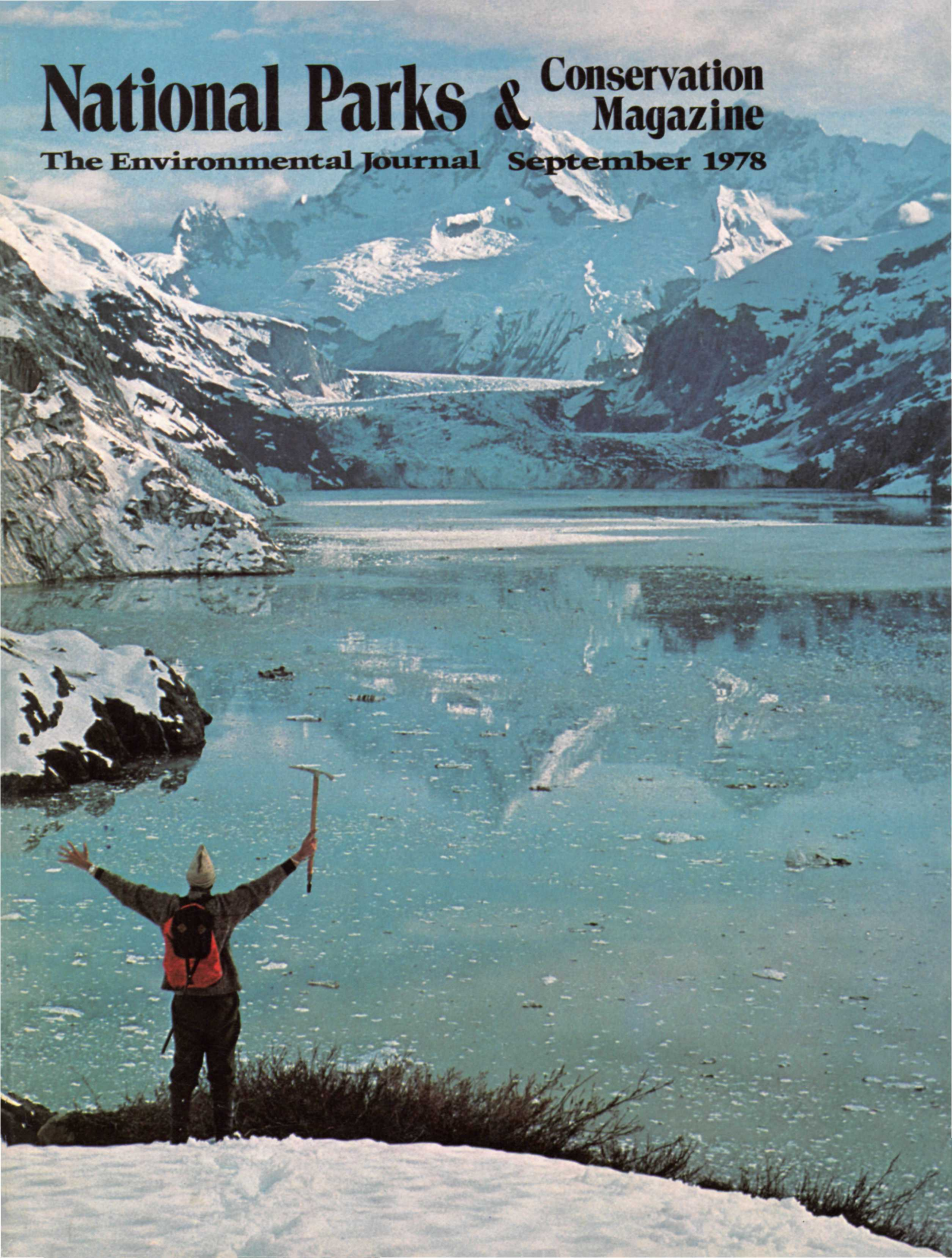
National Parks & Conservation Magazine

The Environmental Journal September 1978



End-Game at UNCLOS: Pollution; Mining; Science

WHEN IN DECEMBER 1970 the General Assembly of the United Nations gave the UN Seabeds Committee the task of preparing for the Third UN Conference on the Law of the Sea, it broadened its mandate to include the entire marine environment.

A major component of the environmental problem was pollution. After eight years the work begins to emerge miraculously as a consensus of nearly 150 nations with diverse interests at stake, but yet a common understanding of the gravity of the problem.

The Informal Composite Negotiating Text (ICNT) which will be considered in the remaining weeks of the Seventh Session in New York in August contains one Article after another imposing obligations on States Parties to protect the marine environment.

NOT the least interesting is Article 208 which requires states to enact laws and take other necessary measures to prevent the pollution of the oceans from land-based sources; that is, for example, through the rivers and winds.

Similar mandates are established with respect to seabed activities, other activities in the High Seas Area, and dumping; and, in a more qualified way, as to pollution from vessels.

These obligations to enact laws and take other necessary measures, are not merely hortatory; they are enforceable under Articles 236 and 286. The former holds states responsible for the fulfillment of their international obligations in respect to the environment and makes them liable in accordance with international law for damage from violations. The latter requires them to submit to compulsory dispute settlement, by arbitration unless another method be chosen. The International Court of Justice is one of the tribunals which may be chosen.

THE ARTICLES governing vessel-source pollution are comparatively weak, reflecting the tension between environmental and navigation interests. Too much reliance is placed on the self-policing authority of flag states; not enough on the very real power of port states; coastal states could have been given more authority had we been willing to rely upon arbitral or judicial protection against unreasonable legislation.

Too much reliance has been placed on the Intergovernmental Maritime Consultative Organization (IMCO); its domination by shipping interests has permitted the construction of a whole new generation of huge tankers, each of them an ecological catastrophe. The *Amoco Cadiz* disaster will bring improvements in the current text. Further work should be done at the remaining negotiations to tighten controls where possible, but spills are but part of the marine pollution problem.

The U.S. Delegation has been working under pressure from Congress to reinforce the efforts of several other nations, including France after *Amoco Cadiz*, to strengthen navigational safeguards against pollution disasters. The Congressional Committees can be helpful in providing such support, albeit as pressure, in contrast with the enactment of unilateral legislation to establish a 200-mile pollution zone of our own.

Oceanic pollution knows no national boundaries, nor will it be confined to any 200-mile economic, pollution, or fishing zones; it can be dealt with only by global, or at least regional, measures; nationalistic assaults upon the issue will do more harm than good, and will undermine the efforts of the U.S. Delegation to reach international solutions to other serious problems.

THE MOST SERIOUS differences among the nations which have to be settled at the Seventh or Eighth sessions of UNCLOS relate to ocean mining. The deep seabeds are littered, at depths of several miles, with the so-called manganese nodules, small objects which look like black potatoes, and which contain manganese, nickel, copper, and cobalt. The United States is heavily dependent, except for copper, on imports of these minerals; the other industrial countries, with variations, are in similar positions. At the outset the United States insisted that we have *assured* access to these resources; later we demanded *guaranteed* access, reflecting a romantic nationalism; now we have returned to a more sober and realistic insistence on *assured* access. The point is that by the end of the century we may need to mine the seabeds to keep our indus-

Continued on page 31

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FRONT COVER Johns Hopkins Inlet, Glacier Bay, by Tom Bean
BACK COVER Muskeg, Glacier Bay, by Clarence Summers

From forest to muskeg, from shore to mountain peak, Glacier Bay in Alaska encompasses a fascinating diversity of features. It is now proposed for expansion and redesignation as a national park. (See page 4.).

Eugenia Horstman Connally, *Editor*
Joan Moody, *Assistant Editor*
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A wildly spectacular land of ice, water, mountain, and forest is a dynamic timescape of geological change and natural succession

by CAROLYN ELDER

Glacier Bay: Monument to an Ice Age

AS THE TLINGITS tell the story, a mischievous young girl named Kahsteen called the ice down. It descended from the mountains in a day, searching for the one who had called it, and drove the people from their valley home.

Their country was called Sitt-eeta-ghaee—"the bay from which the ice receded." It had been a good place for them. Legend tells of a great forested valley through which ran a single river where many salmon spawned. The time was four millenia ago. No one really knows what mysterious force called the ice down on the Tlingit ancestors, but Sitt-eeta-ghaee has vanished. It lives now only in stories and in the rivers and trees and frozen shapes that have recorded gigantic geologic events—all parts, now, of the Alaskan landscape known as Glacier Bay National Monument: a monument to ice ages past and to come, a monument to the power of time.

DURING the time of Sitt-eeta-ghaee, the land had nearly forgotten the Great Ice Age; the glaciers had retreated even farther back than today. Forests covered the hills and valleys, and salmon and berries and bears filled the country that came to belong to the Tlingits. The landscape was never at rest even then, however. Mountain-building forces continually upthrust the Fairweather Range; the earth trembled violently from time to time; changing river courses bore a creeping onslaught of gravel and sand that, over centuries of time, buried entire forests. And meanwhile, in the mountain fortresses, the ice was regaining strength. About 3,500 years ago, it crept down the valley walls once again.

At the height of the Neoglacial, or Little Ice Age, the great glacier reached clear to Icy Strait. The glacial trimline—the point at which the ice lopped off all vegetation—can be seen today on rocky slopes more than 3,000 feet above sea level, indicating that the ice was 4,000 feet thick in places. No one knows how long the uneasy balance was maintained between glacier-making forces in the mountain headwaters and glacier-eroding forces at the tidewater terminus, but by the mid-eighteenth century the pendulum began its backswing. The retreat was one of the most dramatic ever recorded on this planet. In one twenty-year period, the Grand Pacific Glacier retreated twenty miles, and today it is more than sixty miles from Icy Strait. In recent years the Muir Glacier has been wasting at a similarly rapid rate and will soon withdraw beyond the reach of the sea.

The story of the Little Ice Age is written in trees sheared off by glacial ice, their stumps exposed now by erosion, and in a living remnant forest that clings to a mountainside far above the sea. These remnants stand before us like fossils, beckoning our minds to a past that is also a future. For ice ages wax and wane and most geologists agree that the time in the sun we now enjoy will end just as Sitt-eeta-ghaee ended. How long will it be before the present forest feels the weight of another ice age? Be mindful of the Grand Pacific and other glaciers in the west arm of Glacier Bay; they are already coming back.

AS GLACIERS RETREAT, they leave in their wake a chaotic desolation. Here in Glacier Bay we can see—amazingly—life returning to a landscape thus devastated by ice, just as it returned to much of North America after the Pleistocene ice sheet withdrew ten thousand years ago. Life presses always on the frontiers of the ice-ravaged land. Seeds borne on the wind and in the droppings of birds are the beginning of a dramatic succession of life communities that will eventually produce a rainforest.

The pioneers are hardy forms such as dryas, dwarf fireweed, mosses, and willows that don't require much more than water, sunlight, and a place to anchor themselves. They are slowly overtaken by shrub willows and the all-important alders, which, by transmitting nitrogen from atmosphere to soil, ironically help to construct an environment better suited for other species than for themselves. Alders cannot survive in shade; thus emerges the silent, towering spruce and hemlock climax forest one sees today along lower Glacier Bay, which was released from the ice less than two centuries ago. On a boat tour from Glacier Bay Lodge at Bartlett Cove to Riggs Glacier, one passes by each of these stages. In a few hours, one can witness the effects of 180 years of succession—the whole evolution of the Bartlett Cove forest. The evolution has not ended, for shade-tolerant hemlock is slowly replacing spruce and may in its turn succumb to muskeg mosses and sedges as succession continues.

WHEN the white man first became aware of that region of the globe now known as Alaska, the Tlingit Indians had for generations been living at Hoonah, across Icy Strait from their ancestral homeland. Doubtless they hunted seals near the face of the great glacier that filled the entire valley where their people had once intercepted the summer tide of salmon. Captain George Vancouver met and traded with the Hoonahs in 1794 when he sailed through Icy Strait in fog and mist and put Glacier Bay on a map. To be sure, it was not much of a bay—little more than a dent in the shoreline, at the head of which were, as Vancouver described it in his journal, "compact solid mountains of ice, rising perpendicularly from the water's edge, and bounded to the north by a continuation of the united lofty frozen mountains that extend eastward from Mt. Fairweather." The solid mountains of ice, however, were already crumbling. In a mere century and a half, Glacier Bay would be an arm of the sea sixty-five miles long.

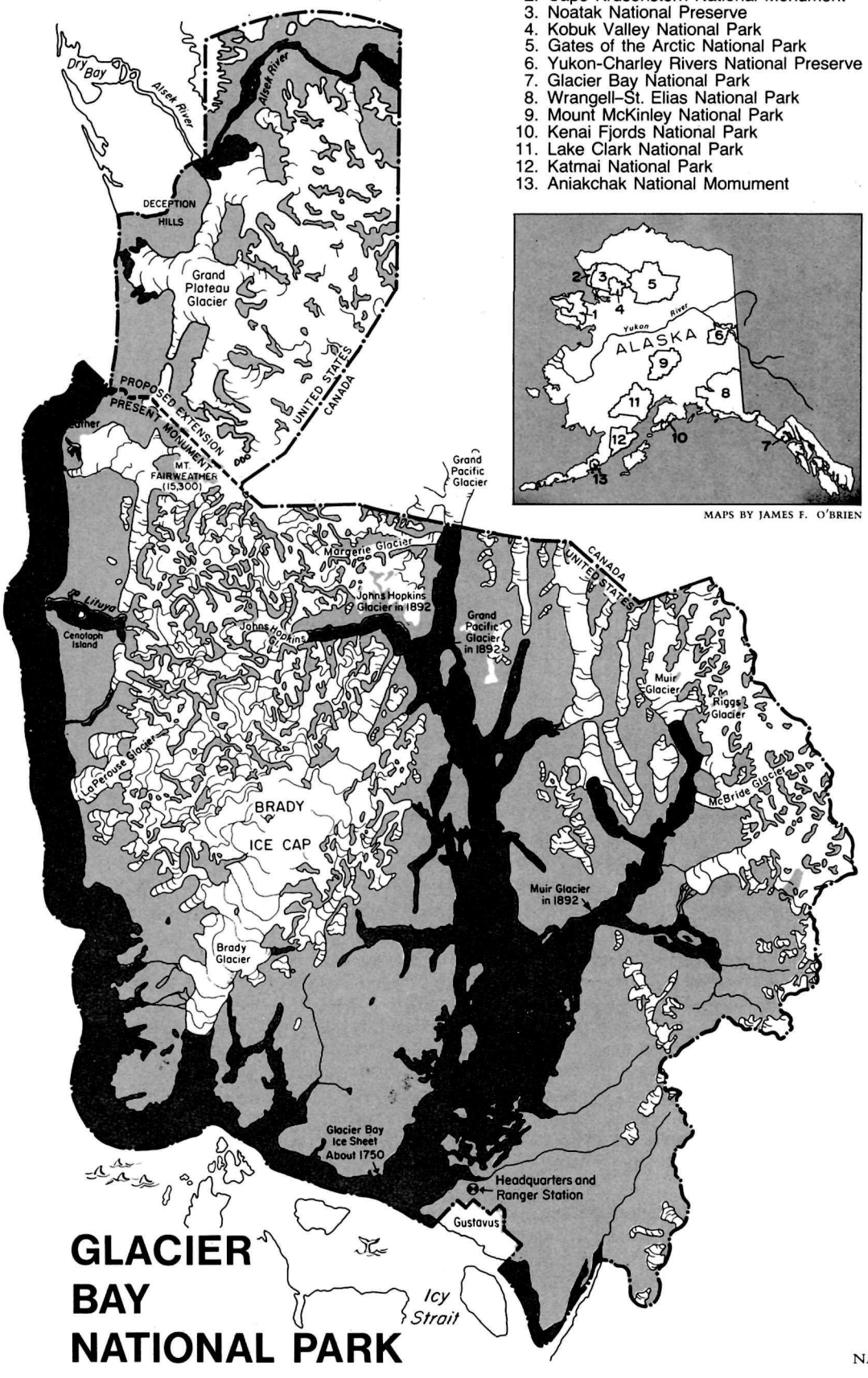
No fortune in furs was to be had there, so after Vancouver's visit the land and its people were left for a time in the solitude they had always known. When Glacier Bay finally came before western eyes again, they were appropriately enough those of the indefatigable John Muir. He arrived in a canoe with two Indian guides, under weather conditions that were mostly wretched. In October 1879 Muir and his companions paddled past a silent young forest at Bartlett Cove, where rock and booming ice had confronted Vancouver, and plied a young bay forty-five miles toward Vancouver's "lofty frozen mountains." The bay of great glaciers made a deep first impression, which he recorded in his *Travels in Alaska:*

> I reached a height of fifteen hundred feet, on the ridge that bounds the second of the great glaciers. All the landscape was smothered in clouds, and I began to fear that as far as wide views were concerned I had climbed in vain. But at last the clouds lifted a little, and beneath their gray fringes I saw the berg-filled expanse of the bay, and the feet of the mountains that stand about it, and the imposing fronts of five huge glaciers, the nearest being immediately beneath me. This was my first general view of Glacier Bay, a solitude of ice and snow and newborn rock, dim, dreary, mysterious. I held the ground I had so dearly won for an hour or two, sheltering myself from the blast as best I could, while with benumbed fingers I sketched what I could see of the landscape, and wrote a few lines in my notebook. Then, breasting the snow again, crossing the shifting avalanche slopes and torrents, I reached camp about dark, wet and weary and glad.

The following year Muir returned as promised and, among other adventures, took a walk on Brady Glacier with the little dog made famous in his book *Stickeen.* By the time of his third visit, ten years later, Glacier Bay had achieved, partly through his writings, its lasting fame as a tourist spectacle. The canoe and Indian guides were no more; in 1890 Muir arrived on the steamer *Queen* with some of the hundreds of tourists who would see that summer the latest wonder of the world—"grand and impressive beyond description," according to a 1908 *National Geographic* article—the Muir Glacier. A base camp for scientific studies (made with lumber brought

CLARENCE SUMMERS

Looking like travelers in a science fiction setting, hikers explore Riggs Glacier in northeastern Glacier Bay National Monument, Alaska.



on the ship) was established near the terminus of the glacier, and every summer for nearly a decade Camp Muir buzzed with the activities of geologists, artists, photographers, and sight-seers. The era came to an abrupt end in September 1899, when a violent earthquake wrenched the region, shattering the Muir Glacier and filling the inlet with enormous masses of floating ice. Few cruise ships reentered the bay until 1970. By that time all that was left of the base camp's cabin was a pile of chimney rocks, buried in the alders some twenty-five miles from Muir Glacier.

The fantastic changes wrought by the ice did not go unrecorded, however, nor did Glacier Bay's wild beauty go unappreciated by the white man. Several remarkable geologists, notably Harry Fielding Reid, who named the Muir Glacier in 1890, and, later, William O. Field and Richard Goldthwait, made Glacier Bay the object of intensive studies. And in 1916 William S. Cooper, an ecologist who would have more impact on the future of Glacier Bay than any other one person, made the first of many visits. Cooper was one of an all-but-lost breed of field naturalists who deeply loved the land and took their lessons directly from it. He spent lots of time on his hands and knees, in the bushes or crawling around on the moraines and old river courses, mapping and measuring and trying to unravel the land's secrets. Cooper's studies of plant succession here have stood unchallenged since they appeared more than half a century ago.

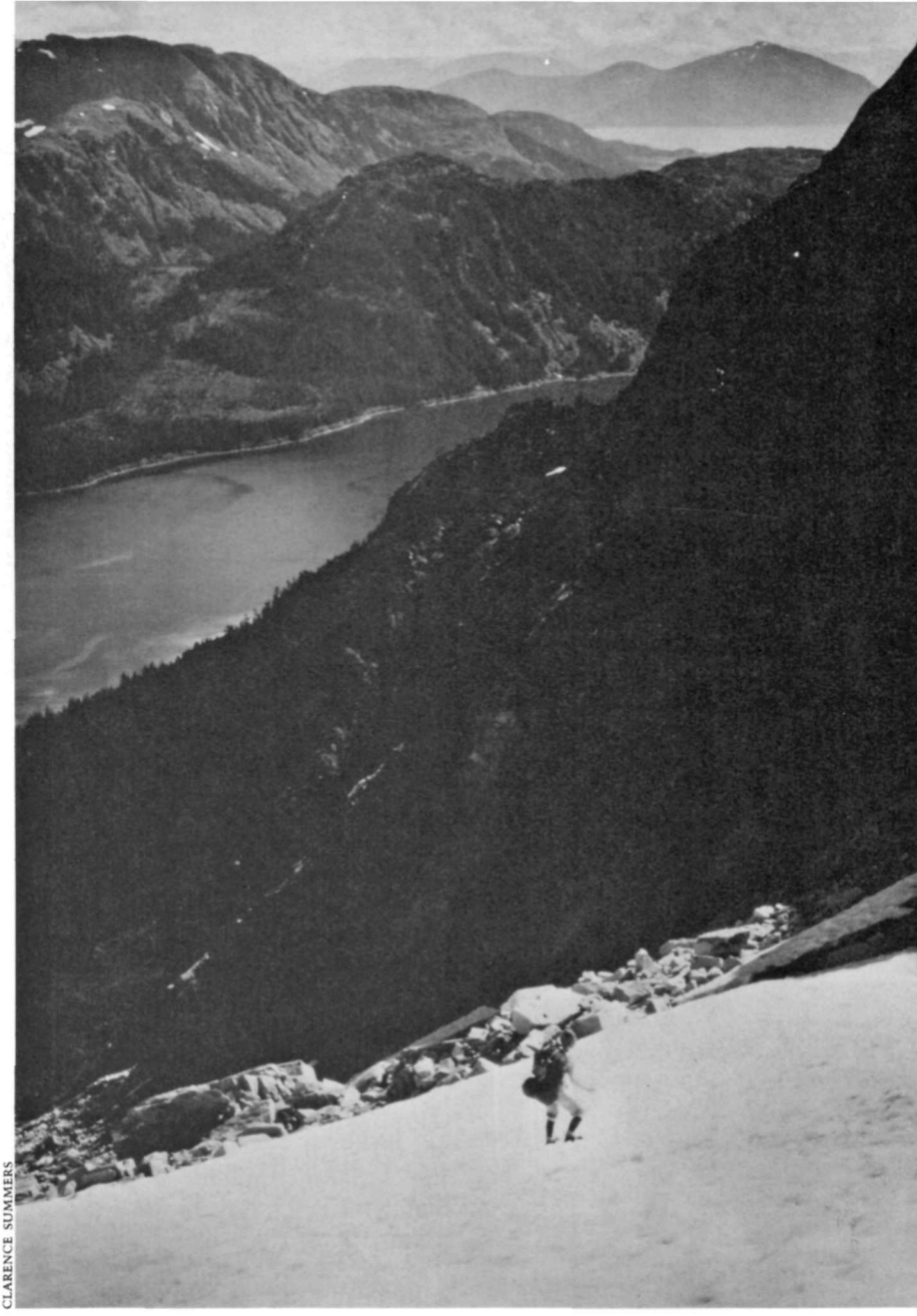
Cooper was especially fascinated with the stump "forests" that puzzled John Muir and that can be seen today protruding in unlikely fashion out of many gravel slopes and stream beds. He understood that the stumps were important clues to Glacier Bay's history, for they are the remains of trees that had forested Sitt-eeta-ghaee, and they have much to tell us about that time and place.

Cooper was indeed a man of vision, one whose insights reached not only back toward glacial distances, but to a time ahead when

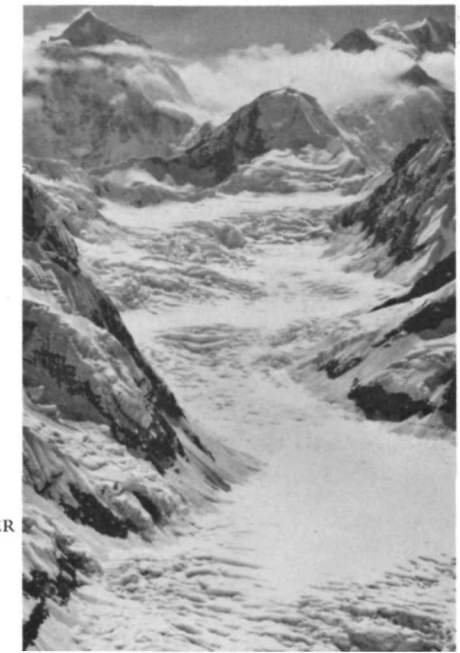
unsurpassedly beautiful and wild country like Glacier Bay would be both a treasure and a battleground. Working through the Ecological Society of America, Cooper was largely responsible for the establishment of Glacier Bay as a national monument by President Calvin Coolidge in 1925. Boundary adjustments were made over the next decades until the lines were drawn around the present unit of some 4,400 square miles. But threats to the land were not stilled by this action. In 1936, responding to pressures brought on by the Depression, President Roosevelt signed into law a bill permitting mining in the monument. Sporadic mining and some large-scale exploration have gone on there ever since (see *National Parks and Conservation Magazine*, May 1975), but the Mining in the Parks Act of 1976 closed Glacier Bay to new exploration and controlled the mining of valid preexisting claims.

GLACIER BAY includes many worlds beyond our limited perspective. The ice age, remote and mysterious, comes to life here, and the hidden universe within the sea, too, is eloquently expressed each summer with the arrival of Glacier Bay's most awesome inhabitants, the humpback whales. They return for four months of feasting in the maritime cornucopia that the bay becomes with the return of summer's warmth and light. Partly because of enormous tides that flush the bay twice a day and great amounts of terrestrial nutrients carried to it by grinding ice and rushing river, Glacier Bay teems unusually vigorously with the krill and tiny fish on which the giants feed. The whale engulfs huge quantities of seawater in its expanding throat, then, with an immense tongue, forces out the water through its baleen sieve.

Glacier Bay is presently the only unit of the National Park System that includes a deep arm of the sea, and the Bay itself serves as the only connecting "road" in the monument. Eighty percent of Glacier Bay's visitors—over 120,000 in 1977—never set foot on the land.



CLARENCE SUMMERS



TOM BEAN

Glacier Bay did not exist when early explorers arrived (see map). A huge glacier presented a towering wall of ice thousands of feet thick at Icy Strait. Nowadays, Grand Pacific Glacier is some 65 miles from the mouth of the bay. This rapid recession has provided a fascinating example of natural succession as plants have invaded the recently uncovered land.

The monument is proposed to be redesignated a national park and to be enlarged by the addition of an important coastal region to the northwest.

Above, a hiker earns a spacious view of the proposed parklands by climbing high above Dundas Bay. Left, mountain strongholds such as this aerial view of upper Margerie Glacier spawn glaciers throughout the area.

CLARENCE SUMMERS

TOM BEAN

TOM BEAN

Glacier Bay abounds with many species of wildlife. During the summer humpback whales thrill visitors with their tremendous leaps from the water, harbor seals sunbathe on ice floes, and mountain goats scramble up seemingly impossible precipices.

TOM BEAN

Nonetheless, these thousands can appreciate the sheer scenic wonder of the place from the decks of ships: the great thundering ice fronts, the incredibly sculptured blue bergs, the whales below, the eagles and mountain goats above, and, all around, the magnificent peaks.

On a deeper level, when viewed through the proper lens, the landscape becomes a timescape. The peaks and the ice and the willow clinging to a bit of windswept rock are all witnesses to change and to the inherent magic of rock and water. Glacier Bay is an anachronism, in two senses of the word: It is an ice age that won't quit and a vignette of an untamed world, an important reminder of things that happened and go on far beyond our power or ken.

GEOGRAPHICALLY and ecologically, the monument is separated into isolated parts or "islands," for mountains and sea restrict and channel plant and animal migrations just as they channel the flow of ice. Certain patterns are followed as life comes back to the land. Large mammals such as moose, bears, goats, and wolves are highly mobile and relatively unrestricted; the populations of small mammals, however, are quite dissimilar on opposite shores of Glacier Bay, which is a formidable barrier to their dispersal.

The Y-shaped bay and surrounding mountains define three distinct geographic-ecologic units, of which the greater parts are included within the present boundaries of the monument. But beyond the Fairweather Range is a fourth and very significant "island," only part of which lies within the present boundaries: the monument's Pacific coast. Except for fishermen and mountaineers, few people know this wild spot. From Icy Point to Dry Bay, a hundred-mile-coast of rock and sand and periodically advancing ice are pounded by the savage seas that whip unhindered across the Gulf of Alaska. Lituya Bay is the only protected anchorage.

Lituya Bay itself is wildly unpredictable—gentle and treacherous by turn. In 1786 the greatest French explorer, La Pérouse, lost twenty-one sailors in the riptides at its entrance. And, beginning in 1917 the gentle hermit Jim Huscroft lived for twenty-two years on Cenotoph Island, farming foxes, growing potatoes, reading each morning over coffee and sourdough cakes his one-year-old-to-the-day newspaper. He launched his boat with an ingenious funicular railway and once made a futile attempt at dairy farming—futile because his cow developed a passion for kelp, but Jim never developed a corresponding passion for kelp-flavored milk. And in Lituya Bay in 1958,

GARY HASTY

Far left, canoers paddle dangerously close to the face of Riggs Glacier. A sudden calving of the ice could cause a wave of water that would engulf them. In 1958 a tremendous surge of water in Lituya Bay stripped trees from a hillside to a height of 1,700 feet (left) when an earthquake-caused avalanche from the mountain at right dumped 90 million tons of rock into the upper bay.

a violent displacement along the Fairweather Fault plunged 90 million tons of rock into the upper bay, sending up an immense surge of water that stripped a hillside of trees to a height of 1,700 feet before it swept down the bay's length, capsizing one boat and carrying another boat with it eighty feet over the spit that guards the entrance. Miraculously, the people of that surfing boat were rescued.

The fascination of Lituya Bay and the Gulf Coast goes much deeper. Back more than 10,000 years, when there was no southeastern Alaska as we know it, the scene was a vast and lifeless expanse of white, above which protruded isolated mountain peaks. So much of the ocean was up on the land in the form of ice that sea level was at least three hundred feet lower than today, and the continental shelf that slopes gently from today's coast may have been a broad plain. Ice sheets would have reached across it to the sea in many places, but along the seaward slope of the coastal range, an immense trough created by the Fairweather Fault system absorbed and channeled vast quantities of ice. Portions of the adjacent shelf, then, were left ice-free, and those that were above sea level as well remained as islands of green—places where life went on as usual for many thousands of years in the midst of the catastrophic events of an ice age. We can even speculate that some of these life forms looked much like us, huddled near the warmth of fires that dimly lit the long icy night.

All that we will ever know of this vanished coastal community we must learn from some raised terraces within the monument and, perhaps, the Deception Hills, outside the present monument boundaries to the north. They are all that is left. Low enough to have been life-supporting but high enough to have escaped both glaciation and inundation, they now support the oldest biotic communities in southeast Alaska.

The species that survived in these refugia were those that populated the post-glacial landscape. Almost certainly, no large mammals remained. So where did they come from and how did they get there? The moose, the bears, the coyotes, and a host of smaller species that today make the coast a rich biological community reached the seemingly limitless stretch of coast from Yakutat Bay to Cross Sound, which was and is closely guarded on all sides by mountains or sea, by one all-important isthmus—the Alsek River valley. Without the Alsek, the coast would be populated now only by species that could have reached it by water or, in the case of mountain goats, over the formidable coast range.

The Alsek River and associated forelands, including the Deception Hills, are such vital parts of the landscape and timescape of Glacier Bay National Monument, and the Alsek is such a superb wild river, that these features are proposed for addition to the monument. Unfortunately, to include all the coast clear to Yakutat Bay is politically infeasible; and Dry Bay has been excluded because of vested commercial interests there. But the Alaska National Interest Lands Act would extend National Park Service jurisdiction to include most of the Alsek's course in the United States and the coastal stretch southeast to the present boundary. Ecologically, esthetically, and philosophically, these lands belong within the monument.

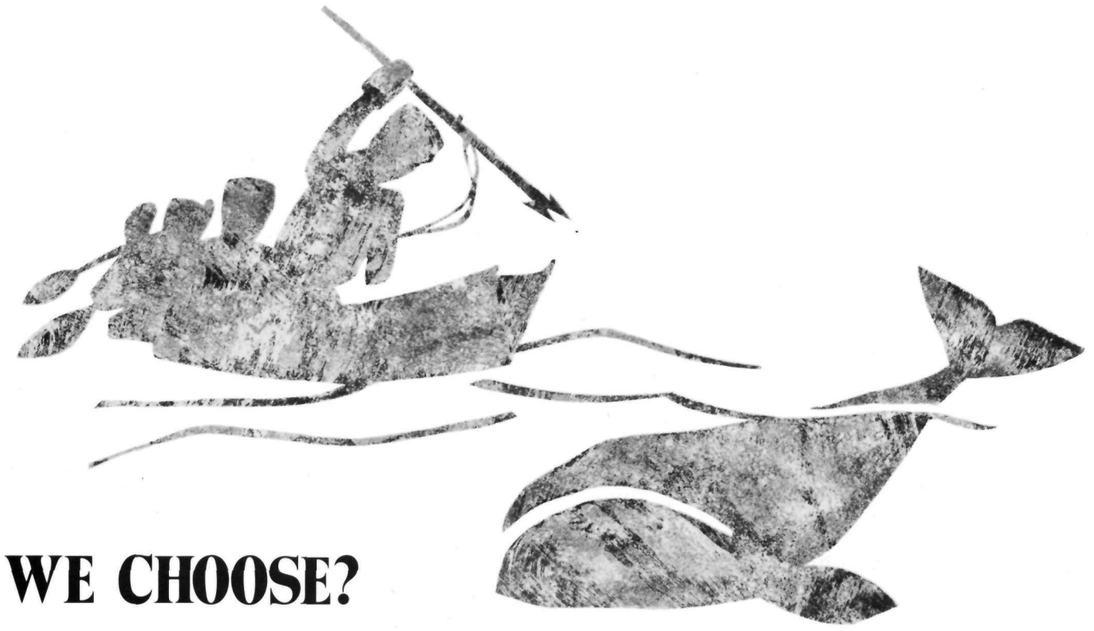
In addition, the proposal would elevate Glacier Bay to national park status and would include most of it in the Wilderness Preservation System.

The wild and free landscape of Glacier Bay is ever evolving and becoming. What we preserve here is the promise of change—change brought on the land, not by ourselves, but by the gods of the Tlingits, who wait and watch even now in the icy reaches of the farthest peaks. ■

Carolyn Elder has spent three summers at Glacier Bay National Monument as a seasonal interpreter for the National Park Service. She has also been involved in the Park Service planning process for the proposed "d-2" lands while working for the Alaska Area Office in Anchorage.

A controversial dilemma involving an endangered species and an endangered way of life presents hard choices for conservationists

by KATHRYN KARSTEN RUSHING



THE BOWHEAD OR THE ESKIMO: MUST WE CHOOSE?

THE BOWHEAD WHALE and the Inupiat Eskimos of northern Alaska lived for centuries in harmony with their environment and each other. They might have continued on the same way forever except for the encroachment of the white man's civilization. Now, though Yankee whalers have long since left the Arctic waters, the whale and the Eskimo are still trying to cope with the effects of that alien influence. The whale is fighting for its very survival as a species, and the Eskimos are fighting for their way of life; the survival of both are inextricably entwined. In their struggles, both man and whale have generated an international controversy involving the U.S. government, the other member nations of the International Whaling Commission (IWC), and conservationists. Some, fearing the extinction of a species, would take away from the Eskimos the right to hunt the bowhead, but others support a more moderate course.

In the meantime, the people of the nine Eskimo villages that hunt the bowhead—Kaktovik, Nuigsat, Savoonga, Gambell, Wales, Kivalina, Point Hope, Wainwright, and Barrow—have formed the Alaska Eskimo Whaling Commission (AEWC) in the hope that a balance can be struck between their cultural and dietary needs and the importance of preserving the whale on which they are so dependent for so many reasons.

THE RELATIONSHIP between man and bowhead dates back to prehistoric times. Until some time around 900 A.D., when Siberian Eskimos invented the sealskin float that enabled them to keep large animals buoyant after they were killed, the bowhead was probably the only whale the Eskimos could hunt. Like other right whales, the bowhead, or Greenland right whale, will float when dead, making it the "right" whale to catch. This quality, combined with its relative slowness and high oil content, made it the central figure in Eskimo subsistence and culture for centuries. A winter without the meat and oil of the bowhead could mean starvation or at best living on the brink of survival for an entire village and reliance on the meat of smaller animals, which required daily and exhausting hunts. No wonder the bowhead came to dominate the legends and festivals of the northern Eskimos, who literally owed their existence and way of life to the animal. Life for the bowhead and the Inupiat Eskimos, however, began to change in the late 1500s, though at first slowly and imperceptibly, when the bowhead was discovered by Dutch ships in Arctic waters. The discovery was significant because the Dutch and other Europeans had already hunted the Atlantic black right whale to scarcity, major commercial whaling having begun in Europe in the eleventh century. The right whale's baleen was highly prized for its length and was used to make such articles as whips, stays, and umbrellas. Its oil-rich blubber lit the lamps of Europe for hundreds of years.

The British and other Europeans later joined the bowhead hunt, though the whale was not pushed to the edge of extinction for another 250 years, when Yankee whaling ships took up the slaughter of the bowhead in earnest. During the mid-nineteenth century American vessels took some four hundred arctic whales yearly. In 1886, Yankees established their first whaling station along the Arctic coast, which came to be known as Jabbertown because of the many tongues spoken there. With the establishment of the northern outpost of white influence, the Yankees succeeded in a relatively few years not only in decimating the whale population of the area but in degrading the lives of the Eskimos by introducing alcohol and prostitution. They also irrevocably changed the ancient ways of the hunt by adding an exploding shell of gunpowder to the harpoon and by using shoulder guns to finish off the dying whales.

When the Yankees abandoned Jabbertown, the whales had practically disappeared and the surrounding Eskimo villages were in a state of chaos. Fortunately for the Inupiat and for the history of the role of the white man in the area, a New England missionary/doctor, John Driggs, gradually won the confidence of the natives and helped turn the situation around. By means of education coupled with an unremitting respect for Eskimo culture, Driggs helped the Eskimos ease into the twentieth century, regain their lost dignity, and strike a reasonable balance between the ancient ways and the white man's influence.

For some fifty years, until the early 1960s, bowhead hunting was minimal, with an average of only ten bowheads taken each year. (This figure is only an estimate, however, as reporting was incomplete during this time.) From then on, the number of bowhead taken or struck gradually increased—to an estimated high of 111 in 1977. Opinions vary as to the reasons for the steady increase, but some of the factors involved probably have to do with improved weather conditions, an increase in the number of whaling crews, an increase in the whale population, or a combination of factors. Although Barrow is moving toward a cash economy, it and the other whaling villages still rely on the sea to provide their protein, traditional food, and oil. And all the villages value the importance to their social organization and culture of the ritual of preparing for the hunt, the hunt, the festivals, and the sharing of the bounty.

THE OFFSHORE ICE begins to move some time in April, the signal that the bowheads will soon make their annual northward migration through the leads—channels between the ice. Tension mounts as the time for the hunt grows near. Whaling crews check their paddles, inflate sealskin floats, and clean and prepare their harpoons and guns. From rooftops children scan the horizon for a glimpse of the whales while novice hunters practice spearing with broomsticks in the snow.

Almost everyone has a role to play in the yearly search for the bowhead. A week before the hunt the women sew new covers of bearded sealskin over driftwood boat frames—a task their ancestors have performed for eons. Before that they prepare the hides by drying them until the hair rots off. Then they scrape off the hair from one side of the skin and scrape off the fat from the other. They sew the skins together with braided caribou sinew, which swells when wet, producing a completely waterproof seam. They then stretch and lash the prepared skins onto the boat frame; when the skins dry, they fit tightly to the frame, and the *umiak*, as the boat is called, is ready for the hunt.

For a time in the early 1900s many Eskimos abandoned the traditional *umiak* in favor of whaleboats purchased from Yankee ships. The white whalers had scorned the lightweight *umiak*, made from mere driftwood, and brought lumber with them from New England to build what they

thought would be sturdier boats. What white and Eskimo soon discovered, however, was that the drifted spruce of the native boat was not only lighter in weight but sturdier than any wood used to replace it. Motorboats and aluminum crafts are sometimes used for the hunt in Barrow. The other villages, however, use the traditional *umiak*—unchanged and not improved upon for thousands of years—almost exclusively.

Before the actual whaling operation can begin, the crew must establish a base camp on the ice, next to open water, several miles away from the village. The camp consists of a tent with a chimney for a homemade stove, with whale blubber providing the fuel and creating a sweltering oasis in subfreezing temperatures and biting winds. If strong or warming winds threaten to melt or break up the ice, the base camp must be moved to a safer location.

The camp serves as a lookout point for whales and a retreat for weary and hungry whalers, though this was not always the case. Before the Yankee whalers arrived on the scene, the Eskimos believed it was bad luck to eat at the base camp or to enjoy any comforts while on the hunt. They carried only enough water—in containers made from seal intestines—and food to keep themselves going. However, the customs changed after the Eskimos witnessed the Yankees' comfort and success.

The crew at the base camp—usually young boys and women—work hard at keeping the fire stoked, cutting blubber for the stove, melting snow for drinking and washing, and cooking. A typical meal might consist of chopped whale skin and blubber, cooked with onions and water, and thickened with flour. Fried bread, caribou meat, and coffee also fuel the hunters.

What is clear from accounts of bowhead whaling expeditions is the incredible endurance, patience, and stamina required by all members of the crew to catch even one whale. In coastal Alaska, fear of the sea is both natural and accepted. Seas can be rough, winds difficult to paddle against, and snow, blinding. When the hunters are lucky, the ice breaks a mile offshore; during other years it might break as far away as five to ten miles, increasing the dangers, and complicating the work of transporting equipment. And the whale can be a formidable prey, capable of smashing small boats or dragging vessels long distances after being wounded.

Then there is the frustration of being within sight of whales but unable to reach them through the ice; waiting for the opportunity to strike—sometimes a week, sometimes more—knowing that the lucky strike might never come. If the hunt is successful the crew must then tackle the arduous task of towing a whale that weighs as much as forty-five tons, or more, ashore, which requires the back-breaking efforts of some fifty people, tugging and pulling for hours. Butchering requires an additional ten hours of labor.

For the cooks and the land crew the work is also grueling and difficult, requiring at times all-night vigils to ensure that the boat crew has enough to eat during the hunt, tending the fire round the clock, and sometimes hauling rations in extreme weather conditions several miles from town either on foot or by snowmobile.

In Eskimo society the whaler is the most respected member. The courage and strength necessary for the hunt are obvious reasons, but the roles of the captain and his crew in maintaining social stability and in providing the community with most of its yearly protein needs are even more important.

The economy of northern coastal Alaska has been described as a modern subsistence culture, the natives having been able to strike a successful balance between their ancient social network and the contemporary monetary culture of which they are, by necessity, a part. The initial investment to support a whaling crew—around $6,500 in 1977—is acquired in several ways: either the crew is supported entirely by the captain, sponsored by a working sister or wife, or financed by donations from the crew's relatives.

Although the whaling operations are supported by only a relative few, everyone in the community as well as inland relatives receive a share of the bounty. Profit is not the motivating factor in making such an investment—the only tangible benefit comes if the boat makes a successful strike; then the crew receives one of the better cuts of the whale. Intangible rewards such as social cohesiveness and stability and the welfare of the community along with the prestige, honor, and satisfaction of being a provider are of overwhelming importance. Therefore, although money is necessary to finance such an important undertaking, the return on the investment is not monetary. Investor, captain, crew, relatives, the elderly, the young—all share alike. The annual whale hunt provides the only communal subsistence opportunity for the coastal towns—essential to the preservation of the traditional cultural values and social bonds. In the whale hunt no one person supports his or her family alone—community members support each other.

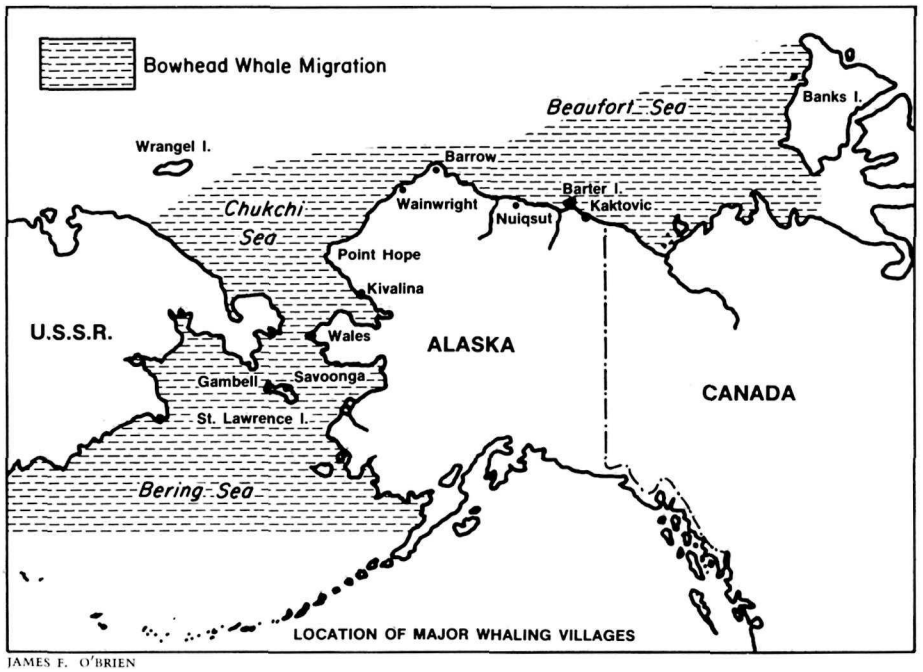
After the initial sharing of the whale among members of the community, the sharing of the remainder is ritualized in ceremonies and feasts—the Captain's Feast, where the section from the tail to belly is divided; the Whale's Tail Feast; Thanksgiving; and Christmas, when caribou and fish are also distributed.

The cultural importance of the hunt is not the only reason for the northern Eskimos to value their annual hunt, however. The whale, along with seals and caribou and fish, birds, and walrus to a lesser degree, is an important component in the diet of the northern Eskimo. Contrary to what an outsider accustomed to a more varied diet and schooled in the seven basic foods edict might believe, the traditional diet supplies all essential nutrients, whale blubber being a good source of vitamins A, D, and C. In addition, whale blubber, unlike

other animal fat, is polyunsaturated, probably accounting for the low serum cholesterol of premodern Eskimos and the healthier status of Eskimo adults whose diet most closely resembles that of the aboriginal Eskimos. Natives of this area frequently exhibit lactose intolerance, which would preclude the use of milk or milk products as a source of calcium. They obtain their calcium requirements by consuming the cartilage and soft bones of the native species. Therefore, importation of alternative food sources from the lower forty-eight states not only would be costly but would not provide the basic diet to which the Eskimos seem to be metabolically adapted.

Replacement of the whale by other native species is not a viable alternative either. Caribou hunting has been severely restricted by law for the past few years. Beluga whales, which also inhabit the northern waters, are also sought by subsistence hunters in western Canada, so the United States is reluctant to encourage its natives to further impose on this species, which is not in large supply. The gray whale—like the bowhead, an endangered species—is much more difficult and dangerous to hunt and sinks when killed. In addition, the blubber is inedible because it is difficult to chew, and the skin is encrusted with barnacles. Smaller native species such as seals, walrus, waterfowl, and fish could not substitute for bowhead because of the time and effort that would be required to hunt for them.

THE ESKIMOS' traditions, social structure, relationship with the sea, and rhythm of life have an appeal that argues eloquently for their preservation. The bowhead cannot speak for itself. In addition, it is perhaps the least understood of the great whales. What little we know of it is primarily related to its importance to humans and human history. We know what it looks like; we know of its value as a food source; we know that it was once of utmost economic value; we know it was hunted almost to extinction; we know where to hunt it today; we know it floats when dead: precious little knowledge when questions of survival or extinction are involved.



JAMES F. O'BRIEN

The massive, slow-moving bowhead reaches lengths of up to sixty feet and weighs as much as fifty tons. Its curving, cavernous mouth hosts the longest baleen found in any species of whale—the average measuring ten feet in length—which extends from its palate in fringed plates. For man, these plates at one time represented a ton and a half of whalebone; for the whale, they function as a sieve through which pass sea water and plankton—its primary food as far as we know. Its twenty inches of blubber—the thickest developed by any species of whale—once yielded twenty-five tons of oil and, by the way, protects the whale from its harsh Arctic environment.

The bowhead has a limited migration pattern, never straying far beyond Arctic regions. Females give birth in Arctic waters, the calves being protected by an incredibly thick layer of blubber. Presumably in adaptation to living in ice-filled waters, the bowhead can remain underwater one hour—another distinction—longer than any other species of whale. Scientists have yet to discover its whereabouts in summer and winter, though they presume that it keeps to the edge of pack ice. Except for subsistence hunting, the species has been protected by international convention since 1935.

IN JUNE 1977 the IWC banned all hunting of the bowhead whale on the basis of an admittedly inexact population estimate of between 600 and 2,500 individuals and an alarming increase in the number of bowheads struck and lost during recent years (twenty-seven in 1974; twenty-six in 1975; thirty-five in 1976; and eighty-two in 1977). The IWC decision caused a storm of controversy among Eskimos, conservationists, and U.S. officials and placed the United States in a double bind situation. The U.S. government has long been a leader in whale conservation and yet has legal and moral obligations to its native people. To support the ban would mean turning its back on the Eskimos' needs; to support the Eskimos would seem to indicate a "do-as-I-say-not-as-I-do" attitude and might indeed further endanger the bowhead.

Although the United States did not file an objection to the IWC ban, government officials did agree to meet in December 1977 with the IWC to discuss the problem. At the December meeting, a majority of the IWC member nations present voted to adopt a compromise quota

for the spring 1978 hunt: twelve whales taken or eighteen struck, whichever came first. Calves and nursing mothers were completely protected for the first time.

The compromise pleased no one: Conservationists who had supported the complete ban were outraged, and the Eskimos predicted that the low quotas would not meet the natives' nutritional needs and would result in violations.

Once the dust had settled, however, the United States and the Eskimos hunkered down to deal with the IWC decision. The government started to face squarely an issue it had long ignored; and the natives began to take a long look at some of the reasons for the recent heavy losses of bowheads and took steps to modify their weapons and procedures to eliminate as much waste as possible. In a concerted effort to preserve the bowhead while also affirming and preserving the natives' right to hunt, the U.S. government and natives began to work together.

The joint effort required a variety of approaches: rigorous self-policing of the spring 1978 hunt by the Eskimos; improvement of weaponry and hunting techniques; and more complete and accurate whale censusing procedures.

The Eskimos' predictions of violations of the IWC quota during the spring hunt did not quite come true. First of all, the Eskimos were generally very cooperative in their desire to adhere to AEWC regulations. Secondly, a low struck-and-lost number—five in 1978 as opposed to eighty-two in 1977—was also achieved, probably because of a much shorter than usual whaling season, weapon improvement, and more efficient hunting techniques. An incident in Barrow in May 1978 that was widely reported in the newspapers, in which whalers took one more whale than their quota, occurred, according to the whalers, because they thought that the extra whale was not a bowhead. After the U.S. commissioner stressed that all whales in the herd were considered to be bowheads, the natives ceased their whaling activities. Furthermore, Point Hope transferred its unused quota to Barrow so that the final tally did not exceed the IWC quota.

In order to improve the efficiency of the weapons used for the hunt, whalers, federal representatives, and the manufacturer met to decide upon modifications to the dart and shoulder guns and bombs. Some of the changes that were made included reducing the amount of rust accumulation, which interfered with the proper discharge and travel of the bombs; lightening the weight of the guns for easier handling; increasing the flexibility of the harpoon shaft to reduce the likelihood of dislodgement; blunting and shortening the bomb point to reduce the possibility of misplacement; and shortening gun barrels to facilitate checking the position of the bomb.

The natives have long contended that government estimates of the bowhead population were low, and a truly comprehensive census had never been made. Therefore, during 1978 the United States employed more accurate censusing techniques while also studying the population dynamics and acoustic techniques of the bowhead. Around-the-clock observations from ice-based and land-based camps by government scientists and AEWC representatives backed up with aerial surveys yielded a count between 1,783 and 2,865 whales, with 2,264 given as the best estimate, a larger population than had been generally believed to exist. Several reasons have been given for the higher-than-expected count: favorable weather conditions; twice as many days and four times as many hours spent in observation as during the two previous censuses; shorter watch hours and greater rotation of observers; and the fact that the lead was open the entire season, allowing for continuous observation. Because Russia denied the United States permission to count bowheads on the Siberian side of the Chukchi Sea and because some whales migrate later in the year and were not included in the most recent census, even more whales may exist than actually were counted. A complementary vessel survey to be completed late in 1978 will update the latest estimate.

THE IWC MET in London in June 1978 to determine, among other issues, the 1979 quota for bowheads. The result of the meeting was a quota of eighteen landed or twenty-seven struck, whichever comes first. In addition, United States representatives requested that two additional whales be added to the fall 1978 quota, a request that was denied and that appalled some conservationists.

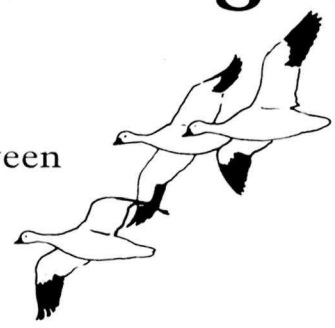
The result of the most recent IWC meeting was, again, to please no one. The Eskimos would still like a higher quota, and many conservationists would like to see a complete moratorium on hunting of the bowhead. On one fact both sides have agreed: more research on the natural history and population of the bowhead is needed.

EVEN A SOLOMON would have found it difficult to make a completely acceptable decision on the bowhead controversy—unless, of course, he had a crystal ball. A definitive answer may never come, though if it does, it will be only after many more years of accumulation of data and a continuation of the intensive research that has just begun. In the meantime, we can only hope that the bowhead population will not suffer adversely from subsistence hunting and that the whalers will continue their efforts to increase their efficiency and adhere to their own stringent regulations. If not, we stand to lose two irreplaceable resources: a cultural tradition both of intrinsic value and of value as a model of individual commitment to the community and a little-understood giant of a species. The world would be much poorer for the loss of either one. ■

Kathryn K. Rushing worked as assistant editor for this magazine for more than five years. In addition to her editing duties, during 1976 she co-authored a series of bicentennial articles on historical topics of significance to the National Park System.

BIOLOGICAL DETENTE: A U.S./U.S.S.R. Exchange Program

by THOMAS S. ELIAS



Politics or no politics, the snow geese keep migrating between the United States and the Soviet Union. Scientists, too, have been traveling between the nations, sharing various environmental programs

I WAS IN the Soviet Union "stalking" a wild rhododendron. On a north-facing slope of the Greater Caucasus, high above a preserve still wild enough for wolf and lynx, the narrow trail wound first through a forest of beech and maple and then curved up into a magnificent stand of Nordmann's fir. I followed it to Russian Valley, a small, round-bottomed area. There, surrounded on three sides by precipitous, snow-covered peaks, I stood in the center of a high subalpine meadow amid expanses of late-blooming wildflowers: bright pink colchicums, delicate fall-flowering white crocus, and dark-blue blossoms of the buttercup family. Valleys such as this one, as well as the lower ridges and protected slopes of the Caucasus Mountains, served as refuges for scores of species of trees, shrubs, and herbaceous plants during the Ice Age when vast glaciers eliminated these species from other habitats.

In such a setting I pursued one of the prime objectives of my trip to this colorful land between the Black and Caspian seas: to collect seeds of the rare Caucasian rhododendron, a beautiful and unusual species—it is cold-hardy—that does not exist as a pure strain in North America. At last one morning we found its more common yellow-flowered relative high up on the Klukhori mountain pass. Then, after a long search guided by my Soviet companions, I experienced one of the greatest joys of my career as a botanist: under six inches of snow we discovered the rare rhododendron complete with fruit containing mature seeds.

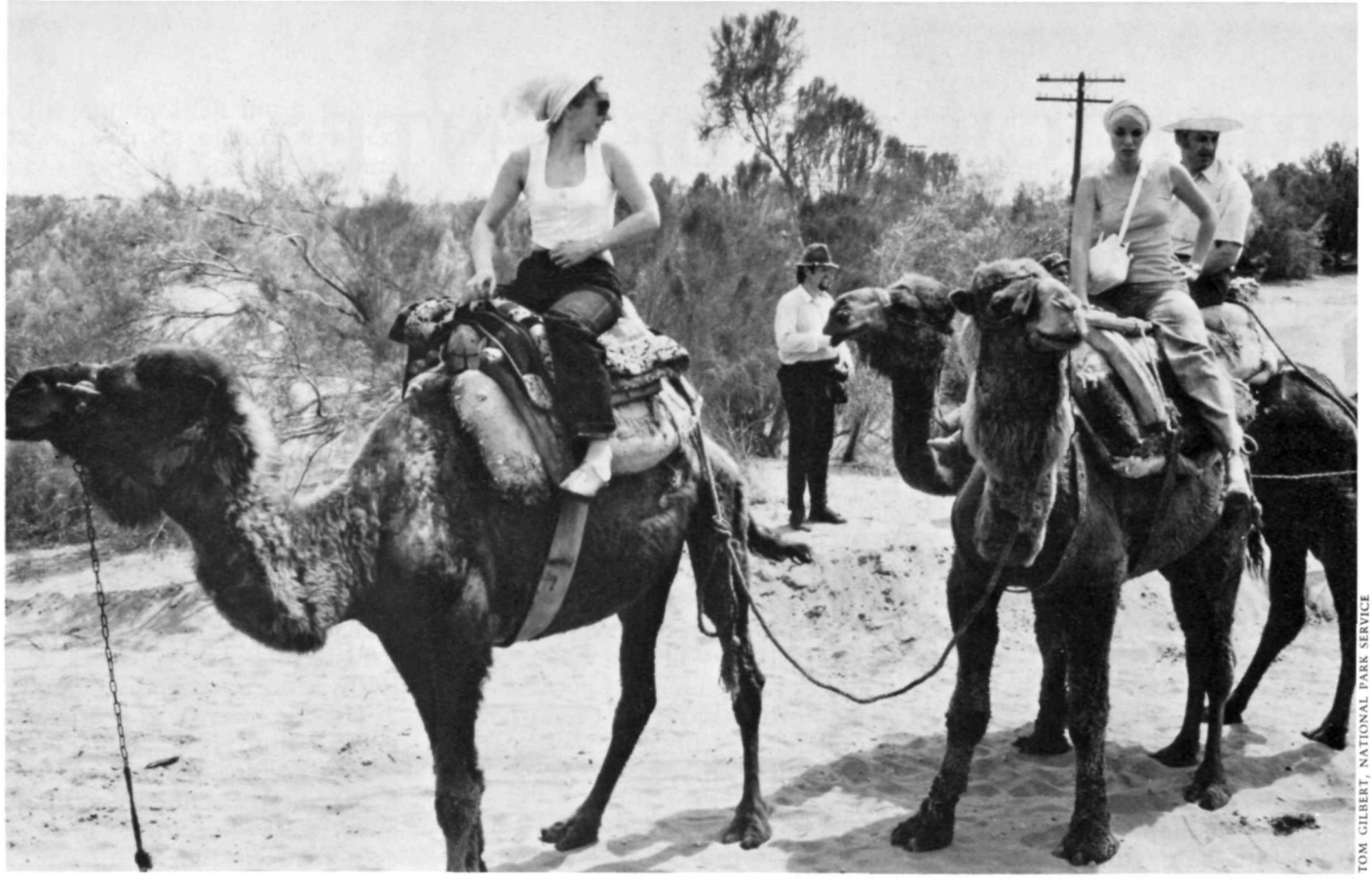
MY REWARDING TRIP to the U.S.S.R. was made possible by a bilateral agreement between the United States and the Soviet Union concerning scientific cooperation in the field of environmental protection. This agreement, in May 1972, established major programs to study air and water pollution, control of pollution on the high seas, enhancement of the urban environment, soils and soil fertility ecosystems in the Arctic and Antarctic, climatic changes due to environmental modifications, and protection of nature and the organization of national parks and preserves.

The U.S./U.S.S.R. Joint Committee, a high-level body responsible for the overall agreement, meets each November in either the U.S.S.R. or the United States, to review the year's work and to decide on the projects and activities for the coming year. Among many diverse projects currently underway are the banding of migratory waterfowl; studies of mammals of the holarctic—the area comprising the northern regions of both hemispheres; research on raptors and their role in ecosystems; the conservation and propagation of cranes; the study of infectious diseases and parasites of wild animals of the north; and botanical research.

The benefits of these projects are manifold. For instance, cooperative collections of plant specimens, seeds, and living plants have vast potential both for esthetic uses such as horticulture and for applied uses ranging from drug manufacture to erosion control.

AS PART OF a series of cooperative botanical field expeditions conducted during the summer of 1976, three botanists from the Soviet Union visited the Adirondack and Appalachian mountains under the sponsorship of the Cary Arboretum to collect seeds and other specimens of plants for study and to observe methods for protecting natural areas. Immediately after the Soviets' visit to the eastern United States, I and two other American botanists (Dr. Jane Bock of the University of Colorado and Dr. Dale McNeal of the University of the Pacific) flew to Moscow, then traveled southward for the twenty-day field trip to the Caucasus Mountains. Located in the southwestern Soviet Union north of Turkey and Iran, this imposing mountain chain generally is regarded as the physical boundary between Europe and Asia.

Many species of plants native to the Soviet Union thrive in the United States and vice versa. Awareness of the striking simi-



TOM GILBERT, NATIONAL PARK SERVICE

RAISA SCRIABINE

The many faces, climates, and pursuits of biological détente: Karakum desert vegetation is studied by a camel-borne US/USSR biosphere reserve study team (above). A wintry snow provides the backdrop for joint efforts in studying immobilization techniques on deer in Voronezh province. Rocky Mountain National Park was the site of studies by Soviet botanists; Dr. Valery Nekrasov (below, right), head of the Russian scientific delegation, discusses the identity of a plant with Dr. Jane Bock of the University of Colorado.

THOMAS S. ELIAS

larities between these widely separated species has spurred the interest of scientists in both countries. Paleobotanical data combined with geological studies indicate that many plants adapted to a temperate climate that had a widespread range during the Tertiary period—70 million years ago—have managed to survive only in a few Tertiary relict areas such as the Appalachian Mountains in the United States and the Caucasus Mountains in Asia Minor. For example, the natural forest in the Lesser Caucasus in northern Armenia (3,000 to 5,000 feet or 915 to 1,550 meters in elevation) is dominated by Oriental beeches and Norway maples. We found the trees, shrubs, and herbs so similar to our own beech-maple forests that were we not botanists, we would have found it difficult to decide whether we

were in the Soviet Union or the United States.

In the Soviet Union, as in the United States, scientists often find greatest diversity of plant and animal life in areas that have been set aside for protection. Some such areas, the state nature reserves or *zapovedniks,* are, like our national parks, forever withdrawn from economic development and used solely for scientific, educational, and cultural purposes. A good example is the Pitsunda State Zapovednik near Gagra on the Black Sea coast, which protects a rare Tertiary relict subspecies of pine. In contrast to the *zapovedniks,* national preserves like the 384-square-mile Northern Preserve permit such economic uses as haying and grazing. Nevertheless this preserve, located on the north-facing slopes of the Major Caucasus near Teberda in southern Russia, seemed to be a naturalist's paradise. Here we saw predominantly spruce-fir forests at high elevations, then maple-birch, and finally beech-oak at lower altitudes. The forests and mountains of the preserve are home for bear, roebuck, mountain goat, elk, lynx, and wolf. In addition, Caucasian bison and European wild boar, which hunters had eliminated by 1928, have been reintroduced here. Cooperative efforts are now underway to study the biology of many of the larger threatened mammals in order to protect their critical habitats, to encourage them to reproduce, and, if necessary, to reintroduce them to their native range.

IN 1977 three Soviet botanists participated in a second botanical field trip to the United States, this time to the Rocky Mountains of Colorado, Wyoming, and Utah. Their delegation was led by Dr. Valery Nekrasov of the Main Botanical Garden in Moscow, who was accompanied by Dr. Lilian Plotnikova, also from Moscow, and Dr. Igor Belolipov of the Tashkent Botanical Garden in Uzbekistan. Several Rocky Mountain scientists generously gave of their time to show the visiting botanists every major vegetation type found in the Rockies: tundra, subalpine, and montane vegetation; riparian forest; and grasslands. Mountain camps, field research stations, university dormitories, and motels served as bases of operation as the visitors and hosts traveled from one area to another.

The botanists collected seeds, herbarium specimens, and some living plants, to be grown and studied in the Soviet Union. They visited the Pawnee Grasslands, Grand Teton, Yellowstone, Rocky Mountain, and Mesa Verde national parks. Although they were primarily interested in the trees and shrubs, the Soviet scientists were delighted by the familiar nature of many of the small alpine plants found in the tundra above treeline. Many of the alpine herbs they examined in Rocky Mountain National Park, for instance, are common to the high mountains of the Soviet Union as well.

IN ADDITION to exchange field trips, U.S. and Soviet scientists are making significant advances in understanding the breeding, reproductive and migratory habits of swans, geese, and ducks that migrate between the United States and the Soviet Union. Professor William J. L. Sladen of Johns Hopkins University's School of Hygiene & Public Health—in collaboration with the U.S. Fish & Wildlife Service and various state agencies—and Dr. A. A. Kistchinski of Moscow's U.S.S.R. Academy of Sciences' Bird Ringing Center, coordinate activities focusing on the study of northern migratory waterfowl. Working with the International Waterfowl Research Bureau, they developed the first truly international color-and-code neckbanding protocol for northern swans and snow geese, now accepted by twelve nations in North America, Europe, and Asia. Once this basic but vital step was accomplished, scientists were able to follow these long-distance international travelers as individuals.

In July 1975 Dr. Sladen visited Wrangel Island in northeastern Siberia, the only Soviet breeding ground for the Siberian population of the lesser snow goose, to help the Russians neckband their geese. (He is the first American to set foot on this remote arctic island since the establishment of the Soviet Union.) Launching this experiment in international cooperation was no easy task. The trip from Moscow to Wrangel Island involved a twelve-hour flight—with a ten-hour time change—across the vast Siberian territory to Cape Schmidt. Then at the cape, fog delayed the final leg of the journey by helicopter to the island for several days.

Despite all these difficulties, however, the scientists were more than eager to arrive. The Soviet scientists were vitally interested in pursuing the study because as the result of severe weather during recent nesting seasons combined with arctic fox depredation, the Siberian snow goose population had declined markedly. Sladen had previously neckbanded and followed the movements of snow geese wintering in California, Utah, Washington, and British Columbia, but now for the first time he had the opportunity to handle geese shared by both the United States and the U.S.S.R. and to gather better data that would lead to the protection of the dwindling Siberian population.

While on the island, the scientists marked more than 500 snow geese with metal bands. To facilitate easy and accurate sightings along their migratory route, 227 geese were also equipped with Sladen's orange-coded neckbands and 238 others were dyed pink with a harmless natural dye. The following July, the Soviets on Wrangel Island marked an even larger number of geese of different ages.

During subsequent winters, wildlife biologists, students, and volunteer observers from Alaska

to California eagerly awaited the arrival of these snow geese. After the initial neckbanding session, 30 percent of the orange-marked snow geese were resighted, (in contrast to only 9 percent of the metal-banded birds). Now, because of the energetic cooperation of interested birdwatchers, the resighting rate has reached a high of 80 percent. Most of these are live geese that provide repeated sightings in different places. In addition, a large proportion of the geese are being observed and studied by the Soviets when they return to breed on Wrangel Island.

This cooperative program has yielded important information about the migration habits of the Wrangel and Canadian snow goose breeding populations and helped to identify the areas where the Russian geese need special protection. For although the majority of the Soviet snow geese mingle with the abundant populations from the Canadian arctic at the Tule Lake National Wildlife Refuge in California, more than a quarter remain at the Frazier River delta, British Columbia, and the Skagit River delta, Washington. Because of this, Sladen joins the Russian scientists in recommending development of a state or federal wildlife refuge in the Skagit delta to completely protect the Siberian snow goose populations exclusive to that area.

Continuation of the joint study program will generate valuable information about wintering ecology, stress, and predation factors. Equally important, it will further Soviet–American cooperation involving birds that for countless generations have acknowledged no international boundaries.

THE PLIGHT of the whooping crane in the United States is well known, as are the determined efforts of scientists at the Department of Interior, the International Crane Foundation, and the Patuxent Wildlife Research Center to promote reproduction of this crane. Beginning this year, a cooperative U.S.-Soviet program was initiated centering on the ecology, protection, and reproduction of cranes. The Soviet counterpart to our whooping crane problem involves the Siberian white crane, indigenous to the steppes and tundra regions, which is endangered from overhunting and habitat destruction. Ornithologists from the Soviet Union and from the International Crane Foundation will exchange information on the feeding of baby cranes, research results concerning the artificial insemination of adult cranes, and conservation techniques relating to the reintroduction of rare species of cranes.

In summer 1977 an American scientist from the International Crane Foundation visited Moscow and returned with a rare gift—four Siberian crane eggs. The eggs came from the Yakutian crane population in the U.S.S.R. and were hand-carried to the foundation headquarters at Baraboo, Wisconsin. Two of the eggs proved fertile, hatched, and produced healthy chicks. Soviet scientists have since made seven additional Siberian crane eggs available from the same population as part of a cooperative effort to establish a captive breeding population of Siberian cranes in the United States. All data gathered on these cranes will be shared by Soviet and American scientists in the hope that the insights thus provided may help to extend the life of the endangered Siberian crane and possibly save it from extinction.

BECAUSE marine mammals, especially seals and whales, are considered economically important, their management and conservation often become emotionally charged topics in international negotiations and discussions. Fortunately, cooperative research programs focusing on the biology, ecology, and population dynamics of marine mammals were introduced in 1973 under the bilateral agreement. The initial projects examined aspects of the biology of walruses and ice seals.

In 1974 the program was expanded to include large whales and, most recently, small cetaceans (dolphins, porpoises, and small whales). Participants in these programs concentrate on assessing size of populations, aspects of behavior patterns, levels of reproduction, and growth rates. For instance, in July 1977 two Soviet whale experts journeyed with American scientists to southeast Alaska to participate in tagging and tracking experiments involving the endangered humpback whale. Using teamwork and skillful maneuvering, the combined team of scientists managed to successfully implant four humpback whales with radio transmitters and then to track them. In future expeditions American whale experts will return to the area and attempt to relocate and monitor the radio-tagged whales. As the scientists study marine mammals and learn more about them, it can be hoped that a more rational basis will be established for future decisions on their conservation and management.

THESE COOPERATIVE biological studies reflect just a few of the current Russian-American programs concerning plants and animals of mutual interest to both nations. Each year activities and programs are carefully reviewed, some are modified, and some new ones are proposed. Clearly, scientists from both countries hope that such exchanges will not only increase scientific knowledge but will enhance the possibility of Soviet-American cooperation in other areas as well. ■

Thomas S. Elias is Assistant Director of the Cary Arboretum of the New York Botanical Garden, and coordinator of the U.S./U.S.S.R. Botanical Exchange Program that focuses on threatened and endangered species of plants and studies of the introduction of exotic species.

Alaska Update

Acting as if Alaska were still "Seward's Icebox," a distant territory unworthy of national concern, and at the same time trying to stake a proprietary economic interest for the state in federal wildlands, Alaska's two senators are still trying to block passage of a strong Alaska National Interest Lands Conservation Act this year.

Sen. Mike Gravel is still threatening to filibuster the bill, appealing to a tradition of senatorial courtesy in refraining from stepping on the toes of a senator who opposes a bill concerning his state. Gravel seems to consider the fate of the lands that form the nation's last wilderness frontier a matter of parochial concern. Likewise, Sen. Ted Stevens has come up with a counterproposal that would make only a few isolated spots with postcard scenery into parks and monuments.

NPCA and other members of the Alaska Coalition have urged the Senate not to let the wishes of two senators obstruct passage of the national conservation bill, emphasizing that:

- The House of Representatives has already passed the bill by an overwhelming nine-to-one margin and President Carter has made it his top environmental priority.
- The House was responding to an unusually large outpouring of public support, support that has been confirmed both by the hearings on the bill and polls. A recent poll paid for by the state itself found that 61 percent of Alaskans support creation of national parks and wildlife refuges. Of those people contacted in a nationwide Louis Harris poll, a third were aware of the legislation—an amazing number of people to be familiar with a specific legislative issue—and two-thirds of them favored the bill.
- Claims that the bill is a "lockup bill' are way off-base. In July the Joint Federal-State Land Use Planning Commission for Alaska released a concise analysis of the economic implications of placing more than 100 million acres of Alaska lands in national parks, national wildlife refuges, wild and scenic rivers, and national forest additions and designating some of that acreage as wilderness. The commission concluded that "we do not feel that the legislation would have a significant impact on the availability of timber, oil, and gas and mineral resources to the nation" and that the bill would not impair the state's economic well-being. In fact, Congress already has been more than generous with the state, allowing Alaska to choose the best development lands from the public domain and expediting oil and gas pipelines.
- Most important, the lands proposed for protection are federally owned; they are lands belonging to all the American people, not just Alaskans.

Sen. Stevens' latest proposal would hardly serve the national interest in protecting these lands. Although Stevens' bill includes core areas of all parks and monuments in the Administration's Alaska proposal, it completely disregards the need to preserve intact ecosystems to ensure the long-term survival of these areas and their wildlife. Most of the 80 million acres he proposes would be national recreation areas, forest lands, or BLM conservation areas where multiple-use development would be allowed.

For instance, Stevens would reduce the proposed Kobuk Valley National Park found in the conservation proposal—the Metcalf-Durkin bill (S 1500)—to only the famous Kobuk sand dunes, omitting adjacent woodland, tundra, and wetlands needed by grizzlies, wolves, moose, many other mammals, and birds. He would not protect the Yukon Flats and Yukon Delta, the prime waterfowl-producing habitats in all Alaska that send many birds to the lower forty-eight (see page 25), as wildlife refuges. Instead, he would designate the Yukon Flats as national forest land where mining, timber cutting, and agricultural development could proceed, and much of the Yukon Delta would be a BLM area.

At press time the markup sessions on the Senate bill were still in progress. Conservationists had encountered a setback when the committee failed to bring the proposal in line with the House bill by giving the Arctic National Wildlife Range wilderness protection, but another vote on this issue was possible. NPCA and the rest of the Alaska Coalition point out that Canada recently prohibited oil exploration in the northern third of the Yukon Territory to protect the international caribou herd that also uses the Arctic range. The committee had adopted a several-stage oil exploration plan for the range and its caribou calving grounds. However, they had decided to close all parks and monuments to leasing and had adopted stronger general language for leasing in refuges than that passed by the House.

They also improved on the House language governing hardrock mineral assessments. Which specific areas would be open to mining was still up in the air, however.

Conservationists support:

- Closing all conservation units to oil, gas, and hardrock mineral exploration and development.
- Designation of 83 million acres of park and refuge wilderness including the Arctic range and inclusion of about 7 million acres of forest wilderness in Southeast Alaska, including the Misty Fjords, which would be added to the park system.
- No deletions from conservation unit proposals in the Durkin proposal such as state selection claims and no plans to de-rail the bill through proposals for state/federal cooperative management or designation of conservation areas for multiple-use management.

The coalition aims to get the bill through the Senate in time for a conference committee to meet the planned adjournment at the beginning of October. If Congress does not pass a bill this year, the Carter Administration says it may try to protect the roughly 100 million acres in question through administrative action. And with the grassroots support for the bill gaining more momentum all the time, conservationists warn that opponents of the legislation might face an even tougher fight next year.

You Can Help: NPCA members can call the Alaska Coalition 24-hour hotline at 202-547-5550 for a recorded update on how to help. ■

House Passes Omnibus Bill — Wide-Ranging Landmark Park Legislation

Cynics may have tried to label it as nothing more than a "park-barrel" bill, but Rep. Phillip Burton characterizes it as "an idea whose time has come." It's big and it's beautiful, too.

The idea: use one legislative package for expediting many critical or long-standing protective proposals—roughly 150 items affecting almost every state—instead of dealing with them on a piecemeal basis by considering scores of separate bills. The House of Representatives liked it, for the most part.

On July 12 they passed the bulk of Burton's omnibus bill, HR 12536, by a vote of 341 to 61 and sent it on to the Senate, which is expected to be less generous.

In one fell swoop, the measure would create fifteen new national parks, historic sites, or recreation areas; about 2 million acres of wilderness in nine NPS units; seven new wild and scenic rivers; nineteen wild river study areas; and four new national trails. It would increase the ceilings on spending for land acquisition in five park areas and for maintenance and rehabilitation projects in thirty-three NPS units as well as make boundary changes, additions, and other adjustments in forty park areas.

About half of the $1.2 billion ($650 million) bill would go directly to local communities in the form of matching grants as part of a national program to help them rehabilitate their own park and recreation systems and provide jobs. A similar program is under consideration in the Senate (see "Urban Recreation," p. 27). President Carter previously called for such an urban program and supported a number of pending park and wilderness proposals now in this legislation.

Burton, who became chairman of the Interior subcommittee on parks at the beginning of the 95th Congress in 1977, notes that his bill was the result of extensive research by committee members and congressional staff people and the work of countless citizens in many localities and that the legislation covers a backlog of many issues that have been unresolved for all too long.

Some proposals have languished in committee for up to seven years. In supporting HR 12536, NPCA noted that the bill "is particularly heartening given the history of inaction on national park wilderness."

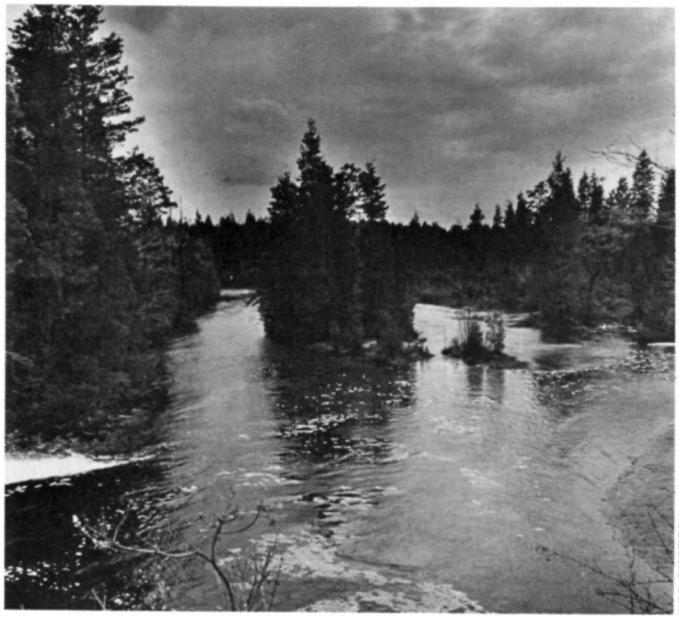
Even though the Park Service completed many wilderness studies some time ago, other issues have been given priority and tight legislative calendars have put NPS recommendations on the back burner. Fourteen years after passage of the Wilderness Act, only a bit over 1 million acres of park wilderness have been designated—in stark contrast to the many millions of acres envisioned in 1964.

Although more than a million acres of wilderness (mostly in Glacier park) were removed in floor action, HR 12536 still would double the present amount of park wilderness.

If approved by the Senate, it would also make great strides toward meeting the goals of the National Wild and Scenic Rivers Act, marking the largest single expansion of the river system since passage of the Act in 1968. The areas include controversial Delaware and Rio Grande river additions.

In fact, Burton certainly did not

The fifteen new NPS proposals in the House omnibus bill range from recreation and natural areas such as New Jersey's Pine Barrens (left)—a vast forest interspersed with lakes, rivers and berry bogs—to historic places such as San Jose Mission, a national historic site that is one of four eighteenth-century missions in Texas that would form the San Antonio Missions National Historical Park.



BOB RHODES

MANG, NPS

sidestep controversy in the omnibus bill—it includes several areas that have been the focus of contention for years. Conservationists are particularly pleased that long-standing disputes over protecting the middle Delaware, adding Mineral King Valley to Sequoia National Park, preserving the Pine Barrens in New Jersey, and expanding Manassas National Battlefield Park all would be resolved by the bill in favor of these areas of national significance. NPCA has long supported their preservation.

Since 1962, conservationists have opposed a proposal authorized by Congress in that year to construct a dam on the **Delaware River**, one of the last great free-flowing streams in the East. HR 12536 would designate the Middle Delaware River, located within the Delaware Water Gap National Recreation Area—as well as the Upper Delaware—as part of the National Wild and Scenic Rivers System.

Rep. Frank Thompson (D-N.J.) and other supporters of the Tocks Island Dam attempted to block the designation, but the House rejected their efforts by a more than two-to-one margin. Even the Corps of Engineers now recommends deauthorizing the dam, but bills to cancel the project have been bottled up by the public works committees of Congress. Although HR 12536 would not deauthorize the dam, it expresses congressional sentiment against the project and would transfer lands within the Delaware Water Gap National Recreation Area—a unit of the Park System—from the Corps of Engineers to the Park Service. The NPS could begin the recreational development that has been stalled pending resolution of the dam controversy and key development to the free-flowing river.

For years, NPCA and others have urged preservation of the **Pine Barrens,** a remarkable expanse of forest and watercourse in southcentral New Jersey that overlies a critical aquifer. HR 12536 would authorize the Secretary of Interior to prepare a plan within eighteen months to conserve 970,000 acres of the Pine Barrens, with participation by the state of New Jersey and local governments. If Congress did not disapprove the plan within 180 days, it would be implemented. Meanwhile, the bill also would direct the Secretary to begin land acquisition of certain critical areas in the Pine Barrens and would provide $25 million for this purpose.

California's **Mineral King Valley**, one of the most beautiful alpine valleys in the nation and a prime wildlife habitat, has long been promoted for development as a mammoth ski resort complex. The omnibus bill would add the valley to Sequoia National Park, which borders it on three sides. Although the bill may not completely rule out a ski facility, the Park Service would be asked to encourage maximum public participation in formulating its master plan for the area. Like other parts of the omnibus bill, for a number of years the Mineral King proposal has been the subject of separate bills, in this case offered first by Burton himself and most recently by Rep. John Krebs of California.

With passage of HR 12536, a large citizen movement to protect the **Santa**

Continued on page 27

As passed by the House the bill would double park wilderness acreage, protecting wild places within parks like Everglades (left), and also would mark a turning point for the wild and scenic rivers system by adding seven areas including the middle Delaware. NPS finally could begin developing the adjacent Delaware Water Gap National Recreation Area (right) for recreational use.

PETER KAPLAN

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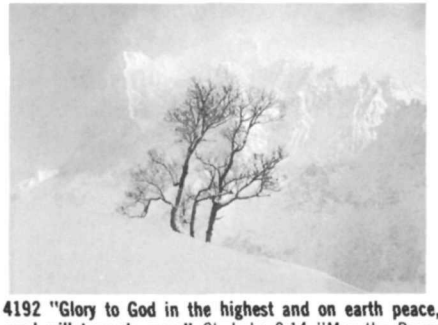
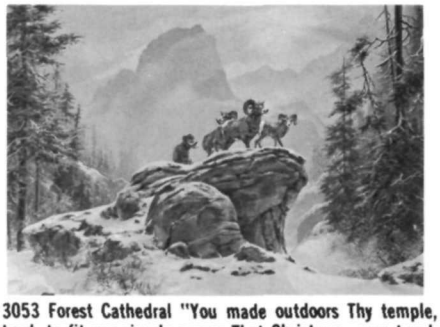
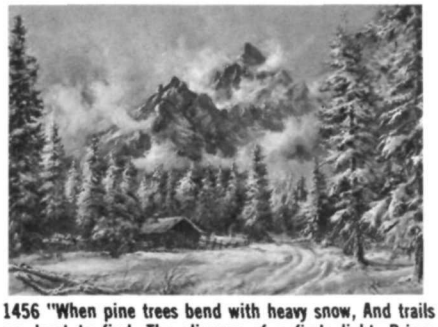


4192 "Glory to God in the highest and on earth peace, good will towards men." St. Luke 2:14 "May the Peace and Joy of Christmas be with you through all the Year" color photo by Fletcher Manley



3053 Forest Cathedral "You made outdoors Thy temple, Lord, to fit our simple prayer That Christmas...may touch the hearts of all men everywhere, etc." "Merry Christmas" verse by S. Omar Barker, painting by Garé Barks



1456 "When pine trees bend with heavy snow, And trails are hard to find, The glimmer of a fire's light, Brings memories to mind., etc." "Merry Christmas and a Happy New Year" verse by Malicki, painting by Lee K. Parkinson

1704 Winter Splendor "This brings a prayer at Christmas time, That God will always bless...your home and you, And those you love...with lasting happiness..." painting by Katheryn Williams B.

1142 A Christmas Morning Handout "Never too cold for kindness, Never too deep the snow, To wish you the Merriest Christmas Our good Lord can bestow!" verse by S. Omar Barker, painting by Bernard P. Thomas

3001 "Therefore am I still, A lover of the meadows; and of all that we behold, From this green earth; of all the mighty world, etc." from Wordsworth "Merry Christmas and a Happy New Year" painting by Garé Barks

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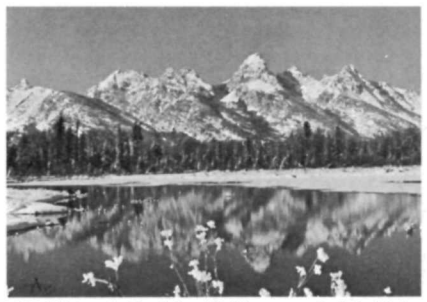
1436 "In the heart of the wilderness Christmas has come ...Glory to God in the highest, Peace on earth, good will toward men!" "May the Peace and Joy of Christmas be with you through all the Year" painting by Ray Swanson

3041 When Good Friends Gather "May you and yours this Christmas Day and every day this coming year be blessed with health and happiness" painting by Winston Elliott

1151 "...'Tis very sweet to look into the fair, And open face of heaven..." from Keats "May every happiness be yours at Christmas and throughout the New Year" painting by Wayne Lowdermilk

3008 The Miracle of Christmas "May the Peace and Joy of Christmas be with you through all the Year" painting by Garé Barks



1485 "Nature is the living, Visible garment of God." from Goethe "May Peace be your Gift at Christmas and your Treasure through all the Year" color photo by Abi Garaman

3121 "It's Christmas again! May yours be a joyful one and your New Year happy!" painting by Elmer Sprunger

3142 Along the Wilderness Trail "May you and yours this Christmas Day and every day this coming year be blessed with health and happiness" painting by Norman Miller

3124 "...Here is continual worship;—Nature, here in the tranquility...Enjoys thy presence." from Bryant "May Peace be your Gift at Christmas and your Treasure through all the Year" painting by Gerald Petitt

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Park Service Welcomes Advice

The National Park System Advisory Board and its alumni council may not be making news headlines, but since 1936 their members have been working behind the scenes to provide expert advice to the Interior Secretary on many matters crucial to the park system.

Composed of eleven members appointed to four-year terms by the Interior Secretary, the board includes persons noted for their expertise in conservation and natural science, history, architecture, and archaeology. Upon expiration of their terms, board members have become part of an official NPS Advisory Council.

Thus, the council serves as the board's link with the past and has included many people whose names are associated with landmarks in park history. The functions of both the board and council have been purely advisory. They consult with the Secretary on all new park proposals and upon policy concerning administration of the parks. Members have served without any compensation other than travel expenses.

The council was temporarily disbanded for most of 1978—reportedly because of a legal technicality in combination with a general review of federal advisory committees under the Carter Administration. But it was recently reinstated with strong support from the Park Service.

NPS Director William Whalen explained to *National Parks & Conservation Magazine*, "Our strong feeling is that the council provides continuity to the board. Their experience is invaluable to us and we'd love to see the council continued."

The brief summary that follows will give NPCA members an idea of the backgrounds of those who now serve on the board and of former board members on the council.

NATIONAL PARK SYSTEM ADVISORY BOARD

Mrs. Anne Jones Morton, Easton, Md. (Chairman), conservation enthusiast (wife of former Secretary of the Interior Rogers C. B. Morton).

Mr. Carl Burke, Boise, Idaho (Vice chairman), lawyer; served on the Idaho Air Pollution Control Commission.

Dr. Edgar A. Toppin, Petersburg, Va. (Secretary), professor of history, Virginia State College; specialist in American history; history of Blacks in America; author.

Hon. Alan Bible, Reno, Nev., lawyer; retired U.S. senator; served on Senate Interior and Insular Affairs Committee; Chairman of the Subcommittee on Parks and Recreation; Chairman of the Senate Appropriations Committee Subcommittee on Interior and Related Agencies.

Mr. Larry Erickson, Minot, N.Dak., rancher; former N.Dak., state representative.

Mr. Laurence W. Lane, Jr., Menlo Park, Calif., chairman of the board and publisher, Lane Publishing Company (Sunset Magazine).

Mrs. Nancy M. Rennell, Greenwich, Conn., active in community programs on beautification and historic preservation; member of executive committee, Garden Club of America.

Hon. Roy A. Taylor, Black Mountain, N.C., lawyer, former U.S. congressman; served on the House Interior and Insular Affairs Committee; chairman of the Subcommittee on National Parks and Recreation.

Mr. Bill Wiener, Jr., Shreveport, La., architect.

NATIONAL PARK SYSTEM ADVISORY COUNCIL

Mr. Horace M. Albright, Sherman Oaks, Calif., lawyer and conservationist; former director, National Park Service (1917-1929); *former trustee of NPCA.*

Dr. Durward L. Allen, Lafayette, Ind., noted naturalist, wildlife writer, and professor of wildlife ecology at Purdue University; *NPCA trustee.*

Hon. E. Y. Berry, Rapid City, S.Dak., retired congressman; served on House Interior and Insular Affairs Committee; lawyer; conservationist.

Dr. J. O. Brew, Cambridge, Mass., noted anthropologist and historian; formerly associated with Peabody Museum, Harvard University (retired).

Hon. Frank P. Briggs, Macon, Mo., journalist; conservationist; former U.S. senator; and former assistant secretary for Fish and Wildlife and Parks, Department of the Interior.

Dr. Edward P. Danson, Flagstaff, Ariz., anthropologist, Museum of Northern Arizona.

Dr. Joe B. Frantz, Austin, Tex., historian; author; archivist; director, the Texas State Historical Association, University of Texas.

Dr. Melville Grosvenor, Washington, D.C., editor, author, conservationist; chairman emeritus of the board of the National Geographic Society; editor-in-chief, *National Geographic Magazine.*

Dr. E. Raymond Hall, Lawrence, Kans., biologist and author, Museum of Natural History, University of Kansas.

Dr. Emil W. Haury, Tucson, Ariz., archeologist, author, and conservationist with Department of Anthropology, University of Arizona.

Mrs. Marian S. Heiskell, New York, N.Y., newspaper executive; Director of Special Activities, *New York Times.*

Mrs. Lyndon B. Johnson, Stonewall, Tex., business executive, conservationist.

Dr. A. Starker Leopold, Berkeley, Calif., noted biologist, wildlife writer, conservationist; professor of zoology at the University of California.

Mr. Frank E. Masland, Jr., Carlisle, Pa., retired businessman; conservationist; outdoorsman; *former NPCA trustee.*

Mr. Peter C. Murphy, Jr., Eugene, Oreg., business executive with the Murphy Company in road construction, logging, and veneering operations; active civic leader.

Mr. Sigurd F. Olson, Ely, Minn., biologist, freelance writer, lecturer, scientific researcher, wilderness traveler, and *past president and former trustee of NPCA.*

Mr. Nathaniel A. Owings, Big Sur, Calif., architect, engineer, designer, and conservationist; founding partner of Skidmore, Owings and Merrill, architects and engineers (retired).

Dr. Melvin M. Payne, Washington, D.C., educational executive, lawyer, and geographer; chairman of the board, National Geographic Society.

Mr. Linden C. Pettys, Ludington, Mich., architect; active on various planning and architectural organizations.

Mr. Steven L. Rose, La Canada, Calif., businessman and outdoor enthusiast; active in museum and conservation organizations; founder and chief executive officer of Biltmore Art Galleries in Los Angeles.

Mr. Walter M. Schirra, Englewood, Colo., (USN, retired); former astronaut; corporation executive; conservationist.

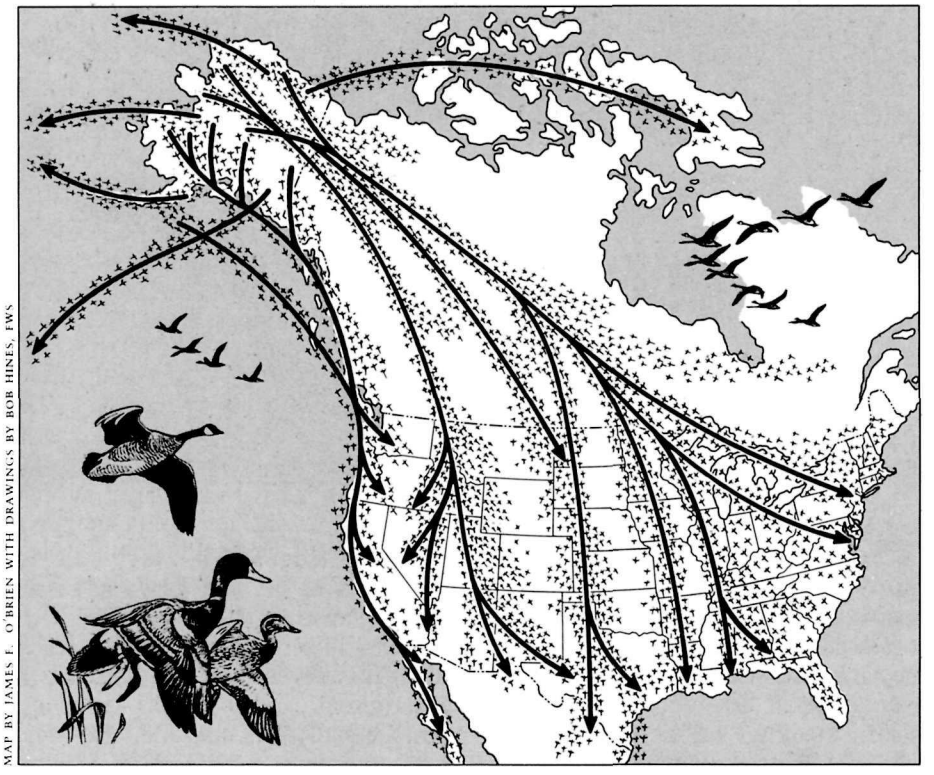
Dr. William G. Shade, Bethlehem, Pa., professor of history, Lehigh University.

Dr. Douglas W. Schwartz, Santa Fe, N.Mex., anthropologist/archeologist; director, School of American Research, Santa Fe, N.Mex.

Mr. Fred Smith, New York, N.Y., businessman; conservationist, and civic leader.

Dr. Wallace E. Stegner, Los Altos Hills, Calif., author, instructor, conservationist; professor of English at Stanford University.

Mr. James W. Whittaker, Seattle, Wash., president, Recreational Equipment, Inc.; mountain climber; first American to climb Mt. Everest.



MAP BY JAMES E. O'BRIEN WITH DRAWINGS BY BOB HINES, FWS

Alaskan wild areas form a great nursery for millions of migratory birds from every state and around the globe

From Alaska to the World

IN THE AUTUMN Alaska spreads her wild bounty to every other state in the Union and nations around the globe. Each fall upwards of 200 to 400 million migratory birds of more than 300 species depart the rich nesting and breeding areas in Alaska to winter across the United States and six continents.

Traveling across the continents and oceans with the seasons, in the spring they again seek places to nest, rest, and forage in Alaskan wildlands unspoiled by people.

Journeys of 10,000 miles are not uncommon. Return migrations in the fall may terminate in Argentina, Tasmania, South China, Cape Horn, Hudson Bay, Siberia, or the Chesapeake Bay.

For instance, from late September to November, most of North America's estimated 130,000 whistling swans journey from the Yukon Delta, Selawik lowlands, and the Arctic North Slope back across the continent to wintering grounds as far south as California and as far east as the mid-Atlantic states. Traveling at speeds of up to seventy miles per hour or more, masses of flocks headed for the Chesapeake may fly nonstop for a thousand miles of their 3,500-mile odyssey. Soon, in towns and marshes across Delaware and along Maryland's Eastern Shore, the air is filled with their deep baying.

Altogether, more than 12 million ducks, geese, and swans depart Alaska's wilderness each fall. Extensive bird-banding programs conducted over several decades in Alaska have added to the U.S. Fish & Wildlife Service's knowledge of bird movements. Down the Pacific flyway to the western states go about half or 6 million of these birds including nearly all of that region's whistling swans; white-fronted geese; cackling, Aleutian, and dusky Canada geese; as well as major portions of the flyway's scaup, wigeon, and black brant populations.

Another 4 million, or 35 percent, migrate along the Mississippi and Central flyways, passing into Midwestern and Rocky Mountain states and traveling to the Gulf Coast. Some 10 percent of the total waterfowl flight—1 million birds—cross the continent to the Atlantic Flyway, which extends throughout the eastern states. Notable populations in the East include not only the Chesapeake swans but also canvasbacks and other ducks. The remaining 5 percent are even greater international travelers, wintering in Asia, Mexico, South America, Antarctica, or the Pacific Islands.

Alaska's value to other migratory birds takes one to the threshold of comprehension. Estimates place the population figures for migratory birds other than waterfowl at 200 to 400

million annually. These birds are the raptors, small songbirds, seabirds, marsh and waterbirds—coots and warblers of California, thrushes of Illinois, peregrine falcons of Louisiana and Washington, sandpipers of Florida, hawks from across the West, sandhill cranes of Texas, and loons of Japan and China. In one area of Alaska alone—the Selawik lowlands that form the crossroads of North American and Asiatic flyways—can be found whistling swans from San Francisco Bay, wagtails from Asia, godwits from Australia and New Zealand, Arctic terns from Antarctica, wheatears from Africa, and sandpipers from South America. In fact, international treaties have expressed a commitment to protect many of the birds found in Alaskan wild areas.

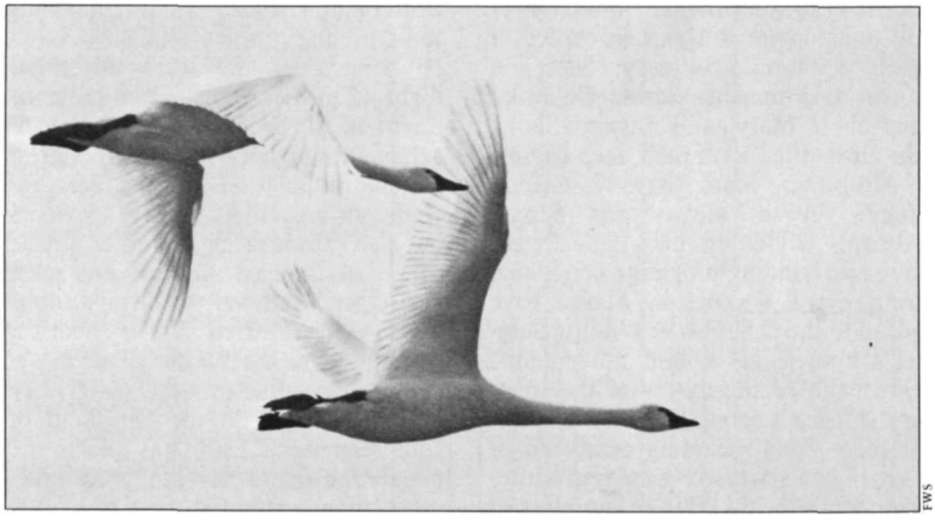
Water is the key to habitat for Alaskan birds: water in lakes, rivers, lagoons, and the open sea. A million ponds are scattered over the warm "sunbowl" valleys of the Yukon, Tanana, and Koyukuk rivers; the cool coastal plains of the Arctic Slope, and the lush tundra of the Yukon Delta. Here, millions of waterfowl and other birds find places to nest and rear their young: the canvasback and scaup from the Chesapeake and Louisiana mingle with wigeon and shovelers from the Sacramento Valley and mallards from Puget Sound. Surrounding forests provide a home for ospreys, warblers, and thrushes.

AMOCO, AMOCO LAKE, NAPERVILLE, ILL.

THE VOLUME OF LIFE reaches its peak on ocean shores and estuaries. Tideflats of the Yukon Delta, coastal lagoons and barrier beaches of the Arctic Coast and Alaska Peninsula, and sheltered bays of the Gulf of Alaska are vital to the existence of these species. For instance, nearly all black brant and most emperor geese pass along the bays and lagoons on the Alaska Peninsula, where they stage and feed on the lush eel grass, storing up the necessary energy for their long migrations and winter survival.

Of a number of Alaskan areas that are crucial to migratory birds, the Yukon Flats and the Yukon Delta are the two richest waterfowl producing habitats. Each area sends more than 2 million birds south every fall to disperse over the four flyways. Lesser scaup from these locations have been reported in forty states, greater scaup in twenty-seven, and canvasbacks in twenty-five. Other ducks—wigeons, pintails, shovelers, and mallards—and geese and swans from many states also depend on these habitats. On the tideflats of the Yukon Delta, they forage at the water's edge while sandpipers, plovers, godwits, and knots probe the mud. Thousands of wings flash in the sky, then disappear as they turn and no longer reflect the sun.

Flying in odysseys that stagger the imagination, the birds of Alaska spread out to touch the lives of naturalists, scientists, sportsmen, and other bird-lovers of many lands. However, if they ever lose their nesting, staging, or wintering areas in Alaska, the ancient circle will be broken.



FWS

Adapted by* National Parks & Conservation Magazine *from "To Have and To Hold: Alaska's Migratory Birds," "Wildlife for Tomorrow: Proposed Alaska National Wildlife Refuges," and other U.S. Fish & Wildlife Service publications and statements. A sample list of birds traveling to each state is available by request from the Wildlife Program, National Parks & Conservation Association, 1701 Eighteenth Street, N.W., Washington, D.C. 20009.

URBAN RECREATION

Park & Recreation Recovery Program Now Before Senate

In response to the needs of hardpressed urban communities, the Senate is considering legislation that would authorize federal grants for the rehabilitation of deteriorating recreation areas and facilities.

Developed to address some of the problems identified by the Department of the Interior's recent National Urban RecreationStudy (see "All Work, Little Play for 150 Million," in the June issue of this Magazine), S 3163 would establish an urban park and recreation recovery program to be administered by Interior. The House already has passed similar legislation as part of the parks omnibus bill (see p. 21).

In many localities—particularly older urban centers—recreation areas have deteriorated badly. S 3163 would authorize $150 million annually for a period of five years to underwrite projects designed to correct this problem and to forestall such costly deterioration in the future. Funding for eligible projects would be shared equally by the federal government and the community involved. In addition, the federal government would also match funds provided by states. Thus, if a state supplied 25 percent of a project's cost, the federal government would provide 75 percent and no funding would be required from the local government.

Because the program is an important element of President Carter's overall urban program, in carrying it out the Interior Department would be required to work closely with the Department of Housing and Urban Development as well as other federal and state agencies responsible for programs and policies affecting urban areas.

In invited testimony at the Senate Subcommittee on Parks and Recreation hearings on the bill in late June, NPCA supported S 3163, but recommended certain changes in the legislation. In order to fill a wider variety of recreational needs, we suggested that activities eligible for funding be expanded to cover innovative operations and maintenance programs; recycling and reuse of public buildings; and use of derelict federal lands; as well as rehabilitation and development projects.

Because many of the needy communities the legislation is designed to assist might not be able to afford their required half of project costs, NPCA recommended that the federal government's contribution under the program be increased to at least 75 percent of such costs.

At press time Senate action on S 3163 was expected by late summer. ■

Omnibus Parks Bill—from page 21

Monica Mountains finally has succeeded in moving a bill through the House after years of effort.

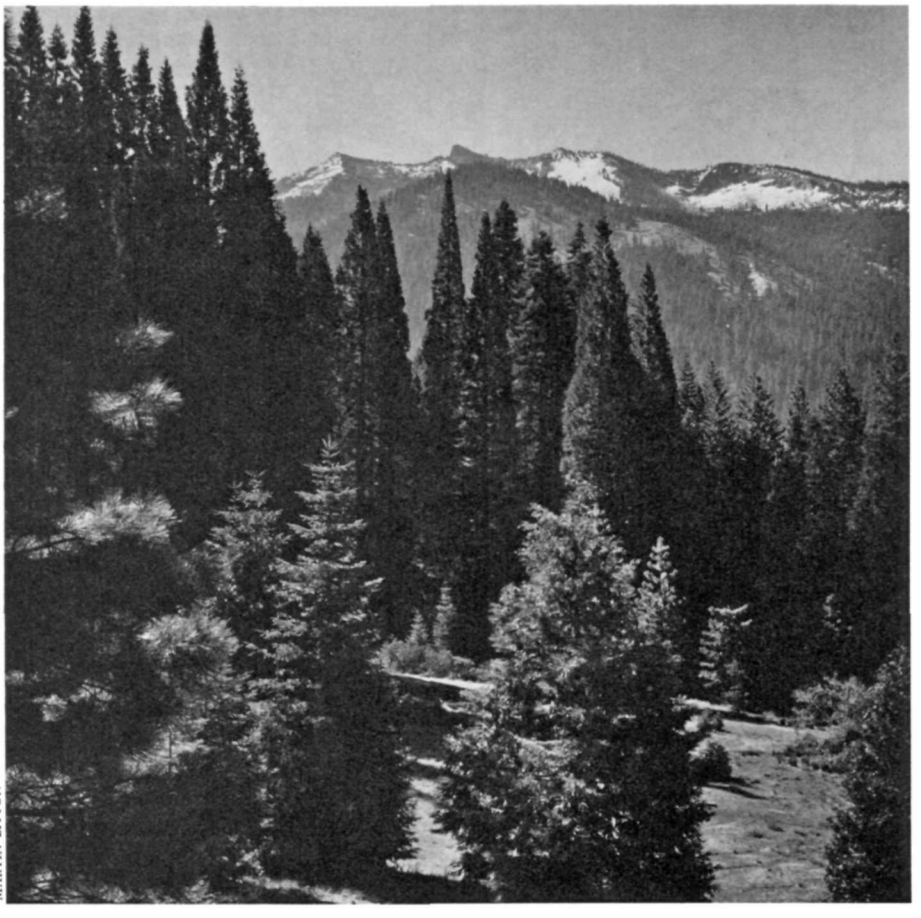
In order to protect the Santa Monica Mountains, HR 12536 includes a national recreation area proposal that represents a consensus between three representatives who originally had advocated different proposals for this beautiful area. The Santa Monicas stretch from downtown Los Angeles into rural Ventura County and include a significant portion of the greater Los Angeles coastline.

The bill contains extensive provisions calling for cooperation among local, state, and federal agencies to protect this mountain area. In addition to funds for federal land acquisition, it provides for grants to the state of California for acquiring lands outside the boundaries of the national recreation area and thus helping to prevent incompatible development.

The bill would set aside many other worthy areas as well, ranging from the Jackson Hole Scenic Area in Wyoming to the Chattahoochee River National Recreation Area in Georgia.

Besides creating new park areas, the bill would facilitate completion of

HR 12536 would expand Sequoia National Park to include Mineral King Valley.



MARTIN LITTON

NPCA at work

land acquisition in five already-established areas, such as Big Cypress National Preserve, where escalating land costs make an increase in acquisition ceilings critical. HR 12536 also would speed up acquisition of inholdings within most of the units of the National Park System. For many years NPCA has urged elimination of inholdings and this Association would recommend action to cover inholdings in all NPS units.

Other provisions of HR 12536 would increase the ceilings on spending in thirty-three units in order to cope with inflation and complete construction, maintenance, and rehabilitation projects. An example of the kind of project on which the money would be spent is Ellis Island—part of the Statue of Liberty National Monument—where lack of funds has led to decay of the historic buildings where millions of immigrants first entered the United States. This is just one of many crucial "housekeeping" provisions.

It is not an unflawed bill. It contains some provisions questioned by conservationists—such as its deletion of the Black Bay area from Voyageurs National Park in Minnesota. The original bill also had some setbacks in floor action such as an amendment sponsored by Rep. James Oberstar of Minnesota that deleted wild and scenic designation of the Upper Mississippi River. Nevertheless, its good points far outweigh any flaws or omissions.

NPCA has commended Rep. Burton for his leadership on "one of the most important and comprehensive pieces of park legislation ever to come before Congress." Apart from the Alaska bill, HR 12536 would stand as the most monumental conservation legislation of the 95th Congress and certainly would be the most wide-ranging, as areas across the entire Lower 48 and Hawaii would be affected.

The fates of both the Alaska and omnibus park bills, however, still rest on uncertain ground in the Senate. At press time the Senate Energy and Natural Resources Committee had approved S 2876, a much less comprehensive omnibus parks bill, and was holding hearings on the House bill. ■

RARE II

How Much Forest Wilderness Is Enough?

In its effort to find a "rational" answer to this question, the U.S. Forest Service has instead reignited a bitterly emotional controversy over what constitutes true wilderness and how much wilderness should be preserved out of 65 million acres of "roadless areas" in the National Forest System.

Should a wilderness system protect only areas of "scenic" grandeur, for example, or should it also include representative landforms, ecosystems, and wildlife habitat? In addition to supporting the scenic criterion, the Forest Service has traditionally insisted—as it did in its 1973 RARE I survey—on a narrow interpretation of wilderness as "pure, pristine, and virgin," thus effectively denying wilderness status to many prime areas, especially in eastern states.

Environmentalists, on the other hand, have persistently sought to broaden the wilderness concept, citing the language of the 1964 Wilderness Act, which simply requires that the "imprint of man's work [be] substantially unnoticeable" in areas being considered for preservation.

In 1977 the Forest Service launched RARE II, its second Roadless Area Review and Evaluation program, designed to determine which of the roadless areas within the 187-million-acre National Forest System should be preserved as wilderness and which should be opened to resource and recreation development. (Those areas not falling readily into either category will be set aside for further study.)

As the result of a series of public workshops held during 1977, an initial inventory of roadless areas was expanded to include some 1,920 areas comprising 65.7 million acres to be considered for final classification.

On June 15, 1978, the Forest Service issued a draft environmental impact statement (DEIS) with regional supplements setting forth possible alternative uses for these areas and inviting public comment until October 1, when preparation of final recommendations is scheduled to begin. *(To page 30)*

CHESTNUT PROGRAM

Help Restore the American Chestnut

Fall is here and again NPCA is asking its members to be on the lookout for American chestnut trees and to send us nuts for our chestnut restoration program. Now in its third year, the program is attempting to develop an American chestnut strain resistant to the devastating chestnut blight.

A hundred years ago, three out of every four trees in the Appalachian range were American chestnuts. Since then, these vast chestnut forests have been virtually wiped out by a blight imported in the late 1800s. By developing a blight-resistant strain of the species, NPCA hopes to prevent the possible extinction of the American chestnut in the East.

Please send the American chestnuts you find to the forester who is supervising NPCA's restoration program: Leo Pahl, 8136 Ventnor Rd., Pasadena, MD 21122. If you are not sure which species of chestnut you are sending, please enclose samples of its leaves and burrs as well. To prevent the chestnuts from drying out during shipping, we ask that you wrap them in plastic for safekeeping. ■

Motor Ban on Colorado In Danger

Members concerned about the river environment of Grand Canyon National Park can help combat lobbying efforts of motorboat concessioners who are urging customers to write their legislators opposing a phaseout of motors on the Colorado River in the park. The Park Service is under pressure from Congress not to go ahead with the proposed ban. NPCA members can help by urging their senators and representatives to *support* the motor ban. Favoring oar-powered crafts will ensure more esthetic, more intimate, but equally safe river trips.

Forest Wilderness— from page 29

NPCA and other conservation organizations charge that the RARE II timetable is too speedy to allow careful assessment of and adequate public participation in the program's wilderness decision. In addition, they assert that the Forest Service presentation of RARE II alternatives has been heavily weighted in favor of antiwilderness uses and that the Service has sided with development forces in trying to keep wilderness designations to a minimum.

The extent and quality of our national wilderness system may well depend, therefore, on the nature of public response in the time remaining before the October 1 deadline for comment.

You Can Help: Your participation is essential if we are to protect the wilderness still contained in the nation's roadless areas from irreversible development. Write to your regional forester and to the governor of your state, commenting, if possible, on specific roadless areas you wish to see preserved (general letters are less effective), and expressing strong support for wilderness protection. You may obtain copies of the RARE II DEIS with the supplement for your area from the Forest Service offices in the accompanying list. ■

U.S. Forest Service Regional Offices

Northern (R-1): ID, MT, ND	Federal Bldg., Missoula, MT 59807 406-329-3011
Rocky Mountain (R-2): CO, KS, NE, SD, WY	11177 W 8th Ave., Lakewood, CO 80225 303-234-4185
Southwestern (R-3): AZ, NM	517 Gold Ave., SW, Albuquerque, NM 87102 503-766-2444
Intermountain (R-4): ID, NV, UT	324 25th St., Ogden, UT 84401 801-399-6011
California (R-5): CA, HI	630 Sansome St., San Francisco, CA 94111 415-556-0123
Pacific Northwest (R-6): OR, WA	319 SW Pine St., Portland, OR 97208 503-221-2971
Southern (R-8): AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, PR	1720 Peachtree Rd., NW, Atlanta, GA 30309 404-881-4191
Eastern (R-9): CT, DE, IA, IL, IN, MA, MD, ME, MI, MN, NH, NJ, NY, OH, PA, RI, VT, WI, WV	633 W Wisconsin Ave., Milwaukee, WI 53203 414-224-3640
Alaska (R-10): AK	Federal Office Bldg., Juneau, AK 99802 907-586-7263

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Continued from page 2
trial economy going and preserve our military security.

For the present, however, there is no such necessity; there is no great hurry to go to seabed mining. The companies claim they have the technology, that they have invested perhaps $200 million and have seen no profits; considering the size of U.S. Steel and Kennecott Copper, two of the contenders, we suggest that this initial investment can wait awhile. The ultimate investment will be much greater, and it will not be safe unless it is made within the protection of a regime of law and order; only a strong international convention can provide that protection.

THE COMPANIES, and some of their Congressional supporters, seem to have thought that the American people would provide financial guarantees against possible losses sustained from any treaty eventually adopted; or from the lack of such a treaty. We doubt that the country is in a mood to assume that kind of new tax burden; a nationwide Proposition 13 might cut into many time-honored prerogatives.

There seems to have been a thought also that the Coast Guard or the Navy might be called upon to protect mining sites from raiding, and the like; neither of these agencies has shown any marked enthusiasm for the mission; again, the American people are not spoiling for military adventures. The companies and their Congressional supporters, if any, should cool it, bank the preliminary investment, and wait until we need these minerals and can go after them safely under the protection of a good Law of the Sea.

THE CONFERENCE is working toward what it calls a parallel system. A mining company will explore two equal sites; the international Authority may then choose one; the international Enterprise may develop that one; it is to get financial and technological assistance in doing so. The companies are free to go ahead with the first site; this is assured access. Many complex negotiations remain to be completed as to procedures for getting a license or contract; as to financial arrangements; and as to the structure of the Assembly and Council which will make the decisions.

In place of the parallel system, we have urged consideration of what might best be described as a multiple joint venture system, which we thought might be better adapted to solving problems of assured access, transfer of technology, and revenue sharing. The composition of the Assembly and Council would continue to be a problem, but a reasonable give-and-take will be necessary on that point in any event. Negotiations have opened up more freely on all these issues in recent months. The effort to get a workable parallel system should be continued; the alternative offers a fall-back.

WE REPEAT THAT there need be no hurry; the U.S. Delegation can sit tight and see whether the Less Developed Countries (LDCs) want a share of the revenue which will eventually be forthcoming from the depths of the sea. Only the technology of the industrial countries can provide that revenue.

In terms of what may well be the applicable international law, the companies could be in a weak position. They seem to think that they have a legal right at present to go out to sea and mine under some doctrine of the Freedom of the Seas. It could be, however, that relatively recent resolutions and declarations of the United Nations and a growing world consensus on the Common Heritage have altered international law irrevocably during the last decade. The companies are in the position of claimants, not rightful owners; they may have to obtain what they want, if legally, by a law yet to be enacted as treaty; else perhaps by force, no longer a favored method, whether at home or abroad. This thought might possibly deter some of the more impatient of the other industrial countries.

THERE HAVE BEEN casualties in other connections. The draft has defects in respect to marine scientific research; permits will be required, one way or another, for scientific research in the 200-mile economic zones. We hope that these restrictions can be loosened; but science shades into technology, and pure technology, if there is such a thing, merges into commercial and military technology. The pure scientists may not always know where their efforts lead; hence the modern resistance to unrestricted exploration. Had the scientists been more interested in environmental protection (as one might have thought they would be) a fruitful alliance might have been formed between the scientists and the environmentalists. While we wait around for the deep sea mining issues to ripen, it might not be too late to try.

—Anthony Wayne Smith


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