managers of Bandelier National Monument, where the total numbers of burros, mule deer, and elk are much smaller but the problems are the same. In all three areas, wildlife managers agree that both the 1916 congressional mandate that created the National Park Service and NPS administrative policy require protection for the native wildlife and elimination of exotic species that threaten the native wildlife. The 1916 National Park

Service Act states that the purpose of the National Park System is "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations." Ever since 1970, NPS policy has been to restore, protect, and maintain *native* environmental complexes by removing nonnative species that have become established or that threaten invasion of a natural area.

For example, in Hawaii Volcanoes National Park nonnative feral goats had destroyed the native vegetation that was essential to the nesting and survival of the native nene goose. By 1970 the nene was an endangered species and no longer existed in the park. The NPS began eliminating goats from the park and fencing the boundaries. Today goats are virtually gone from the park,

and the endangered nene is being successfully reintroduced. The problem of burros in the Southwest is the same as that of goats in Hawaii.

TO UNDERSTAND the problems posed by burros, consider for a moment Eagle Borax, the historic oasis in the bottom of Death Valley.

Before the 1849 California Gold Rush Eagle Borax was an amazing oasis, complete with large pools of fresh water on a sun-baked salt pan that reached daytime temperatures in excess of 120 degrees Fahrenheit. The water supported mesquite trees; various kinds of desert brush; a native bunch grass called alkali-sacaton; and a wide range of small mammals, birds, and insects. Between 1849 and 1880 gold seekers only occasionally crossed the harsh salt flats, stopping at this and several similar oases, doing little to alter the ecosystem. Then in 1881



Daunet, a Frenchman, trying to “mine” the borax on the surface of the salt flats, built a house and a boilerworks for treating the salt. It is not known whether Daunet had burros; but before he abandoned his effort two years later, he or the men who followed him had introduced another native of the North African desert—the fast-growing tamarisk or salt cedar tree.

Like burros, the salt cedar is both adaptable and a survivor—that is, no known natural enemies or diseases threaten its existence. Because a mature salt cedar consumes about two hundred gallons of water a day, the tree can easily dominate an oasis. Thus, as the trees flourished at Eagle Borax, the ponds shrank and water plantlife and other species of flora and fauna were radically affected.

Then came the burros, driven down to the flats in search of water and forage as their numbers outgrew the more attractive canyon ranges above. At first they were sustained by browse and grasses that had managed to survive the salt cedar incursion; but as the bur-

ros proliferated, their impact on the oasis became increasingly destructive. By 1975 they had virtually killed off the alkali-sacaton grass—eating it down to the roots, which they then pawed up.

Alkali-sacaton is a variety of bunch grass that survives by “building” towers of soil and nutrients above the alkali salt pan. Because it offers food and protection, it is essential to the survival of the small rodents, birds, and insects that live in the delicately balanced Eagle Borax ecosystem.

By 1975, Sanchez says, “We estimated [the burros] had killed off 80 percent of this bunch grass in the Eagle Borax area; and if we didn’t fence them out, they’d wipe the place out.”

So the burros were fenced out, and, in addition, Sanchez ordered work crews to cut down all the salt cedars in and around the ponds. The destruction of these trees released hundreds of gallons of water a day. As the ponds began to expand to their former size, tules and other aquatic plants prospered again, contributing to expanded rodent, in-

sect, and bird populations. Mesquite trees, native to the area, are becoming more vigorous. Some salt cedars are left, and some of the stumps are sprouting again even though they were burned and uprooted. But the overall effect of the continuing project (now nearly two years old) is impressive. Nowhere is the before-and-after evidence more graphic than on either side of the antiburro fence around Eagle Borax.

Outside, where some burros still feed, every bit of vegetation—except the salt cedar—is being eliminated, and the hard crust salt pan is taking over. The rust-brown mounds that were once tall stands of bunch grass are the only evidence that some radical change has taken place; the mounds are dead. Yet, inside the fence the green of the oasis supports a surprising variety of life, and the stands of alkali-sacaton grow thick, the grasses heading out, providing seed.

As Sanchez showed me the area, we walked around a big mesquite tree, and there, out in the deep grass, stood two burros that had



PHOTOGRAPHS BY RONALD B. TAYLOR

Deep grass and a wide variety of life characterize Eagle Borax, the historic oasis, which is fenced to exclude burros. (Sometimes some, such as the two at far left, manage to slip through.) Outside the fence every bit of vegetation is being eliminated, and the hard crust salt pan is taking over. Although they are appealing, burros that beg for handouts are dangerous animals. They are aggressive little creatures and will bite; their big teeth can inflict painful wounds. Visitors should avoid them.

managed to slip through the fence. They took off at a trot when we walked toward them.

"See how close they take it down?" Sanchez said as he knelt and pointed to the close-cropped patterns where they had been grazing. "A burro, when in stress, will stand in one place, and he'll take everything he considers edible before he moves. This is the result; and when there are a lot of them and the competition is strong, they'll even paw it up. They kill it off. It never comes back."

In contrast, the desert bighorn sheep are timid animals that browse, eating a bite here, a bite there, never standing long in one spot. To survive, these animals require food, water, space, and escape terrain—steep, rocky mountainsides. They tend to remain on a home range that includes one or more water holes. If food supplies dwindle or the water source dries up, the sheep are forced to move or die. Because they are shy and can not tolerate competition from other large mammals like the burro, the sheep are pushed out by such com-

petition. Sanchez says that some sharing of water holes occurs in Death Valley, but only where burro numbers have not yet built up to intolerable levels for the sheep.

Burros, on the other hand, seem to thrive on competition. Evolution has provided these little animals with an incredible adaptability. Five years ago, while driving through Wildrose Canyon, I stopped and got out, put a long lens on my camera, and hiked up into the hills, stalking a group of burros. They stayed just out of range. Recently I returned to the same area but this time found my telephoto lens unnecessary. The burros were unconcernedly feeding along the roadside. When I stopped, two climbed out of the wash, walked to the car, and stuck their heads in, bumming for food. Rangers say that several of the burros in Emigrant Canyon have learned to turn on the water faucets in the Emigrant Canyon Campground. The shy, elusive bighorn sheep simply cannot compete with such "public relations" antics, which may be one of the reasons the sheep seem to be doomed.

THE 1971 Wild Free-Roaming Horse and Burro Act protects burros on Bureau of Land Management and U. S. Forest Service lands. Thus, under the act these federal agencies must report to Congress on the numbers and conditions of the various herds on their lands. The 1976 report reveals an estimated 3,072 burros in California and 2,668 burros in Arizona. The remaining 1,360 wild, free-roaming burros are scattered throughout the other southwestern states. When the 1971 law was being drawn up, Park Service officials asked for and received exemption from the restrictive protections because rangers would have to radically control burro populations if the Park Service was to carry out its 1916 mandate.

Since the early 1920s National Park Service rangers have been thinning burro populations by shooting the animals. Some 6,300 burros were killed in Grand Canyon and Death Valley between 1924 and 1968. In addition, about 400 animals have been trapped and either put up for adoption or transported

outside park lands. Trapping and moving burros onto BLM or forest lands is not practical, officials say, because the protected herds in those areas are also increasing and are upsetting the natural balance of those ranges. Not many people have adopted burros to date.

The evidence gathered by National Park Service scientists has convinced most conservation organizations that such feral animals as the burros must be eliminated from the national parks by live trapping where possible and by shooting where other methods are not feasible or practical. Boundary fences may have to be installed in some areas to prevent immigration of new burros into the parks. Yet, despite the cumulative, dramatic field evidence, detailed studies, and support from conservationists, the Park Service had to cancel its plans to remove by shooting the burros in Grand Canyon, Death Valley, and Bandelier on direct orders from Secretary of Interior Cecil D. Andrus.

THE CONTROVERSY started in early 1977 when a professional Colorado river runner appeared on a Chicago TV news program and commented, in passing, on her opposition to the shooting of all Grand Canyon burros. The media responded instantly, and the story took on almost unbelievable characteristics. A Detroit newspaper columnist wrote that the burros were to be eliminated "by a sort of anti-burro SWAT team (that) was to have parachuted, guns ablazing, into the canyon." (A proposed plan called for some ranger-riflemen to be flown in by helicopter to remote areas, where they could establish a base camp. No one, however, was to be parachuted into the canyon "guns ablazing.")

The news triggered a flood of letters of protest from the public and a lawsuit by the Humane Society of the United States, The American Horse Protection Association, and

the Committee to Save the Grand Canyon Burros. The complaint, filed in U. S. District Court for the District of Columbia, sought an injunction to stop the NPS from killing any burros, citing their historical role in settling the West and asking for a full review of the project under the National Environmental Policy Act.

Interior Secretary Andrus, citing long-standing Park Service policy and widespread misunderstanding of the nature of the burro problem but hoping for a better solution than shooting, ordered a full-scale environmental impact statement based on more intensive research and analysis. The EIS for Death Valley is due in November 1977 and for Grand Canyon, in January 1978, after which public hearings will be scheduled before a final decision is made about the burro reduction program.

BURROS ARE DESTROYING the environmental balance in Death Valley and other areas that the Park Service must protect. What "better way" than shooting can solve the problem and be acceptable to the public is unclear. Shooting is harsh, granted. But no large numbers of people have come forward to adopt wild burros, although the adoption program has received wide publicity. Given the natural constraints of available food and water supplies, the ranges outside the National Park System are already supporting oversized herds of burros. Ecologists say enough water and forage is available in Death Valley, Grand Canyon, and Bandelier to sustain only a few hundred burros in anything like an environmentally sound management plan. Then the public would have to accept the fact that, just by their existence, the burros crowd out native forms of life. And even if a plan were adopted to allow some numbers of burros to remain within these park lands, 1,000 to 2,000 burros would still

have to be either removed or eliminated.

The terrain in Death Valley and Grand Canyon is wild, extreme, remote, precipitous. Herding or "driving" burros is impossible in such areas. The animals can be trapped at the water holes; but building traps takes men and material, and helicopters are frequently the only practical means of transportation for such projects. Not only does setting such traps put extreme pressure on the big horn, but what do you do with the burros once you have captured them? The only way out—unless you think you can lead a wild burro in such country—is to fly them out one by one by helicopter at a cost of about \$250 an hour.

Even if the burros could be gotten out of the precipitous wilderness areas, then what? The BLM and the Forest Service do not want more burros. They are trying to get the 1971 law changed so they too can control herd sizes. Most wildlife management specialists and environmental scientists seem to agree that there simply is not enough room on federal lands for more feral burros. So, in the best judgment of the National Park Service, the burros of Grand Canyon, Death Valley, and Bandelier National Monument must be eliminated, and shooting them is the only practical way to do that unpleasant job.

If the public disagrees, then the taxpayers and the Carter Administration must be prepared to spend large sums of money saving the burros or to abandon the basic policies that now govern our National Park Service's management of such areas. The latter decision would be disastrous to the natural ecosystems and to the native wildlife that inhabit them. ■

Ronald B. Taylor, a West Coast journalist and author of two books, writes frequently on environmental issues in the national parks.

Pesticide farming—especially the growing trend of “no-till farming”—constitutes a treadmill leading inexorably to ever more intensive use of hazardous chemicals

by DANIEL ZWERDLING

The Pesticide Treadmill



RACHEL CARSON would surely weep if she were alive today. On the fifteenth anniversary of her classic, *Silent Spring*, the purpose of her widely acclaimed book—to reverse the tide of pesticide use—has failed.

“Failed!” a friend in the environmental movement scoffed. She began to tick off some impressive antipesticide accomplishments. Millions of copies of *Silent Spring* have been sold, and millions of Americans have been alerted to the hazards of pesticides. The Environmental Protection Agency (EPA) has banned or sharply restricted some superpersistent poisons such as the chlorinated hydrocarbons DDT, aldrin, dieldrin, heptachlor, and chlordane and now Mirex. In 1972 Congress passed a law making it harder for manufacturers to get new pesticides approved.

Despite these successes, however, American farmers and gardeners will use two and a half times as many pesticides this year as they did in the year Rachel Carson’s book was published.

All the evidence suggests that the pesticide crisis in this country is more acute than ever before. The use of pesticides—both herbicides (weed killers) and insecticides (insect killers)—on major agricultural crops has exploded. Farmers will spray about *eight times* as much herbicide on corn, the nation’s

number one crop, and *nine times* as much herbicide on soybeans this year as they did in 1964, according to rough U. S. Department of Agriculture (USDA) statistics.

The USDA, the EPA, and the chemicals industry, who seldom agree on anything, do agree on this: The demand for pesticides on the nation’s farms will steadily increase. This increase is virtually guaranteed by the most important new trend in agribusiness—“no-till farming.” On no-till farms, farmers shun the old-fashioned methods of plowing and cultivating the soil to help keep weeds and insects in check. Instead they simply plant their seeds through the stubble of the old crop and rely on chemicals to control insects and weeds.

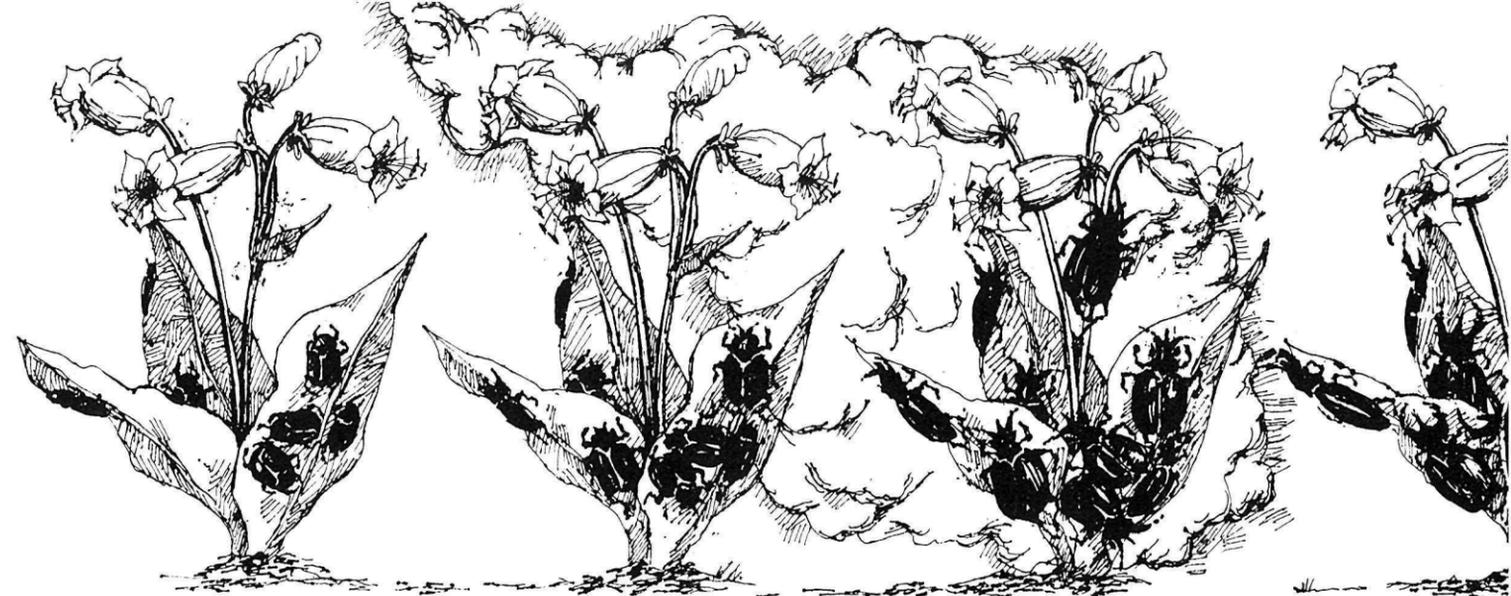
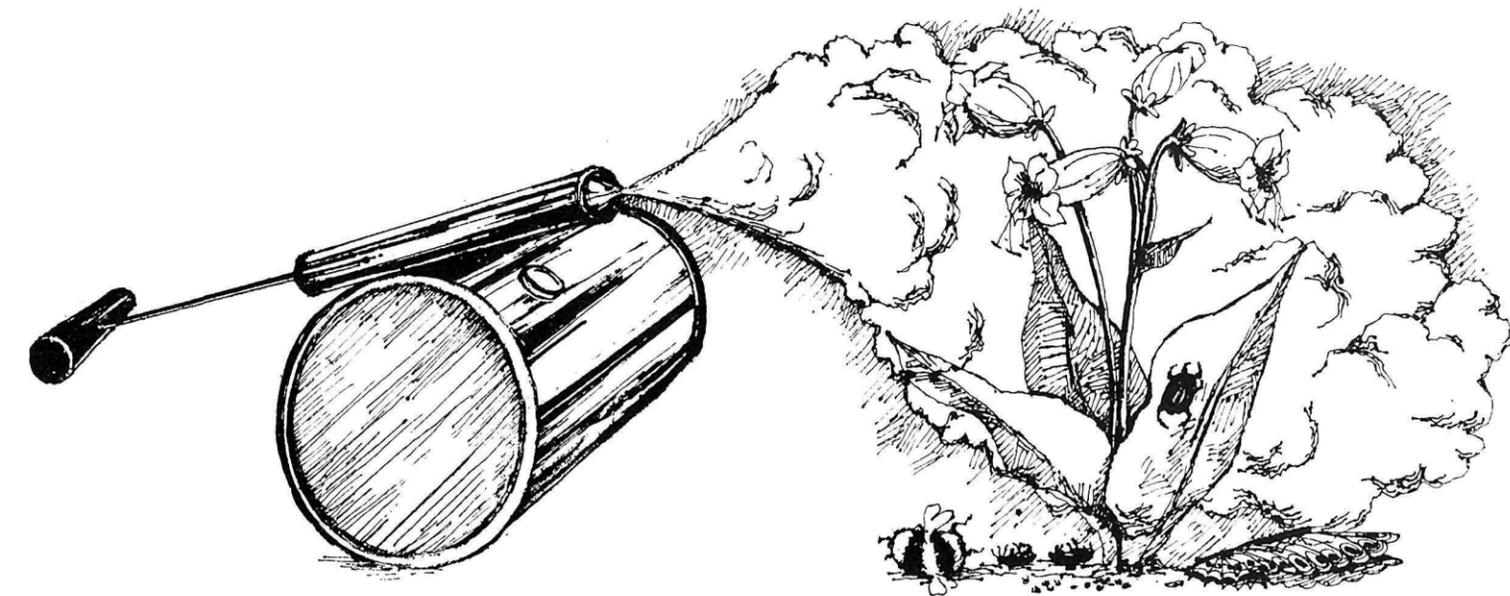
Agribusiness is promoting no-till farming because it saves tractor fuel and labor and cuts down on erosion—in the short run. But as USDA researchers point out, the lack of plowing allows weeds, insects, and diseases to thrive. “The paramount requirement for successful reduced tillage systems is effective weed, insect and disease control,” says USDA—with at least 50 percent more pesticides per acre than farmers already use.

By the year 2000, the USDA predicts, almost half the cropland in America will be managed by the no-till method, and “severe environmental problems could possibly

develop . . . from increased pesticides and herbicides.” USDA researchers are hopeful, however, that “some new research and development on chemicals could reduce the prospects of such a possibility.”

RESearch by the National Cancer Institute and other research institutions on the safety of pesticides does not make one optimistic. An extensive nationwide test of pesticide levels in human milk in 1975 revealed small but detectable residues of three of the restricted chlorinated hydrocarbons—dieldrin, heptachlor, and chlordane—in most mothers’ milk, the DPA announced in May 1977. Officials said that “the possible long-term consequences of these minute amounts are uncertain.”

The highly touted restrictions on these and other persistent chemicals may be good for the soul, but their ban has scarcely made a dent in the amount of pesticides used nationwide. While environmental groups, the EPA, and scientists expended millions of dollars, precious energy, and many years in court battles trying to get these chlorinated hydrocarbons off the market, farmers were spraying larger quantities of a single insecticide called toxaphene than all the banned and restricted pesticides put together. National Cancer Institute studies suggest that toxaphene, the nation’s



leading insecticide, also causes cancer.

Endrin, lindane, and methoxychlor, three other popular persistent insecticides, are also suspected carcinogens—yet we are eating residues of these insecticides in meat, dairy products, vegetables, and fruits. Studies in EPA files also suggest that 2,4-D, one of the best-selling herbicides in the nation, causes cancer. Scientists have known since 1969 that 2,4-D as well as other popular pesticides such as Captan, Carbaryl, 2,4,5-T, and PCNB cause birth defects.

Focusing on individual pesticides, however, is essentially a waste of time, for mounting evidence suggests that literally tens of thousands of pesticide products used in the United States—perhaps even most of them—may contain chemicals that cause cancer, birth defects, mutations, and other drastic health effects. The problem is not one or ten or even fifty pesticides. The problem is the entire pesticide industry itself.

An EPA document published in December 1976 warns that perhaps half the 40,000 pesticide products now on the market contain petroleum distillates. An unknown number of these distillates contain cancer-causing chemicals called polynuclear aromatic hydrocarbons, or PNAs. In September 1976 researchers told the American Chemical Society convention that whole classes of herbicides, whose use will explode with no-till farming,

probably contain nitrosamines, the same potent carcinogens found in fried bacon. EPA scientists have already measured high levels of the cancer-causing poisons in some of the best-selling brands on the market.

Scientists have worried for years about the national health threat from dioxin, a manufacturing by-product that invariably contaminates the popular herbicide 2,4,5-T and possibly other leading herbicides as well. Dioxin, EPA says, is "perhaps the most toxic small molecule known," causing birth defects and death in animals at lower levels than any other chemical tested. EPA-sponsored studies have found residues of supertoxic dioxin in beef, and now Harvard researchers report they have detected dioxin in human mother's milk. "Trying to regulate problems like these," one EPA official said gloomily, "is obviously a horrendous if not impossible task."

THE GROWING pesticide crisis cannot be solved by a new law, by banning a few specific pesticides, or by limiting the amount of pesticides farmers can spray on particular crops. The crisis is rooted in the American agricultural-industrial complex. An immensely powerful web of social, political, and economic forces links farmers, the petrochemicals industry, and major agribusiness corporations in a way of life that dictates that pesticides *must* be used, no matter what the

crippling long-term costs. University of California entomologist Robert van den Bosch characterizes this way of life as the "gigantic pesticide treadmill."

The treadmill began after World War II, when commercial production of DDT and 2,4-D launched the pesticide era and agribusiness corporations began to eliminate the small family farm. The two developments came hand-in-hand. Corporate-style farming depended on massive use of energy- and capital-intensive technology, such as synthetic fertilizers and pesticides, to replace human labor. Since 1940 half the nation's farms, three and a half million of them, have disappeared; and farm labor has fled to the cities. Farmers believed they had no choice but to use pesticides or go out of business.

Large corporate farms are based on massive tracts of high-yield single crops—monocropping—instead of the rotating variety of crops old-fashioned farms used. An EPA study notes that "where rotation is abandoned in favor of continuous monoculture, reliance on pesticides is almost always certain"—for monocropping breeds diseases and pests. As the number of acres controlled by corporate farms increased, so did the number of acres subjected to regular treatments of chemical pesticides. Only 1 percent of the corn acreage was treated with insecticides in 1951. Today more than half the nation's corn acreage is routinely sprayed.

IT IS ASTONISHING to watch the pesticide way of life become even more entrenched in American farming as mounting evidence reveals that pesticides are harming much of agriculture, in the long run, more than they are helping it. Relying so heavily on pesticides, one EPA report concludes, "has resulted in economically as well as ecologically disastrous failures." A mountain of studies from such sources as EPA, USDA, the National Academy of Sciences (NAS), and university research centers chronicle the kinds of pesticide disasters that Rachel Carson predicted fifteen years ago.

As the use of pesticides increases, the problems caused by insects and weeds are getting worse, not better. Since the 1940s, Cornell University professor of entomology David Pimentel reports crop losses caused by insects have nearly doubled. Why? According to an NAS report, "genetic resistance in pest species and the disruption of natural control mechanisms" caused by pesticides are at least partly to blame. These factors "constitute rising threats," the report warns. "We believe these problems will become more acute."

The literature is filled with examples of pesticide controls that are backfiring. Farmers used so much insecticides to battle the looper, a pest on soybeans and numerous vegetable crops, that in 1972 the Council on Environmental Quality warned that the insect

"can no longer be controlled by any insecticide registered for use on the soybean." The following year a major pesticide manufacturer marketed a new poison that controlled loopers effectively. But farmers have drenched their crops so zealously—farmers in Florida are spraying their fields 40 to 100 times a season—that now loopers are developing resistance to this poison, too. "We're afraid," one entomologist says, "this is the year the (resistant) loopers are going to move in"—causing serious crop failures in their wake.

Combatting insects with pesticides, the NAS report pointed out, can frequently create problems more serious than the damage caused by the original pest itself. Pesticides not only breed resistance but disrupt the ecological balance and encourage formerly harmless or minor pests to flourish. Citrus growers in California, for example, spray massive amounts of insecticides in an effort to obliterate the citrus thrip, a pest that causes cosmetic blemishes on the peel but usually has no effect on the fruit itself. But the potent insecticides also destroy the natural predators of the citrus mite. "It's kind of a merry-go-round," says James Gorden, a pest control consultant in Tulare County, California. "When you spray for thrips, you create mite problems, and you have to spray for mites. But the more you spray for mites, the more you wipe out their natural predators and the more they

bounce back, and the more you *have* to spray." The result: citrus has become one of the ten most heavily sprayed crops; and mites, "once insignificant pests, have become one of the most costly and serious pests in the industry," according to entomologist van den Bosch.

Pesticides have unleashed the worst havoc in the cotton fields, which soak up about half the insecticides sprayed on the nation's crops. Farmers in the southern cotton belt attacked the boll weevil with such vengeance that they killed the natural predators of the budworm, a previously unimportant pest, and made the budworm resistant. Disaster struck in the late 1960s, as resistant budworms exploded with a fury the boll weevil could never match. Cotton yields in the Texas Rio Grande Valley plummeted 50 percent in 1970; in 1974 resistant budworms hit Louisiana so fiercely that "farmers were using every sort of insecticide imaginable, I mean wildly intensive treatments," says Louisiana State University entomologist Dr. L. Dale Newsom. "A conservative estimate would be that many people lost 25 percent of their crop." The same kind of scenario has crippled many cotton growers in California, where cotton yields in 1970 hit the lowest level since World War II. Some of the insects unleashed by the overzealous spraying in the cotton fields have drifted to other crops, according to van den Bosch, "where they



DRAWINGS BY MARCIA LEDERMAN

caused devastating infestations in sugar beets, alfalfa, lettuce, and other crops."

To illustrate how farmers get trapped on the pesticide treadmill, at enormous costs, consider the nation's number one crop—corn. Since only about a dozen years ago farmers in the corn belt have more than doubled the amount of insecticides they spray on corn, and they have multiplied the use of herbicides more than 700 percent. Yet this pesticide blitz has failed to save their crops from insect damage, in the long run. Crop losses from insects have actually *increased*—from less than 4 percent of the crop in the 1940s to about 12 percent in 1974, according to Pimentel.

One reason for the increase, Pimentel argues, is that major corn farmers, especially in the corn belt, have insisted on continuous monocropping year after year, increasing the crops' susceptibility to insects that would be destroyed by crop rotation. If the farmers rotated the crops, the corn rootworm would have nothing to feed on after the corn was harvested and would die. Instead, the corn rootworm feeds on the corn year after year and is able to flourish. Farmers have assaulted the corn rootworm with massive amounts of insecticides, only to make it increasingly resistant.

Curiously, the massive shift from the traditional methods of weed control—cultivation and crop rotation—to herbicides has also made the corn *weed* problems worse. As farmers eliminate easily controlled

weeds with chemicals, an EPA report notes, "more difficult-to-control weeds are becoming more prevalent." So the corn farmers keep using more herbicides. One of their favorite brands is the first modern herbicide marketed—the potentially cancer-causing and birth-deforming chemical 2,4-D. According to recent studies by Pimentel and colleagues, 2,4-D *increased* insect and pathogen pests on corn. The researchers discovered that corn sprayed with 2,4-D in the field was attacked more frequently and by bigger armies of insects than was untreated corn. Some of the insects that grew in the 2,4-D sprayed cornfields were bigger and laid more eggs than the unsprayed bugs. In addition, Pimentel reports, "corn exposed to 2,4-D had significantly more southern leaf blight lesions" than unsprayed corn—a worrisome reminder of the 1970 southern corn leaf blight, which destroyed about 15 percent of the nation's corn crop and more than 50 percent of the crop in some states.

Researchers believe the main cause of the blight was the fact that most of the nation's corn crop has been grown from a single hybrid strain that genetic engineers had designed for maximum profitability, accidentally breeding out disease resistance. But did widespread use of 2,4-D make the crippling epidemic even worse? "Precisely what the role of 2,4-D was, no one knows," says Cornell's Pimentel. "But I'm confident the outbreak was more severe than it would have

been otherwise, because of the stress 2,4-D put on the plants."

Despite all this evidence, an EPA report notes, the use of pesticides in the corn belt is "heavy and increasing." Farmers and state agriculture extension agents get most of their information about how to grow corn and how to use pesticides from the pesticide industry, especially the pesticide dealers. Pick up one of the more than 100 farm journals across the nation; as much as 40 percent of the pages may be ads, promoting the pesticide industry's latest products. The fact that the pesticide treadmill "may entail hidden future costs is generally not known to farmers," the EPA researchers say, "and no effort is being made to bring it to their attention."

NOW, TO COMPOUND the tragedy, American agribusiness is endorsing no-till farming. Reading about no-till farming in the agribusiness journals is like reading about the coming messiah. "Interest in no-till wheat is spreading like wild fire," one farm journal headline announces. "No one has ever advanced a scientific reason for plowing," a national publication called *No-Till Farmer* proclaims on its masthead. *Progressive Farmer* magazine gives its "Men of the Year" awards to "modern day agricultural . . . no-till pioneers." And a top official of the Chevron Chemical Company, speaking at a national no-till conference, exults that "we see vast potential" in no-

till systems.

The chemicals industry sees great potential in no-till farming because it opens a vast new market for pesticides. The sale of old products will boom as the chemical companies repackage them for special no-till spraying. Chevron has assembled a special marketing assault team just to promote its powerful herbicide Paraquat for use with no-till corn, cotton, soybean, and sorghum crops. No matter that studies under review at EPA suggest that Paraquat may cause chronic lung disease and mutations. Northrup King & Co., the large farm equipment manufacturer, is promoting a new system called CROP. It's not something you eat, but "chemical renovation of pasture," relying on hazardous pesticides such as Paraquat and 2,4-D. Rohm and Haas hopes to rush into production with a new herbicide called Goal for no-till soybeans; and no-till herbicide sales look so good that American Cyanamid, which sells half a billion dollars worth of agricultural chemicals each year, is opening a new factory just to produce its no-till herbicide Prowl. No wonder a company like Chevron has "spent a government-sized budget in advertising the concept of farming without tillage," as Chevron official Warren Lewis told a 1973 national no-till conference. Chevron has poured funds into sponsoring "educational" university symposia and research on no-till farming and writing articles for the farm press. The campaign has paid off. Since 1976, when Chevron

began pushing no-till, according to USDA statistics, sales of Paraquat have increased more than twelve times.

THE IRONY of all this—and the tragedy—is that just as the agricultural-industrial complex is growing increasingly dependent on pesticide farming, research across the country is giving impressive evidence that American agriculture could flourish with few or no pesticides at all. Farmers participating in a \$14 million experiment funded by the USDA, EPA, and the National Science Foundation have shunned the pesticide approach on cotton, alfalfa, fruit, and soybean crops and instead used integrated pest management, or IPM.

With IPM farmers combine a variety of nonchemical pest control techniques. They carefully scout the fields to check whether pests have actually reached an economically damaging level or whether the insects can be allowed to munch in peace. If insects reach a costly level, farmers attack with biological controls, such as natural predators and hormones that disrupt the insects' growth. Pesticides are sprayed sparingly, only as a last resort. Some farmers in the experiment have slashed their pesticide use by 50 percent while increasing crop yields.

Other researchers are demonstrating that some day farmers will not need to use pesticides at all—if they turn to organic farming. Organic farming is the most old-fash-

ioned but most complex agricultural method of all. Farmers can't rely on the simple, quick "fix" of some synthetic fertilizer and a squirt of chemicals to make their crops grow. They must nurture the soil with organic nutrients, plant a careful mix of crops, and promote a complex ecological balance in the fields that naturally protects the plants from weeds and pests. Already there are hundreds of commercial organic farms across the country—not backyard gardens, but thousand-acre spreads.

Careful research shows that organic agriculture works, economically. A study released earlier this year by Dr. Barry Commoner's Center for the Biology of Natural Systems, in St. Louis, showed that fourteen organic farms in the corn belt ranging from 125 to 800 acres, produced crop yields slightly lower per acre than fourteen conventional pesticide farms. The result: the organic farmers earned virtually *the same net profits* per acre as conventional farmers did. The study does not suggest that the entire nation could turn organic tomorrow, but it does suggest that environmental groups are accumulating far more powerful weapons against the pesticide way of life than they may think. ■

Free-lance writer Daniel Zwerdling writes widely on environmental topics for such publications as *The Washington Post*, *Newsday*, *New Times Magazine*, *The Progressive*, and *The New Republic*.

An isolated outpost in the Gulf of Mexico has a fascinating but tragic history

by NANCY O'SHEA

FORT JEFFERSON: Confessions of a Tour Guide

MOST National Park Service tour guides are Sweet Young Things. But I have the distinction of being possibly the only great-grandmother ever to have worked for the Park Service as a tour guide.

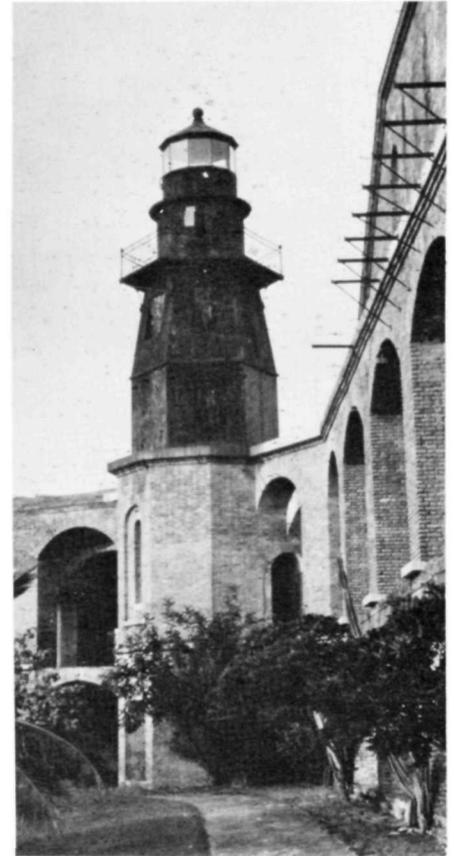
The Park Manager at Fort Jefferson National Monument, finding himself in need of help, cast a desperate eye about the lonely island and discovered me, living there because my husband was maintenance man for the fort. Plagued from childhood with stage fright, I was an unlikely choice to serve as a guide dispensing information to groups of people. I was chosen, however, not for any particular talent, but because I was there—living in the distant Dry Tortugas, seventy miles across the Gulf of Mexico from Key West, Florida, far from competition with Sweet Young Things.

The Tortugas, located at the southernmost tip of the United States, span an era that includes pirates and Spanish treasure. As the largest of nineteenth-century forts

in a line of coastal defenses, Fort Jefferson was designed to house 15,000 soldiers and 450 guns. The eight-foot-thick walls form a hexagon around an open parade ground and barracks area.

Fort Jefferson is half a mile in perimeter and occupies most of sixteen-acre Garden Key, the Tortuga island on which it is built. The tour route covered parts of the three levels of the fort, with small arrows pointing the way through a labyrinth of gun room galleries and dark, tightly spiraling granite stairways.

INEVER had heard of Fort Jefferson until the evening my husband startled me by announcing he was going there to work. I did know of the unfortunate Dr. Samuel Mudd who set the leg of John Wilkes Booth, Abraham Lincoln's assassin, and was sent off somewhere to serve a life sentence at hard labor after being convicted of conspiracy. Now I was leading visitors up and down and around on a



FORT JEFFERSON LIGHTHOUSE, BY CONNIE TOOPS

tour that terminated at the cell of Dr. Mudd.

Soon I was briskly climbing the winding stairs leading my puffing flock to the third tier, fifty feet above the sea, to show them the cluster of coral keys that Ponce de Leon named "las Tortugas" because of the abundance of breeding sea turtles. Later charts contained the word "dry," indicating the lack of fresh water in the islands.

Construction of Fort Jefferson began in 1846 after the U. S. government decided to protect its shipping interests in the Gulf of Mexico. The back-breaking labor was done by artisans and slaves from Key West. Millions of bricks were transported by boat, often in treacherous seas, always in danger of shipwreck on coral reefs. Construction continued during the Civil War, although military prisoners replaced the slave laborers when the fort became a federal stronghold.

I led the tour group through gun rooms, explaining that by 1866



FORT JEFFERSON NATIONAL MONUMENT, BY CONNIE TOOP'S

rifled cannons with the capacity to destroy the brick walls made the fort obsolete even before it could be completed. I told them the fort was slowly sinking into the sea, having been built upon sand and coral boulders instead of on a solid coral reef as believed by its engineers.

A popular attraction is the hot-shot furnace—a marvel of diabolical simplicity. Soldiers loaded cannon balls on a slanting grate above a roaring fire. When the balls became red-hot, they were removed from the lower end and carried by runners to cannons aimed toward the wooden decks of enemy ships. Though never used in combat, coral-encrusted balls in the shallow waters around the fort attest that the cannons were often used in practice.

Despite the fact that Fort Jefferson is open and free to the public, visitation is light because of its remote location. Visitors arrive by seaplane during the tourist season (Island City Flying Service at the

Key West Airport can supply schedules and rates), or by private or chartered boat. Therefore, tours usually consisted of four or five persons, and we would saunter along the route chatting like old friends. In this way I completely overcame my stage fright and began to enjoy my contacts with the public.

Birdwatchers appreciate the many birds that visit the Tortugas in the spring on their journey to the mainland. Yet the plight of migrating cattle egrets in the islands often distresses birdlovers. A multitude of the gangling insect-eaters stops off at the fort annually, probably too weary to make a through flight. Finding little or nothing to eat, they weaken and die of starvation if they tarry too long. On many mornings several white carcasses dotted the parade ground, and birds not quite gone tottered forlornly at the edge of the water fountain or the moat.

The majority of visitors tour the fort as one of their stopovers on

long cruises in private pleasure boats. Fishermen, skindivers, and snorkelers take part of a day to see old Fort Jeff. They padded along behind me in drippy bikinis and cut-off dungarees, their backs blistered by the tropical sun.

Reaction to the fort ranged from gum-chewing nonchalance to deep appreciation of the hardships involved in constructing such an edifice in such a desolate place over a thirty-year period. The interest of history buffs bordered on the fanatical. In his exuberance one young man leaped from the seaplane that brought him and rushed toward the moat as though to jump in. Stopping just before the edge, he threw his arms wide and shouted to the universe, "At last—I behold her!"

AFTER the Civil War the unfinished fort with cracked walls and saltwater seepage served as a prison. Even the gum-chewers realized the gravity of the yellow fever epidemic that raged at the fort for three months in 1867 and killed



ARCADE IN LOWER DECK OF FORT JEFFERSON, BY CONNIE TOOPS

thirty-eight people. I told about the epidemic when we reached the large white monument erected on the grassy parade ground. This monument is in memory of Major Joseph Sim Smith, post surgeon at the time of the epidemic and one of the first fatalities. Ten days later his three-year-old son, Henry, also died of the fever.

When Dr. Smith became ill, Dr. Mudd was taken from his cell so that he could care for the fever victims. In October 1867 Mrs. Smith, mother of the deceased Dr. Smith, wrote a letter edged in black that read in part:

"Dr. Mudd had become much attached to Joseph and never left him whilst he was sick. He also nursed the child. The child died in Dr. Mudd's arms."

Historical records tell of Dr. Mudd's untiring work at the fort during the epidemic, and his efforts on behalf of the fever victims ultimately led to his pardon and release after serving only four years of his sentence.

I became emotional at this point because it was so easy for me, living in this remote outpost, to imagine the fear that gripped its inhabitants more than a century before—prisoners and military men and their families—fighting a killer disease they knew nothing about

with the primitive drugs of their day, drugs that arrived only by slow and uncertain ship. It was easy, too, to conjure up the horror of hastily constructing wooden coffins in which to bury the dead in shallow graves on a nearby island and of watching those same coffins bob past the fort a few days later, having been uncovered by heavy seas.

In 1874 the Army completely deserted the fort after a second yellow fever epidemic and a hurricane that damaged the cracked walls. Fort Jefferson rested alone among the pounding waves and sea life. During the Spanish-American War, however, the Navy used the harbor of Garden Key as a base; the battleship *Maine* left this harbor on her famous journey to Havana, Cuba. Before World War I the fort was deserted once again. Left defenseless against both man and sea, Fort Jefferson would soon have collapsed. In the 1930s, however, the Department of the Interior acquired the Dry Tortugas and designated Fort Jefferson as a national monument.

TO MANY the massive, isolated fort is depressing, and visitors are curious about how fort employees cope with life in such a place. The most commonly asked ques-

tion was "Don't you get lonesome way out here?"

Lonesome? No, never! I loved the ever-changing, sparkling sea, the frigate birds and the terns, the pelicans and the sandpipers, even the smallest hermit crab scurrying along the shore in his tiny shell house. I was a zealous beachcomber in leisure hours, searching for old bottles washed up by the sea. With the four other residents on the island I often ate, fished off the dock, or, while the sea thundered against the moat wall on a stormy night, enjoyed a game of scrabble.

I am back on the mainland now, with a kaleidoscope of memories of an area sometimes wild, sometimes tranquil, always beautiful. Fort Jefferson is well protected from vandals, and the nearby rookeries and coral reefs provide homes for lobsters, sea turtles, and sea birds.

Often at night, just before sleep closes in, I travel a time-tunnel back to the fort of the 1860s. In the shimmering heat an acrid miasma rises from the moat. The toilets empty there, but the tides do not clear out the moat as the engineers had planned; the doctor thinks this might have something to do with the fever. My husband is ill, and my anxious eyes scan the horizon for the overdue boat bringing medical supplies. The sound of hammering echoes through the damp passageways as carpenters build coffins for the three who died this morning. Under a burning sun, four prisoners, with cannon balls strapped to their backs, walk a never-ending circle in the center of the parade ground. They tried to escape last night and are being punished. Overhead, frigate birds wheel silently in the thermal updraft from the fort, joined by chattering sooty terns.

I did not seek and was not even sure I wanted that job as a tour guide, but the experience enriched my life. An era dull in the history books has come alive for me. Perhaps I can also make it live for my great-grandchildren. ■

NPCA at work

NATIONAL HERITAGE TRUST

Administration Will Propose New Conservation Program Soon

A task force composed of government officials and conservation leaders including NPCA staff has been working furiously to meet President Carter's September 20 deadline for formulating a proposed "National Heritage Trust" program to identify and protect America's natural, cultural, and historical resources.

In his May 23 environmental message to Congress President Carter directed Secretary of Interior Andrus to devise a National Heritage Trust proposal within 120 days.

At press time the scope and content of the program had not been defined. However, the Interior Department had outlined its work plan for developing the Trust, planning for close cooperation among conservation leaders, concerned citizens, and government at all levels. Then it launched the program at

a July 6 task force meeting of 200 civic leaders and agency representatives, who were told that President Carter envisions the National Heritage Trust as becoming the most important conservation thrust of the next quarter-century.

In his environmental message Carter said that his already demonstrated support for the National Park System "must be supported by a thorough re-examination of existing federal programs dealing with our natural and historic heritage. These have proliferated in a way that serves neither efficiency nor effectiveness, and they have sometimes impeded the preservationist efforts of state and private citizens." The Council on Environmental Quality explained that more than a dozen federal agencies administer more than 200 programs that affect areas important to our heritage.

"I believe we should establish a comprehensive federal program," Carter's message continued, ". . . to identify, acquire, and protect these resources; to provide for rapid acquisition of the most significant and endangered areas and examples of natural ecosystems; to protect areas already within federal jurisdiction and to coordinate federal programs with states and private citizens more effectively."

It was a tall order, but because the National Heritage Trust represents an opportunity to improve on existing government programs, NPCA is investing a significant amount of our staff time in working on the proposal.

At press time NPCA President A. W. Smith had just recommended to Interior Secretary Andrus that NPS be chosen as the administrative agency for the program. (See page 2.) ■

MAMMOTH CAVE

NPCA Exposes Concessioner's Misrepresentation of Profits

Have you ever stayed at the hotel in Mammoth Cave National Park? If so, you were ripped off. If not, you were still ripped off if you care about the public interest in responsible concessioner service and protection of our national parks.

NPCA has charged National Park Concessions, a private corporation that operates within the Kentucky park, with exploiting its government-protected monopoly in order to rake in money.

Through court action NPCA recently obtained documents that expose how National Park Concessions misrepresented its profits in order to justify charging higher rates at Mammoth Cave Hotel and other facilities.

At the same time, NPCA contends, this corporation has wielded its power as an entrenched business at Mammoth Cave to delay approval of a National Park Service master plan for the park. That plan calls for relocating the hotel to a more environmentally acceptable site and thus would force the concessioner to compete on a private enterprise basis.

Currently National Park Concessions, which operates concessions at five NPS units, takes in almost \$2 million annually at Mammoth Cave alone. Nationwide it apparently shows a rate of profit more than three times as great as the Marriott chain operation, for example.

NPCA had sued the Department of the Interior under the Freedom of Information Act for release of a financial report on the corporation.

An examination of the report and of a government audit covering the concessioner's operations for 1976 prompted NPCA to level the charges at National Park Concessions. In order to substantiate these charges, NPCA has made public the reports it obtained.

As a result of the government audit, the Park Service recently ordered the concessioner to roll back prices at the hotel to make them comparable to rates outside the park. Moreover, a government inspection team uncovered safety violations at the hotel and closed the hotel annex to overnight accommodations.

According to the government auditor,

the concessioner company misrepresented its income from 1973-1976 at Mammoth Cave by using unacceptable accounting procedures. That is, in calculating its profits in relation to its gross income the corporation wrote off its pension fund liability over a three-year period. Of course, this method resulted in an understatement of its profits.

Under accepted accounting procedures, pension fund liabilities are supposed to be written off over a period of ten or more years, according to the audit report.

The financial report obtained by NPCA also discloses that the corporation shows \$1.72 million in cash assets at Mammoth Cave. In a regular business of comparable size, \$35,000 would be considered a more typical amount of cash on hand.

The audit report indicates that the presence of such a large amount of cash minimizes the reported return on total capital, a common measure of profitability in visitor accommodation businesses. The auditor cited figures from *Forbes Magazine* of January 7, 1977, to

Getting Involved

Dear Member:

It's back to school this month for the children around the country and we hope that most of them are looking forward to it. Now that more and more subjects related to the "real world" are part of their studies, it does seem that students really enjoy what they are learning because it means something in their lives.

It wasn't quite the same in 1935 when I first went to work for *Nature* Magazine. In those days, "ecology," "conservation," and "environment" were not the household words that they are today. But since 1960, when *Nature* (now *Natural History*) moved up to New York and I stayed behind in Washington to try my hand at enlisting members for NPCA, I have watched both the environmental movement and our membership grow by leaps and bounds. I've spent my career trying to attract people to the environmental cause, so naturally I'm delighted. And these days they start young—environmental subjects are now a regular part of the curriculum in most junior high and high schools. I imagine you've noticed that today's teenagers can hold their own in conversations about subjects ranging from endangered species to nuclear breeder reactors.

But keeping both students and teachers up to date on what's happening in the way of threats to the environment and efforts to preserve our national parks takes more than textbooks. And that's where timely, interesting, and informative magazines like *National Parks & Conservation Magazine* come in.

If your children at home are over fourteen, they probably enjoy our magazine as much as you do. But if they are away at school, or if you have nieces, nephews, or grandchildren who can't share each month's issue, you might think about giving them student memberships in NPCA, which include a year's subscription to *National Parks & Conservation Magazine*.

Or you might want to give a gift



membership to your school library or to a particular class.

From now until December 31 (when regretfully we'll have to raise the prices of our basic membership and our student membership), the cost of an NPCA student membership will be only \$8.00. When you give a gift membership to either the student of your choice or a library or school classroom, we will honor that same \$8.00 annual dues rate.

And that's not all. You may have noticed that through this column we have been offering a handsome portfolio of nine magnificent photographs of national park scenes to those members who persuade a friend to join NPCA on their own. If you give a membership subscription to a student, library, or class, we will send them the portfolio together with an attractive gift card in your name. We are sure they will find the park photos make a handsome addition to classroom or library walls.

To order your gift subscriptions, just use the envelope included with this issue. I know if you give it some thought you will come up with a surprising number of young friends who would enjoy getting our magazine.

Many thanks!

Sincerely,

Virgie Martin

Membership Department

compare the concessioner's actual return on total capital for 1976 with that of comparable businesses for the same period.

The National Park Concessions return from its operation in NPS units was 22.6 percent, whereas Howard Johnson showed 13.2 percent; Hilton Hotels, 9.0 percent; Marriott, 6.2 percent; Holiday Inns, 5.8 percent; and Hyatt, 1.0 percent.

Yet, because National Park Concessions is not a profit-distributing corporation (it has no shareholders), it paid no federal income tax for 1976. After writing off its pension fund liability, it reported a net profit of \$157,000. Administrative and general expenses are shown to be \$256,409.

Like most concessioners, this corporation can conduct its aggressive profiteering because of its comfortable entrenchment in this and other parks. National Park Concessions has a twenty-year contract at Mammoth Cave.

ACADIA

NPS Caves In to Local Pressure

On October 1, 1977, the Park Service will publish a final master plan for Acadia National Park, Maine, that will upset a lot of people for different reasons.

A June NPS "decisions paper" preview of the master plan revealed that the Park Service has largely knuckled under to local interests in Maine in a number of ways that will make protection of park resources a difficult task. However, some local people will not like the master plan proposal to give the Park Service authority to purchase lands and in some cases to condemn threatened lands within a new fee boundary. Currently NPS can acquire lands or easements only by donation. Because there are no precise boundaries for the park, its growth has been sporadic and unplanned. Private lands are interspersed with public lands.

During hearings on the draft master plan in 1976 NPCA supported new acquisition authority for the Park Service. The trouble with the upcoming master plan from NPCA's perspective, however, is that it sets a much too nar-

When its contract expires on December 31, 1981, under present law it will be virtually guaranteed a renewal because of the preferential rights granted the company under the Concessions Policy Act. That act also grants park concessioners "possessory interests" that give them partial ownership of business operations in the parks and thus obligate the Park Service to compensate them handsomely for their investments should NPS ever wish to terminate a contract. Congress is scrutinizing these provisions of the act, which have caused a trend toward monopolies.

National Park Concessions has operations in four other units of the National Park System in addition to Mammoth Cave: Big Bend National Park, Tex.; Isle Royale National Park, Mich.; Olympic National Park, Wash.; and the Blue Ridge Parkway, Va. and N.C. In 1976 the corporation showed a net profit of \$279,899 on a gross income of more than \$5.1 million in the five areas.

For several years this powerful concessioner has actively opposed approval of the Park Service's master plan for future management of Mammoth Cave National Park. The master plan, which was released in May 1976, calls for removing the concessioner's services from the historic entrance area to the cave and relocating these and other visitor facilities to a site near the edge of the park that would be more acceptable from an environmental standpoint.

NPCA's announcement releasing the documents speculated that the reason for secrecy about the financial statement and opposition to the master plan was "to allow the concessioner to continue to exploit its position as a government-protected monopoly, thus taking in a great deal of money at the expense of local businesses that are not so protected."

NPCA has urged the National Park Service to approve the master plan for Mammoth Cave National Park. ■

NPCA VOLUNTEERS Thank You

NPCA wishes to give a special thanks to volunteers who have been helping us with our work.

Frank Stowell, a resident of the Washington, D. C., area and former businessman, graciously volunteered his services to NPCA from the fall of 1976 through summer of 1977. His help with a variety of office duties has made him invaluable to us. We are looking forward to working with Frank again this fall after he returns from a trip to Canadian and northwestern national parks.

Five other volunteers helped NPCA during the spring and summer months as part of our internship program.

John Byrne, who just graduated from William and Mary College with a Bachelor of Arts degree in history, has had previous work experience that included two summers in Glacier National Park, Montana. John concentrated on national park issues at NPCA, and hopes

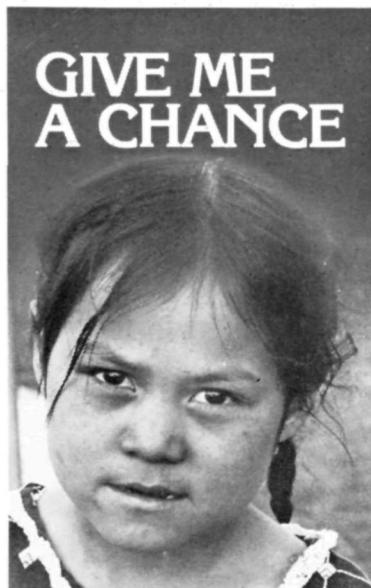
on Final Master Plan for Park

row "fee boundary" for land acquisition and would leave several important areas unprotected and vulnerable to development. Because the master plan proposes new legislation, a fight in Congress is expected on its controversial aspects.

NPCA believes that the boundary is based largely on an assessment of what will be acceptable locally. Instead, NPS should support a legislative boundary based on an ecosystem approach and maximum protection of resources.

To appease local concerns the Park Service will recommend that Congress delete a number of significant areas from the park. The agency, however, is supporting a number of additions to the park and a park transit study favored by NPCA.

The master plan will propose no major changes in concessions policy or snowmobile use at Acadia. NPCA had urged a total ban on snowmobile use and closing of concessions that degrade the park environment and detract from the visitor's experience at Thunder Hole and on Cadillac Mountain. ■



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to use this experience to find work in the environmental field.

Rita Conroy, a senior at Vassar College, will graduate next spring with a double major in biology and psychology. The experience Rita acquired in past jobs equipped her to do excellent work in NPCA's wildlife program.

AMERICAN CHESTNUT Army Offers Proving Ground for Endangered Species



ALASKA D-2 Are Conservationists Asking for Too Much?

Some people think conservationists are asking for too much in Alaska. NPCA representative Robert Coshland had some answers for them at recent hearings on Alaskan national interest lands:

"Throughout the modern history of our forty-ninth state is woven a pattern of repeated excesses, characteristic of the fate of most new frontiers. For example, witness the nineteenth-century gold rush and fur seal predations, and latter-day invasion for such resources as pulpwood, salmon, polar bears, and king crab. . . . These were hardly surprising when viewed in the perspective of earlier depletions in the lower forty-eight states and around the world. But when it is also realized, as current scholars believe, that mammals and birds are becoming extinct at the rate of one species per year, compared to perhaps one per thousand years before the advent of man, and that Arctic habitat can support only a fraction of the

Genie Owen's internship as an editorial assistant with the *National Parks & Conservation Magazine* will be helpful to her in pursuing her ambition to write for a wildlife magazine. Genie is a senior at North Carolina State University and will graduate with a Bachelor of Science degree in English.

Can a military hardware testing facility and a nursery for an endangered species of tree coexist? It looks as if they surely can—thanks to a helpful NPCA member and the U. S. Army.

More than 150 American chestnut trees were planted this spring at the Army's Aberdeen Proving Ground, Maryland, as part of NPCA's ongoing program to restore the American chestnut.

At one time as many as three of every four trees in the Appalachian range of the eastern United States were American chestnuts. However, in the early 1900s American chestnuts began to die en masse from a chestnut blight that probably had been imported with oriental chestnuts in the late 1800s. Today

number of species in the tropics, the urgency of taking uncompromising protective measures in Alaska without further delay becomes crystal clear."

However, some interests are all too willing to classify national interest lands in Alaska in a manner that NPCA believes will seriously compromise their protection.

For instance, S 1787, a bill introduced by Sen. Ted Stevens (R-Alaska) on June 30, includes much less acreage than HR 39 (S 1500), the legislation that NPCA has supported in invited testimony. Sen. Stevens' bill would create only 25 million acres of new national parks, wildlife refuges, forests, and wild and scenic rivers in the huge state—in comparison with 116 million acres under HR 39. Although S 1787 would designate an additional 58 million acres for joint state-federal management by an Alaska Land Classification Commission, mineral development would be

Susan Reed, a senior at Vassar College majoring in History of Religion, has put her summers and spare time to use in political and environmental activities. She assisted with environmental and communications programs.

Janet Spencer is a senior at Allegheny College in Pennsylvania. Her assign-

few American chestnuts remain, but NPCA is hoping to help develop a blight-resistant strain.

In response to an article on this effort in the October 1976 issue of *National Parks & Conservation Magazine*, Mr. Bill Russell, who is with the Environmental Quality Group at the Aberdeen Proving Ground, offered to help NPCA arrange for the chestnut seedlings to be planted there. Early this spring the seedlings, which had been grown from nuts donated by NPCA members, were moved from their nursery on Leo Pahl's farm in Pasadena, Maryland.

The tiny trees—whose numbers will be augmented each year to make a total of 1,000 trees—are now inside a fenced

allowed in these cooperative management areas. The proposal is geared to ensuring a network of highways in these areas. Furthermore, the state would retain jurisdiction over the taking of fish and game, an area in which it has a blotted record. In contrast, HR 39 aims to balance great development threats in the state of Alaska by preserving key natural areas.

NPCA representative Coshland, one of 300 people from seventeen states who testified at recent Denver congressional hearings on HR 39, noted that those who complain about possible "locking up" of resources in Alaska through passage of HR 39 are ignoring the priorities set by the Alaska Native Claims Settlement Act of 1971. The national interest lands debate is an outgrowth of that Act.

Under the law, state interests rightfully have a lower priority than other interests. The law granted Native Alas-

ments were Alaska D-2 lands issues and water projects—areas in which extra help was especially needed during a very busy time this past spring. She hopes to work in the environmental field after graduation.

NPCA is tremendously grateful to these interns for their fine contribu-

area of about 1.5 acres located within a restricted zone on the proving ground. There they will remain undisturbed for the next twenty years or so while they mature and bear nuts. Unfortunately, they will probably die eventually of the chestnut blight, which is carried as spores by wind or as a sticky, spore-filled substance on the feet, fur, or feathers of forest dwellers. But it is hoped that although these trees may not survive the deadly blight, they will produce some offspring with increased resistance to it. These in turn will be planted together and should produce trees that have even greater resistance.

The use of the land at Aberdeen Proving Ground is part of a program there to protect and maintain the natural

kans (Eskimos and Indians) the right to choose some 45 million acres of public lands. Therefore, satisfaction of these claims to the extent and in the manner called for by the Act should be given first priority, Coshland stressed.

Second priority under the Act belongs to national interest lands, he explained. The law authorized the Interior Secretary to withdraw up to 80 million acres for possible inclusion in the four federal conservation systems and to recommend additional acreage for that purpose. (The amendment in question specified that Congress must decide on permanent protection of these lands by December 1978.) HR 39, which was introduced by Rep. Morris Udall (D-Ariz.) and now has more than seventy co-sponsors, recognizes the priorities of the Act by granting controlled subsistence hunting rights to natives in the event of conflicts and by preserving complete ecosystems rather than the

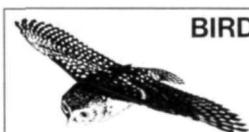
tions to the work of this Association. Other NPCA members interested in volunteering for an internship in Washington, D. C., should write Rita Molyneaux, Administrative Assistant, National Parks & Conservation Association, 1701 18th Street, NW, Washington, D. C. 20009. ■

areas encompassed by the army installation. NPCA is most grateful to Mr. Russell and to Aberdeen Proving Ground and its commanding officer, Colonel Alvin D. Ungerleider, for making this joint venture possible.

You Can Help: We hope that NPCA members will continue to keep an eye out for American chestnut trees and send us many nuts again this fall for eventual planting at Aberdeen. If you know of a possible American chestnut and want to have it identified, please send samples of the leaves, nuts, and burrs to Leo Pahl, 8136 Ventnor Rd., Pasadena, MD 21122. Please tell him the tree's diameter at 4½ feet, its approximate age, and whether the blight seems to be present. ■

segmented lands proposed by the Stevens bill.

The latter bill fails to recognize that the interests of the state of Alaska have third priority under the Act. "This lower rank," Coshland explains, "gives recognition to the fact that, when statehood became effective in 1959, the state was awarded the selection of some 103 million acres of the 375 million total land acres, a larger portion by far than is owned by any other state, plus 45 million acres of tidelands. It also recognizes that present and potential sources of state income—from oil and mineral leases, bonuses, and royalties—are



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enormous. The state-owned land over the long term will give rise to other forms of income as industry is attracted and as the current explosive growth rate recedes to more stable sustainable levels."

In Coshland's statement and in other invited testimony at hearings across

the nation during May and June, NPCA supported the bulk of HR 39 and urged its adoption. In addition to our participation in Washington, D. C., hearings (see July issue), this Association was represented by trustees Maxine Rock in Atlanta and April Young in Chicago and by NPCA Contact Person Harold

Wood in Seattle. The House Interior Subcommittee on General Oversight and Alaskan Lands then moved to Alaska for hearings in July and August.

Meanwhile, the House Subcommittee on Fisheries, Wildlife Conservation, and the Environment had been hearing from the state of Alaska, native peo-

WATER POLLUTION

The Battle for Wetlands Continues

About 98 percent of U. S. streams and 80 percent of our wetlands would remain without public protection under proposed amendments to Section 404 of the Federal Water Pollution Control Act. Not only do these areas have esthetic and recreational value, but they provide fish spawning grounds and ensure both ground water supplies and natural, effective flood and pollution control.

In invited testimony NPCA opposed the provisions of HR 3199 that deal

with Section 404. Weakening the present law would spur development and road construction in threatened wetlands, NPCA maintained. Developers currently destroy 300,000 acres of the nation's wetlands each year.

Under pressure from groups representing developers, farmers, loggers, and roadbuilders, the House subsequently passed amendments to HR 3199 that eliminate requirements for permits before undertaking dredging and filling in smaller waterways and

other wetlands. The amendments ignore the fact that whole river systems can be affected by alterations of such areas.

The Senate later rejected a cutback on regulation. Its bill would continue the permit program but would allow states to manage the program for smaller bodies of water.

NPCA testimony concerning other amendments pointed out that eighteen thousand facilities—including some that dump human viruses—currently

conservation docket

Redwoods: The House Subcommittee on Parks and Insular Affairs recently began markup of HR 3813, a bill that would expand Redwood National Park in California to protect ancient redwoods including the world's tallest tree. The bill would halt clearcutting near present park boundaries that is killing trees within the park because of siltation from the upper watershed. At the beginning of markup, subcommittee members immediately agreed to reduce the acreage involved from the 77,000 acres recommended in Chairman Philip Burton's (D-Calif.) bill to the 48,000 acres recommended by the Carter Administration. In addition, the bill would grant substantial authority to the Secretary of the Interior for regulation of timber harvesting practices and rehabilitation of cutover lands in the upper watershed. The legislation will also contain a number of complex provisions providing job insurance and money to workers in the timber industry who are displaced from their jobs by the park expansion.

As a demonstration of the Adminis-

tration's intention to protect Redwood National Park from the effects of harmful cutting practices outside the park, the Interior Department recently initiated condemnation proceedings on more than 35 acres in Skunk Cabbage Creek, a tributary to Redwood Creek. Arcata Redwood Company had begun cutting in that area. The Interior Department purchase of this tract was made possible by a \$1 million grant from the Save-the-Redwoods League and by a recent amendment to the Land and Water Conservation Fund Act. The amendment gave the National Park Service authority to exceed its acquisition ceiling for an area by 10 percent in any given year. This authority was necessary because funds previously authorized for purchase of lands for inclusion in Redwood National Park had been expended.

At press time, Chairman Burton had expressed his intention to have the measure reported to the House floor in early August. If not taken up by that time, the measure could not be debated in the House until mid-September be-

cause Congress will be in recess for most of August. The Senate has taken no action on the redwoods legislation to date.

Energy Plan and DOE: During June and July the House and Senate held hearings on different aspects of President Carter's proposed energy program, which now consists of more than a hundred separate bills and has been sent to a dozen committees. The Senate Finance Committee debated tax aspects of the national energy plan—the economic implications of proposed methods for recycling tax revenues back into the economy. On August 5 the House passed an energy plan that represents a complex package of taxes, rebates, and regulations.

The energy plan had received a beating in the House Ways and Means Committee. The President's proposal for a rebate on small car purchases was thrown out. Although the tax schedule on gas guzzling cars was approved, it exempts all 1978 cars and gently scales the tax in following years to correspond to varied levels of auto inefficiency.

ples, the Chamber of Commerce, the Alaska Coalition (of which NPCA is a member), and the Interior Department. This month all interested parties are waiting for word from the Interior Department because Interior officials have stated that they will present detailed d-2 proposals during September. ■

operate without EPA permits. As a part of the recent Carter Administration crackdown on polluters, however, EPA plans to file lawsuits against more than one hundred cities and three hundred industrial plants. These polluters failed to meet the July 1 deadline for sewage cleanup as stipulated in the Federal Water Pollution Control Act.

Congress should take every opportunity to strengthen the provisions of the Act and support EPA in its efforts to enforce the Act's requirements. ■

FOREIGN PARKS

Developments Threaten Subtropical Refuge in Argentina

Argentina's famed Iguazu National Park, intended as a preserve for vine-draped forests and one of the world's most beautiful waterfalls, faces serious development threats, according to reports from NPCA's Latin American correspondent.

Dr. Maria Buchinger Alitiz notes that in one case the nation's government itself is the developer and in the other case the government of Argentina has not intervened.

Despite protests from conservationists, the government plans to build a large hotel-convention center complex on the edge of the cliffs overlooking impressive Iguazu Falls, some of the largest waterfalls in the world.

Conservationists urge that park resources be protected by building the complex outside the park. Yet the government continues its planning.

Recent establishment of a concession operation to fly visitors down among the falls poses a second threat to the park.

This project seriously detracts from the beauty of the area, and the noise from the helicopters, flown by Tropical Taxi Aereo, disturbs both wildlife and visitors. Nevertheless the government refuses to halt operation of the concession.

Iguazu National Park, established in 1934, contains nearly 190,000 acres of subtropical vegetation.

Creatures such as the ocelot, jaguar, crab-eating raccoon, coati, tapir, anteater, white-necked heron, and pygmy owl inhabit the lush forest.

Dr. Buchinger-Alitiz is a leader of the Latin American Natural Areas Committee and the National Parks Association of Argentina. ■

The House also rejected the President's standby tax on gas 27-10.

Despite objections that solar and wind energy credits would constitute "play money" for affluent home owners, the House passed tax credits that would encourage home solar energy equipment. Nevertheless they still vastly cut President Carter's proposed rates of return on expenditures. Those in favor of tougher conservation measures agreed with Rep. Pike (D-N.Y.) who observed, "I don't think we're getting anywhere. We ought to be biting bullets and instead we're gumming marshmallows."

Senate floor action could start this month.

Meanwhile, on August 4 President Carter signed a bill creating the Department of Energy (DOE), the first new cabinet agency in eleven years. The department, scheduled to begin operations in August, will consolidate energy functions previously scattered among fifty federal agencies.

Under the provisions of the law, the Federal Energy Administration (FEA),



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conservation docket

the Energy Research and Development Administration (ERDA), and the Federal Power Commission will be abolished and their functions taken over by DOE.

The department will be responsible for developing and implementing a national energy program, coordinating energy research and development, and protecting natural resources and the environment, as well as promoting consumer interests.

The law is essentially the same as the original Administration proposal, with one notable exception. That is, the new act gives authority to set natural gas prices to an independent five-member

Energy Regulatory Commission. Carter had said that energy pricing should be controlled by a new cabinet secretary.

Public Works: One of the most controversial pieces of legislation this summer was the Public Works Appropriations bill (HR 7553), which included funding for eighteen water projects targeted for deletion by President Carter. Although the House passed the bill, the representatives were not able to muster the two-thirds majority necessary to override a possible presidential veto. The Senate cut the number of projects down to eight in committee, and at press time was scheduled to vote soon. The bill would also con-

tinue funding for development of the controversial Clinch River Breeder Reactor, a project Carter wants stopped.

Tuna-Porpoise: A House-passed bill dealing with the problem of porpoise deaths incidental to tuna fishing seems to have been sufficiently tough to dissuade industry representatives from pushing for Senate action. Although the House bill would have increased the quota on porpoises, it also required a 100 percent observer program partially funded by industry. Meanwhile, the National Marine Fisheries Service recently proposed a 1978 quota of 51,930 porpoises, calling for no killing of depleted eastern spinners.

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Andrus—Continued from page 2

through them to municipalities, and private organizations, which prevails at present with respect to historic landmarks should, in our judgment, be retained and utilized also with respect to natural landmarks.

One major purpose of the new Trust, of course, would be to provide effective protection for the areas and structures once they have been identified and listed. Another major purpose would be to provide adequate funding for acquisition, grants, loans, and technical assistance. We agree with the approach which provides for such funding from outer continental shelf revenues over and above allocations and appropriations flowing through the Land and Water Conservation Fund. An Executive Order, binding on all federal agencies, might give complete protection against federal impairment or destruction, but additional protective measures would have to be worked out with respect to the states, municipalities, and private parties.

We shall be happy to continue to work with the advisory groups established pursuant to your instructions, in an effort to be helpful with respect to both the protective and financial aspects of the problem. But the present letter is concerned primarily with a suitable administrative structure for the project.

In our judgment, it would be a mistake to place the Trust in the Bureau of Outdoor Recreation. The BOR was established by law to allocate funds to implement state and local recreation plans. During the Nixon-Ford years it failed to set proper standards for making such allocations, and one of its heavy responsibilities under the present Administration will be to tighten up its standards and apply them resolutely. This is a big job for one agency.

The establishment of a new office within the Department of the Interior or elsewhere to administer the Trust would, in our view, merely duplicate the functions and structure of the NPS. It would be necessary for the NPS to retain its staff of naturalists and historians for purposes of the management of the respective units of the National Park System. It would be highly objectionable, in our opinion, to withdraw such personnel from NPS with a view to setting up a new agency.

We realize that the administrators working on the new program have many other problems in addition to the administrative structure. They must decide on what kinds of sites and buildings are to be protected, how information about them is to be gathered, how the program is to be financed, and so forth.

It would appear to us, however, that recommendations must soon be developed with respect to the nature and location of the administrative agency and related governmental reorganization policies, and hence we have felt it necessary to express these views to you favoring the retention and expansion of these functions in the National Park Service. ■

Pettigrew—Continued from page 2

tion has been made in this quarter. The NPCA proposed in the May 1977 issue of *National Parks & Conservation Magazine* that the President exercise the general powers of reorganization which have been conferred on him by Congress to establish a new river basin management structure in place of the existing hodge-podge of Army Engineers, Bureau of Reclamation, Tennessee Valley Authority, Federal Power Commission, and the like. I enclosed a copy of the editorial on this subject in our Magazine [May 1977] as our present response to your welcome invitation to participate in the President's Reorganization Project. The editorial makes reference to the outdated justifications for river construction projects, such as flood control, pollution abatement, hydroelectric power, and the like. We would add that one of these outmoded purposes is the notion that dam building provides jobs which could not otherwise be provided. We are fully satisfied that the Administration is capable of proposing other and better job-producing programs to Congress and that Congress understands that full employment can be achieved without ruining the remainder of America's free-flowing streams.

The NPCA has been deeply involved in river management problems for twenty years. We led in the establishment of the Citizen's Permanent Conference on the Potomac River Basin, which halted the Army Engineers program for the construction of sixteen major dams in the Potomac Basin. That coalition included the United Automobile Workers, the United Mine Workers, the American Farm Bureau Federation, the National Grange, the National Association of Conservation Districts, the National Milk Producers Federation, and practically all of the conservation and environmental organizations. We have organized other similar coalitions on other subjects since that time.

We believe that sound conservation and environmental programs can and must be developed for the river basins of America. We believe that such programs will have solid support of a broad range of conservation, farm, and labor organizations; and we would like to help in developing such support for a comprehensive reorganization plan of the kind outlined in our statement on river basins.

To the extent that the President's program on water projects may have been successful, it could be viewed as an encouragement to proceed with an extensive governmental reorganization of the kind we suggest. To the extent that the President's effort leaves much to be desired in terms of Congressional support, it might be well for him to undertake a bold initiative again and move forward with the comprehensive power he now has to reorganize the Executive Branch in respect to river basin management.

I would be happy to meet with you, if you care to do so, in the company of representatives of such other organizations as may wish to join me. I shall look forward to having word of some kind from you with respect to these matters at your convenience. ■

A large colony of brown fur seals is gathered on a rocky beach. The seals are in various poses, some looking towards the camera, others resting. The rocks are dark and wet, reflecting the light. The overall scene is a dense, naturalistic depiction of a seal colony.

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