
NATIONAL PARKS & Conservation Magazine
The Environmental Journal
October 1973
NPCA • National Parks & Conservation Association • NPCA

COUNTRYSIDE

WITH THE FALL EQUINOX, autumn returns to the northern hemisphere. A wave of brilliant color washes the woods of Appalachia from Maine to the Carolinas. The last swallows have long since left for the south; junco and chickadee arrive. Countrymen close their barns against the cold; city men escape from the freedom of the countryside, return to the shelter of the prison cities.

Time was when the open country was home for most of mankind. Cities were for a minority, a privileged group perhaps, predatory, alien to the purposes and tempos of the vast majority. The change was as of yesterday: a century and a half since the industrial hells of England appeared; a hundred years in America; as a short breath to a lifetime, for the history of man.

The powerful flow of the human tide from country to city has borne all the aspects of inevitability. Men adapted to it, did not make it. They went to the city for jobs, and hopefully for money. They went there also, some of them, to share in the cultural intensities which the early cities did indeed provide, until choked by the mills, traffic, streets, crowds. A few found power and great wealth as the supercities preyed on the land and its people, drawing the abundance of soil, forest, and mineral riches into their grasp.

THE RURAL VALUES are spaciousness, sunlight and wind by day, darkness and silence at night. They are what a man feels when he steps from his door directly into fields that slope to a flowing stream. They are in houses open to the calls of the frogs in the spring, the birds in early summer, the cicada when summer deepens. They are in the flowers of the earth, bloodroot, adders-tongue, cowslip after the snows, aster and goldenrod before they return. They were in the old communities; not that the towns of agrarian America were invariably centers of enlightenment and brotherly affection; but within them people knew one another as persons, and from that knowledge love and wisdom could arise.

All this wealth has been lost, massively, violently, crushingly, but not yet hopelessly lost. The early cities, economic and cultural centers integrally related to the land, lost their own inner life as their centers hardened, compacted, as they ringed themselves in traffic away from their natural setting. These barriers of traffic must now be surmounted in the daily commuting of millions, consuming hours and years of lives in barren transportation; for others there is no escape from the confinement. Within the metropolis the ease of meeting and communication which was thought to be its greatest virtue has vanished. More comfortably can one journey from Washington to New York than from Wall Street to uptown Manhattan.

AS URBANIZATION, blindly fatalistic, assumed the aspects of the ideal, of a value in itself, simultaneously it lost its justification. Over most of the modern world, crowds enter the cities, forced from the land, finding mainly unemployment, poverty, disease, congestion. In the industrial countries, the human spirit perishes within walls of glass and steel, in sunless, treeless streets, amidst noise and fumes and frantic wheels. The human will freezes, paralyzed, impotent against asphyxiation by the internal combustion engine.

As economic engines the cities are absurd; food must be brought from hundreds of miles at enormous expense in preservation and packaging; vast stores of the energies of city people must be expended merely to bring the wherewithal of life to the urban table; the countryman finds this wealth readily at hand in garden, berry-bush, fruit tree.

What arrogance leads anyone to suppose that this insensate flow of urbanization can be reversed? The American people, if the polls are to be trusted, regret their dislocation from country to city; most people long to escape, to find their way back somehow to the rural setting. That change of attitude has actually occurred, and is of signal significance.

OUR EFFORTS at escape have been clumsy; suburbanization held out its lure for a generation or so, only to be frustrated by the burdens of commuting. Urban sprawl despoiled the natural world around the cities, brought centerless developments devoid even of the physical aspects of community. The country cabin and second home have multiplied the economic burden of housing, and have all too often destroyed the rural environment which they sought to find. These efforts have been haphazard, reflexes against inhumane conditions brought on by technological, industrial, and economic forces which must now be opposed deliberately if salvation is to be found.

A certain arrogance will indeed be needed, and most assuredly a release of new imaginative powers,

Continued on page 35

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COVERS Cache Col from Cascade Pass, by Philip Hyde
Precipitous slopes, jagged peaks, forested valleys, mountain meadows, rushing streams, icy lakes, myriad glaciers—the North Cascades have long impressed, challenged, and delighted those who encountered them in our great Northwest. (See page 4.)

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

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weathered american chestnut trunk
jack jeffers photograph

RON ZOBEL/a wilderness of snow-clad peaks inspires visions of the sublime in . . .

Cascades Canaan

THE International Boundary Survey in the summer of 1859 was struggling through the tangle of trees and maze of peaks which is the United States–Canadian border in the Pacific Northwest. Topographer Henry Custer, a member of the Boundary Survey, led his party on a climb of Middle Peak in the extreme north of what was to become North Cascades National Park in Washington State over a century later.

From this vantage point Custer wrote: "The view from here was fine and extensive to all directions of the compass. I leave it to a better pen to describe the sublimity of true Mountain scenery in the Cascade Mountains. . . . It must be seen, it cannot be described. Nowhere do the Mountain masses and Peaks present such strange, fantastic, dauntless and startling outlines as here. Whoever wishes to see nature in all its primitive glory and grandeur, in its almost ferocious wildness, must go and visit these Mountain regions."

The "ferocious wilderness" viewed by Custer still does not lend itself to adequate description. But in 1968 after half a century of talk and determined effort it was given protection in the North Cascades National Park complex. An innovative combination of wilderness park and associated recreational areas, the complex consists of four distinct units managed by the National Park Service. The 505,000 acre national park is divided into north and south units of mountain wilderness. Dividing these park units is the 107,000-acre Ross Lake National Recreation Area, which straddles the Skagit River for forty miles and includes three reservoirs created by the city of Seattle's hydroelectric project. At the southern end of the park complex is the 62,000-acre Lake Chelan National Recreation Area situated at the north end of 55-mile-long Lake Chelan and centered on the isolated settlement of Stehekin.

The Cascades are many things. They are mountains, geologically new, sharp, jagged, and dramatic. Across a map of the North Cascades are the names of the peaks that tell of the area's character—Fury, Terror, Challenger, Forbidden, Despair, Redoubt, Formidable, and Torment.

The primary feature of the north unit of the park is the wild and elusive Picket Range, which was named for the U.S. Army Captain who was stationed at Fort Bellingham and later found fame on the fields of Gettysburg. The Pickets in their sheer towering faces, in their drapery of crevassed hanging glaciers, and in the similarity of the range's spired peaks are unique among American mountains.

The northern unit of the park is crossed by only one main trail, and to get a view of the Pickets is difficult. Skilled mountaineers go right into the range's midst on a route called the Picket Traverse, which is guaranteed to challenge and even frighten the experienced climber.

If the Pickets were here alone, they would be no less impressive; but they are surrounded by peaks. In such a collection of rock and ice great mountains are overlooked and not even named. The backpacker walking along Copper Ridge, a day's journey from the end of the road, can have as fine a view as can be found in the contiguous United States. After coming up Hannegan Pass and down into the Chilliwack Valley, the hiker makes his way up another steep trail to an isolated fire lookout on Copper Ridge. Snow is on the trail into August.

To the west is the huge white ice cream cone of Mount Baker and the "back side" of Mount Shuksan. On the east are the Pickets and the peaks of the Chilliwack. To the north are the green valley of Slesia Creek and the walls of Slesse and other mountains in Canada. To the south is territory containing a jumble of walls, thumbs, spires, canyons, and ice that probably no man has thoroughly explored.

But not all the views are limited to the climber and backpacker. In a day a hiker can view the southern Pickets—the Terror group—from a small peak above the Thorton Lakes and return to his car. Mount Shuksan, a graceful collection of many mountains within its impressive mass, can be viewed from the modern highway that leads to Heather Meadows in the Mount Baker National Forest just outside the park.

In the southern unit is another collection of peaks that rise shoulder to shoulder—Mount Goode (9,200 feet), Mount Buckner (9,112 feet), Mount Logan

The Triplets and Cascade Pass RON ZOBEL

RON ZOBEL

(9,087 feet), and Eldorado (8,868 feet). The height from sea level of these mountains does not seem great, but the relief characterized by jagged ridges separated by deep narrow valleys exposes the fallacy that height above sea level is a proper way to measure mountains. Eldorado rises 7,000 feet above the North Fork of the Cascades River in little over two miles.

The Cascades mean glaciers. The sharpness of the peaks and the deepness of canyons like Little Beaver and the Stehekin have been carved by the park's glaciers both past and present. The park contains 318 glaciers, the largest concentration of ice in the country outside Alaska. The glaciers are of all kinds. Some are remnants of the Ice Age, persistently hanging in small cirques. Some are huge masses that cover the mountains they adorn, such as the glacial system on Eldorado that covers 6,000 acres.

At wild and isolated Whatcom Pass the person who journeys two days across another pass and has forded the often dangerous Chilliwack River can view the Challenger Glacier. This glacier almost covers the north side of Mount Challenger. Men making the ascent of the glacier look like ants. As you stand at the pass, the air between you and the glacier is filled with the roar of ice pouring from its mass over a cliff into the canyon at the headwaters of Little Beaver. The glaciers of the park are great reservoirs of water, efficiently releasing the most water during the hot months of least precipitation.

The Cascades, as might be expected, mean waterfalls. The melting snow and ice in summer create numerous and beautiful falls. Rainbow Creek on its way to meet the Stehekin River leaps 312 feet over a cliff just north of the head of Lake Chelan. The mist from the falls not only caused the "Racing Rainbow" that gave the falls its name but has created a lush, wet west-side ecological niche in an area dominated by the drier east-side Cascade climate.

In Horseshoe Basin, a tributary basin of the Stehekin River, more than a dozen falls plunge to Basin Creek from the glaciers above. The rear of the basin is formed by the pointed teeth of Ripsaw Ridge.

The Cascades mean rain—the kind of rain that comes for a week or a month. The mountains catch moist winds from the Pacific that bathe the west side, while the east-side Cascades thirst for water. On the west side is the kind of rain that dissolves your brain and lets you float along with the rivulets, streams, and rivers. There is at times something melancholy about the rain of the Cascades. After two weeks you wonder if those great peaks can still be up there, that maybe they've been washed away by the rain or dissolved by the clouds. Then just in time you are rescued by a bluebell day that dazzles your eyes.

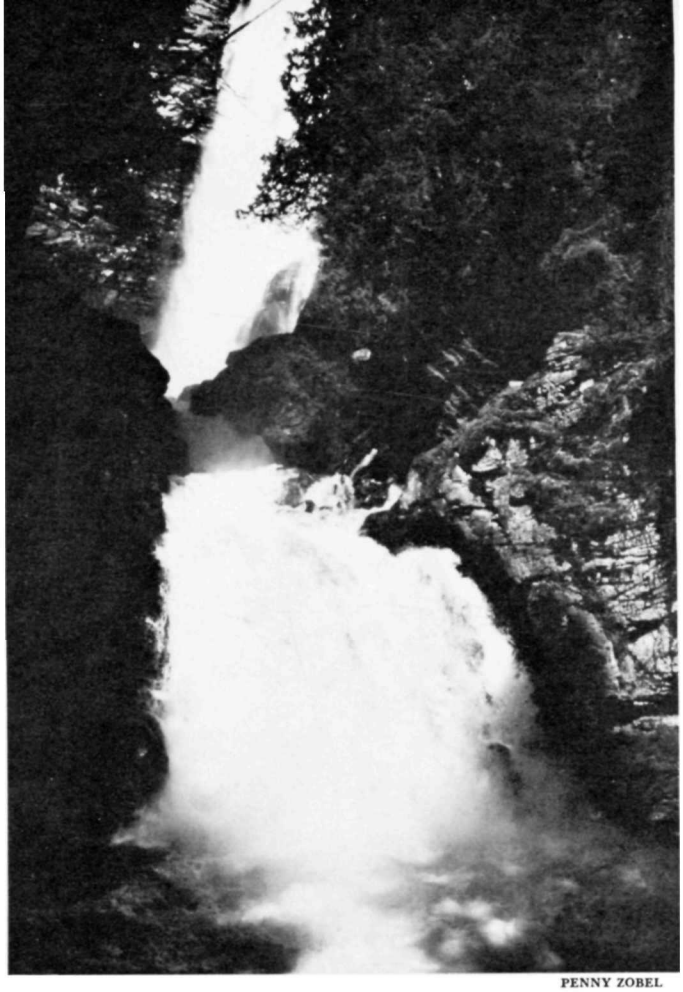
The Cascades mean forests. In the valleys of Thunder Creek or Big Beaver you will find a forest growth that shows what the combination of seed, water, and soil can do. In Big Beaver are western red cedars that are thirty feet in circumference. Ferns, flowers, mushrooms, and other plants crowd each other on a dark forest floor.

Some people complain about these long forested valleys. It is true that they are sometimes tedious to hike. It is also true that the mosquitoes are so thick they commit suicide in great numbers in your hot morning coffee. But when you reach the passes, you know why we can't let them cut those valleys and shorten your trip. Without the forests, the mountains and meadows would be just things; but with the forests, the mountains and meadows are special places, works of art with a proper frame.

The Ponderosa pine–Douglas fir forests of the east side are more sparse. They are splashed with the colors of Indian paintbrush, penstemon, and wild tiger lily and ripe with the perfume of pine. In fall the maples on the west side turn red and the larches on the east turn yellow preparing to go into the deep freeze of winter.

The Cascades mean lakes—lakes in high mountain cirques, the melted remains of some ancient glacier. Most are deep blue surrounded by glaciered peaks. Trapper Lake has a reputation for giant trout that causes fishermen to make a difficult day-long journey into its cirque. Ice on Doubtful Lake lasts all summer,

PENNY ZOBEL



PENNY ZOBEL

Opposite, Challenger Glacier fills the air with the roar of ice breaking off and falling over the cliff. The mist from Rainbow Falls, right, creates not only a rainbow but wet, lush surroundings. Wild tiger lilies and other wildflowers bloom in drier ponderosa pine forests. Below, the Terror group of the southern Picket Range is as rugged and forbidding as its name implies.

RON ZOBEL

Fog flows like a waterfall into the deep glacier-carved Stehekin Valley. RON ZOBEL

adding the shapes of modern sculpture to the more traditional image of reflected mountains.

The finest entrance any national park could have is provided by the narrow, winding, fifty-five-mile-long Lake Chelan. Although the old steamships are gone, the *Lady of the Lake* that journeys up the lake every day is a respectable substitute. Leaving the low hills of eastern Washington, the boat slowly makes its way north on the water of melted glaciers. When it reaches the north end, eight-thousand-foot peaks tower along the lake. As you arrive at Stehekin, the glaciated peaks of Boston, Booker, and Buckner show themselves far up the valley of the Stehekin River.

The ancient Chelan Glacier carved the Stehekin valley and the deep gorge that forms Lake Chelan. This glacier, which disappeared long ago, was about seventy miles long. The surface of the lake is at eleven hundred feet, but its bottom is over three hundred feet below sea level.

The Cascades mean a trip into history. Only accessible by trail, boat, or air, the small settlement of Stehekin is in many ways still close to the frontier. Although it is no doubt changing, Stehekin still retains the charm of an isolated community built by self-reliance and independence.

A one-room log schoolhouse is still in use in Stehekin, the only one left in the state of Washington. From the Rainbow Creek trail you can look down on the old Buckner place. There in a bend of the Stehekin River within view of Rainbow Falls the Buckners could look through their apple orchard at MacGregor Mountain. The old Buckner cabin, which has an interesting stone chimney that covers almost the entire end of the building, is being preserved by the Park Service as an example of a Stehekin frontier home.

Indians, trappers, settlers, and miners traveled the historic trail up the Stehekin Valley over Cascade Pass. The miners especially explored this region in several episodes of feverish activity, but they never produced more than overpriced stock and the many empty holes that can be found in basin after basin.

The Black Warrior Mine is visible beside one of Horseshoe Basin's waterfalls. Even in August snow is on the ground leading to the old mine's entrance, where the twisted remains of the track the miners used to push their ore out of the tunnel can be found. There are more mines and claims even higher at the level of glaciers in the Upper Basin. Great efforts were made to get very little.

The Cascades mean meadows—meadows to look at with glacier and avalanche lilies among the delicate red and white heather. Meadows are especially to look

from. In the morning, fog fills the valleys below and flows over the passes as a vaporous waterfall. In the evening once a month Sahale Arm, a lovely meadow, presents a double feature. In the east the full moon rises in a purple sky as the sun sets in scarlet clouds in the west. A grand performance, with no "commercials."

Man's attraction to the forest, flowers, and fauna of the wilds is easier to understand than his attraction to the cold blue ice and jagged peaks. The admiration of other living things is to be expected, as a sort of biological chauvinism. But what is there about the dead and inanimate rock and ice that causes such appreciation for the mountain regions?

The vistas here are high and wide. Far out and deep inward. From Sahale Arm you see to the northwest a portion of the Boston Basin, a mountain called Forbidden on one end and one called Torment on the other. Around to the west are Eldorado, The Triad, Hidden Lake Peaks, and the Valley of the North Fork of the Cascade. On the south is Johannesberg Mountain ("Joberg" to its friends), with its blue hanging glaciers, and more—Cascade Peak, The Triplets and Mix-up, Magic, and Pelton. Beyond lies a sea of peaks in the Forest Service's great Glacier Peak Wilderness. To the east is the steep, deep-cut Valley of the Stehekin, MacGregor Mountain, Booker, and Buckner, and below you, the waterfalls flowing into the Doubtful Lake Basin.

The mountains seem inanimate only because of man's brief look out the window of life. Mountains so solid and enduring in Man-Time are fluid and constantly changing in Earth-Time. Geologists tell us that the sea of peaks seen from Sahale Arm rose from an ocean that covered the eroded remains of an earlier "Cascade" Range that existed 400 million years ago.

This "new" Cascade Range that we see today came out of that ocean about 15 million years ago. Within the last million years the great ice sheets, great granddaddies of the glaciers we look at today, cut and gouged the rocks into their sharpness.

After this time of metamorphosis, upthrust, and cutting, the two volcanoes—the wild one, Glacier Peak to the south, and Lieutenant Baker's mountain to the northwest—were superimposed on the whole scene. None of this process is final. It all continues to change slowly and surely.

The glow and boast of anyone's anthropocentrism must dim and become silent before such a scene and such knowledge. From this mountain perspective, man and his time are but an instant. Man has not meant much to the Cascades over these millions of years, and in the end he may not mean anything to them at all. But the mountains with their peace, color, whispering wind, and perspective they offer on life mean a great deal to urban men of today.

The Cascades are a place where a sophisticated man properly tutored in the rationalism of a secular university finds himself using words like Almighty and Providence. For in the last analysis the Cascades mean a place where you can believe in God again. But maybe the mountains are made in the image of God and we are the ugly ducklings. ■

Ron Zobel has worked as a seasonal ranger in Olympic, North Cascades, and Everglades national parks. He spent the summer of 1972 living in a tent while patrolling the wilderness of the North Cascades. The photographs were taken by Ron and his wife Penny, a free-lance photographer who has illustrated several other articles for her husband.

Hidden Lake

RON ZOBEL

ERWIN MCINTOSH, BUREAU OF SPORT FISHERIES AND WILDLIFE

John Dennis

ENDANGERED SPECIES

the Delmarva Peninsula fox squirrel needs help now in its struggle for survival

THE VANISHING DELMARVA SQUIRREL

ONE of my preoccupations as a naturalist has been looking for rare or endangered species. Up until recently my efforts have been directed toward finding rare birds. After many years of often fruitless search for such nearly vanished species as the ivory-billed woodpecker, I had begun to believe that birds had a monopoly on elusiveness. Now I find that a creature as mundane as a squirrel can be equally hard to come by. The humiliating part of this particular search was that the squirrels in question were almost next-door neighbors. In this respect, at least, they had little in common with the ivory-billed woodpecker that I have had to search for in murky cypress swamps of the South or on pine-clad slopes of eastern Cuba. My greatest triumph with this woodpecker came in the mountains of Cuba on an April day in 1948, when I found three birds and an active nesting-tree. I share this coup with my friend Davis Crompton of Worcester, Massachusetts. Actually, we did not find the woodpeckers—they found us. Taking a midday siesta on the pine slopes of a high ridge, we both awoke at the same time to find that each was staring at a different ivory-billed woodpecker. Although I have seen the ivorybill in the Big Thicket of Texas and most certainly have heard a bird in Florida, I can never hope to surpass my earlier good luck in Cuba.

The squirrel, however, was a different story. So far I have not had a glimpse of the handsome animal that is known as the Delmarva or Bryant's fox squirrel, which has a range restricted to a few wooded districts within the Eastern Shore of Maryland. My search began early in 1973, when I returned to my native Eastern Shore after a long absence. I knew almost nothing about the squirrel at that time, and half expected to see it scampering across my yard or eating at my bird feeder.

The first question that presented itself was: How was I to identify this squirrel if I saw one? I have had little experience at identifying mammals, and am easily misled by the color descriptions I find in books. For example, the gray fox looks red to me, and I never know which I am looking at—red fox or gray fox. As to fox squirrels generally, to my eyes the handsome black, silver-tipped animals I see on the Carolina coast do not even remotely resemble the rusty ones I see in the interior of the continent. My present dilemma was not how to distinguish the different fox squirrels; there is only one on the Eastern Shore, the extremely rare Delmarva fox. I had to be sure that I could tell this squirrel from the gray squirrel so common everywhere throughout the eastern United States. Contrary to popular opinion, the gray squirrel is not all gray. It is brownish-gray above and white or pale gray below.

Brown-phase fox squirrels are not so different in appearance from the normal gray squirrel. The fox squirrel is larger, so my book says, and has a squarish face.

The town where I live has a sizable squirrel population. So I began checking all the squirrels for any that had square faces. And if I may be permitted to use the vernacular, this assignment wasn't peanuts. After some weeks I came to the conclusion that there were no squares, only round-faced, common, everyday gray squirrels.

My next step was to seek out Dr. Vagn Flyger, of the Natural Resources Institute, University of Maryland—world authority on the Delmarva fox squirrel and an authority on squirrels in general. "Doctor," I asked, "could you tell me why this fox squirrel is so rare?" "No one knows," he said. "The squirrel formerly ranged from southern New Jersey, eastern Pennsylvania, through Delaware and eastern Maryland, and south through Virginia's portion of the Eastern Shore. Now it is limited to four counties on the Eastern Shore of Maryland." The four, I learned, were Dorchester, Talbot, Caroline, and Kent. The squirrels had not been heard from in my county, Somerset, for many years. So I decided then and there that I would stop looking for them in my yard.

"How many of these squirrels are left?" was my next question. "No one knows," he said. "There has never been a census and the animals are hard to find. All we know is that the population is very small and still decreasing."

"What is being done to save this animal?" I asked. "Very little," he replied. "It is listed by the Bureau of Sport Fisheries and Wildlife as an endangered species. Small populations are being protected at Eastern Neck National Wildlife Refuge, Blackwater National Wildlife Refuge, and the Le Compte State Game Refuge. There are also a few animals in captivity, and we at the University of Maryland hope to breed captive animals, although we have no fox squirrels at this stage of the project—only grays. We are also putting up nesting boxes for animals in the wild." I also learned that there had been an apparently unsuccessful attempt by federal personnel to introduce this squirrel to the Chincoteague National Wildlife Refuge on the coast of Virginia.

Not so long after this interview I was at Maryland's Le Compte Game Refuge craning my neck upward and hopefully scanning every tree limb for a sign of the nearly vanished squirrel. By now I was somewhat better informed as to what to look for. The Delmarva fox squirrel is the largest squirrel in North America. It is a distinctive animal, with a handsome silvery gray pelage and very short, stubby ears. The short ears and square face were two features I always kept in mind. Although classified as a subspecies, *Sciurus niger cinereus*, I think that most of us, if given a say, would have opted for full species status. (I forgot to ask Dr. Flyger if there was any record of the race *cinereus* mating with the northern fox squirrel, *Sciurus niger neglectus*.)

The Delmarva fox squirrel is not as arboreal as the gray squirrel, nor is he such a skilled climber. In fact, Dr. Flyger suggested that the animal's sluggishness might be a factor in its rarity. It is not as quick as the gray squirrel when it comes to eluding danger. Indeed, this fox squirrel and the gray squirrel are not compatible inhabitants of the same woods. The two compete, and it is always the gray squirrel that wins. The gray squirrel ranges over a wide variety of habitats. The rare fox squirrel, on the other hand, requires parklike, mature woodland, relatively free of undergrowth. Mature hardwoods seem to suit it best, although it may tolerate a mixture of pine and hardwoods. Food requirements of gray and Delmarva fox appear to be nearly identical. As I noted from the litter beneath certain trees, the fox squirrels at the Le Compte Refuge had been dining on acorns, hickory nuts, and pine mast.

I did not see one of these fox squirrels that day, and I must confess that this short-eared, square-faced, silvery squirrel has eluded me wherever I have searched. If I may again be pardoned, I will say that anyone who thinks finding this squirrel is easy is nuts. The only Delmarva fox squirrel I have seen was a mounted one in a living room. In making inquiries as to the squirrel's whereabouts, I happened to stumble upon a home where, lo and behold, there was a beautiful, lifelike specimen on display. I was told that the marksman who happened to bag this specimen now realizes how rare the squirrel is, and has resolved never to shoot another. Nevertheless, he had shot still another in the belief that it was a gray squirrel. This one too had been mounted. The two squirrels in question were the last that had been reported from those parts in some years.

Sadly enough, the day may not be far distant when the only Delmarva fox squirrels will be mounted specimens like the one I had seen. This squirrel's range has steadily diminished over the last hundred years. Its population is still decreasing, and almost nothing is being done to stave off the inevitable. It seems incredible that this could happen to an engaging, distinctive creature within a stone's throw, so to speak, of the great metropolitan centers of the East. We think of extinction occurring on remote islands or places far removed from the influence of conservationists; yet this distinctive animal is being allowed to pass from sight before our very eyes.

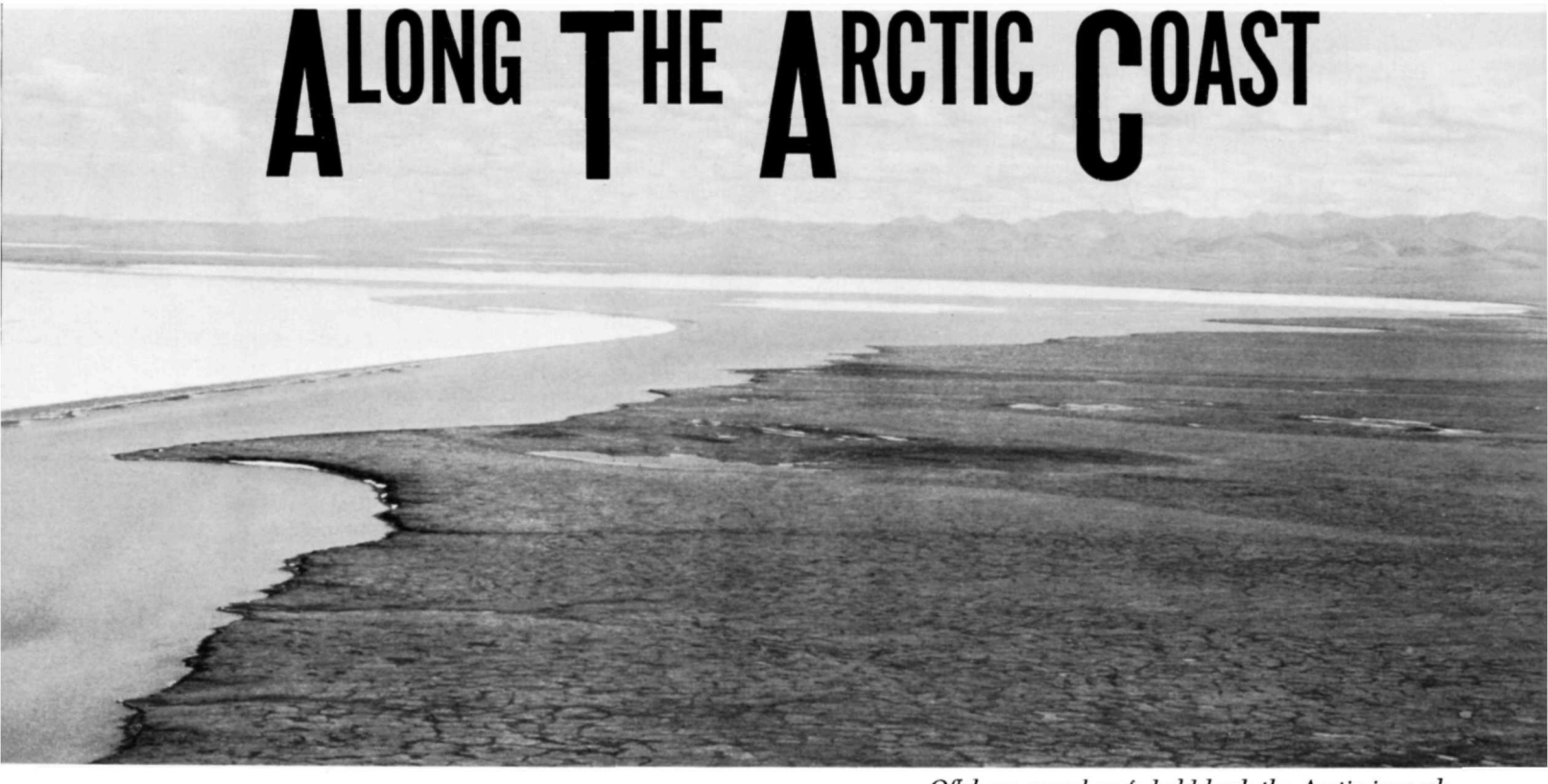
If any one cause is at the root of this squirrel's plight, it is human apathy. Those with authority in state and federal governments who should be doing something have so far simply looked the other way. The most important step in saving the animal is nothing more or less than prodding those with responsibilities into taking the proper actions to retrieve the Delmarva fox squirrel from otherwise almost certain extinction. We have trained biologists and funds available to assist endangered species. Surely this handsome squirrel, found nowhere else on earth, should not be allowed to vanish through indifference. ■

John Dennis, a naturalist with wide interests in nature and conservation, holds a masters degree in biology and has been a free-lance biologist and writer for some 25 years. He is now working on two books, one on a botanical subject and the other on birds. He was born in and presently lives in Princess Anne on Maryland's Eastern Shore, which proximity to the fox squirrel aroused his present interest.

article and photographs by
WILL TROYER

A man and his son make an unforgettable kayak journey

ALONG THE ARCTIC COAST



Offshore gravel reefs hold back the Arctic icepack.

MY TEN-YEAR-OLD SON Eric and I are speeding along at 180 miles per hour in a light plane high over northern Alaska. Our destination is Demarcation Bay on the Arctic coast, where the eternal icepack meets the tundra of the north. At 9,000 feet we are above most of the rugged mass of mountains that stretches east and west into the horizon. Rimming the top of Alaska into Canada is this largest remaining *de facto* wilderness in North America, the Brooks Range.

In the past, when weeks of travel by dog team were required to cross this range, a few Eskimos struggled along its valleys and mountain passes. Yet here we are, making the same trip in a few minutes. Several hundred miles to the west, man and his machines are eating into this last great wilderness. My mind is tormented with the thought of how little time remains before these silent, brooding mountains know the sight and sound of cars zipping easily through the back-breaking passes, their occupants unreflective of the hardships and personal rewards of primitive travel.

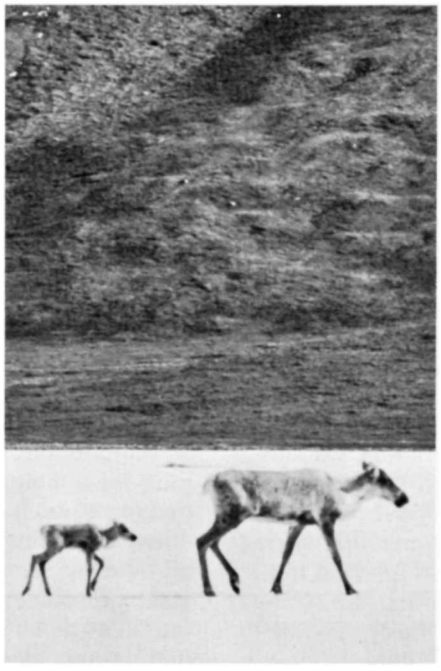
The plane drones on and shortly it seems as though we are approaching the edge of the world as high mountain ridges end abruptly. The great North Slope lies before us, stretching for endless miles east, west, and north. Glacial lakes and potholes dot the landscape and braided streams flow north, draining the great mountains we have just left behind.

The pilot reduces elevation until we are skimming above the tundra. Now and then a few caribou are visible, seemingly lost in the vastness of a lonely land. Giant frost polygons zigzag across the tundra, forming a huge, assembled jigsaw puzzle. Ice floes are still present along the rivers on this early July day as we speed toward the fog-shrouded coast ahead. Offshore

gravel reefs hugged tightly by the icepack appear to form a lid to the top of the world. Demarcation Bay is partly covered by fog and still half-filled with ice. After a quick circle to scan our landing site, we touch down under the fog.

Eric and I quickly unload our gear. With a wave, the pilot is off. The plane disappears in the distant skies and solitude is suddenly thrust upon us. We realize that we are now dependent on muscle power to propel our kayak along the coast to our pickup point at Beaufort Lagoon. A campsite is soon selected, the small tent pitched, and the kayak assembled, for we are eager to explore our surroundings.

Here is life. A pair of whistling swans occupy their nesting site in a shallow pond nearby. Numerous pairs of semipalmated sandpipers flush from the marshy vegetation. A Lapland longspur, the bobolink of the north, gives its chiming calls from the top of tundra tussocks. Glaucous gulls and parasitic jaegers skim through the skies, and northern phalaropes occupy nesting territories. Lemming trails and caribou tracks are numerous. Various species of sedges and mosses green the landscape, with dwarf willows and crowberry covering the drier sites.



Lone caribou and calf at the foot of the Brooks Range.

The chilling breeze blowing from the icepack just off the coast makes us appreciate our down jackets. Time passes quickly, and although the sun still rides far up in the sky my watch assures me it is 10:00 p.m. Eternal daylight is something we must adjust to during our days in the Arctic. The sun never sets, the days seem endless; it is only physical weariness that eventually drives us to bed.

Next morning, the offshore reefs beckon to be explored and we are soon underway in the kayak. Arctic loons, old squaws, eiders, gulls, and scoters take to the air as our craft knifes through the cold Arctic waters. These lagoon waters are shallow, rarely more than three feet deep, and serve a vital human function here at the top of the world. Protected from the icepack by the offshore reefs, the shallow lagoons become ice-free much earlier than the waters beyond the reefs. Incredible numbers of smaller aquatic life forms flourish here during the brief summer, and are the basis of the food chain that supports marine mammals, fishes, and birds. Arctic char and grayling are fairly abundant in the lagoons, and provide us with fresh meat during our trip.

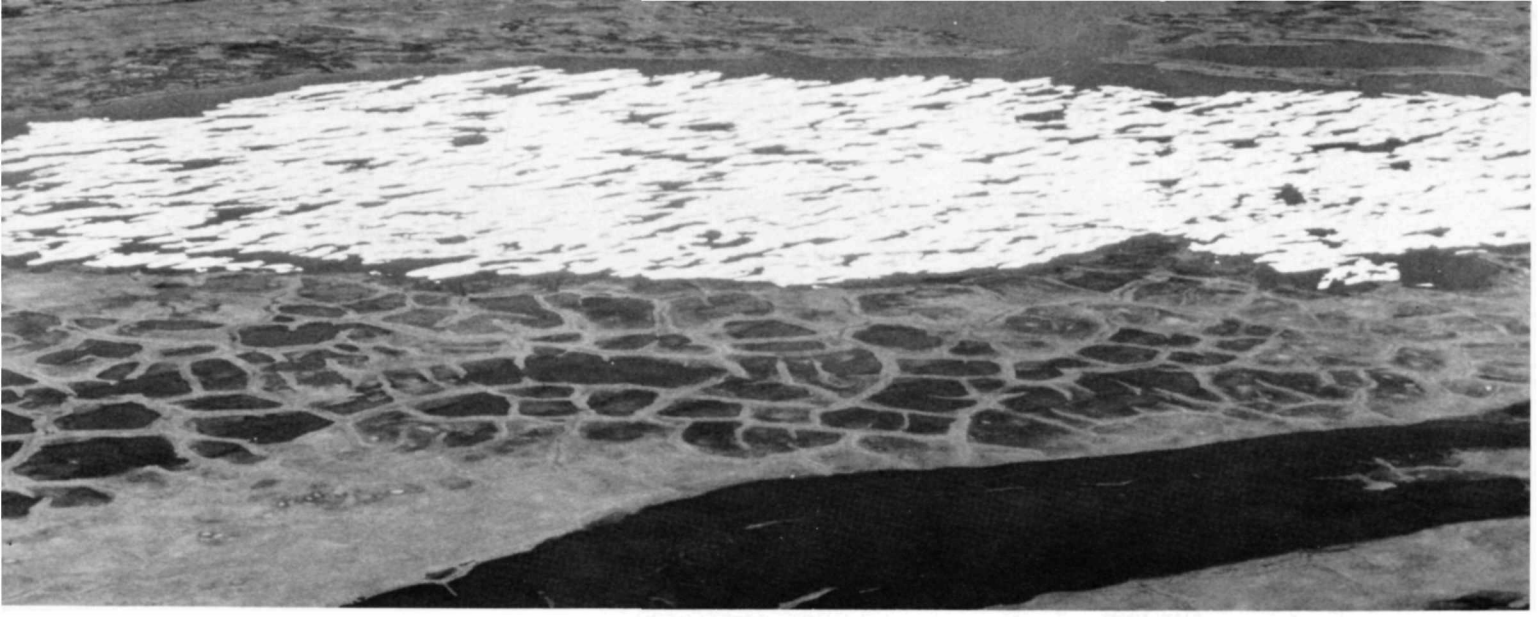
Though the sun is high, the constant breeze from the icepack keeps temperatures below 50 degrees most of the time. Several low reefs lie ahead and we are soon ashore exploring them. Driftwood covers these reefs, and as we walk along the shore in this treeless world I wonder about the source of each great log. What species of tree? What country grew these giants—Siberia, Canada, or some other far-off land? In all probability, they came down the Mackenzie River in Canada. How many days have they drifted and how many months were they locked in the ice before being deposited here? The Eskimos have made good use of this foreign resource, for ahead we see the remains of several sod huts that required logs for their basic construction. This was the village of Kuluruak, here at the head of Demarcation Bay. The old remains of sod huts, fishracks, and other primitive structures are everywhere.

Just a few short years ago the well-adapted, "primitive" culture flourished along this coast at the top of the world. The coast was the highway of the north, as Eskimos with dog teams traveled along its shores, taking the seals, fish, and caribou that provided food, clothing, tools, and shelter. For centuries this mode of life continued, man in balance with nature. Then white man arrived in search of whales, and introduced the natives to many foreign goods. The whalers also brought the usual diseases, reducing the Eskimo populations to low levels. Here in Demarcation Bay and on nearby Herschel Island a few whalers spent the long winter months, their ships frozen in the ice, so that they would be on the scene to hunt whales when the ice departed during the short summer. This era soon passed, and the Eskimos reverted to old ways of subsistence, living in balance with nature.

But the culture of the natives is rapidly changing once again. They now keep a supply of canned foods in their frame houses and they have ceased the nomadic life. The snowmobile has largely replaced the dog team. Eric and I explore the old village site, examining the various artifacts, wandering through the past.

Late in the afternoon we continue along the coast to a low but prominent ridge. This is Raluk, another old, abandoned Eskimo village. Three half-deteriorated sod huts remain, and we decide to pitch our tent in the lee of one for protection from the wind.

Just before midnight the constant arctic wind suddenly calms. The sun is still fairly high in the sky, illuminating the icepack. As we look northeast from the highest nearby hill, the perpetual icepack seems to stretch endlessly in the distance. Nothing obstructs our line of sight between here and the North Pole except the distant curvature of the earth and the haze and fog. Light rays seem to dance across the ice, making it appear as though it is alive and moving. We soon identify two dark, distant objects as seals. The lagoons are full of arctic loons, and their eerie calls can be heard up and down the coast. Suddenly all appear to call at once, until their cries echo across this quiet land, their sounds rising and falling in crescendo like a



Patterns of giant frost polygons form a huge, assembled jigsaw puzzle on the tundra.

great orchestra. In the background the gabble of hundreds of old squaws sitting on the ice-edges and in the water adds accompaniment to the loon songs. Surf scoters fly by in rapid succession in flocks of ten to forty birds, their wings whistling. Here in this harsh land life seems truly at peace with itself. How many an arctic night for thousands of years has this scene been repeated!

The Eskimos who occupied the site probably sat on the same hill in their fur parkas and mukluks watching for a seal that would provide them with the necessities of life—food, fuel, and clothing. No doubt this also was a popular point to look for visitors arriving by dog team from east to west. I visualize teams arriving in the arctic evening, dogs howling and barking as strange teams come together, and the drivers busily trying to tether them and to keep them from fighting.

A few graveyard remains near the huts indicate this site was occupied in recent times, after white men had influenced the Eskimo culture. ALONIK, IOKSIK, and ABISAOWA are some of the carved names still legible on grave markers dating from 1918 to 1930.

We are fortunate in the morning, for the clear skies continue and we are soon underway, skimming through the waters, the rhythmic dip of the paddles propelling us westward. The trickles of water sliding down our paddles are caught by the glistening sun rays, causing a silvery twinkle, like tinsel on a Christmas tree. The wind from the icepack again strikes our faces and chills us to the bone. Near noon, we come to another small hill and climb to its top for a panoramic view of this vast land. Scanning the tundra, Eric suddenly calls out "Caribou!" and we watch the ground itself come alive as a great herd approaches in the distance. Hurriedly we place our cameras in our packs and strike out toward the moving mass.

We rapidly close in on the caribou, which appear to be moving steadily westward. A long draw ahead provides cover for us. We advance another half mile and gain the edge of the herd. As we move from the draw onto a ridge, we find ourselves directly in the path of the oncoming animals. Now, only a few hundred yards away, the vanguard of the herd moves in our direction. The herd splits into two groups, veering slightly to our left and right, rushing past us as rapids rush around a jutting boulder, becoming one stream again once beyond us. As far as we can see the only visible thing is a seething mass of caribou, moving over the tundra like a swarm of ants. On they come, bulls, cows, and calves, all intermingled, but with most calves at their mothers' heels—now trotting along, now stopping for a moment to feed on the succulent sedge, now making a quick dash forward. Here and there some bed down for a few minutes, but then abruptly rise again and follow the rest. It is a noisy affair, with the constant grunting, coughing, blatting of calves, and clicking of hoofs. The herd appears to actually flow as one, undulating like a giant, moving amoeba—spreading, retreating, constantly making and changing patterns. Some spot us from a distance, stand and warily watch, then pass to our left or right. Occasionally we are nearly surrounded by a solid blanket of caribou. Then suddenly several bolt, causing a stampede. And, as if by magic, in our immediate vicinity a hole appears in the blanket.

Antlers of velvet flash in the sun as heads are tossed, backs scratched, and short challenges occur between animals. They run, stop, look, feed, lie down, jump up, walk, run—always active and aware. Beyond this mass of animals I see the Brooks Range adding a panoramic background to an awe-inspiring scene. How fortunate we are to see this spectacle, a scene that may be duplicated only in a few places in the world.

The suddenness of being thrust into this mass of animals holds us entranced, but now the shock is wearing off and we are attempting to take photographs. Looking through the lens, however, does not do justice to what we see with the full sweep of the eyes. We attempt a count, but it is impossible; I finally settle on a figure of between 20,000 and 40,000 animals. I simply cannot see the other side of the herd in this flat terrain, and with binoculars find no end to it.

The Alaska coast then and now. Above, an abandoned Eskimo hut stands as a reminder of a culture that once flourished. At right, Barter Island on the coast contains a native village and an active DEW Line site.

This arctic herd of caribou, which calves on the North Slope in late May and early June, spends the short summer here. Then as fall approaches, it streams through the mountain passes and spends the winter south of the range, in Canada and Alaska.

As the herd moves inland Eric and I continue to sit on our low hummock, still watching them from a distance and still unable to comprehend the experience that has overwhelmed us. It is with reluctance, now late in the evening, that we return to our kayak to camp and spend the night.

During the next several days of our journey we encounter temperatures as low as 34 degrees during the day and snowfalls at night. Even in down clothing the cold air penetrates us. We learn how good a fire feels in this treeless world. We find ourselves more aware and appreciative of its ancient powers to comfort and refresh the body and spirit.

Even with the cold, a number of flowers adapted to this harsh environment bloom in profusion in the short arctic summer. Dryas plants are common, moss campion abundant, and forget-me-nots and yellow arctic poppies bloom everywhere. Other species add to the color on these exposed sites, although ice lies but a few feet offshore. Surprisingly, small colorful butterflies are quite numerous, and we often see them feeding on the nectar of flowers. One insect whose absence we appreciate is the mosquito. The wind and cold make this animal conspicuously absent here in contrast to the hordes farther inland.

The marshes are covered with nesting phalaropes, sandpipers, arctic and red-throated loons and an occasional yellow-billed loon. Pomarine, parasitic and long-tailed jaegers, and occasionally that silent white sentinel of the north, the snowy owl, skim through the skies.

The weather alternates between sunshine and fog the next few days, and we finally arrive at Beaufort.

In the past, Beaufort was a Distant Early Warning Site. These sites rimmed the Arctic coast as detecting devices for enemy missiles and planes in the event of war. Some of these sites are already obsolete and three of the four on the Arctic Wildlife Range have been abandoned. Only the DEW line site at Barter Island is still in operation. At Beaufort, old buildings, cranes, graders, tractors, and thousands of barrels remain to mar the landscape.

But life goes on, for the damage at Beaufort is local. In the surrounding marshes, muskegs, and hummocks, tundra life is present everywhere. The lapland longspur sings his song, loons nest in the shallow lakes, waterfowl and shorebirds fly overhead, caribou trot past, and lemmings run through an unending maze of tunnels. An occasional wolf passes by, and the arctic fox is always looking for a dinner.

Eric and I soon have our gear all packed, the kayak disassembled and placed into three packages awaiting the plane that will come and whisk us from this strange and pleasant world.

The plane drones within earshot, rapidly descends, and lands. We climb aboard and soon we are again skimming over the tundra and then high over the Brooks Range, looking down at the last great wilderness. In a few hours, we will be back in civilization, where the clock will decide our every move during each twenty-four-hour period.

But these short excursions into real wilderness will affect our future thoughts and actions, for once you feel the wilderness and become part of it, you cannot entirely shake its grasp. It is always with you, and makes you a better person for having been its guest. ■

Will Troyer has been employed by the U.S. Fish and Wildlife Service in Alaska since 1952. He was formerly manager of the Kodiak National Wildlife Refuge and the Kenai National Moose Range and is now Wilderness Coordinator for the Service. In this capacity he is responsible for evaluating the National Wildlife Refuges in Alaska for their wilderness qualities and eventual inclusion into the National Wilderness Preservation System.

Shaggymane Parade

Eileen Lambert

an easily identified mushroom common in autumn is free for the picking and fit for a king

THE SHAPELY, tasty shaggymane mushroom is an essence of faraway wildness to me, yet it mixes its wildness with civilization so easily that some fungus *aficionados* consider it urban. The slender young cap resembles the long, barrel-shaped hat of a drum major. It then flares like a bell-shaped skirt above the long, white stem—a prancing majorette! Because it frequently parades in numbers at the edge of streets or across golf courses and city parks, the shaggymane is often the first noncommercial mushroom eaten by beginners.

It was the first wild one I ever ate—but that didn't happen in a city. My husband and I were camping in the wilderness of interior Alaska. A flash-flooding mountain stream had spread a smooth layer of sandy silt where sunshine reached into a forest opening. Shaggymanes had pushed through among tracks of bear and moose. Camp fare had become a bit dull on our extended trip, so, as soon as we had double-checked identification, I had the prime specimens in the skillet. We enjoyed them in the lingering, northern twilight while being serenaded by distant wolves.

Once you have seen the shaggymane's picture, you can recognize it on sight. It is so distinctive that Clyde M. Christensen, professor of plant pathology at the University of Minnesota, places it among his "foolproof four"—morels, puffballs, shaggymane, and sulphur shelf. Just as you don't have to learn all the flowers to recognize daisies and pansies, you don't have to know all the mushrooms to be able to enjoy a few choice species. Yet anyone wishing to gather any mushrooms for food should first study a good handbook to learn the ABCs, including what the truly dangerous kinds look like. No general test exists to tell if an unidentified mushroom is poison or not, so never eat any that you can't positively identify.

The shaggymane fruits sometimes in June but more commonly in late summer and fall. It parades so generally that it has been labeled cosmopolitan; all over the country it is to be found singly or grouped in lawns, gardens, and fields, along roads and paths, on fertile soil almost anywhere. Sometimes it is called lawyer's wig, guinea hen, horsetail mushroom, or maned agaric. By any name it is among the best of edible fungi. It belongs to the family Coprinaceae, genus *Coprinus*, the group of gilled, black-spored mushrooms commonly called "inky caps" because of the ripening caps' unique habit of dissolving into a black, inky fluid (apparently an aid in distributing the reproductive spores).

The shaggymane, *Coprinus comatus*, like others of this genus, is worth gathering for food only when young. The slender, barrel-shaped, silky-looking cap is whitish or buff, covered with tan or brown shaggy scales. The caps average two to six inches tall by one to two inches thick. Its brittle, hollow, white stem is up to eight inches long by half an inch thick and has a silvery fiber hanging inside the core. (Rarely, specimens over twenty inches tall have been found.) Around the stem at the base of the cap, there is usually a slight ring or collar that tends to slide down and may disappear at maturity. The gills inside (or under) the

Coprinus comatus

PETER KATSAROS

PHOTOS COURTESY OF THE NATIONAL FUNGUS COLLECTION

Coprinus comatus in the process of self-destruction

Coprinus micaceus

Coprinus atramentarius

cap—not attached to the stem—are long, broad, and crowded, white at first, then briefly pink. When the cap flares and the lower edge darkens, the specimen is aging and will soon self-destruct. The now-black gills dissolve from the bottom up, dripping inkily from the margin of the cap.

Other sizable species of *Coprinus*, though not so big as the shaggymane, are also common, edible, and easy to identify. *C. atramentarius*, the species most often called inky cap, isn't as attractive as the shaggymane but has excellent flavor and aroma. It often grows in dense clusters; so when you find it, there will usually be enough for a meal. One catch, though: When eaten with or followed by alcoholic drinks, it may prove mildly toxic, causing flushed intoxication, nausea, and gastrointestinal disturbance.

The young cap of *atramentarius* is egg-shaped or oval, one to three inches wide, silvery grey to smoky brown, darker on top where it may have distinct scales, glossy or sometimes covered with a bloom like that seen on plums or grapes. The edge of the cap is thin, often split, with grooves running up toward the center. The hollow stem is squat and silky-white at first, slender and decorated with tan "hairs" later. This inky cap fruits in cool, wet weather, spring or autumn, and is found in city gardens, lawns, and along roadsides as well as in forests, growing from decaying woody material.

C. micaceus, also called inky cap but more discriminatingly mica cap or glistening inkcap, is shaped like a cone or bell, is one to two inches wide at base of cap, and is tawny yellow to dark tan. When young, the cap, whose edges are striated, are covered with tiny, glistening white particles. The stem is very slender—two to three inches long, white, and brittle. This species also fruits in spring and fall. Common in cities, it may grow on root-remains of shade trees and even come up through sidewalk cracks. A number of these species were discovered in June 1973 in Tiger Park, the walled sanctuary behind the offices of National Parks and Conservation Association in Washington, D.C. They grew up around a tree stump that had been hauled in as part of the decor. This Magazine's editor, an enthusiastic amateur mushroom hunter, sautéed the best specimens. She and her adventurous co-workers found them delicious.

Some culinary-oriented advice: In case you're lucky enough to find a good batch of young shaggymanes, inky caps, or mica caps, gather them carefully, trim off the soiled end of the stem, gently wipe clinging debris from the cap, then cut cap and stem lengthwise and inspect for little "critters." You may have to evict a beetle or slug. If you find tiny beetle or fly larvae in the stem, cut that part away; if they're also in the cap, discard the whole thing. If the lower edge of some caps are just beginning to darken, you may trim that part away and still enjoy them by acting fast. But no use taking unfit specimens. Even in the refrigerator the strange process of autodigestion continues, and you may soon have a black, liquid mess. Carry those that pass inspection in a basket or similar container—they're fragile. Keep them as cool as possible and cook them as soon as you can. Cooking ends their tendency to self-destruct.

They're good either raw in salads; or sautéed gently in butter for a few minutes; or lightly flecked with butter, dusted with salt and pepper, and baked in a moderate oven for about twenty-five minutes. Serve the juices with them. They go well with eggs and can be used in casserole dishes, but take care that their delicate flavor is not overpowered.

Remember too that, like other wild things, mushrooms don't have to be collected or eaten to be enjoyed. Last October, during the autumn color spectacular in Great Smoky Mountains National Park, my husband and I found a single, beautiful shaggymane in a campground. It evoked magic memories of faraway wildernesses in Alaska and the West. National Park Service rules permit mushroom picking (for your eating, *not for sale*), and we felt tempted but decided to take its picture and let it be. Hundreds feasted that day on the wild oddity and delicate beauty of that one specimen—with their eyes! ■

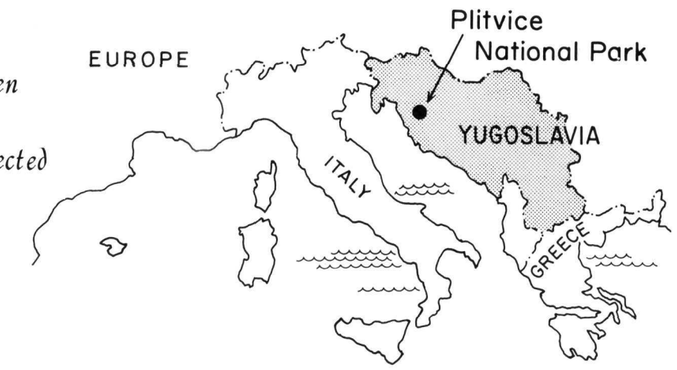
Eileen Lambert has studied and enjoyed nature in many of North America's wild places, including the Far West and Alaska. She and her husband now live in the Blue Ridge Mountains of Virginia, where she is the newly elected president of the Shenandoah Natural History Association. A free-lance writer, her nature writing appears in both conservation and travel magazines.

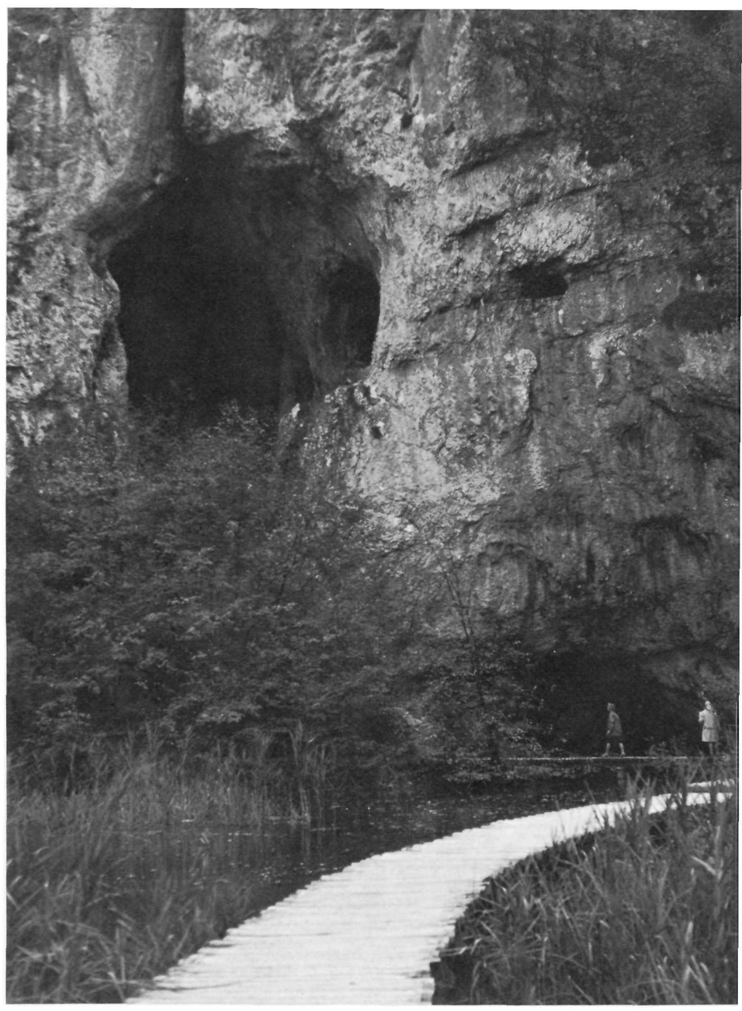
AGENCIJA ZA FOTODOKUMENTACIJO

Russell D. Butcher

The Magic of Yugoslavia's PLITVICE LAKES

a remarkable chain of sixteen lakes linked by dozens of delightful waterfalls is protected as a national park in Yugoslavia





Plitvice Lakes National Park features natural caves, as well as lakes and waterfalls.

MIDWAY between Zagreb and Zadar in the rural interior of Yugoslavia's Republic of Croatia lies a remarkable chain of sixteen lakes linked one with another by dozens of waterfalls. This fascinating, almost unreal landscape, amid a setting of gently rolling, forested hills, was set aside in 1949 as the 47,300-acre Plitvice Lakes National Park.

On a beautiful October day, my wife and I approached Plitvice (pronounced as Pleetveetsa) by road from the rocky, barren, and austere stretch of Adriatic coast north of Zadar, turning inland at Karlobag. As the excellent paved highway climbed steeply over the coastal limestone mountains and crossed the crest of the range, we suddenly found ourselves in a picturesque farming region. Peasant women dressed in black were tending fields of cabbages. Huge golden haystacks stood near sturdy, white-washed farm buildings with their steep-gabled roofs of thatch or red shingles. Along the way was a constant procession of horse- and oxen-drawn carts and wagons loaded with everything from hay, cabbages, and firewood to household furniture. In fact, we saw no trucks, cars, or mechanical equipment of any kind, and driving an automobile required extra care not to run down the slower traffic.

After several hours, the road began climbing into more rolling hill country, and finally a set of signs in several languages announced our entrance to the national park. Soon the sound of falling water seemed to come from everywhere, as we got our first glimpse of sparkling lakes through dense groves of ancient beech trees. Clusters of waterfalls, in the upper series of Plitvice Lakes, were half-hidden amid luxuriant foliage, and they murmured, splashed, and roared in endless variety from one lake to the next. Galovacki Buk, one of the largest, produces a great circular veil of foaming water that plunges sixty-five feet into a clear pool. Others bubble from moss-draped cliffs into the deep shade of the forest.

The lakes of this upper stretch, with names such as Proscansko, Galovac, and Kozjak, have been created by the slow building of natural rock dams. As scientists explain this puzzling biodynamic phenomenon, travertine, or calcareous tufa, is formed when calcium and magnesium carbonates, suspended in the water, come in contact with growths of certain kinds of algae and moss.

As our Yugoslav guidebook had promised, we found good accommodations in the park, at Hotel Jezero, the newest of several large, modern, government-run inns. The panorama of Kozjak Lake from our room tempted us out for a walk along one of the delightful shore paths, just as the late afternoon sun accented the golden foliage of the beech forest. That evening, we dined on trout flambé and a delicious native dish.

Early next morning, we explored the lower, even more spectacular series of Plitvice Lakes. Providing a strikingly different landscape, the emerald-green and turquoise shades of the water were framed by sheer canyon walls of whitish limestone that amplify and echo the ever-present sounds of falling water. Vegetation here is less lush than upstream, giving the impression of a far more arid region. The lakes and ponds are bordered by bulrushes and thickets of fragrant willows. Trails lead the visitor along the lakeshores, here and there crossing a stretch of water on rustic boardwalks that create an almost Oriental scene.

Climaxing this area is another sixty-five-foot waterfall that is actually an arc of falls spilling and plunging from many places and different levels down the face of

a cliff. High above and to one side, another stream creates the park's highest and most spectacular fall, Slap Plitvice, dropping with a muffled roar in two large plumes to a mist-shrouded pool 250 feet below. In the swirling dampness, we watched as rainbows danced in the spray, then we climbed a trail up the canyon wall for a view across to the brink of the fall. The two streams join, forming the Korana River, 512 feet below Plitvice's highest lake. From there it flows northward through a deep gorge, heading ultimately for the Danube.

The park offers an excellent network of trails that visitors may follow for many miles, along peaceful lakeshores and dashing streams, up steep cliffs, through shaded forests, and into caves with limestone formations. Excursions on foot begin at several designated parking areas along the roads. Although access to the park is free, a modest fee is charged at these starting places. Boats are available for rent on Kozjak Lake, or a boatman will row visitors across to trails on the opposite shore of this lake.

Forest trees include not only the magnificent beeches, but Norway spruce, red maple, linden, oak, mountain ash, and aspen. Several kinds of ferns grow on the limestone ledges, along with sumac and ground juniper. In mid-October, the beeches turn soft gold across the hills, while patches of brilliant red sumac highlight the white cliffs.

One of the most characteristic birds of Plitvice is the perky little brown-and-white dipper. We saw one of these birds bobbing comically as it dashed into a waterfall in search of food. The small, red-breasted European robin also lives among lakeside thickets. And there are herons, ducks, the Ural and eagle owls, seven or eight kinds of woodpeckers, capercaillie, black grouse, and hazel hen.

Among the mammals are roe deer; red deer, which is related to the North American elk; otter; pine and stone martens; wild boar; fox; wolf; red squirrel; and perhaps still a few brown bears. Public hunting is not allowed in the park, but one may fish for trout, with a permit.

Accommodations for visitors include several government-operated hotels on a hillside overlooking Kozjak Lake, for which advance reservations are advised during the peak summer tourist season. A pleasantly situated public campground is also provided along a quiet cove of the lake.

The first modest tourist accommodations at Plitvice Lakes were built in 1861. By the mid-1890s, with construction of an access road and a hotel, visitation reached about 1,000 people annually. Other facilities were provided, until some 24,000 visitors stayed overnight at the lakes in 1937. In World War II, all of the hotel installations were burned or otherwise destroyed. But during the war, the Plitvice area gained fame as an important Yugoslav Communist Party stronghold and as a theater of major retaliations against the Fascists. This, along with the "Resolution of Plitvice," significantly helped to unify the people of the Republic of Croatia, and ultimately all of Yugoslavia.

Above, some of the sixteen lakes in Yugoslavia's Plitvice Lakes National Park lie among rolling hills covered with forests of beech and spruce. Below, regulations governing visitor use of the park are clearly set forth . . . in three other languages, as well as English.

PHOTOGRAPHS BY THE AUTHOR UNLESS OTHERWISE NOTED

The visitor's first impression of Plitvice Lakes National Park is that everywhere there is the sound of falling water. This is not far from the truth, for between each of sixteen lakes and ponds is a series of waterfalls. Pictured above are the highest of these waterfalls.

After the war, the task of rebuilding the facilities at Plitvice Lakes was begun; and by 1966, seventeen years after the park was established, more than 250,000 people visited the area.

Even if you must make a special side trip to see Plitvice Lakes, as we did from the Alps region, there is no question you will feel richly rewarded by the magic of this outstanding park. ■

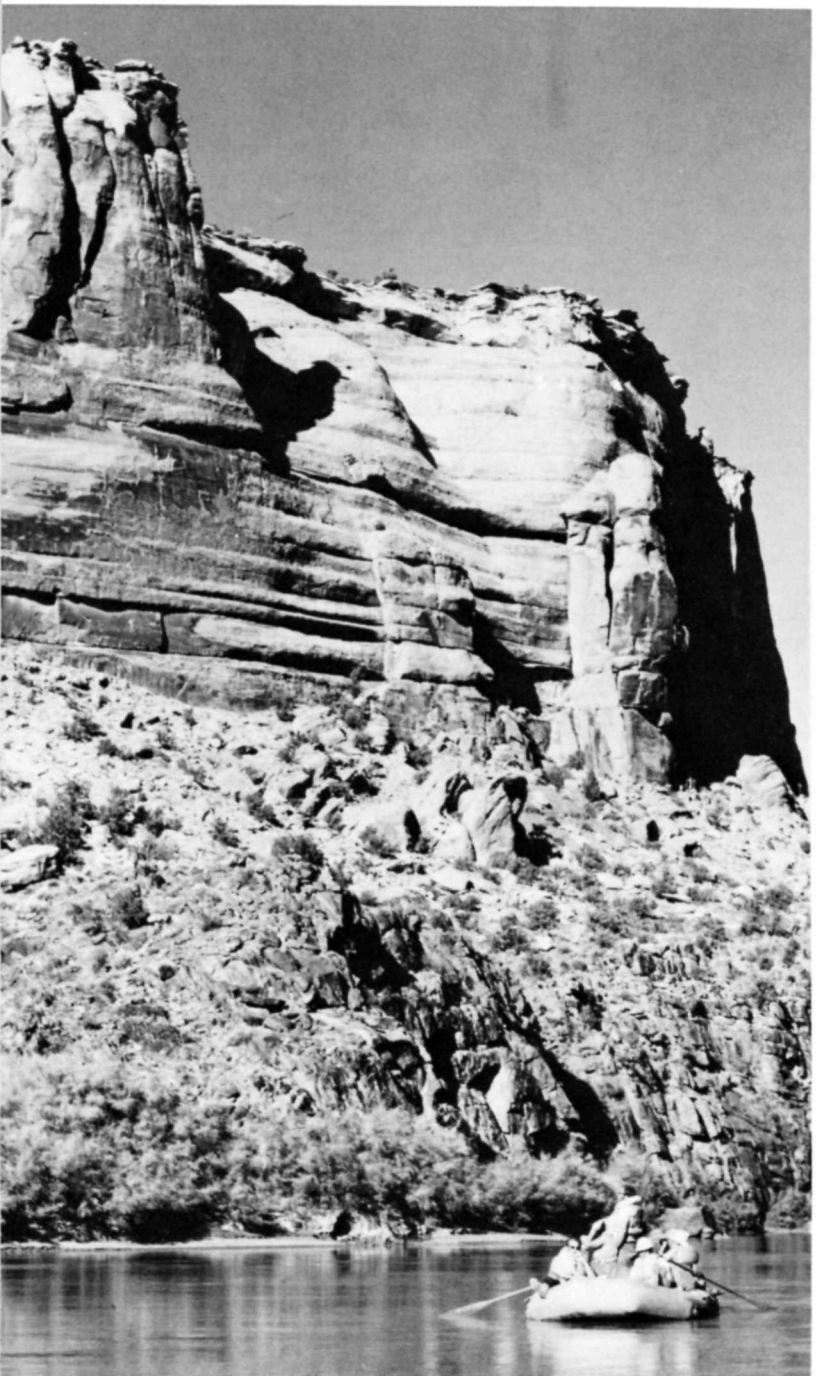
Russell Butcher has long been a contributor to this Magazine. His new book, *Maine Paradise: Mount Desert Island and Acadia National Park* (illustrated with color photographs by the author and Marie Ivey Menzietti), was published in August 1973 by The Viking Press. A resident of Mount Desert Island, Russ Butcher formerly held editorial and writing positions with the National Audubon Society, the Save-the-Redwoods League, and the Sierra Club.

GRANITE CANYON

WILDERNESS ON THE COLORADO

one of the least known of the Colorado's white-water regions may be the first segment of the famous river to become part of the national wild river system

article and photographs by KIM CRUMBO



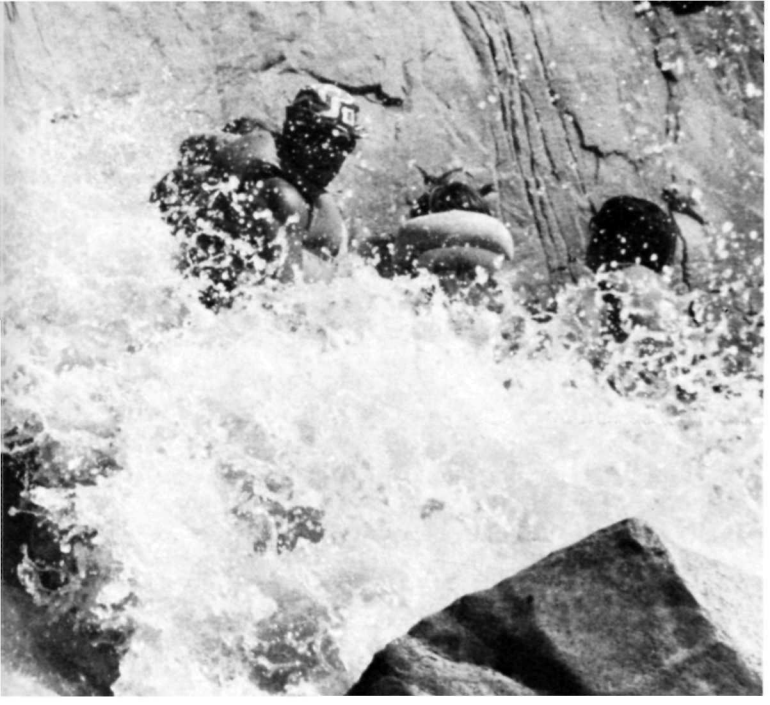
THE WILD RIVER FLOWS through a deep, black rapid-filled gorge. A sheer, massive wall of red sandstone, whose 800-foot heights dominate the canyon's scenery, towers above it. Below, the silt-filled waters cascade over house-sized boulders and surge upward in waves. The Colorado carves deeper and deeper into the stubborn black rock, sculpturing intricate forms into the polished Precambrian stone. The battle between water and rock is as old as the earth itself, but nowhere have the results proved so spectacular as within the canyons of the Colorado River, especially the section called Granite.

Granite Canyon, often called Westwater, is one of the most unique and primitive segments of this mighty river. Located in east-central Utah, some fifty miles downstream from Grand Junction, Colorado, this least known of the Colorado River's white water regions may be the first segment of the famous river to be designated as part of the National Wild and Scenic River System. Once referred to as the "tabloid edition of the Grand Canyon," its startling sandstone cliffs, seldom-visited side canyons, and challenging white water create a remarkable wilderness known to only a very few.

The river departs west-central Colorado in a peaceful, meandering mood. Utah's snowy La Sal Mountains, a small but lofty range formed by the intrusion of igneous rock, loom to the south. A few miles downstream a massive 500-foot wall of red sandstone marks the entrance into Granite Canyon. The great river continues to meander in thoughtful silence, almost in apprehension, before committing her waters to the dark, narrow gorge.

As the giant cliffs come closer, the low rumble of white water is heard over the rustling cottonwoods. The river takes a sharp turn to the left and exposes the canyon's dark, granitic inner gorge. Closer observation

Granite Canyon is one of the most primitive segments of the Colorado River. Known for its challenging white water, it nevertheless has its quiet stretches.



The boatmen pictured above and left are learning first-hand that Skull Rapid is one of the most formidable rapids of Granite Canyon.

of the surrounding landscape reveals a large fault that crosses the river's path and explains the sudden emergence of the black, rapid-forming rock.

This black rock is Precambrian schist and gneiss, intruded by granitic pegmatite, a remnant formation of the great Uncompahgre uplift of late Paleozoic times. According to Dr. William Stokes, noted professor of geology at the University of Utah, the Uncompahgre was once a mountain range, greater than the present Rockies, but the relentless power of geological time first leveled, then buried these ancient giants. The black rock is capped by red and purple shales of the Triassic Chinle formation. The massive red wall of Wingate sandstone, one of the West's great cliff formations, dominates the scene throughout the canyon. The enormity of this sandstone overwhelms the onlooker.

Now the river begins its steady descent into the canyon. Dark canyon walls rise higher as the river narrows. Small rapids become larger and the ominous downstream rumble forewarns of the river's violent power.

The rapids of Granite Canyon, although less famous than those of Grand Canyon or Cataract, pose a formidable challenge to even the most seasoned boatman. The canyon is subject to the natural fluctuations imposed by weather and season, and the difficulty of each rapid is dependent upon the flow. During a good late-summer flow, the river yields between 1,000 to 5,000 cubic feet per second (cfs). At this stage the rapids range in degree of difficulty from a rating of two to seven, based on a ten-point scale. The river is considered extremely difficult above 20,000 cfs, as the narrow gorge becomes a massive series of rolling waves interrupted by one possibly catastrophic section, Skull Rapid. Here the full force of the river slams directly into the black canyon wall. An enormous backwash of boil and foam creates a likely dumping ground for any boat fortunate enough to have made the upstream journey right side up.

Interestingly, flows above 30,000 cfs are not uncommon. In June 1971, the maximum discharge of the river through Granite was 36,000 cfs. In June 1917, the river roared at 76,000 cfs. On the fourth of July in 1884, the Colorado River flooded and Granite Canyon groaned under the strain of 125,000 cubic feet per second! One can only guess what the canyon looked like under such enormous flows, but even during a more reasonable run-off the canyon is dangerous to the unwary.

The first recorded mention of the canyon is found in an 1889 Denver, Colorado, Cañon and Pacific Railroad survey, which relates an ambitious scheme to construct a railroad following the course of the Colorado River from Grand Junction to San Diego. Frank C. Kendrick, leader of the first leg of the expedition, referred to "Hades Canon (*sic*) . . . where the woman drowned." A cautious man, Kendrick preferred to portage the twelve-mile canyon rather than risk his men and equipment in its turbulent waters. Later he wrote, "This is a fine valley. Narrow and very dangerous." The grand scheme ended tragically a few months later. Project promoter and railroad president Frank Mason Brown perished in the treacherous waters of Marble Canyon and his fantastic dream died with him.

On September 29, 1916, the headlines in the Moab, Utah, paper, the *Grand Valley Times*, announced "Kolb Attempting to 'Shoot' Rapids." The headline continued, "Will Risk Life in Famous Westwater Canyon." Famous or otherwise, by 1916, forty-seven years after Major John Wesley Powell's "conquest" of the Colorado, Granite (Westwater) remained very much unconquered. The *Times* article mentioned the death of several earlier unsuccessful floaters. On October 19, 1916, Ellsworth L. Kolb became the first man to run Granite's furious waters, "fighting for his life all the way." When asked about the trip, Mr. Kolb remarked that he "ran all the rapids and came through right side up, bottom side up and every way," a real adventure for the famous river runner.

Since then the river has had many takers, most of them successful, some of them not. In November 1970, three hunters lost their lives: a grim reminder that the Colorado is still the unforgiving master of the canyonlands.

But the river is endangered!

To begin to understand the problems of the Colorado River we must first travel a few hundred miles downstream to the most famous and most heavily visited segment of the river, the Grand Canyon. In 1966, "Grand" felt the impact of 1,067 waterborne tourists. Within six years that number increased to over 12,000. A wilderness tends to lose its wildness under such circumstances!

Because of its remoteness and short length, Granite Canyon has not been overexploited by commercial river runners, as is the case in Grand Canyon. Attempts to include Grand's Colorado River within the established wilderness system are presently met with stiff resistance from many commercial outfitters whose large neoprene boats require a motor to maneuver. A wilderness designation would forbid the use of motors; naturally, most outfitters resisted. They would be forced to use the smaller, less profitable, rowable rigs and the change-over could be costly.

Until recently, Granite Canyon was generally regarded as too short for profitable operations; the larger boats are simply too cumbersome to run the narrow gorge. But times have changed. Four years ago, only one outfitter made regular runs. This past summer there were at least eighteen.

Sanitation is the primary problem. As traffic increases, commercial outfitters and large amateur groups should be required to carry chemical toilets, which they are required to do in Cataract and Grand Canyon. More than a few groups are leaving untidy camps. Assignment of campsites and regular inspection would encourage cleaner camps. However, the only ranger at Granite has no enforcement authority.

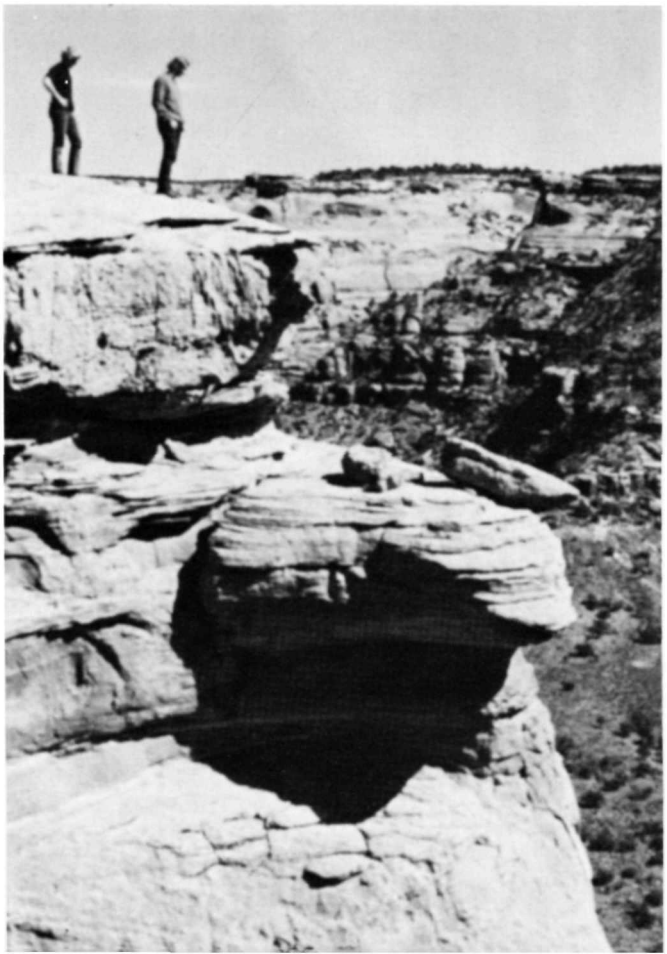
In order to preserve Granite's pristine setting, it is imperative to enforce visitation regulations. The number of commercial outfitters allowed to operate within the twelve-mile canyon should be limited now. This would allow a reasonable economic base for existing outfitters without the dangers of overuse. Secondly, the total number of visitors allowed during the year, especially from May through September, should be limited. Until the maximum number is determined by a wilderness study, it is important that the number be kept low before problems develop. Grand Canyon is the classic example of what can happen once a canyon is pushed beyond its limits. The National Park Service's recent attempt to reduce traffic is now being met with congressional lobbying by the big outfitters, not to mention threats of lawsuits. Not all outfitters are simple backwoodsmen with a meager bank account. Some of the larger companies gross hundreds of thousands of dollars annually, enough to entertain the lawsuits they threaten. Once environmentally sound limits are set, both amateur and commercial traffic can be controlled to insure the rewarding wilderness experience adventurers expect.

Most river runners, however, are concerned about the problems of overuse. In October 1971, Dee Holladay of Salt Lake City took Utah's Senator Frank Moss down the narrow, boiling waters of Granite Canyon. Holladay was the pioneer of commercial river running in Granite and the canyon's protection has long been a subject of concern to him. The Senator, after his "exhilarating experience," introduced a bill (S 2901) that strongly advocated that this "primitive, remote, and completely unspoiled" area be included within the Wild Rivers System and be protected as a wilderness.

The Colorado River has carved some of nature's greatest wonders in its long and often tortuous path: the Grand Canyon, the vanished but once hauntingly beautiful Glen Canyon, and the cascading waters of Cataract Canyon. These are just a few of the river's better-known handiwork. But, what is better known is often visited; the inevitable result is a loss of wildness.

Granite Canyon is a place of solitude. Here the Colorado has created an arena of wild white water beneath hundreds of feet of red sandstone and black schist rock. Here are the homes of the Canadian goose, the hawk, the beaver, the egret, the deer, and the vanishing cougar. Unique, spectacular, and wild, Granite is a true wilderness whose rugged appearance belies a fragile ecology. It can survive as a wild river only through careful regulations of visitors, particularly commercial interests. ■

The spectacular sandstone cliffs over Funnel Falls offer a unique and wild vista.



Kim Crumbo was formerly a navy frogman and is now a commercial river guide in Granite, Cataract, and Grand canyons on the Colorado River.

NPCA at work

Some important refuges The Fisheries and Wildlife Conservation Subcommittee of the House Committee on Merchant Marine and Fisheries has had before it a group of six bills of great import to several of the nation's endangered species of animals, and to some extent plants also. The bills propose creation of these new national wildlife refuges: the Pupfish in southern Nevada and southeastern California; the Tijuana in southern California; the Egmont Key on the west coast of Florida; and development of suitable additional refuges for the Everglades kite.

NPCA members are familiar through articles and comment in the Magazine with the bad position of at least several of the desert pupfishes, in particular the critically endangered Devils Hole species, which the Interior Department has valiantly been trying to rescue in its tiny habitat at Devils Hole, a detached section of Death Valley National Monument. (The breeding ground of this animal consists of a single ledge in a single desert spring.) Under one of the bills Devils Hole would be incorporated into a new and much more comprehensive wildlife refuge that also would protect some of the desert region's other unusual plants and animals.

The Tijuana Refuge would be sited in the estuary of the Tijuana River just south of San Diego; it still supports large and diverse populations of birds, fishes, and invertebrates and marsh plants, and is habitat for at least four endangered species of birds—the California clapper rail, brown pelican, California least tern, and American peregrine falcon. The Egmont Key Refuge would cover a 393-acre island at the mouth of Tampa Bay in Florida as a nesting area for various sea turtles and a resting place for many migratory birds.

On invitation NPCA lent its hearty support to the proposals in Washington public hearings. Noting that many national wildlife refuges have suffered severe budget cutbacks this year, leaving numerous endangered species and their habitats unprotected, the Association expressed the hope that, with authorization of the new refuges, substantial additional funding would be appropriated.

Rodenticide hearings The Environmental Protection Agency has indicated that it will hold public hearings to determine whether use of rodenticides containing calcium cyanide, strychnine, sodium monofluoroacetate (commonly called Compound 1080), and sodium cyanide should be canceled or amended for human health, economic, and various environmental reasons. NPCA has requested that it be allowed to participate in the hearings, for which no date has been set as of this writing.

In its preliminary discussion with EPA on hearing topics the Association has indicated that certain additional points not covered in EPA's FEDERAL REGISTER notice might be canvassed at the hearings. Some of them were whether any control on many of EPA's fifteen listed target rodents and other "pest" animals really is necessary or desirable; whether consideration might not be given the threat posed by the rodenticides to any member of ecosystems in which they are used; whether the substances ought to be used to further the practice of clearcutting in American forests; and whether an effort might be made to determine and discuss the values of native species of rodents.

"To the maximum extent possible," NPCA said, "use of these substances should be curtailed and eliminated. Cyanide compounds have proven to be highly lethal and nonselective. Compound 1080 and strychnine possess the same characteristics, but have the additional disadvantage of exhibiting a high degree of secondary toxicity, obviously threatening other animals, both endangered and nonendangered."

The horned owl In November 1972 and again in February 1973 we printed on NPCA correspondence with the Bureau of Sport Fisheries and Wildlife in regard to the agency's proposed inclusion of the horned owl on a list of birds that can be taken without federal permit under certain circumstances—various species of blackbirds, and crows, grackles, and magpies. In response to NPCA's firm protest and the strong and helpful protests of NPCA members, and after some elapse of time, the Bureau indicated that the horned owl inclusion had been made by mistake. It promised to rectify the mistake, and now has done so in an amendment to its proposed rulemaking published in the FEDERAL REGISTER. NPCA is pleased over the outcome of the matter and commends the Bureau for its action in the public interest.

Bobcat bounty NPCA has had a pleasant response from Director Bernard W. Corson of the New Hampshire Fish and Game Commission on the Association's commendation of the state's abolition of the bobcat bounty recently (August NPCA at Work). Director Corson's letter also pointed up the enduring nature of the archaic American bounty system that still prevails quite widely. "While we would like to take full credit for this venture," wrote Director Corson, "I must admit that our department failed to get the bounty removed during fifteen years of effort. Not until some of the key bobcat hunters in the state were finally convinced that bounties on bobcats were not in their interests and they, themselves, introduced a bill to eliminate the bounty were we finally successful in our efforts."

The important thing, it would seem, is that the department did make the effort, no matter how long it took to get the job done, and we have the feeling that the department may have underestimated its influence on the outcome.

Provincetown airport Further on the proposed expansion of the Provincetown airport on lands of Cape Cod National Seashore (July Magazine, page 28), NPCA has been in receipt of information that seems to indicate Federal Aviation Administration approval of the project prior to issuance of a statement that there is no prudent alternative to the use of national park system lands, as required by law. NPCA, the National Park Service, and interested individuals on Cape Cod contend that there are reasonable and feasible alternatives.

In a letter to FAA, NPCA has pointed out also that run-

way extension would require an environmental impact statement early in the project's planning stage, and a public hearing. As of this writing NPCA has not been aware of an impact statement, nor has a public hearing date been set. The Association urged FAA to disapprove runway extension before more money is wasted studying a project destructive to lands in a national park system unit.

The Association also sent a letter to the Hon. Claude S. Brinegar, secretary of FAA's parent agency, the Department of Transportation, saying, "We urge you to promptly rescind approval of this project, and in fact forego all consideration of such unnecessary and destructive airport expansion in all units of the national park system."

Refuge camping Proposed Bureau of Sport Fisheries and Wildlife regulations banning overnight camping and night vehicle use on California's Tule Lake and Lower Klamath national wildlife refuges have recently been adopted as final by the agency. The actions, made necessary by lack of sanitary facilities and insufficient protective personnel, were proposed during late spring and supported at that time by NPCA in comment to the Bureau. The Association commended the regulations specifically, and also took the opportunity to note its general support for location of camping and recreational facilities outside the boundaries of certain natural areas.

Sealskin import opposed An application by a South Carolina fur processing company for an economic hardship exemption to the Marine Mammals Protection Act, allowing the company to import some 70,000 South African fur seal skins for processing and sale, was strongly opposed by a group of national environmental organizations, including NPCA, at a July public hearing of the National Marine Fisheries Service within the Commerce Department. The group, known as the Monitor Consortium, keeps a close watch on such applications for exemption.

In hearing testimony the group argued that the Fouke Company, which has a virtual monopoly on fur processing in the United States, had not made a convincing case for its economic hardship claim and that importing the skins would violate spirit and substance of the Marine Mammals Act.

The NMFS has issued a draft environmental impact statement on the proposed importation which concludes that no direct environmental impact

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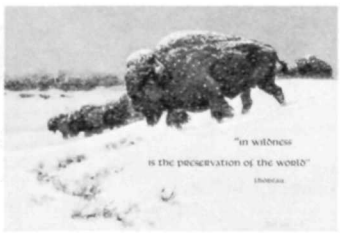

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would result. The group said, however, that neither the application nor the draft statement provided current data on the South African seal population or on the marine ecosystem in which they live, and that data presented currently were outdated, scanty, and derived from a source not available to the public for scrutiny. "It simply is not possible to make the required determinations of the effect on the population stock of granting the exemption based upon this information," the group said. "To do so constitutes a violation of one requirement of the act." On the overall impact statement the group said that "it is difficult to understand how NMFS could fail so badly" in its preparation.

"It is not possible to evaluate the proposed action [granting of the application] on the basis of the impact statement, and therefore the mandate of the National Environmental Policy Act has not been met," the consortium testified.

THE PROPOSED GRAND TETON NATIONAL PARK AIRPORT EXPANSION AND WHAT NPCA MEMBERS CAN DO TO HELP STOP IT

WE HAVE BEEN KEEPING MEMBERS posted in recent months on the position of the proposed Grand Teton National Park airport runway extension which, with associated facilities, has been promoted for several years by the town of Jackson, Wyoming, just south of the park. In addition to news reports, the Magazine carried a major article on the basic proposal in April 1972, to which members may want to refer for more details.

In brief summary, the proposal would extend the existing 6,305-foot runway to 8,300 feet and would add control towers, lighting systems, taxiways, and other facilities to accommodate jet aircraft up to the size of the Boeing 737.

Aside from the town of Jackson, the Federal Aviation Administration also seems to view the extension and additional facilities with a sympathetic eye. Part of a letter from the FAA to the National Park Service says in regard to the Grand Teton airport issue, ". . . if the FAA and the aeronautical community can demonstrate that air service can be compatible with, and possibly even enhance the values and purposes of this park, then it may be possible to bring the many benefits of air access to other environmentally sensitive locations in the future." If NPCA's interpretation of this statement is correct, the FAA is challenging not only Grand Teton but all other park system units of sufficient size to accommodate an airstrip or a jetport to enhance their "values and purposes." The statement could be construed to include the wildlife refuges, game ranges, and specially protected parts of the national forests as well.

The Park Service has published a draft environmental impact statement on the extension and its associated works. However, the Service notes that only 58 percent of comments received by it to the date of this writing have been against the project. This is not a safe margin. Members might consider the following points:

The proposed expansion is not compatible with the National Parks Act, which says that parks are to be preserved "unimpaired for the enjoyment of future generations."

The aircraft to be accommodated by the proposed expansion produce twice the amount of toxic emissions per flight and from two to 100 times as much noise as aircraft currently using the airport.

The increased presence of noisy jet aircraft will substantially reduce park and wilderness values.

In 1972 more than 70,000 people floated the Snake River in the park, and one of the two flight paths for the jets would be directly over the river.

The FAA is required to find that no feasible and prudent alternative to the expansion exists before funding is undertaken. The impact statement mentions at least two alternatives—leaving the airport as it is, and using airplanes that require less runway. (It may also be argued that the airport ought to be phased out and reestablished outside the park.)

The law authorizing airports in national parks says that airports may be in parks when they are determined necessary to the proper performance of the functions of the Interior Department. A jetport in Grand Teton is not necessary for that purpose.

Less than one percent of 1972 visitors to the park came by way of the airport, and there is no good reason why they cannot continue to do so under present arrangements.

According to the impact statement itself the impacts on the park would include increases in noise and pollutant levels; use of parkland for airport expansion; visual intrusion of proposed developments; destruction of sixty-five acres of sagebrush grassland, including a sage grouse strutting ground; and excavation of a six-acre borrow area [gravel pit]. All of these impacts are within the park, and offer ample reason for the Service to rule against the proposal.

If the airport were moved out of the park entirely, there would be some negative impact on the economy of Jackson; but national parks do not exist to further anyone's economic development.

AS MEMBERS RECEIVE THIS ISSUE of the Magazine the Grand Teton jetport question will be moving toward a decision in the Interior Department. Members can play a crucial part in the outcome of the decision, which clearly will have an important bearing on the future integrity of other nationally protected areas in the future, by writing the following people and letting them know how you feel on the issue:

Secretary of the Interior Rogers C. B. Morton, Interior Department Building, Washington, D.C. 20240.

Administrator, Environmental Protection Agency, U.S. Waterside Mall, Washington, D.C. 20460.

Chairman, Council on Environmental Quality, 722 Jackson Place N.W., Washington, D.C. 20006.

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news notes

East African tours One of the most magnificent sights to be seen on NPCA's East African field trips is a vast flock of flamingo feeding in a salt lake. Participants in our road tour visit Lake Nakuru — a favorite year-round haunt of these long-legged pink birds, as well as habitat for more than 400 other species of birds. At certain seasons they also see flamingo—as do members of the air tour—in the alkaline lake at the bottom of the Ngorongoro Crater.

Because Lake Nakuru is fed by several streams but has no outlet, it has a high salt content due to evaporation and therefore is extraordinarily rich in algae. This is what attracts flamingo to the lake in such fantastic numbers, varying from one to two millions. They are said to remove 150 tons of algae from the lake every day.

Unfortunately, chemicals now entering Lake Nakuru in the runoff from surrounding farms may interfere with algal growth and, through the algae, with flamingo health and breeding potential. Research to be carried out by the newly developed Baharini Wildlife Sanctuary will focus on the problem and seek ways to preserve this place of unparalleled beauty unspoiled for the enjoyment of future Kenyans and overseas visitors alike.

The Yule tree We are happy to report that this year the national Christmas tree will remain alive after Christmas. The National Park Service, overseer of the annual Pageant of Peace in the nation's capital, reports that a live Colorado blue spruce will arrive in Washington this month for planting on the Ellipse just south of the White House, and that the practice of cutting a tree and bringing it in will be discontinued because of adverse criticism by environmentalists. Last year a cut seventy-five-foot Engelman spruce from the Medicine Bow National Forest was railroaded to Washington for the occasion, bringing the Park Service "more letters and phone calls of protest than in the previous ten years," according to a Service spokesman. The practice of cutting a tree on a national forest dates to 1954; before that, living but smaller trees had served the purpose.

College for a changing world "Much as we would like to, we can no longer prepare students for life in 'tomorrow's world.' We can barely conceive of tomorrow's world. With the increasing pace of social and technological change, we can hope only to prepare students to recognize the nature of change and to acquire the skills and attitudes which will enable them to deal courageously and responsibly with the problems associated with change."

We have extracted these words from the catalog of the small, private College of the Atlantic in Bar Harbor, Maine, which opened a year ago and which awards one degree: Bachelor of Arts in Human Ecology. The catalog defines the purpose of the college: to study the various relationships which exist between humans and their environment, including both the natural world which supports our existence and the society and institutions which we have created.

The college began as a community effort by some concerned people on Mount Desert Island, on which Bar Harbor is located (as is the greater part of Acadia National Park). The interesting catalog is available to the general public on request from the College of the Atlantic, Bar Harbor, Maine 04609.

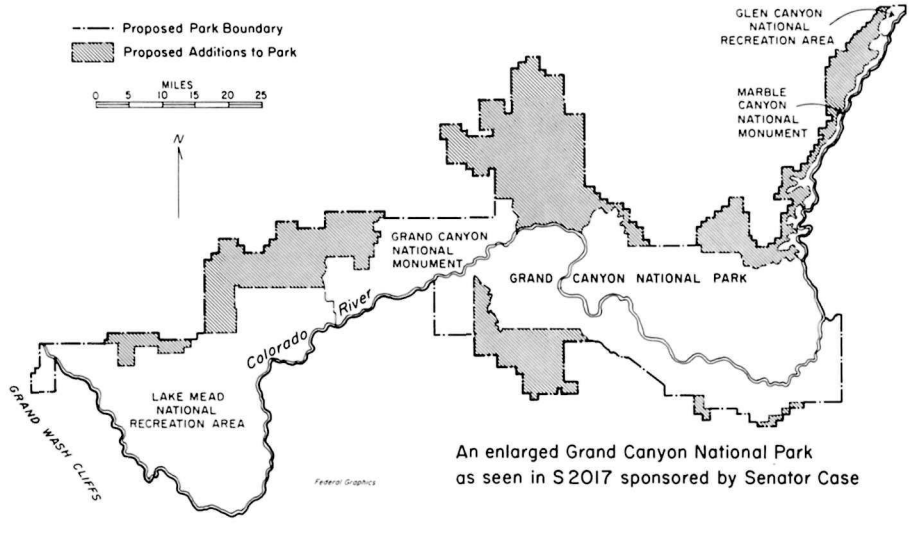
Grand Canyon Park Although the coincidence of dates seems, after some historical research, to be fortuitous, Grand Canyon National Park and NPCA were brought into being at about the same time—the park in February 1919 and the Association in May. (Before then, the founders of NPCA had been advocates of the park while it still was a national monument.) NPCA always has been close to this immense canyon and its park and monuments, and ever watchful of proposals or events affecting it.

For example, some years ago, during the long effort by environmentalists to close out the Bureau of Reclamation's proposed Marble Canyon and Bridge Canyon dams on the Colorado above and below Grand Canyon park and monument, the Association recommended that the entire reach of the river between Powell and Mead reservoirs be incorporated into a national park or monument for protection against Federal Power Commission licenses for dams. And over the years public sentiment seems to have been growing for just such an enlargement.

A measure intended to create a greatly enlarged Grand Canyon Park is presently in the Senate. Introduced by Senator Case of New Jersey, the bill essentially would incorporate Grand Canyon and Marble Canyon monuments, a small portion of the Glen Canyon Recreational Area above, and a larger portion of the Lake Mead Recreational Area below, into a single expanded national park, whose exterior boundaries are shown on the map. No Indian lands are involved in the proposal, but the several tribes owning lands adjacent to the enlarged park would be encouraged to establish tribal parks, if they so desired, for the further protection of outstanding canyon lands under management plans that would enhance the public values of the enlarged national park.

The proposal also would prohibit operation of aircraft below the rim of the canyon in the enlarged park (except for emergencies and park management) and would control the use of aircraft in the airspace over the canyon; would prohibit motorized watercraft on the river between Lee's Ferry and Grand Wash Cliffs after 1974 (again excepting emergencies); and would immediately designate most of the enlarged park as wilderness.

Several other bills currently are in the Congress that would enlarge the existing park to a greater or lesser de-



An enlarged Grand Canyon National Park as seen in S 2017 sponsored by Senator Case

gree; one would trade some present park lands for other lands, mostly in the Lake Mead Recreation Area.

NPCA will be following these proposals closely and reporting on them from time to time.

The Garrison project Members who have availed themselves of "Disasters in Water Development," recently published brochure on thirteen of the nation's most destructive water projects, will remember that the Bureau of Reclamation's Garrison project on the upper Missouri in North Dakota is one of the chosen exemplars. The project would divert water from the reservoir of the Garrison dam for irrigation and supposed fish and wildlife benefits, and would involve construction of some 1,800 miles of canals for distribution of water to farmlands. NPCA still has copies of the publication available to members without charge.

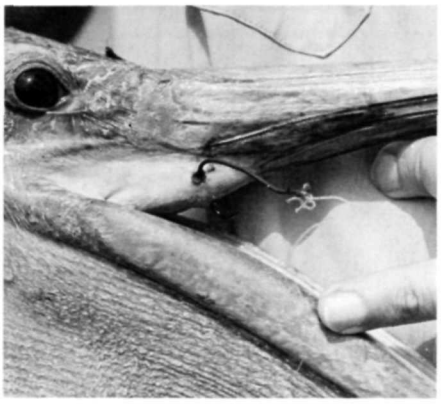
During July Russell E. Train, then chairman of the Council on Environmental Quality and now administrator of the Environmental Protection Agency, requested the Interior Department to halt construction until some serious deficiencies in the project's environmental impact statement could be examined. In a letter to the Interior Secretary Mr. Train pointed out that the likely concentration of leached salts in North Dakota's Souris River, which flows into Canada, has been termed unacceptable by Canadians; that the statement contains no information on the total cost of the project or anything on its cost/benefit ratio; and no clue as to how claimed benefits are apportioned to project purposes. "In view of the substantial and severe impacts of this project, including loss of wetlands, the lowered water table [by cutting through aquifers with canals], severed farms, and the public controversy and international implications," said Mr. Train, "I strongly recommend that construction on the Garrison Diversion Unit be suspended until these issues have been resolved."

We point out in amplification of Mr. Train's comment on wetland loss that the Bureau's claimed vast fish and wildlife benefits, cranked into the cost/benefit ratio to make the project viable from an economic standpoint, will not create an additional 16,000 acres of wetlands, as advertised, but actually will result in a net loss of some 41,000 acres of wetlands. Also, it is not only the likely salting of the Souris River that is involved in the project; it is a quarter-million acres of now fertile North Dakota farmlands. It is to be noted that the largest two state

farm organizations have asked for a moratorium on further canalization work and land acquisition until an unbiased analysis of the Garrison project can be made.

The brown pelican Fishing lines are the biggest problem facing Florida's brown pelicans, according to University of South Florida doctoral student Ralph Schreiber, who has spent five years studying the endangered birds. (The latest Fish and Wildlife Service estimate of eastern brown pelican breeding pairs in the U.S. range of the bird is 8,500.) Although pesticides and pollution also are problems, Schreiber says, the largest mortality factor in Florida stems from birds becoming entangled in fishing lines. Eighty to 85 percent of all the pelicans Schreiber has handled in recent years have had a hook or line attached, or show scars of past ensnarement. Many dead birds have been found hanging in the mangroves of the south Florida shore entangled in lines.

"Pelicans have learned that fishermen are a ready source of food, but they have not learned to avoid the hooks and lines." Schreiber says. "They get the line wrapped around a leg and eventually their foot falls off. Or they fly to roost trailing line and become entangled in the trees."



A careless fisherman left this young eastern brown pelican with a rusty hook in its beak. Ralph Schreiber, ornithologist doing graduate work at the University of South Florida, used a piece of fresh fish to lure the bird within reach so that he could remove the hook. Photograph by Bob Riley.

Schreiber, who is so concerned with the plight of the pelicans that he has founded Seabird Research Inc. to support his lifetime work with pelicans, encourages fishermen to help birds caught in lines. "Fishermen need to learn to reel in the bird, cut the line off and take out the hook," he says. "And don't leave any line trailing. Pelicans won't hurt you. The very tip of their bill is sharp, but they have no closing strength. If you grab their bill and hold it, they become very docile."

Young birds are most susceptible to fishline problems, Schreiber points out, particularly during August through October when they are just leaving the nest. They have not yet learned to fend for themselves and often are seen hanging around fishing piers where food is easy to come by.

It is not true, as many local fishermen say, that the brown pelicans are females and the black and gray ones with yellow or white heads are the males, says Schreiber. Instead it is the young fledglings, which are the same size or larger than their parents when they leave the nest at ten to twelve weeks, that are brown. When both male and female reach adulthood somewhere between three and six years, their plumage changes to the more vibrant black, gray, white and yellow.

Cooking with NPS A volunteer project by men and women of the National

Park Service's Western Region, undertaken during the 1972 National Parks Centennial Year in behalf of the scholarship fund of the NPS Employees and Alumni Association, has produced a handsome, convenient, and reasonably priced cookbook containing nearly 600 recipes contributed by Western Region wives and employees. Printed with exceptionally readable type, the volume is mechanically bound to lie flat as opened to any of its 252 pages, which contain recipes ranging from "the practical to the exotic, and reflect the ethnic background of the Park Service families as well as the local specialties in 35 Service areas in Arizona, California, Hawaii, and Nevada."

The volume is titled "What's Cooking in Our National Parks," and may be ordered by mail from the NPS-WRO Cookbook Committee, 450 Golden Gate Avenue, San Francisco, California 94102, for $3.90, postage and handling included. Ed Winge, the Western Region's public affairs officer, reminds us to tell members resident in California to add the state's 6 percent sales tax (6½ percent if you live in one of the three San Francisco Bay area counties).

NPCA Membership Records Now on Computer

Last year it became apparent that it was becoming too costly for the Association to maintain its membership records with the old-fashioned 3x5 cards used for so many years. Wages and materials were just getting out of hand.

After consultation with the experts we decided that the most economical way to handle membership records would be to convert to computer operations, which would permit greater flexibility and faster processing of membership data than was possible in the past. It also would result in substantial economies in our membership programs.

This changeover was not accomplished easily, and in the earlier phases of the conversion we seemed to have created more problems than we solved, as many of our members well know. We are glad to report that this operation now has been completed, and with this October issue members can once again be assured of prompt delivery of the Magazine as well as efficient handling of their membership records. The Membership Department deeply appreciates the patience of members, and we are grateful to those of you who wrote us regarding their own individual problems.

Wood shrinkage continues "An unsigned letter to the Interior Department encloses five dollars in return for pieces of petrified wood which children gathered last summer in the Petrified Forest National Monument, Arizona, in violation of law. It has been credited to the conscience fund of the Treasury Department."

We picked this little note from the March 1926 issue of the Magazine. Nearly fifty years later the only thing that has changed at Petrified Forest is the name. Some years ago a local tradeoff with the Park Service secured park status for the monument, but souvenir hunters and rockhounds still are blaming their children for stealing bits and chunks of petrified wood from the colorful ancient forest in spite of the best efforts of the ranger force there.

The "children" still are looting one of the world's great natural inheritances from a past that is very far back indeed. The bright stone log sections of this "forest" were brought into the region a couple hundred million years ago by some Triassic river, or rivers, and left stranded in a basin that was rapidly filling with sediments. Most of the logs are of two species of trees distantly related to the modern South American araucaria and the Australian Norfolk Island pine, with a smattering of other species both identified and unidentified.

But conscience money, with which

the Treasury ought to be loaded by now from this source alone, will hardly restore a national treasure that is disappearing, according to the Park Service, at the rate of about twelve tons a year. If one thinks of petrified wood as the primary rationale for the park, the figure above places a measurable limit on its existence.

conservation docket

Items of interest to environmentalists that recently have passed either house of Congress have included:

Trans-Alaska Pipeline: S 1081, to authorize the Interior Secretary to issue special land use permits for transmission facilities on federal land (includes Trans-Alaska pipeline), passed Senate by 77 yeas to 20 nays July 17. HR 9130, to amend the Mineral Leasing Act of 1920 and approve the Trans-Alaska Pipeline, passed the House by 356 yeas to 60 nays August 2.

Endangered Species: S 1983, to provide for the conservation, protection, and propagation of species or subspecies of fish and wildlife threatened with extinction or likely to become so within the foreseeable future; passed the Senate by a unanimous vote of 92 yeas July 24. The Senate also passed resolutions ratifying two treaties of environmental interest, both by unanimous vote of 86 yeas: a convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, and a convention on International Trade in Endangered Species of Wild Fauna and Flora.

The National Park System

Recently introduced legislation relating to the national park system has included:

Snow Island Park: HR 9916, to establish the Snow Island National Historical Park in South Carolina. To House Interior and Insular Affairs Committee.

California Desert: HR 9836, to provide for the establishment of the National Conservation Area of the California Desert, and to provide for the immediate and future protection, development, and administration of such public lands. To House Interior and Insular Affairs Committee.

Fort Mifflin Site: S 2303, to authorize establishment of the Fort Mifflin National Historic Site in Pennsylvania. To Senate Committee on Interior and Insular Affairs.

Mining in Parks: HR 9733, to repeal certain provisions of law allowing prospecting and mining in components of the national park system, and to prohibit prospecting and mining activities in such areas. To House Interior and Insular Affairs Committee.

Chickasaw Recreation Area: HR 9627, to establish the Chickasaw National Recreation Area in Oklahoma. To House Interior and Insular Affairs Committee.

Hells Canyon: S 2233, to establish the Hells Canyon National Recreation Area in Idaho, Oregon, and Washington. To Senate Committee on Interior and Insular Affairs.

Chatooga River: HR 9492, to designate the Chatooga River in North Carolina, South Carolina, and Georgia as component of the National Wild and Scenic Rivers System. To House Committee on Interior and Insular Affairs.

Tallgrass Prairie: HR 9262, to authorize the establishment of the Tallgrass Prairie National Park in Kansas. To House Committee on Interior and Insular Affairs.

Channel Islands Park: HR 9209, to establish the Channel Islands National Park in California. To House Committee on Interior and Insular Affairs.

Wildlife Resources

Bills relating to wildlife matters have included:

Anadromous Fish: S 2338, to provide for conservation of U.S. coastal and anadromous fish. To Senate Interior and Insular Affairs Committee.

Wildlife and Public Works: HR 9404, to protect, enhance, and improve fishery and wildlife resources in the construction and operation of federal public works projects. To House Committee on Interior and Insular Affairs.

In the National Forests

Bills relating to forestry have included:

Forest Protection: S 2296, to provide for the protection, development, and enhancement of the national forest lands and resources. To Senate Committee on Agriculture and Forestry.

Everglades kite

classifieds

Continued from page 2
if the countryside is to be redeemed as the true home of man, and if the evil of urbanization, as it has recently revealed itself, is to be ended. The work of transformation will not be accomplished in a decade, nor in a generation. The catastrophe which has required a century and more to overwhelm us will not be righted in less than another century, more likely half a millenium; and so patience, endurance, and conviction will also be needed. And yet, among the beneficial results of science and technology has been our generalized sense of competence, the widening of a faith, perhaps recently shaken, that men can in fact, if they will, command their own collective destiny.

IF A VISION guides, perhaps the first step is to visualize the alternatives; then we can examine into what practical measures may be available for their realization. The image will not be the agricultural society of the past in all its aspects; the long days of toil in the fields, the drudgery of the household, the big family and its labor supply, the overburdened work animals, the isolation and parochialism; these are behind us. The machine, even the factory, which can be made serviceable, even automation, which can be made tractable, even technology, if it can be domesticated: these emergents can be forced into the service of mankind, can be made to yield abundance, security, leisure, foundations for a cultural efflorescence, seated within a generosity of field and forest. Granted a rapid stabilization and a gradual reduction of population, essential to any future human order, the small cities which dot the land can be revitalized without any grave impingement on the environment, and new communities can be built in reasonable number. The big cities can be opened up, and the countryside brought back to them in broadened open spaces, parks, and avenues freed from curbside parking and the uproar of traffic.

WITH A SHIFT of budgetary priorities from the construction of superhighways and useless dams, and from arms to education, as expanded institutions of world order permit, new schools, with room space for small classes, and with more teachers, aided by the mechanical marvels of the age, microfilm, television, can make high quality universal education as readily available to rural communities as it was thought to be in the cities. And the art gallery, library, concert hall, theater will be seen as functions of interest, attention, leisure, and abundance, not of urban concentration.

Perhaps there will be a new sense of time within the new society; or better, we shall return to an almost forgotten, basically rural sense of time, familiar to older generations, a slow time, not the modern frenzy, an ample time, with room for reflection, for a return upon the spirit. Perhaps also a remembered sense of security; a world which is in constant flux can yield no man security of spirit; within the reborn countryside we shall build our houses again for the centuries, for the continuity of generations, and shall preserve our churches once again as symbols of eternity.

IN THE MEANTIME, campaigns for the defense of the countryside and for an attack on the problem of urbanization will have to be mounted. Land-use planning based on the preservation of rural values, not the exploitation and destruction of the land, will be fundamental. The entire environmental protection arsenal must be deployed. Pollution abatement programs must not be compromised. The old soil conservation programs should be reactivated, as contrasted with lake building, fruit of speculative ambitions. Ecological forestry action will be essential, and vigorous wildlife restoration and protection.

A workable system of industrial plant location and continuity should be developed without delay, not focused on unending growth, which many communities are now resisting, but on stable employment for settled populations within the essential economic and cultural amenities. Telically valid plant location will mean small plants for a variety of human reasons, a varied product within a coherent region, a deliberate reduction of transportation, both for materials and product, and a rigorous respect for the surrounding environment.

A GENERALIZED stabilization, as contrasted with endless expansion, will be fundamental to the new order, always including stabilization and reduction of population and a differential economic stabilization, correcting for the needs of underprivileged groups and nations, but working toward a sufficiency, not a surfeit, of beneficial goods, and against harmful commodities. The frame of reference will be the metropolis no longer, but the verdant fields, the refreshing woods, the clean and sparkling streams of the resurrected and beloved countryside.

—Anthony Wayne Smith

For over 53 years the National Parks and Conservation Association has worked for the protection and enlargement of the national park system, and also for many years in other environmental problems such as endangered species, good water planning, good forestry. We need the continued support of all members and their friends in this vital work. Renew early when you can. Send the names of friends who would be interested in NPCA's work. Through increased membership the Association's work can be even more effective.

NATIONAL PARKS & Conservation Magazine

The Environmental Journal

October 1973

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