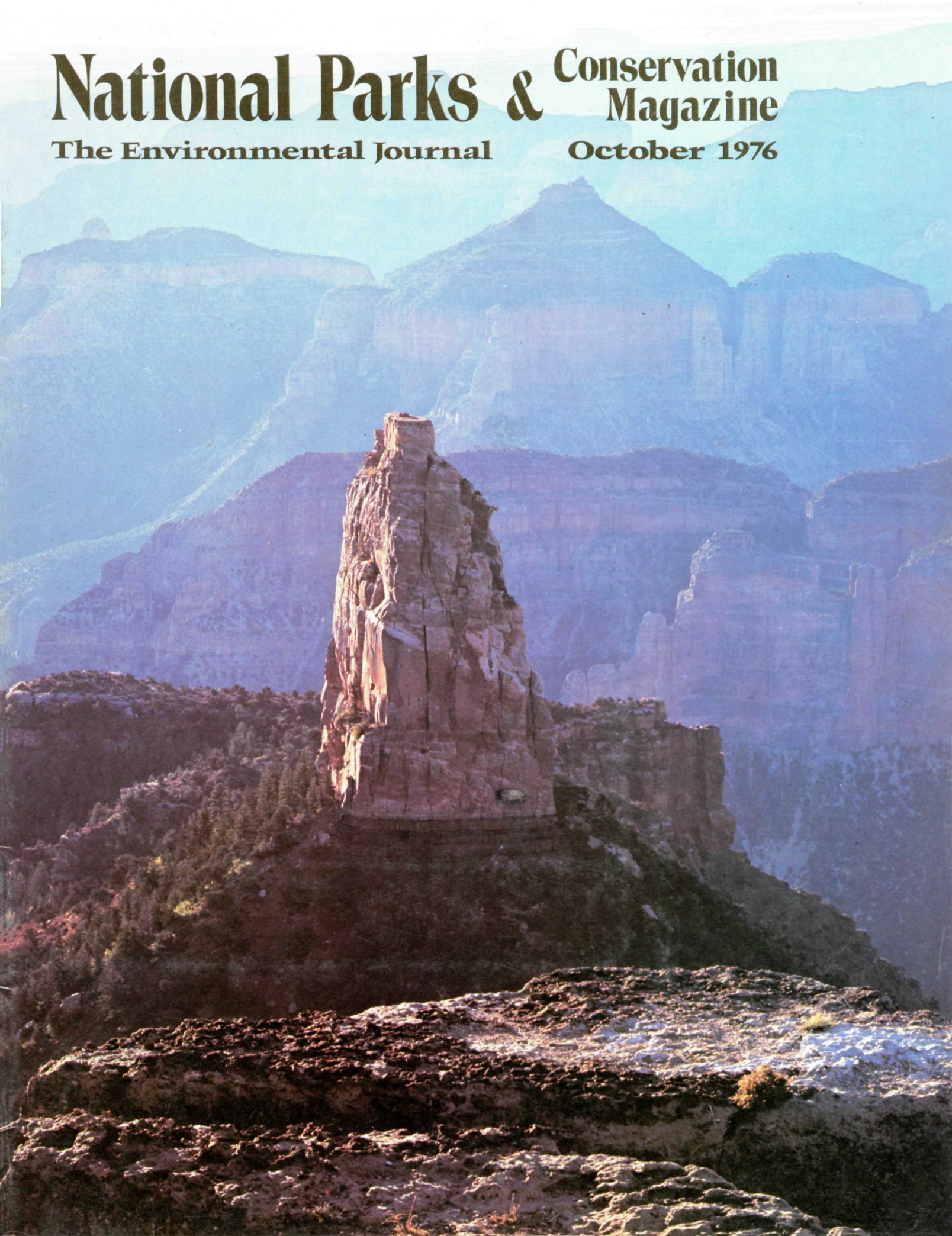
National Parks & Conservation Magazine

The Environmental Journal

October 1976



THE WEALTH OF THE COUNTRYSIDE

ACROSS OPEN FIELDS and low hills, dawn at first is but an intimation of light. Then it is a presence, everywhere and suddenly revealed. Trees, fences, houses which had been hidden by darkness emerge and take form.

Like a flame kindled in the distant forest, the first direct rays of the sun break over the mountaintop. The earth turns in its silent rotation toward the sun and we have daybreak, sunrise, morning.

You city people never see the dawn. You have erected your buildings as high walls against it. You burn your street lights and your house lights all through the night. The dawn is for countrymen.

BY AUGUST the rich green of the forested slopes has mellowed toward bronze. Summer lies heavy and slumberous upon the land. The springtime choruses of the frogs have long since been silenced. The birds have abandoned their clamor and await a later season. The swallows have departed for the south. The countryside is languorous, leisurely, the pace of life severed from the hurly-burly of cities.

The cultivated fields have changed color in an orderly sequence. The green of the winter grain, lush in the springtime, ripened yellow and brown. The land that was plowed for corn was earthy, then greening, then golden with tassels, now yellowing toward harvest. The haylands are verdant this year, for the wet weather has hindered haymaking elsewhere, and prices are high, and we have taken our second cutting and will take a third, enjoying our profits.

Across the rotation hayfields which are to go into next year's wheat, you may ride your tractor now, with the plow mounted, and turn the sod over in long, rich furrows. The grass and the clover go under, with nitrogen for the new roots. The timothy seed and the minerals go down with the seed wheat. You can smell the sod and the mellow loam as you work. There is a rhythm in your work; you cannot force your pace.

AT HIGH NOON you may pull your machines and wagons into the shade of giant sycamores along a stream. You have brought your luncheon from the farmhouse, and may still drink without hesitation from the creek itself, for the filth of the subdivisions has not yet poisoned this world. The stream is a soft symphony of sunlight and sound. Its headwaters are high in the mountains. It gathers itself from the seeps and the springs of all the mountains and the valley. The waters are cool and fertile. Brook trout lounge in the pools, leap the riffles. The box turtle meanders the banks, and snappers loll and cruise in the depths.

The wheat and the barley ripened, were combined, early in July, and the spring oats soon afterward. The granaries of the old barns bend their timbers under the weight of the harvest. The elevators in the towns and along the railroads have been filled to capacity. The trucks and the trains will carry the wealth to market in due course; much of it will travel by great ships to very hungry people overseas. For America will be fighting the world's famines for a hundred years and more.

AS YOU CLIMB the high fields to make hay, or to plow, or to pick corn, you may look back across the valley, see your own house and barns and silos gleaming whitely below you, the other farmsteads set spaciously across the land. Until just yesterday the young men have been leaving the farms, drawn by the wages of the factories, by the excitement of the cities. But now that tide is turning, and new men, often very young, are coming out from the cities, and some of the native sons are staying. The metropolis dies; the news of its death travels fast; there is life to be found on the land. The new people will need to form partnerships on the land of a kind never known before; the big family is gone and cannot return; but the old patterns of working interchange which were always there can be adapted to the new uses.

Here in the countryside the animals rejoin mankind in companionship. You need not curb your dog out here; collar him perhaps, and license him, no doubt, but otherwise let him run free. Your cats are no longer dependents, but working members of the labor force of the farm, and as easily capable of living on the fields as of curling comfortably in the shady corners of your porch.

Quail and grouse and pheasant may inhabit your hedges. The domineering mockingbird, perched perhaps on the high maples around your

Continued on page 35

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FRONT COVER Morning Design, Grand Canyon
by David Muench

BACK COVER Wild Sheep Rapid, Hells Canyon
by Verne Huser

The changing moods of the Grand Canyon—the largest gorge on earth—and Hells Canyon—the deepest—captivate lovers of wilderness with their subtleties and drama. (See pages 4 and 11.) The cool tones of Mount Hayden below Point Imperial (front cover) change by sunset to glowing oranges and reds. The green velvet of Hells Canyon in spring (back cover) turns tawny in summer; then autumn brings patches of scarlet, and the mountains in winter turn white. But a controversy raging over wilderness designation of the Colorado River in the Grand Canyon presents the Park Service with a hard choice. (See page 15.)

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weathered american chestnut trunk
jack jeffers photograph

HELLS CANYON: A Magic Place

Hells Canyon, a grand yet subtle gorge on the Snake River, has finally been set aside for protection

by VERNE HUSER

PEOPLE who talk or write about Hells Canyon use superlatives: the deepest gorge in the world, the greatest hydroelectric site in the nation, the wildest canyon in the Northwest. Lying on the Idaho–Oregon border on the Snake River as it flows north to the Columbia, Hells Canyon is our newest national recreation area.

But to me, it is a subtle place full of magic. My wife and I were married in Hells Canyon on an open hilltop overlooking the Snake River. We spent a three-month honeymoon exploring it on foot, by car, and by boat.

In April we saw our first dutchman's breeches of the season by a snow-melt tributary of the Snake. In May we hiked along the west side of Hells Canyon Reservoir into the Hells Canyon–Seven Devils Scenic Area to camp at Spring Creek and catch our breakfast of trout. In June we hit the high country, the Wallowa Mountains still snowbound with glacier lilies breaking through, and we floated the Snake River more than a vertical mile below on a trip through summer heat.

GREEN VELVET—that's Hells Canyon in the spring. Everything is green from the new cheat grass on the steep slopes to poison ivy and hackberry trees at river level. You can see snow up high, and the streams flow full, creating waterfalls mostly hidden from distant view. You have to seek them out, find the magic yourself. Miners lettuce and lambs quarters and watercress add to the greenery and to the evening salad; and if the Snake has cleared, that too is green.

But as the heat of coming summer penetrates the canyon's depth, the green velvet slowly turns tawny, first around the dark basaltic rocks that absorb the sun, spreading out gradually to cover the whole hillside in a mosaic of yellow, tan, and brown. Ponderosa pine and Douglas fir retain their dark green, and the river clears to maintain the green motif; but by June much of Hells Canyon has gone to seed. It is hot and dry but still full of magic.

The tributaries slow to a mere trickle, but the fishing improves. Frogs mate, and long sticky strings of eggs appear in shallow streams. The river level drops, exposing sandbars, especially below the mouth of the free-flowing Salmon River, which brings in a new load of silt each spring. The orchards planted by early homesteaders ripen, wild berries and mulberry trees bear fruit, and the water ouzel plies her insect-gathering trade to feed her growing young.

The tourists come in summer, hot as it is, because the kids are out of school and free to travel. Jet boats run upstream from Lewiston and Clarkston, shattering the silence with their rapid single-day cruises, and float trips run down the Snake on extended trips of three to five days. Most backpackers disappear with the spring wildflowers, but horseback parties come in from trailheads in the high country. On the rim of the canyon a scattered network of primitive roads allows the more daring drivers a glimpse of the canyon. The Eagle Cap Wilderness a few miles west and the Seven Devils Mountains to the east see a lot of foot and horseback traffic.

Then it's autumn. Sumac and poison ivy begin to turn scarlet, the river drops even more as most of the tributaries dry up by Labor Day, and the fishing gets even better as the steelhead begin their runs. There are salmon too and sturgeon and rainbow trout as well as bass and catfish. The fall hunting season opens for elk and deer and bear, for chukars that are so abundant in Hells Canyon that at times it sounds like a barnyard. Bighorn sheep have been introduced but have not become established well enough to be hunted, and feral goats roam the canyon walls. One year a young bull moose wandered into the canyon, but he disappeared before spring.

Winter in Hells Canyon offers a wide contrast because of the elevation differential. At river level it rarely snows, and snow virtually never sticks; but in the surrounding high country (6,600 feet above the river in Oregon, 7,900 feet above the river in Idaho), heavy snow locks man out. Most of the terrain is too steep for snowmobiles, and not many people venture into the area by snowshoe or touring ski at this time.

Winter may last six months or more in the mountains, but in some years it is barely felt at river level. Deer congregate along the reservoirs that have inundated their former winter range upstream, but below Hells Canyon Dam, there is plenty of winter forage. Fishing and boating are locally popular even in winter; and backpackers may venture into the canyon, especially from downstream, as early as February.

Spring comes to the lower canyon in March as the calendar says it should, and April can be delightfully warm at river level. It can also be cold and rainy. The rains and vanishing snow bring on the green velvet that so vividly marks spring in Hells Canyon, and the wildflowers begin their cycle anew.

U.S. FOREST SERVICE

Wild Sheep Rapid is the terminus for downstream boat trips through wild Hells Canyon, the deepest gorge in the world.

Herds of elk and deer move into the high country, following the receding snow, and the dry streambeds fill with snow-melt again. A new natural year is born.

THIS CYCLE from green velvet to green velvet has repeated itself for centuries, but now it has a new meaning. Hells Canyon National Recreation Area was established almost on the eve of the Bicentennial year—a fitting memorial. Some 660,000 acres of mostly Forest Service land and nearly seventy miles of Snake River will be protected from inappropriate development and exploitation. Much of it will be designated wilderness, and the Snake River itself will become part of the Wild and Scenic Rivers System. The recreation area will be administered by the Forest Service.

This protective designation was long in coming, and conservationists have fought a major battle for decades to save Hells Canyon from damming and development. Almost certain at times that it was lost, the few who knew it and who cared enough kept battling the power companies and the land developers, the loggers and miners, even occasionally their own elected representatives.

Two of the best accounts of that long battle are Michael Frome's "Must This Be Lost To the Sight of Man?" (*Field and Stream,* July 1969) and Boyd Norton's "The Last Great Dam" (*Audubon,* January

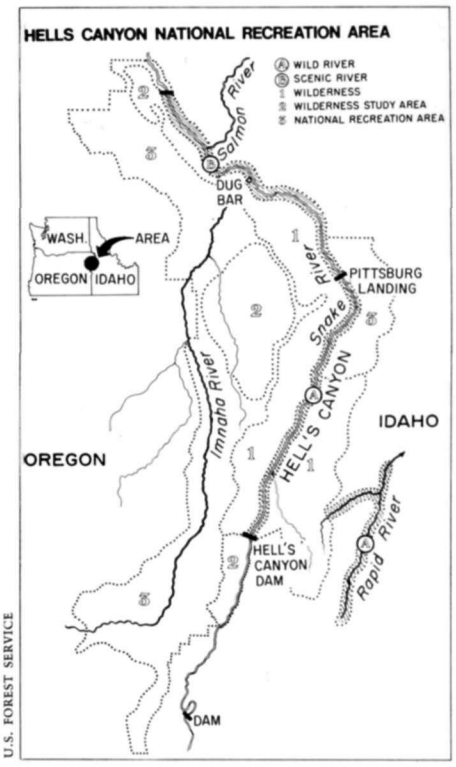
1970). Norton also covers the controversy in some detail in his Sierra Club book, *Snake Wilderness,* and in his more recent pictorial book, *Rivers of the Rockies,* a Rand McNally publication. Still another good background book on Hells Canyon is Don Moser's *The Snake River Country* in the Time-Life Books series on The American Wilderness.

The Snake River has been dammed more than twenty times in less than a thousand miles between Yellowstone and the Columbia including three dams in Hells Canyon itself. The power potential of Hells Canyon has long been the greatest drawback to its preservation. Nearly a dozen different dams have been proposed for the remaining free-flowing stretch of the Snake in Hells Canyon over the decades, and even today the canyon is marked with dam-builders' graffiti in several reaches.

Probably the strongest bid came from Pacific Northwest Power with their proposed High Mountain Sheep Dam, which was actually licensed in 1962. However, the controversy went all the way to the U.S. Supreme Cout, which in 1967 suggested, in a decision written by Justice William O. Douglas, that there might be better uses for Hells Canyon than drowning it with another reservoir:

> The test is whether the project will be in the public interest, and that determination can be made only after an exploration of all issues relevant to the public interest. These include future power demand and supply in the area, alternate sources of power, and the public interest in preserving reaches of wild rivers in wilderness areas, the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife.

This decision of nearly a decade ago is of great interest today, especially in light of the energy crisis. As much as we need power, it is



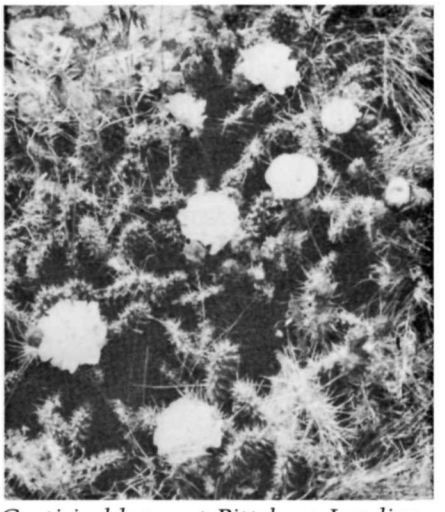
Hells Canyon's quiet nooks and subtle beauties lend wonder and enchantment to its rocky shores and wild rugged slopes.

BOB AND IRA SPRING

PHOTOGRAPHS BY VERNE HUSER

Dutchman's breeches bloom in April.

Glacier lilies grow in high country.



Cacti in bloom at Pittsburg Landing.

obviously in the public interest to preserve the natural world in some areas, and Hells Canyon, the magic place, is one of those areas.

I FIRST DISCOVERED Hells Canyon the spring of 1971, green velvet time on the Middle Snake just five years ago. It was April. Wildflowers dominated the landscape at river level. It rained during that early-season trip, and it was cold part of the time. The river was high, the rapids tremendous, the water too muddy to fish. We saw elk and osprey, deer and chukars, and a lone bald eagle. I didn't find many magic places that first time.

That same spring I ran the Snake River three more times, once with Oregon's Senator Bob Packwood along. He sponsored the first protective legislation for Hells Canyon and the bill that finally became law. Before I left Hells Canyon that spring, I had found a bit of its magic, and I had taken a teaching job for the following school year in Halfway, Oregon, a community of 320 people which was the largest town for a fifty-mile radius—and only seventeen miles from Hells Canyon.

During that teaching year in Halfway, I spent a lot of time in Hells Canyon, sought out its special places, its quiet nooks, discovered more of its magic. It's not hard to find, and the variety is astonishing.

There's a little alcove just off the highway along Oxbow Reservoir where Willa and I one day climbed into a world of rough rock and water-smooth gully, where flowers grew in cracks and crannies and tadpoles swam in frantic circles.

There's the Nez Perce Crossing at Dug Bar, accessible by river or primitive road. (That road will be improved under the law establishing the national recreation area.) I never pass that spot without seeing in my mind's eye the tragic exodus of the Nez Perce under Chief Joseph from their traditional and ancestral homeland—and that, not yet a hundred years behind us.

There's a field full of boulders at Pittsburg Landing where ancient people carved strange signs into the rough rock, and prickly pear cacti bloom bright yellow, and the birdlife is varied and colorful.

There are lazuli bunting in the spring, the male singing his heart out from a dead branch high above the foliage where his mate incubates the eggs. There are weathered barns and wind-powered generators, powerboats and airstrips for communication with the outside world instead of automobiles and roads, and the mail is delivered three times a week by boat.

There are beaver that appear in the midday heat and light and otter that chirrup to campers on the beach at night while frolicking in the river. There are occasionally avocets and frequently owls and hundreds of Lewis woodpeckers.

There are hidden waterfalls where one can bathe, and flat sun-warmed rocks where one can dry—side canyon delights. There are homestead cabins to explore, walls papered with ancient newsprint, and farm implements rusting away in the tall grass. There are blue butterflies and, in the spring, syringa (mock orange, Idaho's state flower) that perfumes the whole canyon.

There are sandy beaches and rocky shelves that became overnight pallets, shooting stars—both the wildflowers and the nighttime displays—and full moons and moonbows, halos of white light reflected in waterfalls at night.

Hells Canyon is a magic place for Willa and me, but it's not just for us. It is a national recreation area, and it's for you, too. Experience it, enjoy it, treat it tenderly and carefully. It is a wonderful place—a place full of wonders—and it deserves protection, protection *from* us as well as *for* us. It deserves your best behavior and your caring. ■

Verne Huser, freelance writer and formerly a Park Service ranger and naturalist, has floated the Snake River in Hells Canyon for many summers. He is conservation chairman of the Western River Guides Association and at one time was a member of the board of directors for the Hells Canyon Preservation Council. His publications include *Snake River Guide* (Boulder City, Nevada: Westwater Books, 1972) and *River Running* (Chicago: Henry Regnery Company, 1975), the latter a handbook for whitewater touring.

The Civil War

TRIUMPH OF A UNION

The American Civil War tested and proved the strength and endurance of the Union

THE CIVIL WAR stands as the single most tragic event in our nation's history. The roots of the conflict can be traced to the early nineteenth century when two interpretations of the Constitution regarding the power of the federal government emerged. One interpretation, generally favored in the North, held that the federal government should be able to develop and take charge of the resources of the entire nation, such as roads and canals. The opposing viewpoint wanted the federal government to remain as unobtrusive as possible, with state and local governments taking responsibility for most of their affairs. By 1830 the two philosophies and the two sections of the country they represented were on a collision course. At this time federal legislation had created a national economy of tariffs, banks, and land policies that included selling western lands at high prices in order to finance public projects. The South felt that the system of tariffs and banks benefited moneyed interests of the Northeast at the South's expense.

At the same time that constitutional interpretation was driving the North and South apart, the economies of the two sections were moving in different directions. In the early 1800s it was generally believed that slavery would eventually disappear. But with the invention of the cotton gin followed by an increasing demand from England for cotton, the lower South became a one-crop cotton culture to which slave labor was essential for making an immediate profit. It was easier and, in the short run, more economical to continue operating under the system of slave labor than to make a change.

While the South had turned toward an agrarian economy, the North was becoming more diversified and industrialized. Agricultural practices in the North were more progressive than those of the South; and the advent of new farm machinery, manufactured in the industrial North, made farming even more efficient there. Slavery became an obstacle to Southern progress because capital that might have been invested in machinery or improvements was needed to purchase slaves.

Transportation was much better in the North than in the South, a factor that would prove a great advantage during the war. Citizen groups initiated road, canal, and railroad projects. Steamboats and clipper ships also had a place in commerce and transport although the railroad eventually superseded other forms of transportation. Between 1848 and 1860 the U.S. rail system expanded from 6,000 miles of track to 30,000 miles throughout the North and to the Midwest. The growth of the rail system created an accessible national market for eastern goods and internationalized the agricultural market.

The manufacture of textiles, machines such as the McCormick reaper and the sewing machine, and other consumer goods, as well as iron and steel production were the primary industries in the North at that time. Although industrialization brought problems to the cities—long hours, devaluation of individual craftsmanship because of mass production, and urban slums—that same industrialization created a higher standard of living for all and nurtured the belief that anyone could better himself and his family with hard work and talent. This notion resulted in a democratization of northern society that drove another wedge between it and the aristocratic South.

Famine in Ireland and unrest in Germany brought pre-Civil War immigration to its peak in 1846. The availability of this new cheap labor force increased the pace of northern industrial and agricultural growth. The immigrants brought new life and diversity of culture and religion to the North. Because the South, with its slave-based economy, offered no job opportunities, few immigrants settled there; so the South remained relatively homogeneous in ethnic and religious background. The failure of the South to attract immigrant labor also hampered industrialization in the border states, where a labor shortage existed.

Europe not only provided America with new citizens, but exported with them nineteenth century liberal European concepts of democracy and liberty as well. Particularly in the North these ideas gave rise to many new religious, educational, democratic, and humanitarian efforts. The causes of women's rights, prison reform, and temperance came into their own during this period. Writers such as Thoreau, Emerson, and Whitman emerged. In this intellectual and moral atmosphere the abolitionist movement was born.

MOST NORTHERNERS opposed slavery on intellectual and moral grounds,, although the majority still believed in white superiority; but the issue did not catch fire until the advent of the abolitionist movement. *Uncle Tom's Cabin,* by Harriet Beecher Stowe, a virtual encyclopedia of slavery abuses, was read widely in the United States and abroad; and it hardened northern sentiments against slavery. The abolitionists made slavery a symbol of an "evil" South. Extreme emotional attacks closed all avenues of rational debate and forced the South on the defensive. Southerners came to view these verbal assaults as a threat to their way of life and their political and economic integrity.

WHEREAS the North was a dynamic, ever-changing, money-centered, and diverse society characterized by an almost naïvely exuberant and optimistic belief in democracy and nationalism, the South represented a slow-paced, unchanging, more conservative way of life in which a person's loyalty lay more with his state than with his country. The aristocratic and wealthy planters lived a refined and genteel existence in which honor, generosity, and good manners were esteemed as opposed to northern values of aggressiveness, efficiency, and ambition. Although relatively few people lived the luxurious plantation life romanticized in novels such as *Gone With the Wind,* the planters set the political and social tone for the entire South. Only 350,000 families owned slaves, and of these only 46,000 owned twenty or more; yet some eight million southerners were willing to go to war to defend slavery.

As slavery became a symbol of the "evil South" to the North, so it became a symbol of southern culture to the South. Southerners turned to biblical justifications of slavery in a desperate attempt to defend themselves. By the fifties, in response to a growing northern attitude of hostility, more and more upper-class southerners were educated in the South rather than in the North, increasingly insulating the section from the rest of American society.

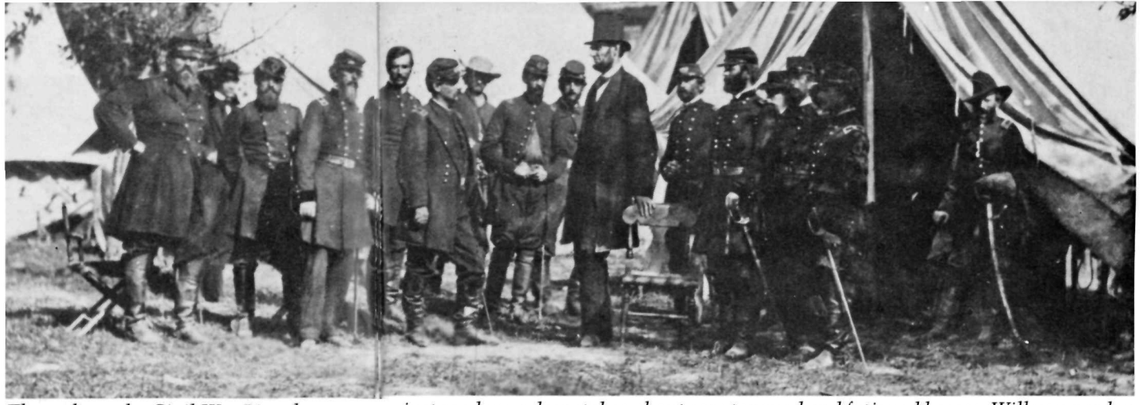
The controversy was further inflamed by the recurring question of whether the new territories and states west of the Mississippi should be open to slavery.

Abolitionist John Brown's raid on Harper's Ferry in October 1859, in which he and his sons seized the federal arsenal and declared war on the United States, was the last in a series of events during the late fifties that sealed the fate of the United States for the next few years. Compromise after compromise during the previous decade had failed to resolve sectional differences; and after the election of Abraham Lincoln to the presidency on November 6, 1860, South Carolina became a leader in secession by declaring the union between it and all other states dissolved.

Lincoln did not want war and put the issue back in southern hands. But war came in spite of Lincoln and in spite of the fact that most northerners and southerners thought it would not come. It came on April 12, 1860, when Lincoln attempted to revictual Fort Sumter in South Carolina.

OF THE CIVIL WAR Lincoln said, "Neither party expected for the war the magnitude, or the duration. . . . Each looked for an easier triumph, and a result less fundamental and astounding." But triumph did not come easily, and the results *were* fundamental and astounding.

At the end of the war, on April 9, 1865, although the North was the military victor, both sides had paid dearly during the terrible years of the tragic conflagration. More young Americans lost their lives during the Civil War, by wounds or by disease, than during all other wars combined in United States history. The Battle of Gettysburg alone claimed more lives in a two-day confrontation than were lost during the entire Vietnam conflict. Behind these staggering statistics are the almost incomprehensible personal tragedies—young men dying far from home from agonizing wounds inflicted by their own countrymen; the grief that touched almost every family at the loss of a husband, father, son, lover, or brother. And the men who survived often returned with visible or invisible scars to live forever in the shadow of that horrifying experience, haunted and changed.



Throughout the Civil War Lincoln was plagued by the excessive caution of his generals until he appointed Ulysses S. Grant to the high command in March 1864. To General McClellan (pictured sixth from left with Lincoln after the battle of Antietam) he wrote: "I have just read your despatches about sore tongued and fatigued horses. Will you pardon me for asking what the horses of your army have done since the battle of Antietam that fatigues anything?" His appointment of generals for political reasons, which often resulted in less than competent leaders, was an effort to obtain the support of all northern groups. In spite of early defeats, Lincoln never gave up his will to win; and his diplomatic and strategic handling of the war contributed greatly to the final victory. His death cost the nation a great leader.

This series of Bicentennial articles will trace some of the events and diverse cultural influences that forged the distinctive character of our nation—and, as elements of our rich American historic heritage, are represented in the National Park System.

The nation too changed, and the war has touched the consciousness of every generation of Americans thereafter. After the war, for the first time in its history, the United States was genuinely a united nation, and the integrity of that union would never again be seriously challenged. The Civil War established the strength of the republic and of the democratic ideal; in this sense it had great international as well as national significance. Less than a generation after the war men who fought on both sides were revered as national heroes, and the country came to realize that in the triumph of the union both sides had actually won. The war ended slavery, and in this sense too both sides won. Whites as well as blacks were freed from an institution that stood as an anachronism amid the unlimited possibilities of nineteenth-century America and mocked the very principles on which the nation was founded.

After the Civil War industrialism, which had continued to expand in the North during the war, burgeoned even more rapidly. Big business saw its beginnings in the post–Civil War period. Expansion of the railroads and mining and cattle corporations opened up the West to greater numbers of settlers than ever before. The end of the war intensified the nationalism that had been so deeply felt in the North before the war, and thousands at home and abroad followed the call of the West as a land of hope and opportunity.

Abraham Lincoln was perhaps the nation's greatest war casualty. With his assassination the nation lost a great conciliatory leader and the chance for a peace of friendship and healing. Instead, radical members of Congress took charge of reconstruction and dealt harshly with the South as a conquered territory, which increased sectional bitterness and racial animosity and prolonged the inevitably long and painful period of recovery.

MORE THAN one hundred years later the Civil War still fascinates the American imagination. The great issues of the war—equal rights, and federal power versus states' rights—are still alive. And the Civil War has left us with more visible memorials than has any other era in our history. Among the twenty-two Civil War battlefields and monuments preserved within the National Park System are Harpers Ferry National Historical Park, Maryland and West Virginia; Fort Sumter National Monument, South Carolina; Manassas National Battlefield Park, Virginia; Shiloh National Military Park, Tennessee; Antietam National Battlefield Site, Maryland; Gettysburg National Military Park, Pennsylvania; and Appomattox Court House National Historical Park, Virginia. These memorials stand as reminders that the union, though once divided, survived—and along with it the great American experiment in democracy. ■

Confederate General Pickett's charge on July 3, 1863, the final day of the battle of Gettysburg, marked the end of war in the old style—men lined up for a mile and a half advancing across open ground. During a few hours thousands of men on both sides lost their lives. More accurate guns and rifles would soon herald the era of trench warfare, and men would never face each other at such close range in battle again. Of the defeated Rebel army, Frank Haskell, a veteran of the battle, wrote: "The enemy, too, showed a determination and valor worthy of a better cause. Their conduct in this battle makes me proud of them as Americans. They would have been victorious over any but the best of soldiers."

NATIONAL PARK SERVICE

Vasey's Paradise Lost?

The Inner Gorge of the Grand Canyon is much richer in flora than is generally recognized

by VIRGINIA McCONNELL SIMMONS

EARLY LITERATURE describing the depths of the Grand Canyon portrayed a doleful place of barren cliffs and raging cataracts, a place where one might expect to find Satan and his fallen angels lying on the burning waters. If the poet John Milton had read some of these accounts, he might have cast Satan on the Colorado River rather than on the lake of Hell in his epic poem *Paradise Lost.*

The inhospitable qualities of the Grand Canyon are legendary. Indians, Spanish explorers, and members of American War Department expeditions looked upon it with horror and registered their opinions that the place was not merely profitless but utterly uninhabitable. Major John W. Powell's *Canyons of the Colorado,* which became the first and best known published source of information, did little to alter this understanding.

According to Powell's account, the gorge was at best a remarkable example of geological upheaval and erosion. During his two explorations of the Grand Canyon more than a century ago, the major did make some ethnological notes, but he had no eyes for the plant life that adds to the color and interest of the canyon.

Only once was Powell's attention engaged by the canyon's vegetation, when during his first expedition in 1869 he noticed lush growth around a group of springs. These springs flowed from caves in the limestone walls of Marble Gorge and created an oasis that was conspicuous from the river but is no more beautiful than many other less obvious ones in the river's glens and side canyons. Nevertheless, Powell was moved to describe this one spot in his journal, dated August 9, 1869: "The rocks below the fountain are covered with mosses and ferns and many beautiful flowering plants. We name it Vasey's Paradise, in honor of the botanist who traveled with us last year." (Botanist George Vasey had accompanied Powell on a trip through the Rocky Mountains in 1868.)

Thus the little wayside with its thicket of foliage and flowers gained a place in history. When the second Powell expedition passed the site in 1872, one of its members, Frederick S. Dellenbaugh, agreed with the major's appraisal of Vasey's Paradise. He wrote in his *Canyon Voyage* that this was "the only green that so far had been visible in the canyon landscape, for the walls from brink to river were absolutely barren of trees or any apparent vegetation."

Powell's brother-in-law, Almon Thompson, was not impressed, however. On August 20, 1872, he wrote in his diary: "The Major thinks that the place is called 'Vasey's Paradise' but if it is, it is a Hell of a Paradise."

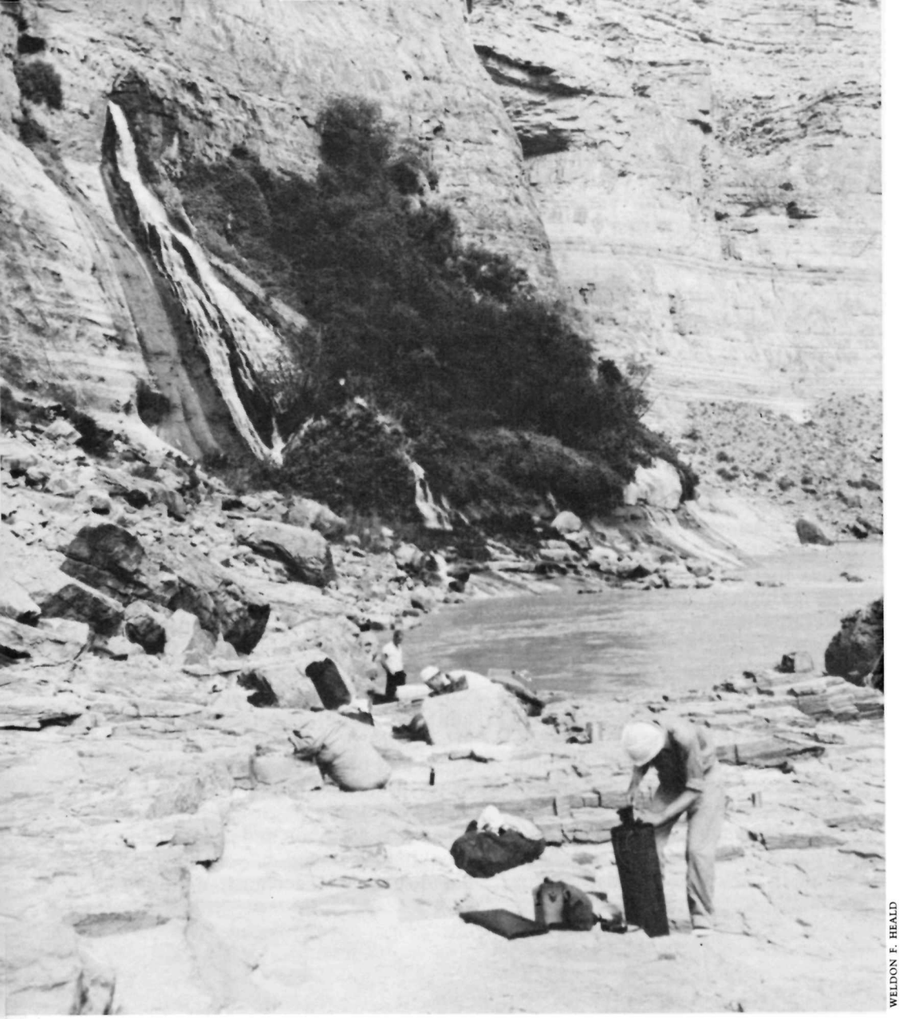
Despite Powell's one lapse into botanical ecstasy at Vasey's Paradise, he had little else to say about the canyon's plant life. In his account he summed up his observations by saying that "there is very little vegetation in this canyon or in the adjacent country." When he casually had noted that his party camped "under a great, overspreading tree with willow-shaped leaves" at the mouth of Bright Angel Creek, he ignored the other trees, shrubs, and flowers that grow abundantly at the same place.

Not even hunger aroused his interest in the canyon's flora. With rations reduced to spoiled bacon and flour, coffee, and a few dried apples, the first expedition had become what Powell called "a race for dinner" when they were little more than halfway through the canyon. Ignoring the edible plants that grow on the river's banks, the men took no notice of relief for their food storage until they discovered an Indian garden, from which they stole ten green squash.

EARLY TRAVELERS who followed Powell down the Colorado River apparently took their cues from the major's account and observed the canyon vegetation only at Vasey's Paradise. In 1889 a railroad survey party stopped there shortly after the railroad's president, Frank M. Brown, had drowned in one of the rapids. At Vasey's Paradise, Robert Brewster Stanton, who was in charge of the survey, gathered some of the ferns and flowers, taking consolation, for "the little flowers, in their innocence and beauty, seemed to speak to us of better things."

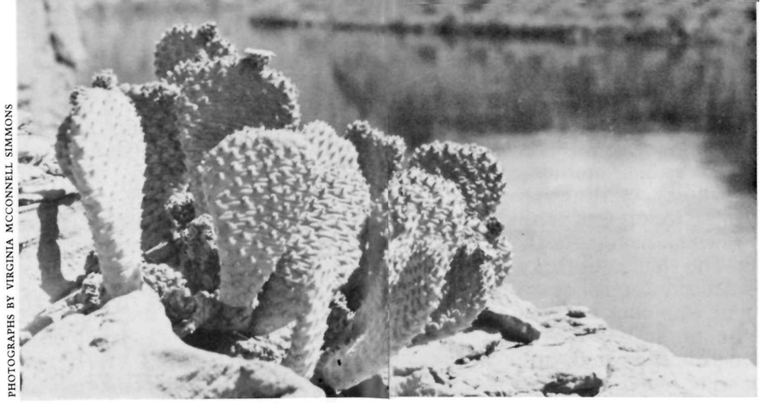
In 1909 Julius F. Stone traveled through the canyon and mentioned the "hanging garden" at Vasey's Paradise in his account, *Canyon Country.* With this one exception he too ignored the vegetation elsewhere, although he was a keen observer of the other features of the canyon. He reported merely that "over great stretches of wall no tree is seen nor any shrub." Lewis R. Freeman, who accompanied the U.S. Geological Survey's expedition in 1923, also wrote an excellent description of nearly everything except the flora in an article for *National Geographic Magazine* (May 1924).

The Grand Canyon Natural History Association published *Nature Notes* and *Natural History Bulletins* during the 1930s, thereby presenting the first reliable studies of the Grand Canyon's flora. Since then botanical guides have become available to the public, but the neophyte is hindered by the fact that most of these guides describe plants of the entire national park, from rim to river, with five thou-



WELDON F. HEALD

Vasey's Paradise, above; watercress and mimulus at Vasey's Paradise, below



PHOTOGRAPHS BY VIRGINIA MCCONNELL SIMMONS

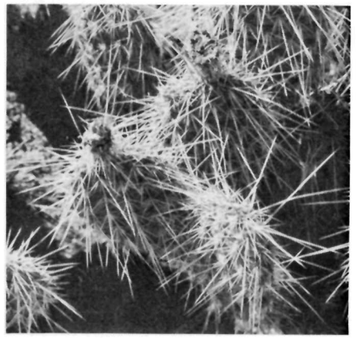
Beavertail cactus

Century plant

Basketgrass

The only place in the inner gorge of the Grand Canyon that Major John Wesley Powell mentioned noticing vegetation was at Vasey's Paradise, and apparently he ignored the possibility of a fresh salad of watercress and mimulus leaves there even though the expedition was starving. But many fascinating—and edible—plants grow all along the river, as well as in the spectacular side canyons of the Colorado River's tributaries.

Opuntia hystricina



Narrowleaf yucca

Cottonwood trees and other vegetation along Tapeats Creek

sand vertical feet of ecological variety. Most hikers or rafters in the inner canyon are at a taxonomical loss as a result. Recently, while preparing for a trip down the Colorado River, I attempted with only limited success to compile a preliminary list of flora that might be seen inside the Inner Gorge. The results were inadequate for the variety of plants that actually is seen, and I regretted my own inability to identify many species.

FROM THE MOMENT that I arrived at Lee's Ferry, Arizona, the embarkation point for the river trip through Marble Gorge and the Grand Canyon, there was no doubt about the inadequacy of my botanical preparation. A short walk upstream to the foot of Glen Canyon revealed an unexpected variety of vegetation along the Colorado River. Where John Lee operated a ferry a century ago, sandbar willow and tamarix crowded the river banks, although the latter is an exotic newcomer that has spread along the streams of the West since its introduction to the United States about 1900. On higher ground at the ferry crossing, the rocky hillside was punctuated with prickly pear and hedgehog cacti. The prickly pears, especially, augured the real diversity of the canyon's vegetation, for in this one locality were *Opuntia basilaris* (beavertail), *Opuntia erinacea, Opuntia hystricina,* and *Opuntia phaeacantha.* The hedgehog was *Echinocereus engelmanii.* A small cholla, *Opuntia fragilis,* was common here, as it is throughout most of the Southwest. All of these cacti found at Lee's Ferry were widespread along the river, I soon learned. Among the other plants at the ferry were cottonwood trees and Ephedra, or Mormon tea, both of which occurred almost as regularly in side canyons.

As our 225-mile journey began, a narrow, green fringe of vegetation bordered the river and continued to do so with only a few interruptions until we pulled out at Diamond Creek. However, towering cliffs

and the river's swift current, often plunging into heavy rapids, dominated one's attention. Their drama undoubtedly accounted for the failure of the early explorers to notice the vegetation, too.

The brillant green strip along the banks continued to be made up principally of willow and tamarix with mesquite, creosote bush, rabbit brush, and Ephedra dotting the landscape behind them. Century plants, an agave, grew on rocky slopes with narrow-leaf yucca. Clumps of long-bladed basketgrass with tall flower stalks, easily confused with a yucca, also commonly grew in side canyons. Jimson weed, with its dark green leaves and showy white blossoms, grew abundantly at the foot of cliffs.

BY USING ONLY the most common plants, Powell would have had no threat of starving. Indians made cakes and porridge from mesquite pods and used creosote twigs as a spice. Yucca pods and cactus pads can be eaten as a vegetable. A liqueur can be made from yucca shoots, or a brew of tea from Mormon tea. The native vegetation, admittedly, is an acquired taste, which most river travelers have neither time enough nor the extremity to develop. But how could an expedition surviving on rancid bacon and bad flour ignore, as Powell's did, the watercress growing thickly at Vasey's Paradise? A salad of this green, together with the leaves of the mimulus, would have made a fresh dish fit for any gourmet.

Both red and yellow mimulus, or monkey flower, grew in dense mats at Vasey's Paradise as well as near most waterfalls throughout the canyon. The mosses and maidenhair fern, boxelder and redbud, Gambel oak and hackberry that bedecked the one oasis were the jewels of others, too. What was unique about Vasey's Paradise was a profusion of poison ivy, perhaps the reason that Powell's brother-in-law concluded that it was a "Hell of a Paradise."

Among the plants found at other cascades and side canyons were the purple-flowered lycium, or tomatillo, so called because of its small, edible fruit that looks like yellow tomatoes, at Bright Angel Creek; a hollylike barberry at Elves Chasm; broad-leaf yucca, or Spanish bayonet, at Tapeats Creek; festoons of wild grape at Havasu Creek; and clumps of desert mistletoe feeding on mesquite at Diamond Creek.

Along the cliffs above Havasu Creek and, thereafter, above the Colorado River, shrubs of ocotillo grew abundantly, in some places looking like well-pruned orchards. Although the season had passed when red plumes of blossoms tip

VIRGINIA MCCONNELL SIMMONS

Echinocactus acanthodes

the whiplike branches, the ocotillo in August was brilliant with small, emerald leaves crowding each twig.

Having seen several cacti early in the trip, I was particularly interested in the progression of species throughout our journey. The barrel cactus *Echinocactus polycephalus* var. *xeranthemoides* first was seen near Mile 21 below Lee's Ferry and occurred thereafter in large numbers on the dry, rocky slopes. This species seemed to reach its peak near Nankoweap in Marble Gorge, where large specimens grew a foot and a half high in the limestone soils and rock. Many of these plants had several heads.

In comparison, the single-headed barrel, *Echinocactus acanthodes,* did not appear until farther downstream on the ledges of the Grand Canyon's Inner Gorge. Many were three feet tall and stood among the rocks in great numbers, like a host of grandstanders witnessing our passing on the river.

On the other hand, the tiny *Mammillaria tetrancistra,* only two to six inches high, had to be sought on foot. It was seen first at Nankoweap and later at the Little Colorado's confluence. Near Tapeats Creek it was in full bloom, its flowers being streaked with pink. The slender central spines of this delicate cactus are avoided by anyone who once has been caught by the inimical hooks.

Small bushes of *Opuntia whipplei* were found at several places; but I saw another cholla, *Opuntia echinocarpa,* only once, in a dense stand of about an acre below Lava Falls, where basalt cliffs prevail. The prickly pears, first cousins of the chollas, were everywhere along the river as well as in the side canyons.

One prickly pear in particular should have been of interest to Powell and his hungry companions—*Opuntia engelmannii,* which is common from Bright Angel Creek. Its edible fruit, called "tunas," is responsible for the name of a side stream, Tuna Creek, where the plant grows profusely. The species grows several feet high with large pads and bears juicy, magenta-hued fruit whose flavor alone could have inspired Powell's interest in the canyon's flora had he tasted them.

THE GRAND CANYON is, after all, not a wasteland with little vegetation, but a botanist's paradise. Explorers, hikers, and river runners have passed through it, unseeing, uncaring, or—worse—trampling it underfoot in their eagerness to swim in the next waterfall. More information about the flora of the Marble Gorge and the Grand Canyon could reveal the astonishing variety and beauty of this spectacular paradise. ■

A professional writer of western American history, Virginia McConnell Simmons is an amateur student of botany, particularly of cacti, which she cultivates, photographs, writes about, and talks to in her spare time. Another of her avocations, river-running, opens up unusual ways to view both American history and natural history.

Dilemma in Grand Canyon

Motors or oars? That is the question

by STEVE MARTIN

IN WYOMING on May 24, 1869, ten men in four boats rowed into the current of the Green River and were swept away toward the unknown. Daring to do what no one before had dreamed, they planned to run the Colorado River through the Grand Canyon. Thirteen weeks later only six men in two boats emerged from the canyon with stories of terror, hardship, and inexpressible beauty.

On returning to civilization, the trip's leader and organizer, Major John Wesley Powell, was greatly lauded. The people believed he was perhaps the last man who would ever witness the spectacle of the Grand Canyon.

EMERY KOLB, a river runner in the early 1900s, said of the Grand Canyon experience in 1963, "No one, *no one* will ever know the Colorado as it really was. It's too late." Emery spoke of a wild river that for millions of years had been carving the great canyon but was now tamed by hydroelectric dams and modernized river running equipment. He spoke also of the solitude he and his brother knew as they relaxed off the river beneath the towering walls of a huge side canyon—a canyon that today often is crowded with as many as three hundred vacationers at one time.

In 1976 during a period just eight weeks longer than Powell's original journey some 13,000 to 14,000 people entered the Grand Canyon at Lee's Ferry, about forty miles south of Page, Arizona, by road. They ran the river's breathtaking rapids and lingered in its beautiful side canyons. The quiet glens and towering walls the early explorers marveled at now ring with the sounds of motors and voices.

Realizing the problems in Grand Canyon National Park, in 1973 the National Park Service froze private and commercial use at the 1972 level: 89,000 commercial user-days and 7,600 private user-days per year. They also ordered the removal of motorboats by 1977 but later postponed the implementation of that order because of political pressure by the motorboat concessioners and the decision to evaluate the effects of river use and to prepare a river management plan. Additional rules limit the distance traveled per day to an average of forty miles and allow no more than 150 commercial passengers and one private party of 15 people to leave Lee's Ferry each day.

Presently a heated controversy rages around the type of recreational opportunities that should be offered in the national park. Should river trips provide an adventurous wilderness experience, or should they provide fast trips for a greater number of people? How many people should go down the river, and by what means should they travel? To answer these questions, it is important to understand which experiences on the river determine the visitor's enjoyment of the trip.

TWENTY-ONE OUTFITTERS offer a variety of river trips through the park. Most motorboats used on the Colorado range from thirty-two to thirty-seven feet long; when fully loaded, they carry up to twenty people. These motorized rafts are made from surplus bridge pontoons and are powered by an engine of at least twenty horsepower. Length of motor trips varies from five to twelve days, with most trips being eight days long. To complete the journey through the canyon in less than eight days, six to eight hours per day are spent motoring the river, traveling an average of forty miles per day. The remaining time is spent in camp or hiking nearby. Little communication can occur among boatmen and passengers on shorter motor trips because the motor must run most of the day to meet the rigid schedule. Thus these trips offer the convenience of fast trips, enabling the visitor to travel the length of the canyon during a week's vacation; but little opportunity exists while traveling for boatmen to show their passengers the canyon's geological and biological features. One possibility for a slower pace in fewer days is to travel only half the canyon by beginning or ending the trip at Phantom Ranch, located nearly midway through the canyon.

Although just as safe, rowing trips are slower, requiring a minimum of twelve days to traverse the canyon. But the quiet and solitude experienced on the smaller boats—seventeen to twenty-two feet long—the intimacy provided by the soundless propulsion and only four to seven passengers per boat, and the opportunity for conversation along the quiet stretches can be rewarding. These rafts spend from three to eight hours a day on the river and travel an average of twenty miles per day. About 25 percent of visitors who run the river commercially travel on oar-powered craft.

Most passengers come from a world closed in by office walls, artificial light, heating, air conditioning, and the automobile. But man needs the wilderness experience, the color, the rushing water,

the rock walls—the canyon's universe—as a source of re-creation. He needs to reach out and touch the earth with body and mind. For most people four main factors seem to enhance the enjoyment of a river journey.

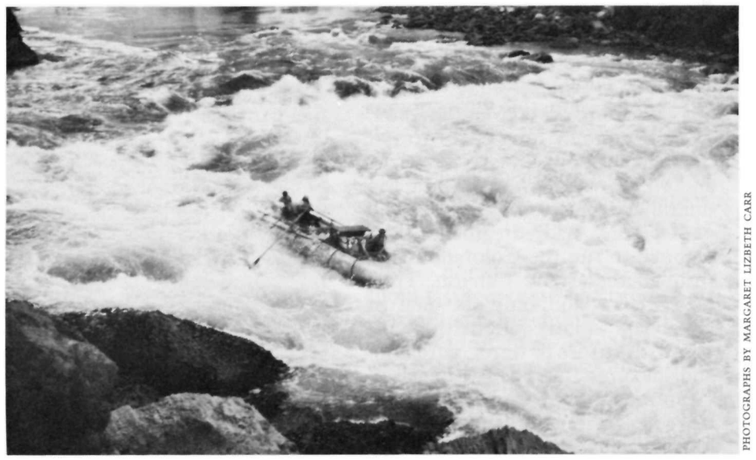
The value of a trip can increase with the length of exposure to the canyon. *Time* is necessary to accommodate to the change of lifestyle and to allow the messages of the canyon to filter through city-hardened senses. It can take several days before visitors accept the Canyon wren and the river's voice in place of the siren's wail or the roar of traffic. The fast-paced trips often end just as or even before the passenger has time to adapt to the canyon.

Although any trip through the Grand Canyon is a spectacular experience, other factors that affect a person's enjoyment of the canyon are number of passengers and contact with other river parties. The passenger's feeling of intimacy affects the way he perceives the canyon. Often, when a popular side canyon is crowded, many passengers would rather not stop. Most people prefer to interact only with people in their own party and to avoid other parties. Motor trips usually carry more people; so, although a crowd gives some neophytes a sense of security, a feeling of intimacy with fellow passengers and with the canyon is sometimes difficult to achieve.

Finally, the National Park Service realizes the importance of interpretation in the quality river experience. Therefore, in 1975 and 1976 the NPS held special schools to educate boatmen about the canyon's geological, ecological, and human history, as well as about safety, sanitation, and search and rescue procedures, so they can enrich their customers' experience of the canyon by telling them about its many fascinating facets.

Another controversy of Grand Canyon management is allotment of river time for private trips. The number of people who want permits to run the river privately is increasing, but the limited number of user-days available for private trips is leaving some nonprofessional river runners on dry land.

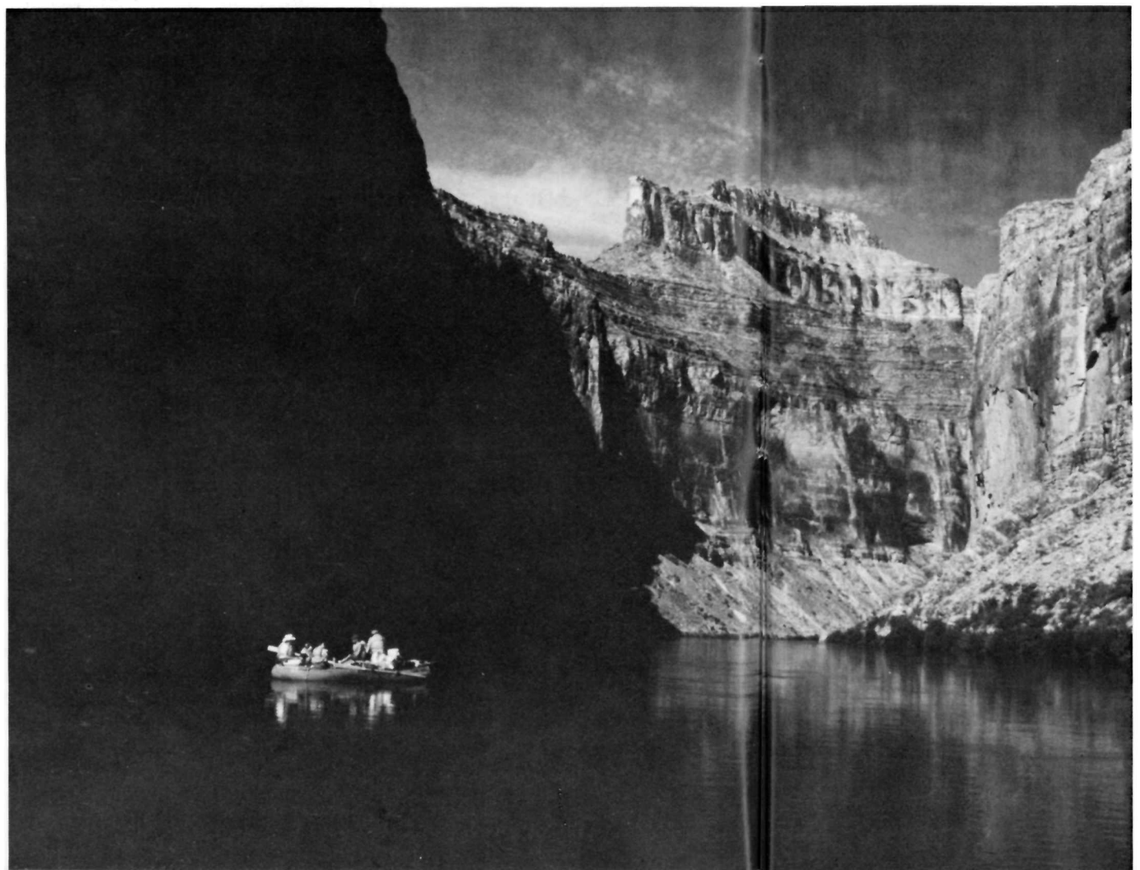
One of the best ways to achieve an unforgettable experience is to gather first-hand knowledge. Private river runners who have proven themselves on other rivers and who have equipment suitable for the harsh conditions of the Colorado appreciate the force and challenge of the river in a way not unlike the early explorers. They place themselves directly in the Colorado's power, experiencing the canyon on their own, which opens them to the flow of the wilderness. Though most people prefer going with a commercial outfitter, the private trip is an important recreational experience. Because of the complexity of fairly balancing private and commercial demands, it is not known at this time how many additional user-days should be given private river runners.



PHOTOGRAPHS BY MARGARET LIZBETH CARR

For a short vacation, visitors can take a motorized trip through the Grand Canyon—but short, fast trips are often so noisy and crowded that passengers cannot sense the mysteries and wildness of the great canyon. At left above motorized rafts pause to allow passengers to visit popular Elves Chasm.

People on rowing trips, on the other hand, travel more slowly and experience more directly and more fully the wilderness and the power of the mighty Colorado River. At left a rowing boat runs Lava Falls, the world's most formidable rapid. Below, isolated and dwarfed by magnificent towering cliffs, a rowing party experiences true Grand Canyon wilderness.



THE LARGE NUMBERS of people going down the river from May to September and their tendency to bunch up at attraction sites and popular camps is causing problems of trampling of vegetation and poor sanitation. A comprehensive research program is now underway in the canyon to provide data for management decisions and to lessen the impact of visitor use.

The high demand placed on the Colorado River, the variety of experiences available, and the need to protect the canyon from overuse present the Park Service with a policymaking dilemma. In spring 1977 a river management plan will be drafted. A series of public meetings has already been held in six major cities. By this fall a workbook developing alternatives for river management will be made available to the public. The response of the public to these alternatives will then be combined with the results of three years of scientific research to complete the management plan. The decision that the National Park Service makes will determine the kinds of experiences available and will have a long-range effect on the natural resources of the canyon. The decision must provide for the enjoyment and protection of Grand Canyon National Park for all time. ■

Steve Martin was a guide on the Colorado during the seasons of 1973 and 1974 on both motorized and rowing trips, and since 1975 he has been patrolling the river as a park ranger.

Editor's Note

NPCA Wants Wilderness River

The National Park Service held public hearings in late August 1976 on its revised wilderness plan for Grand Canyon National Park. Although the Park Service noted that "there is no question that the river passes through some of the most scenic and primitive land remaining in this country" and its plan proposes 992,046 acres as wilderness, it omits the river, designating it as "potential wilderness" pending completion of ecological studies.

Testifying at the hearings, NPCA Southwest representative Robert Coshland claimed that heavy use of the river by commercial concessioners that operate motorized rafts is the major contributor to deterioration of the wilderness experience once so easily achieved in the Grand Canyon. Specifically, the harsh, incessant noise of motors pervades not only the river but the side canyons and cliff tops as well, lessening the true wilderness experience for everyone within earshot.

Although NPCA praised the Park Service wilderness plan in general, we urged inclusion of the river as wilderness. Such designation would automatically put an end to motor-powered river trips, because the use of motors is excluded from wilderness areas. NPCA pointed out that motors are a mere convenience that does not contribute to either the safety or the enjoyment of people taking the river trips. Oar- and paddle-powered boats, whether manned by concessioners or by private parties, of course, could continue to use the river after wilderness designation.

Members who want to review and respond to the Park Service's alternatives for its proposed river management plan may write for a copy of the workbook mentioned in this article.

Inner Canyon Unit Manager
Grand Canyon National Park
Grand Canyon, AZ 86023

WHOOPERS in Idaho

ENDANGERED SPECIES

Captive breeding and a foster parents experiment provide a hopeful prospect for the whooping crane

by FRED S. GUTHERY

A CHARTERED AIRPLANE chugged down an icy runway in the Northwest Territories, Canada, and lifted into the brittle arctic air. It touched down a few hours later in Idaho Falls, Idaho. The aircraft's precious cargo was then transported by helicopter to Grays Lake National Wildlife Refuge in the desolate highlands of southeastern Idaho. Fourteen whooping crane eggs, taken from the nests of wild adults, were placed with foster parents—greater sandhill cranes. So began an experiment on May 30, 1975, that has captured the attention of conservationists worldwide.

Military patrols avoid concentrating to ensure that an entire unit will not be lost under enemy fire. For an analogous reason, biologists hope to establish a migratory population of whooping cranes in Idaho. The present wild flock, numbering about sixty, rears broods in pothole marshes guarded by black spruce and tamarack at Wood Buffalo National Park in northern Canada. When the wanderlust strikes each fall, all journey to the Gulf Coast of Texas. The entire population winters at Aransas National Wildlife Refuge where cordgrass islands, live oak dunes, and blue crab beaches provide habitat. A hurricane that annihilated a group of whoopers on the Louisiana coast is a morbid reminder of the present birds' precarious status.

Whooping cranes once ranged from the Atlantic to the Pacific and from central Mexico to the Arctic Circle. Some 500,000 years ago—when saber-toothed tigers still roamed the hinterlands—vast prairies, inland seas, and wet savannas covered much of North America, and whooping cranes prospered. Then the Wisconsin Glacier pressed southward from Canada and smothered nearly half the United States. When the ice receded 10,000 years ago, whooping crane numbers were still strong, perhaps at their strongest point in history.

But vast marshes, a critical requirement for the whooping crane's survival, are ephemeral in geologic time. The Pleistocene wetlands filled with organic debris and evaporated as post-glacier temperatures rose. They disappeared as water tables dropped. Soon, in geologic time, marshes became forests and grasslands, and whooping cranes were vanishing.

WHEN THE PILGRIMS landed at Plymouth Rock, the whooper was already in jeopardy. The late Robert Porter Allen, an ardent and expert devotee of whooping cranes, guessed that as few as 1,500 survived before man's activities began to further diminish their numbers.

The regal birds were still secure, however, in nesting marshes of northern Illinois, eastern Iowa, Minnesota, and the aspen parkland of Manitoba and Saskatchewan. They still wintered in Florida. Their strident whoops, amplified by a five-foot trachea, still shook the winter wilderness in Texas and Mexico. A nonmigratory population still inhabited the swamps of Louisiana.

Apparently, few people were alarmed when the East Coast population of whooping cranes disappeared early in the nineteenth century. Reason for alarm seemed to be lacking. Due to the bungling of early ornithologists, the crane population was considered large and stable. John James Audubon, for example, believed that sandhill cranes were young whooping cranes. Thomas Nuttall recorded a huge migration of whooping cranes along the Mississippi River in December 1811. Many thousands, he said, passed over with a clangor that was almost deafening. Today experts believe Nuttall heard sandhill cranes.

The pioneering of the West nearly finished the whooper. Faith McNulty wrote: "It is probable that 90 percent of the whooping crane population disappeared in the thirty years between 1870 and 1900. No single human activity was to blame for the loss. Almost every change that occurred was inimical to the species: agriculture, drainage, cattle, settlement, hunting, even egg collecting—all were interwoven in the destruction."

By the turn of the century, whooping cranes were in serious trouble. The population dropped from an estimated eighty to one hundred birds in 1900 to twenty-nine in 1937. Then the federal government took action toward perpetuating the species by purchasing Blackjack Peninsula on the Gulf of Mexico. It became Aransas National Wildlife Refuge.

A commitment—moral, financial, and popular—was made in the 1940s to save whooping cranes from extinction. Initial management consisted of protecting the birds and publicizing their plight. Further measures could not be started until details of the life history of the whooper were known. Birdwatchers and professional biologists throughout the United States and Canada began gathering facts. Robert Porter Allen, at the behest of the National Audubon Society and with the cooperation and support of the U.S. Fish and Wildlife Service, began a classic study at Aransas in 1946. Today most aspects of the life history of whooping cranes are well understood.

THE NESTING SEASON begins in late April when pairs, mated for life, set down along the Sass, Klewi, and Nyarling rivers in Wood Buffalo Park. From the mosaic of green vegetation and countless blue potholes, each pair lays claim to about 640 acres. These nesting territories are used by the same couple year after year.

Nests are frequently constructed close to nests of preceding years. The female heaps rushes and sedges into a pile about five feet in diameter and one foot high. The nests resemble flattened muskrat lodges.

Laying takes place over a three- or four-day period. The two eggs, measuring three by four inches, are cream buff or greenish with splotches of dark purple or brown. Both parents incubate. With formality and ritual, each bird carefully turns the eggs to ensure proper incubation when its stint on the nest has ended.

After about thirty days, one chick begins pipping the shell. The second hatches two or three days later. The downy young resemble gangly, oversized barnyard chicks, although the "peep" is shriller.

Above, a whooping crane tidies her nest. Below left, whooping cranes feed at wintering grounds at Aransas National Wildlife Refuge, Texas. Below, a territorial dispute displays the whoopers' seven-foot wingspread.

PHOTOGRAPHS BY U.S. FISH & WILDLIFE SERVICE

Juvenile whooping crane (mottled plumage) with sandhill crane foster parents

PHOTOGRAPHS AND MAP BY U.S. FISH & WILDLIFE SERVICE

Migration routes of whooping cranes

During the brief subarctic summer, the family forages throughout its territory, eating frogs, snakes, snails, grasshoppers, and perhaps the tuberous roots of marsh vegetation.

A restlessness born of evolution sweeps the cranes at Wood Buffalo in August or September. The chicks, garbed in white plumage washed heavily with cinnamon, are then strong fliers. (At this time, the chicks resemble sandhill cranes, which probably explains John James Audubon's confusion.) The nonbreeders, who have been wandering the Canadian wilderness all summer, also become fidgety. One day a family group takes to the air, catches a convection current, and spirals out of sight into the atmosphere. The fall migration has begun.

The 2,500 miles between Wood Buffalo and Aransas are traversed in about a month. Occasional stops for food and rest, perhaps in the wheat stubble of southern Saskatchewan or on a sand bar in the Platte River of Nebraska, break the journey.

Winter territories, averaging 400 acres, are established at Aransas. This behavior is unique among the world's fifteen species of cranes. Surprisingly, territorial defense demands more time and energy on the wintering grounds than on the nesting grounds. Because the birds are dispersed over a larger area at Wood Buffalo, border clashes are rare.

The Aransas nights are spent roosting in shallow water; the days, foraging for food. The winter diet consists largely of mollusks and crustaceans, especially shrimp and blue crabs. Occasional forays into live oak mottes add acorns to the menu. Experimental food plots were established at Aransas in the late 1960s. Chufa or water chestnut, famous in Chinese cookery, was planted, but whooping cranes made limited use of this food.

In March or April, reproductive urges compel the whoopers to return to Canada; the yearly cycle is completed.

ALTHOUGH much has been learned about whooping cranes since research began in the 1940s, some intriguing questions still beg answers. At what age do whooping cranes reach sexual maturity? Where do the nonbreeders spend their summers? Why are the nonbreeders subject to the highest mortality?

Of course, many questions attend the Idaho transplant project. One frequently asked is, "What impact will robbing fourteen eggs have on Wood Buffalo nesting success?" The answer is, "Probably none." Because crane eggs hatch one to three days apart, the younger chick is smaller, weaker, and usually wasted. He cannot compete with his older sibling. When the gathering was done in Canada, one egg was taken from clutches of two. The pilfered eggs represented probably doomed whooping crane chicks.

The progress of the experiment at Grays Lake was watched carefully by Dr. Rod Drewien, a biologist with the University of Idaho who is well acquainted with cranes. Drewien spent three years studying greater sandhill cranes in nesting and wintering areas throughout the Rocky Mountains from Idaho to northern Mexico. His research not only established their migration routes, staging areas, and wintering grounds, but it also validated techniques for the transplant project.

Before the rare eggs were transported from Canada, Drewien scouted the Grays Lake marshes for good foster parents. He removed one egg from the nests of prospective pairs to cull those that might abandon offspring because of human disturbance.

But the spring was late at Grays Lake. Ice fringed the open water morning after morning, and the snow clung as if winter would never end. A bad omen? With some

apprehension and a large measure of hope, the fourteen eggs were placed at the mercy of nature and surrogate parents.

Drewien followed the nesting progress from a respectful distance, making it a policy not to harass the incubating birds. His planning and patience were rewarded when nine of the eggs hatched, and whooping cranes again walked bulrush marshes where they had not been seen since the 1800s.

Five eggs failed to hatch. The original nest mates of three infertile eggs at Grays Lake were sterile, as determined by Ernie Kuyt, resident biologist at Wood Buffalo. The other eggs in Idaho were destroyed by ravens.

The greater sandhill cranes readily accepted their stepchildren, defended them, and taught them the ways of nature. But their meritorious guidance could not forestall the death of three chicks. One was killed by a severe storm when it was about twenty days old. The disappearance of two other young whoopers coincided with the introduction of cattle onto the refuge, but it was not concluded that these circumstances were related. However, cattle have trampled the chicks of greater sandhill cranes. As of September 1, 1975, six juvenile whoopers were testing their wings for the impending fall migration.

When the whooping crane chicks were fifty to sixty days old, Drewien captured them with a salmon landing net and marked their legs with colored plastic bands to facilitate individual recognition during migration. Like their foster parents, the chicks flew across southern Wyoming and into the San Luis Valley in central Colorado. Then they hit the headwaters of the Rio Grande and coursed its meanders to the wintering grounds at Bosque del Apache National Wildlife Refuge in central New Mexico.

Four chicks survived the winter and began northward migration in February 1976. The winter population at Aransas totaled forty-nine adults and eight chicks. As of mid-July 1976 thirteen new chicks were surviving in Wood Buffalo Park, and five more chicks were surviving at Grays Lake from a 1976 transplant as of August 2.

THE GRAYS LAKE PROJECT is not the only "ace in the hole" for whooping cranes. At about the same time the fourteen eggs were en route to Idaho in 1975, Dawn hatched at the Patuxent Wildlife Research Center in Laurel, Maryland. Dawn holds the distinction of being the first whooping crane chick hatched in captivity whose parents were captive-raised birds. She was also the first whooper ever produced by artificial insemination. Even though Dawn died of congenital defects, her short life was significantly related to the Idaho transplant.

Breeding whoopers in captivity—Dawn proved scientists can do it—is an accomplishment that may solve the problem of low natality. In the wild, cranes reproduce slowly, not breeding until reaching comparatively old ages, then laying only one or two eggs per year. The Japanese discovered that productivity of captive birds can be increased by removing eggs soon after they are laid. Under this regime, a female might produce up to ten or twelve eggs per year.

The nineteen captive birds at Patuxent could serve as a nucleus for reintroducing whooping cranes into their former range. Direct introduction of pen-reared wildlife is notoriously unsuccessful, because these "dudes" have not learned the grim laws of nature. But what about placing mass-produced eggs with foster parents? In fact, two eggs from Patuxent were placed with sandhill cranes at Grays Lake in 1976. Although both were destroyed by predators, it is encouraging that the first hopeful steps of this program have been taken.

THE STATELY whooping crane stands as a symbol for conservationists throughout the world. Pushed to the brink of oblivion in 1941 when only fifteen birds survived, the whooper has responded to management and protection. Slowly—almost imperceptibly—it is retreating from the eternal void, extinction. And now the pace may accelerate, thanks to the imaginative programs of the Idaho Cooperative Wildlife Research Unit, Canadian Wildlife Service, and U.S. Fish and Wildlife Service.

The hope of the species—captive-bred whooping crane chick from Patuxent

Not to be slighted are efforts by private groups and individuals. The National Audubon Society and the Whooping Crane Conservation Association, for example, have garnered popular support for the preservation of whooping cranes. The International Crane Foundation of Baraboo, Wisconsin, conducts research that will help solve management and survival problems.

It is still too early to predict the ultimate success of work at Grays Lake and Patuxent. Many unanswered questions still remain, but we can take solace in past accomplishments and look forward to new developments with optimism. There is solid reason to believe that whooping cranes will embellish boreal marshes, coastal bayous, and the skies between for future generations of North Americans.■

Fred S. Guthery is a PhD candidate in wildlife ecology at Texas A&M University. He studied sandhill cranes along the Gulf Coast of Texas during 1970 and 1972 and has published articles on cranes in the *Journal of Wildlife Management*.

NPCA at work

CONGAREE

Swamp Fox Haven Today

The swamps of South Carolina may have provided a good refuge for Francis Marion's troops during the American Revolution, but today in that state the "Swamp Fox" would be hard-pressed to find a real bottomland swamp in which to hide. For that matter, he would have difficulty locating many of the millions of acres of magnificent swamps that once graced the floodplains of all the large rivers of the Southeast. Not far from the city of Columbia is a 15,000-acre tract that is the last remaining virgin river bottom hardwood swamp in the southeastern United States.

The tract is being logged at the rate of 500 acres per year by the Beidler family, who have complete ownership. NPCA recently stated that the Beidler tract must be protected from the logging that destroyed other great hardwood swamps and that it is essential that the tract be added to the Park System this year.

In invited testimony before the parks subcommittee of the Senate Interior Committee, NPCA supported legislation to establish a 15,000-acre Congaree Swamp National Monument.

The Beidler tract—land of loblolly pine, sweet gum, water tupelo, hickory, and oak—harbors not only many record size patriarchs of the forest, but also rare and endangered species and unusual communities of plants and animals.

In its testimony, NPCA supported inclusion of an amendment to authorize "legislative taking" of the tract. This would vest title to the property with the government upon passage of the act and would permit the courts to decide the final purchase price.

NPCA noted that the National Park Service had studied this area in 1963 and recommended a 21,000-acre national monument and we supported including a provision in legislation calling for NPS to study lands surrounding the 15,000-acre tract for possible future addition to the monument by Congress as protective buffers.

Also testifying in support of acquisition of the Beidler tract were South Carolina's two senators, Strom Thurmond and Ernest F. Hollings.

In addition, the property owner, Francis Beidler III, testified that although he would prefer to maintain the family's interest and timber harvest business in the Congaree Swamp, he would be willing to sell for a fair market value and is negotiating with the Park Service the terms of a one-year moratorium on further timber-cutting, pending the outcome of legislative proposals. NPCA commends the Beidler family for this action.

At press time the Senate committees had not yet acted upon the legislation, but the House parks subcommittee had marked up and approved its version of the bill, which was nearly identical to the Senate bill.

Leaning against remains of a landmark cherrybark oak in the threatened Congaree

GEORGE C. TAYLOR

FIRE ISLAND

New Start

A recently revised draft management plan for Fire Island National Seashore represents an improvement in planning to preserve the last relatively wild, roadless, and isolated beach environment in the New York City area. However, NPCA has urged the Park Service to make some key changes to strengthen the plan.

This windswept barrier island harbors many seaside plant communities and the varied wildlife of the salt marsh. NPS has said that "The undeveloped portions of the island will give your children the opportunity to see a remnant of the unspoiled seashore that our fathers saw."

Nevertheless, in 1975 the agency released a draft management plan proposing extensive development of a natural zone that stretches along 8 miles of the 32-mile-long island. As the result of sharp criticism of that draft by NPCA and other conservation groups and public pressure, the Service recently issued a much better plan.

In recent comments on the revised draft, NPCA concentrated on proposed uses and facilities in major activity areas of the national seashore. Perhaps the most significant improvement in the draft management plan is a proposal to establish a new administrative headquarters, visitor interpretation center, and terminal on the Patchogue River on Long Island instead of on Fire Island. NPCA strongly supported this new proposal.

This Association recommended that the Park Service acquire Fire Island Lighthouse Area, presently surplus property of the U.S. Coast Guard, and develop it as a major historical and natural history interpretation area.

NPS proposes a maritime forest known as the Sunken Forest as the national seashore's major interpretive site. This forest of gnarled holly, black gum, and juneberry certainly inspires interpretive efforts; but to protect its resources from overuse, NPCA suggested that the Park Service reduce the scale of a proposed new visitor center. The bulk of developed facilities should be located at the proposed Patchogue administrative site on Long Island.

NPCA directed most of its criticism at a proposal to retain several residences in the Watch Hill recreational

area of the seashore for housing rangers, interpreters, maintenance personnel, and concessioners. NPCA suggested that when present tenancy agreements expire, the Park Service should relocate to Long Island proper all housing except what is essential to ensure resource and visitor protection on Fire Island. NPCA charged that there is no justification for retaining housing within the park for the convenience of personnel—particularly concessioners—whose jobs do not require their continuous presence in the NPS unit. The housing represents a development that is incompatible with the natural area.

Noting the lack of effective land use control by local governmental jurisdictions in regard to twenty private residential communities within Fire Island National Seashore boundaries, NPCA supported the Park Service plan to develop a model zoning ordinance. The ordinance would include building criteria and lot limitations and would establish preservation districts in sensitive wetland and high dune areas.

QUETICO–SUPERIOR

Clean Air or Kilowatts?

Seemingly fulfilling the dreams of many for an international sanctuary in the beautiful region that is the historic land of the Indian and the voyageur, in 1909 Quetico park in Ontario, Canada, and Superior forest in Minnesota were established simultaneously.

Of the Quetico–Superior region, nature writer Sigurd Olson has said, "The intricate labyrinth of waterways and forests lying for over 200 miles along the Minnesota-Ontario border between Grand Portage Post on the northwest coast of Lake Superior and the Rainy River seems made for enjoyment and wilderness travel. . . . Moose and deer are found there. . . . the hermit thrush, the white-throat, and the loon are heard at dusk and in the spring the partridges drum. Here are stands of tall red and white pine, redolent cedars, silvery birch. . . . Even the air seems rarefied and, in early morning, there is a high mountain freshness and sparkle that makes one think of timberline."

Pristine air and water in the region are now threatened by a proposal to construct an 800,000-kilowatt coal-fired generating plant just 7 miles from Quetico park's northern boundaries. (It is one of the latest threats in conservationists' battles to preserve the "sanctuary" from loggers, miners, dambuilders, and large numbers of motorboat operators.)

NPCA recently expressed concern about the proposal to the provincial premier and the minister of energy, saying, "Not only is the choice of a site for the plant most unfortunate, but the fact that the crown corporation does not plan to install any scrubbers on the plant is shocking." NPCA took the action not only because of the international stature of the 1,800-square-mile Quetico park and its important resources, but also because of a concern about any possibility that some of the power generated by the proposed plant at Atikokan would be sold directly or indirectly to the United States. This would mean that U.S. buyers would be circumventing the U.S. Clean Air Act requirements for scrubbers on plants in this country by purchasing power from Canadian producers who operate without scrubbers—at the expense of important natural resources.

Ontario Hydro is proposing the powerplant, which must be approved by the Ontario Minister of Energy. However, the Ministry has close ties with Ontario Hydro, which is a crown corporation. The same provincial government that will be considering the powerplant proposal agreed in 1973 that Quetico does not fit into any of the usual classifications for provincial parks and declared it a "primitive wilderness." NPCA said it would seem ironic for the government to approve construction of a project that would be harmful to the wilderness qualities of Quetico. Such approval would tend to undermine protection of future wilderness areas as well.

Tons of sulphur dioxide would spew daily from the four flues of the plant's 650-foot stack. Emissions would be carried over Quetico park much of the time and reports indicate the drift could reach into the U.S. boundary waters region. Considering that a growing body of knowledge points out that lichen and pine are particularly vulnerable to acid precipitation, NPCA said that the importance of these flora in the Quetico environment would render the powerplant plans even less desirable there than they would be elsewhere.

NPCA urged the provincial government to carefully research the possible effects of acid precipitation on the vegetation in the park as well as the possibility of an insidious decline in populations of fish over the years.

In any case, NPCA pointed out, this powerplant proposal raises the serious question of whether air in an area of pristine air quality should be allowed to deteriorate at all. If such air quality is not maintained in our wilderness areas, where *will* it be preserved? Likewise, in the United States, where a number of parks are threatened by energy development, NPCA has urged that national parks be classified under the Clean Air Act as areas where no deterioration in air quality is allowed.

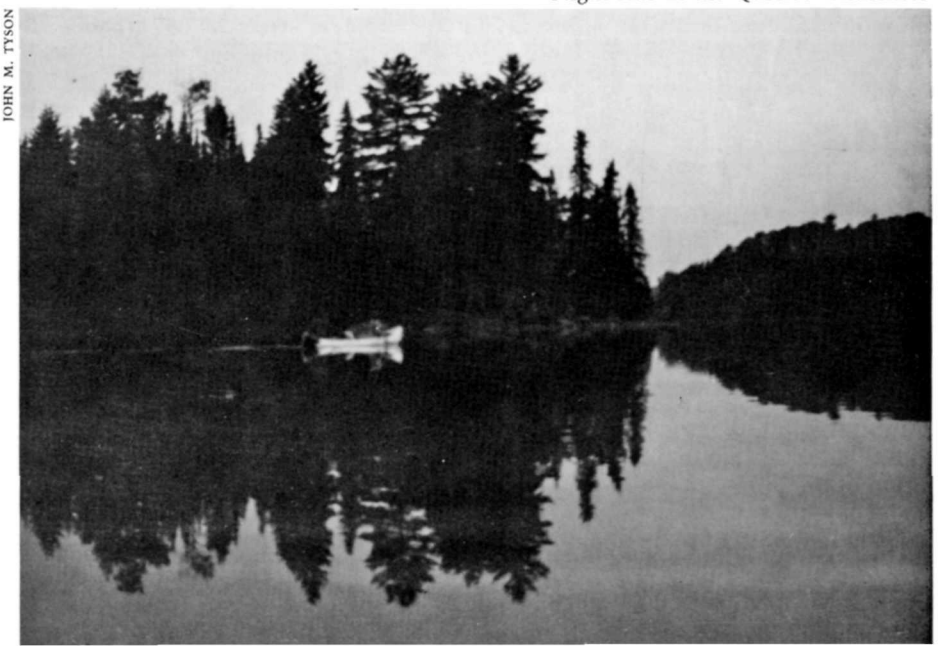
The proposal for this powerplant is part of a plan for seventeen powerplants of various kinds, most of which would be located near parks.

Approximately 90 percent of the people who visit and enjoy the resources of Quetico park are U.S. citi-

Continued on page 26

Night ride in the Quetico wilderness

JOHN M. TYSON



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3040 "There's a moment in time When you meet face to face, With creatures sublime Who move with such grace, That your heart keeps a'beating, etc." "Merry Christmas and Happy New Year" verse by Perrin, painting by Elliott

3059 "As cougars walk in beauty in the snow, Let us walk softly as through life we go, Remembering...That one God kind and wise created all." "Wishing you a Blessed Christmas and Happiness through the New Year" by Barks

3058 TAKE TIME TO SEE "...A timid deer with haunting look, Who stands refreshed by yonder brook, etc." Famous nature poem by Ray F. Zaner inside. "May Peace be your Gift at Christmas and your Treasure...all Year" by Barks

1367 "When the tips of the pines, Touch the twinkling stars, On the cold, crispy nights of December; May your blessings be more, Than you've ever hoped for, And your Christmas a warmth to remember" painting by Buck Teeter

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1749 GOD, THE ARTIST "God, when you thought of a pine tree, How did you think of a star, etc." 32-line poem by Angela Morgan inside "Wishing you a Blessed Christmas and Happiness through the Year" painting by A. Husberg

3064 "May the small wonders of the season cause joyful happenings in your heart." "Merry Christmas and a Happy New Year" painting by Colorado artist Don Eberhart

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Continued from page 23
zens. Therefore, we believe that the people of the United States have a responsibility to help the Canadians who are trying to protect this wilderness park. You can help by writing to express your concern about the effects of the proposed Atikokan Generating Station on resources in the Quetico region and to urge provision for *meaningful* public participation in the decisionmaking process.

Write:

Honorable William Davis, Premier
Queens Park
Ontario, Canada
and
Honorable Dennis Timbrell
Minister of Energy
(Same address)

REDWOOD

Slow Death

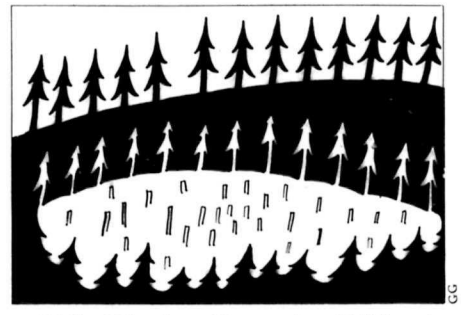
Despite years of effort, Redwood National Park in California is still threatened with destruction as the result of unregulated timber harvesting practices—mostly clearcutting—just outside park boundaries on private lands.

While other congressional committees have remained inactive on the issue, at press time the Subcommittee on Conservation, Energy, and Natural Resources of the House Government Operations Committee had just announced one day of investigative hearings to be held in California in September. This Association welcomed the invitation to testify.

NPCA, joined by the Wilderness Society, the Sierra Club, the National Audubon Society, Friends of the Earth, Defenders of Wildlife, and the Izaak Walton League of America, immediately contacted subcommittee chairman Leo J. Ryan (D-Calif.) to offer assistance and strong support for his decision to investigate the problem.

The groups noted that "for many years our organizations fought against overwhelming opposition for the establishment of a national park on the California coast to preserve a significant portion of the remaining *Sequoia sempervirens,* the coast redwood. When a compromise law was finally achieved in 1968, authorizing a 58,000-acre national park, conservationists' cheers were mixed with sober warnings of virtually certain damage to the park from timber harvesting practices, principally clearcutting, on private lands upstream from the park's core area. Damage to the park has since been scientifically proven, verifying conservationists' charges. The destruction continues unabated in 1976, with approved timber harvesting plans totaling over 1,000 acres this year alone. President Ford's Office of Management and Budget has refused the Interior Department's request for new legislative authority to remedy the situation. Consequently, the Department is contemplating litigation to protect the park, but the decision is unclear at this time."

Ryan had announced the hearings in July after the conflict over the future of Redwood National Park intensified during the summer. Almost a year after



a U.S. District Court in California ruled that the Park Service had been negligent in exercising its various options to protect the park, the same court dismissed the case, noting NPS action since the 1975 ruling. The court denied a Sierra Club request to include the OMB in the suit because OMB (which was under pressure from timber companies) had obstructed efforts to protect the park. Then, as the state of California considered whether to approve a number of timber harvesting plans, NPCA urged Governor Jerry Brown to save Redwood park from the slow death that is sure to result if clearcutting continues.

Most recently, NPCA learned that the timber companies have begun negotiating with the Interior and Justice departments to achieve an out-of-court settlement on a set of management and harvest practices and principles that would govern future harvest of redwoods surrounding the park. Thus far, conservationists have been excluded from these negotiations and therefore cannot ascertain their potential for saving the park's ancient redwoods and other resources.

TUNA–DOLPHIN LITIGATION

Cheers & Gearing Up

NPCA and other environmental groups, led by the Environmental Defense Fund, won an important victory in August when a federal appeals court ruled that a permit allowing tuna fishermen to kill dolphins violates the Marine Mammal Protection Act (MMPA). The tuna industry failed to show that the killing would not deplete dolphins below their optimum population levels.

The court thus affirmed an earlier district court decision but stayed until January 1, 1977, a ban on putting nets around dolphins as a means of catching the tuna that swim beneath them. Conservationists emphasize that the battle is not over by any means because, pending court proceedings, the American Tunaboat Association has applied for a permit to kill 66,000 to 79,000 dolphins in 1977 and the tuna industry wants to weaken the MMPA provisions that protect dolphins.

CENTRAL ARIZONA PROJECT

Bungles, Blunders, Botches

NPCA recently disputed the practicality of the controversial Orme Dam proposal and of the Central Arizona Project (CAP), a series of public works in the state of which the environmentally destructive dam would be just one feature. NPCA maintains that the Colorado River is incapable of supplying the required amount of water for the planned payout period of the CAP and therefore opposes it on economic as well as environmental grounds.

At a recent hearing in Phoenix several hundred people packed the auditorium, most of them vociferously opposing Orme Dam, which would be constructed at the confluence of the Salt and Verde rivers. The U.S. Bureau of Reclamation is promoting the dam as a means of storing water carried by the CAP aqueducts during periods of slack demand. It would also serve purposes of flood control for areas downstream along the Salt and Gila rivers.

Local civic leaders and environmentalists pointed out that the project would require more than 25,000 acres for construction of a dam, reservoir, spillway, powerplant, and transmission lines and would displace about 279 residents of the Fort McDowell Indian community from their homes.

Among dam opponents at the hearing were many Fort McDowell residents protesting any relocation.

The Orme reservoir would inundate archaeological and historical resources and riparian wildlife habitat. Seriously affected would be southern bald eagles at two of their seven known nests in Arizona and other endangered and threatened species such as the Yuma clapper rail and the prairie falcon, as well as bighorn sheep, osprey, fox, and other wildlife.

Furthermore, the Bureau of Reclamation has acknowledged that it spent thousands of dollars promoting the Orme site without checking existing geological maps that reveal at least seven possible geologic faults beneath the area—some of them directly under the proposed dam site. The Orme Dam would be similar in construction to the Teton Dam in Idaho, which collapsed in June causing widespread destruction and the deaths of nine people. A similar disaster at Orme could produce even more catastrophic losses.

NPCA Southwest Representative Robert Coshland testified that a fundamental consideration is that the Colorado River will not be able to provide enough water for present commitments and prospective additional water uses in the Colorado River Basin pursuant to existing interstate and international compacts. The draft environmental impact statement on the Orme Dam and reservoir, he emphasized, fails to reveal the deficient water resources on which the project depends.

Coshland has conducted in-depth studies of the hydrological problems of the river basin, including an analysis of sometimes conflicting directives for water use. In addition to demonstrating the potential for an insufficient water supply, the NPCA study revealed that although the CAP depends on the Navajo powerplant near Page, Arizona, for pumping power, but by about 2005 the level of Lake Powell reservoir will have declined below the level required to provide the plant with water for power production.

The NPCA analysis assumes continuation of the most probable precipitation rates. It shows that according to authoritative tree-ring research, Bureau of Reclamation projections of water flow in the basin are overly optimistic because they are based on a period that includes the wettest quarter century in the past 450 years—1905–1929. In the absence of effective controls on private pumping of groundwater, projects such as CAP and Orme Dam would only increase wasteful use of water without solving Arizona's problem of a steadily declining water table.

In response to a request by the Bureau of Land Management for an independent review of the NPCA study, Dr. Gordon C. Jacoby, Director of the Hydrology for the Lake Powell Research Project, substantially endorsed NPCA's conclusions.

During the debate over the proposed Kaiparowits powerplant in Utah, NPCA maintained that the potential for water deficiency would make the monstrous coal-burning plant an economic gamble as well as an environmental disaster. (See December issue, p. 28.) Proponents of the plant claimed that it could operate with far less water than the amount under contract. According to that line of reasoning, Coshland pointed out, only insignificant quantities of water would be saved for other uses by the shelving of Kaiparowits. (See June 1976, p. 26.)

In the final environmental impact statement on Kaiparowits, the Bureau of Reclamation had commented on the NPCA study. Because Orme Dam and other projects in the Colorado River Basin are directly involved, at the recent Orme hearing NPCA exposed fallacies in certain of the the Bureau's remarks. For instance, the Bureau had said it could supply Kaiparowits with water during periods of low flow by diverting less water to irrigation uses. However, NPCA pointed out that such action would directly conflict with both a 1928 law and a 1964 Supreme Court decision. Furthermore, the Bureau glibly remarked that "irrigation projects can usually operate with short water supply during critical periods of runoff." The years 1931 to 1967 were deemed such a "critical period" by the Bureau. NPCA questions how the Bureau could justify major restriction of irrigation supply for a period of thirty-six years!

Tree-ring analysis has enabled researchers to ascertain water supply over a period of 450 years and to base their predictions accordingly. These

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Prominent speakers will include Russell W. Peterson, Chairman of the Council on Environmental Quality; Dr. Sylvia Earle, marine botanist and head of the world's first team of women aquanauts; Dr. Aurelio Peccei, President of The Club of Rome; Barbara Ward (The Baroness of Lodsworth), President of the International Institude for Environment and Development, and many others.

A special registration fee of $100 is available for NPCA members. Registration includes admission to all plenary sessions, choice of three seminars, two luncheons, opening cocktail reception, and the Film Festival. Special air fares to the Congress have been arranged on Trans World Airlines (TWA) from major U. S. cities to San Francisco, saving up to 25%. Reduced accommodation rates are available at the St. Francis Hotel.

We urge all NPCA members and friends of World Wildlife Fund to attend the Congress. For further information and a registration packet, write to:

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Memo to Members

Dear NPCA Members,

I would like to thank all of you for the support you have shown to NPCA during the year. Your membership dues and contributions are deeply appreciated by all of us at NPCA. I would also like to add a special thank you to those of you who have participated in our "get-a-member" campaign—whether by giving a gift membership or persuading a friend to join.

If this is your first issue of our magazine—welcome to NPCA. And perhaps you are wondering what our "get-a-member" campaign is all about.

Like all independent, nonprofit organizations, NPCA must rely upon the support of its membership in order to effectively carry out its vitally important conservation programs.

NPCA has the comprehensive programs and the reasoned and researched plans. But it is only with our members' help that we are able to continue in our efforts to preserve and protect our national parks and natural resources. We are proud of our members and the loyalty you have given to NPCA. And we feel that our members can take great pride in knowing that through their membership in NPCA they are playing a major role in our struggle to prevent the destruction of our nation's invaluable resources.

But if we are to continue to be as effective in the future as we have been in the past, we must grow. We must gain new members in order to maintain our independence and income. One way for NPCA to do this is by mailing out a large number of promotional pieces throughout the year inviting individuals to become members. Although this method is successful, it is costly and we would like to be able to cut back on the number of pieces we must mail. Another way—and a way which will enable us to cut back on our mailings—is if each member of NPCA would make an effort to get a new member. And we are asking all of our members to help personally in enlarging the membership of their organization.

To show our appreciation for your efforts to help NPCA grow, we are offering an award for each new member you enlist. A portfolio of nine magnificent photographs from the covers of the magazine—four color and five black and white. The photos are the work of some of the best nature photographers in the world and are suitable for framing or perfect for table display. If you enlist a second or third new member, you will receive three more prints—two black and white and one color—for each new member. And a special bonus during our Bicentennial Year is a beautiful color print of our nation's symbol—the bald eagle—which appeared on the cover of our July issue. And that is what our "get-a-member" campaign is all about.

If you have not "got-your-member" yet, perhaps you'll take the time now to think of someone who shares your concern for the fate of our environment—a friend or relative. Or, you may wish to give a gift membership to your local library. It's as easy as one, two, three. Just use the enclosed envelope which explains the award in more detail and help us grow. Let's make this year—a landmark year for our country—a landmark year for NPCA by doubling our membership in 1976!

With best wishes,
Maura Graney Rubin
Associate Director
Membership Services

figures show that the probability of another wet cycle during the period of the Central Arizona Project is very slim. The Bureau of Reclamation predicts stream flow on the basis of relatively recent and brief gauging station records. At the hearings NPCA countered that these records are unreliable because of the exaggerated effect given to short-term fluctuations:

"The Bureau persists in adhering to inflated flow projections, staking enormous capital investment on the slender thread of hope that a miraculous wet cycle will be repeated much sooner than the law of averages dictates. At the very least, the Bureau should have investigated the techniques used by Dr. Charles Stockton in his tree-ring studies."

NPCA has pointed out alternatives to overcome the water deficiency through more efficient use of present resources. These alternatives include law reforms, selective spot irrigation, and shifting crop production away from areas where water is insufficient.

ENDANGERED PLANTS

Bureaucratus delayus

At recent public hearings on a proposal to list species of plants under the Endangered Species Act for the first time, NPCA warned that lengthy bureaucratic delays in protecting plants must cease if many species are to survive.

This past summer the Interior Department held public hearings in four cities concerning proposals to list 1,783 species of plants as endangered and establish necessary regulations. (See August 1976 issue, p. 27.)

At the Washington, D.C., hearing NPCA urged immediate adoption of the entire list. The proposed list represents a revision of a list first published by the Smithsonian in January 1975; and NPCA stressed that by proposing the list but delaying its adoption, the Interior Department would create a significant threat to already endangered species. Accordingly, NPCA maintained at the hearings that commercially exploited species should receive urgent priority. This Association reiterated that habitat preservation should be adopted as the best method to ensure the survival of endangered species of plants. Nine national conservation organizations have endorsed our hearing statement.

Speakers at the recent hearings ranged from those trying to delay the listing and regulations indefinitely to those who felt the proposals were long overdue. The largest attendance at any of the hearings was in Hawaii, a state with 924 candidate species of endangered plants. A representative of the Hawaii Department of Land and Natural Resources labeled the list "arbitrary and capricious" despite the testimony of university botanists and other authorities that the list accurately reflects the best scientific information and that any necessary changes in classification can always be accommodated in the future. State foresters with the department and planners are promoting conversion of thousands of acres of native vegetation into nonnative commercial forests each year.

The issue that most parties agreed on at the hearings was that endangered plants in cultivation should not be controlled in the same manner as those in the wild. In fact, some species have been preserved through cultivation by knowledgeable scientists. Dr. Bruce MacBryde, the senior botanist at the Office of Endangered Species (OES) has said that the Fish and Wildlife Service has no desire to curtail propagation in cases in which it does not exploit *wild* endangered species of plants.

What will happen now that the hearings have been concluded? The best that can happen is adoption of good regulations and listing of a large number of plants. The worst would be a weakening of the regulations and additional delays. Perhaps there will be more public hearings, even while the last known populations of some endangered species end up under concrete or in a supermarket.

Someone has to begin to protect endangered species of plants. Immediate relief most likely will not be coming from Washington and, in any case, regulations can never take the place of public awareness. Therefore, it is time for people who realize the value of plants in a diversified ecosystem to begin efforts in their own regions.

First of all, botanists and horticulturalists should use their expertise to a greater extent in aiding OES; in providing guidance to community groups, garden clubs, and individuals; and in initiating community programs to protect endangered species.

One idea is that people adopt an endangered species of plant. In no way does this suggestion mean transplanting an endangered or threatened plant into your garden, as transplanting is almost always unsuccessful. Instead, contact your local university's department of botany, a botanical garden or arboretum, or a regional society (such as the New England Wildflower Society or the California Native Plant Society). Learn what plants are endangered or threatened in your area. If you locate any of these plants, find out who owns the land, what laws affect the plants, whether their survival is threatened, and what can be done to protect them. If private lands are involved, urge the owner to protect the plants. If you need additional help or information, contact the Office of Endangered Species, Interior Department, Washington, D.C. 20240.

Legally, there is no such thing as an endangered species of plant yet. Nevertheless, consumers can use their collective influence to help protect commercially exploited species. Cacti are a particular favorite with most plant owners, and widespread consumer action could have a significant impact. Thirty-one species of cacti have been proposed as endangered, and many others are threatened. Meanwhile, in southwest Texas alone, hundreds of thousands of cacti are removed from the wild each year to meet consumer demand across the nation. Collectors are paid a penny apiece for the cacti, whereas dealers later sell them for about a dollar apiece. Wholesale distribution houses market vast quantities of plants, including endangered and threatened species. Then the consumer pays a relatively high price.

Some cacti reportedly are taken from Big Bend National Park, even though it is illegal to remove any plant from a national park. In fact, the National Park Service reports that within Big Bend and other national parks, commercial dealers might not be the major villains. Big Bend has only 11 permanent rangers to monitor 708,000 acres, but the rangers often find evidence that tourists have removed plants. (Several endangered species are endemic to the Big Bend region.) People seem to feel that the three or four plants they take home will make little difference, but they add up to large-scale poaching. It

will be difficult for everyone to know what species are endangered or threatened, but a general policy would be effective. When purchasing a plant for your home or garden, buy only plants grown in cultivation and avoid plants taken from the wild.

There are a few visible signs to detect cacti taken from the wild. First of all, a large plant is almost certainly taken from the wild. A cactus from the wild will often have a line around its base, showing where the natural soil level was. It may also be fairly scarred. Cacti grown in cultivation usually are small and, if displayed in a group at the store, of uniform shape and size. Ask the dealer if you are unsure. If you refuse to buy plants taken from the wild, perhaps the dealer will follow your example.

Carnivorous plants are also commercially exploited. A vivid description of their collection recently was given in a carnivorous plant newsletter: "While in the Green Swamp area of North Carolina a few weeks ago, I noticed a row of four men with burlap bags crisscrossing a savannah in the manner of—and with the same efficiency as—a squad of cotton harvesters of a century ago, going row by row and literally plucking *Dionea* [venus fly trap] and *Pinguicula* [butterwort] like so many fruits of labor."

Considering the diligence of those who would destroy endangered species of plants, isn't it time for more diligent protection?

NEW RIVER

Ups & Downs

Just as legislation to protect 26.5 miles of the New River in North Carolina seemed headed for approval by Congress and one battle to save the ancient river seemed to have been won in that state, new threats to the river cropped up in West Virginia.

Strip mining and logging operations are moving into the wild New River Gorge, famous for its scenic beauty, exciting whitewater, and excellent fishing. A West Virginia appeals board recently granted Betty Jane Coal Company a permit to strip mine 100 acres near the rim of the gorge, reversing the decision of the state Department of Natural Resources. The DNR had maintained that because of an inadequate drainage pond proposal and the special scenic and recreational values of the area, the permit should be denied. Neither NPCA nor any one of the two thousand people who wrote to protest the action was informed of the board meeting or invited to testify.

Meanwhile, Sewell Coal Company has applied for a permit to strip a 66-acre section in an even more wild and fragile part of the gorge just above Mann's Creek, a fine trout stream that flows through Babcock State Park. Runoff from the mine would enter the park and Mann's Creek and flow directly into the New River. NPCA continues to oppose this application. However, we fear that the appeals process will allow this mine also to begin operation.

Finally, the large Westvaco Company has begun extensive logging in the same area. At last report they had cut heavily along a half-mile stretch of the New River. In addition to the unsightliness of the cutting, there is danger of severe erosion damage from such practices.

Several congressmen have introduced bills to make this portion of the New River in West Virginia a wild and scenic river. Unless something is done quickly to stop the destruction, nothing will be left to preserve. NPCA members who want to stop these actions can urge that the West Virginia government take every possible step to protect the New River. Write:

Governor Arch Moore
Governor's Mansion
Charleston, West Virginia 25301

AMERICAN CHESTNUT

Long Live the King

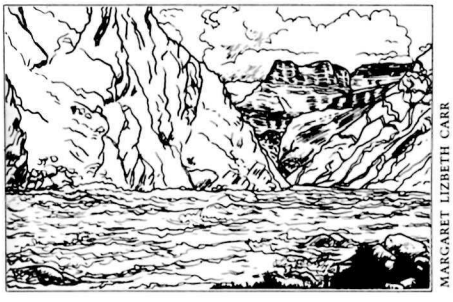
The NPCA program to plant American chestnut seeds donated by people from across the nation is still going strong. NPCA began a pilot program in 1974 in the hope that natural selection, over a period of years, will produce a strain of trees resistant to chestnut blight. Until that fungus disease of the bark was introduced from Asia early this century, the American chestnut was king of our eastern hardwood forests. (See September 1974 issue, pp. 8–13.)

In the fall of 1975 approximately 300 American chestnut seedlings were transplanted to local parks, nature centers, and botanical gardens in the Washington, D.C., metropolitan area. Meanwhile, NPCA has continued to receive seeds from various parts of the country sent by NPCA members and others who want to help reestablish the American chestnut. Our volunteer chestnut consultant, Leo Pahl, examines all the seeds carefully, identifies the various varieties we receive, and plants the healthy seeds.

NPCA is now looking for a large tract of land on which to plant chestnut seedlings. If a blight-resistant strain is to develop, we must keep together the strains that have some de-

gree of resistance to the chestnut blight, and we need to plant approximately 1,000 seedlings at the site. The land must be permanently protected from development because the project may require hundreds of years. It has been difficult to find such an area close enough to our Washington headquarters to be carefully monitored. If you know of such a place, please contact Rita Molyneaux at NPCA.

Sprouts still come up from roots of old American chestnut trees and may grow for fifteen or twenty years—and even produce seeds—before succumbing to the blight. Very few old trees exist. Anyone who knows of a true or suspected American chestnut that is bearing nuts is urged to send seeds,



MARGARET LIZBETH CARR

burrs, and pressed leaves (to ensure accurate identification) to either NPCA or:

Leo Pahl
8136 Ventnor Road
Pasadena, Maryland 21122

Also tell us the tree's diameter at 4½ feet above ground, its approximate age, and whether the blight seems to be present.

OFF-ROAD VEHICLES

An Open Door to Disaster

NPCA has criticized a Bureau of Outdoor Recreation (BOR) proposal to leave the vast majority of the nation's public lands open to unrestricted off-road vehicle use pending studies over a period of years.

BOR recently issued a draft environmental impact statement on the implementation of Executive Order 16644, which pertains to use of off-road vehicles, known as ORVs, on all public lands, but particularly on those managed by the Bureau of Land Management. (Regulation of such vehicles on National Park System lands has been well established for some time.)

According to proposals contained in the draft statement, the Interior Department would assess the impacts of ORV use on various lands and by 1987 designate all BLM lands as either open, open with regulations, or closed. Interior would give priority in the studies to areas of heavy use, fragile environments, and habitat of endangered species. However, until BLM lands have been designated under one of the three categories, ORV use would not be prohibited on these undesignated lands. NPCA charged that during this period many BLM lands will likely be ravaged by these vehicles, which are now wreaking devastation in many areas.

The statement itself acknowledges, "under the proposed action [delay in designation], certain of BLM's multiple use lands would not be designated as open or closed to ORV use until September 30, 1987. Although not officially sanctioned, generally ORVs would have access to these areas in the interim. On those lands that are held in undesignated status for extended periods, there will be some irretrievable losses of unique geological, archaeological, historic, cultural, and biotic resources."

Thus, BLM chooses to allow potentially irreversible environmental damages even though they could be avoided or lessened by alternative measures. NPCA suggested that Interior issue interim designations of all BLM lands within a very short time—preferably within one year—using all three designation categories.

The draft environmental impact statement rejects this alternative for reasons that NPCA believes are outweighed by the damage that would occur under the proposed procedure. Although this interim process would necessitate making preliminary judgments based on somewhat limited knowledge, NPCA noted that this same limited knowledge is the basis under the proposed plan for choosing lands that will receive designations on a priority basis. Any errors made during the initial interim designation process could be corrected in the final designation following more intensive study. If any errors in judgment occur during the interim period, NPCA asserts that they should be made on the side of overprotection rather than of overexploitation. The wildlife, flora,

and historical and other resources of these lands—which are a heritage of all Americans—should receive the benefit of the doubt over the interests of the relatively fewer ORV users.

BIG BEND

Boquillas Crossing Opposed

NPCA, joined by six other conservation organizations, recently contacted Interior Secretary Thomas Kleppe to express adamant opposition to a proposed international bridge-crossing from Boquillas, Mexico, into Big Bend National Park, Texas.

The Mexican government recently resumed paving a proposed main artery for both tourist and commercial traffic from Mosquiz to Boquillas, Mexico, even though the Park Service had expressed opposition in 1975 to constructing a bridge-crossing at Boquillas. The latter is a small village just across the river from Rio Grande Village in Big Bend. The conservation groups oppose the bridge-crossing into the national park because of anticipated extreme environmental impacts on the park.

Because an international border crossing in the vicinity of Rio Grande Village would require facilities for customs and immigration officials and would increase traffic and demands for commercial traffic through the park, NPCA maintains that the crossing would not be compatible with the basic conservation purposes for which the park was established.

Instead of the Boquillas crossing, the National Park Service has suggested an alternative crossing for the road at the town of La Linda, located outside the park boundary to the east. This site, also supported by the conservation groups, is connected by existing roads into Texas. It would provide an excellent opportunity for eventual access southward to the interior of Mexico and into the Sierra del Carmen Range of mountains. This range is a principal feature of a possible Mexican companion park to Big Bend.

In July 1976 the U.S. State Department, at the request of the National Park Service, transmitted to the Mexican government a message expressing U.S. opposition to the Boquillas site and requesting that the Mexican government give serious consideration to an alternate route for the road.

news notes

URBAN PARKS

Federal Role Assessed

In an effort to define the appropriate federal, state, and local roles in urban park preservation, this fall the National Park Service, the Bureau of Outdoor Recreation, and the U.S. Fish & Wildlife Service are jointly conducting a study of major park and open space opportunities in twenty-eight metropolitan areas.

Although the study will not result in any specific park proposals, NPS Director Gary Everhardt told the regional directors, "One of the major potential benefits to come of this study will be an opportunity for the Service to develop factual information on which some meaningful professional judgments might be based as to the national significance [or lack thereof] of potential park sites."

BIG CYPRESS

Deja Vu

The script is depressingly familiar: energy development versus conservation of national park resources. Only the names have been changed. This time the name of the game is oil and the potential victim is the Big Cypress National Preserve, a subtropical wilderness in southwest Florida that was added to the Park System in 1974.

The Act establishing this preserve allows exploration and extraction and specifies that NPS cannot acquire oil and gas rights in the preserve without consent of the owner unless the Secretary of the Interior determines that the property is threatened with uses detrimental to the NPS unit. Although most of the preserve is under lease to oil companies, the Park Service (an Interior agency) has been busy trying to obtain the funds to purchase the land itself and has made no effort to acquire the oil and gas rights. The agency must soon develop regulations aimed at protecting the preserve.

Until recently the oil companies, which are committed to a multimillion-dollar leasing and exploring venture in the swamp, have not tried to penetrate into the interior of the national preserve. However, Exxon currently is planning an 11-mile access road from the Tamiami Trail to well sites in the northeastern portion of the preserve. On July 20 the Florida cabinet approved the proposal.

The road reportedly would interrupt the vital water flow through Big Cypress, and it has focused public attention on the possiblility of a network of access roads carved into the wild preserve and on damages inflicted so far by seismic and survey crews.

The roadbuilding also would jeopardize designation of wilderness areas in Big Cypress. The Act establishing the preserve called for a study of areas for possible addition to the National Wilderness Preservation System.

In recent months the state has approved several dozen oil wells in the vicinity of the Big Cypress National Preserve, and many requests for new wells are still pending. A Big Cypress Oil Advisory Committee reports to the cabinet, and the *Miami Herald* says that, in the past several years, the committee has rejected only 3 drilling requests out of 150.

CARLSBAD CAVERNS

DDT Linked to Bat Decline

The nightly emergence of a mass of millions of insect-eating bats from Carlsbad Caverns is said to have led to the discovery of those caves. In fact, the Mexican free-tailed bat colony in Carlsbad Caverns National Park, New Mexico, numbered well over 8 million bats in 1936. By 1956 the size of the colony had dropped to just under 4 million, and by 1973 the population had fallen to about 200,000.

The bats establish maternity colonies in Carlsbad beginning in the spring. The females give birth in June, while the males roost separately. The colonies are mostly vacated by October as the bats migrate to wintering areas in Mexico and Central America. Banding shows that they sometimes fly as far as 800 miles or more in sixty-nine days and can cover more than 40 miles per night.

These nocturnal mammals feed exclusively on insects, usually flying insects that they catch on the wing. In one night a bat can easily eat the equivalent of half its own body weight. Thus, a colony of 250,000 bats can devour from two to four tons of insects in a single night! Such a high rate of insect consumption makes these bats

reader comment

Sport Hunting in Alaskan Parks

I am running a little behind on my reading of your excellent magazine of late, and have only just recently read in the April issue the fine article by Woody Williams about the Gates of the Arctic. [April 1976, page 4.]

The plan for a large national park in the magnificent landscape and rich wildlife habitat of the Brooks Range is an exciting one. Of the several proposals, the one by Congressman Udall seems the best, since it includes the largest amount of land. That of the Department of the Interior, shown on a map with the story, might, however, well suffice.

But the Interior Department's proposal seems to have a very serious, if not fatal flaw, according to the article. This proposal and that of Congressman Young call for sport hunting within the national park-to-be. This seems totally unacceptable. Not only is it a violation of American national park practices to have such activity in this new park, but it could well provide an opening wedge for hunting in other parks. If hunting is allowed there, why not in the Olympic National Park, or at Yellowstone, Glacier, Great Smoky?

We conservationists—and I'm sure that includes all readers of *National Parks & Conservation Magazine*—must resist selfish pressure groups that insist on "taking something out" of the national parks, whether it be minerals, timber, or wildlife. The parks have always been wildlife refuges and must continue to be. From the very first, hunters were excluded from our great parks, because people, the owners of the parks, realized that wildlife was a most important part of the parks' natural systems, as well as a thrill to view.

Since wildlife habitats are shrinking, there is now more than ever a need to afford the remaining wildlife a refuge. Much of the wildlife of Alaska is endangered or has disappeared in the rest of the country. How long can it survive there if the parks are open to hunting?

People who enjoy and appreciate the out-of-doors in many ways, from birding and botanizing to hunting are often, and should be, natural allies in preserving open space. But to open any national parks new or old to such practice would be a travesty of the national park vision and should not even be considered.

Ottar Indridason
Huntington, Vermont

conservation docket

Many NPCA members will be interested in action on the following bills:

Land and Water Conservation Fund: HR 12234 and S 327—A House-Senate conference has agreed on legislation that would provide the federal and state governments with funds for recreation, conservation, land acquisition, and historic preservation. Some of the significant compromises of the conference committee included gradually increasing the annual funding level from its present level of $300 million to $600 million beginning in fiscal year 1978 until it reaches $900 million in fiscal year 1980; a provision allowing up to 10 percent of a state's share of the LWCF to be used for building shelters for ice skating rinks and swimming pools in cold areas; maintaining a 50–50 split in federal-state matching funds for land acquisition; amendments to permit more wildlife refuge lands and national forest lands to be acquired with LWCF money; and increased funds for historic preservation. At press time both houses of Congress were expected to approve the committee's report. A

an effective natural pest control of great benefit to man. Ironically, much of the decline of the bats may be due to synthetic pesticides.

Since 1973 researchers working on a project funded by the Department of the Interior and the World Wildlife Fund have sought to determine the magnitude and causes of population declines of southwestern bats. They recently issued preliminary findings that one of the major factors in the decline of the bats at Carlsbad Caverns is the accumulation of DDT and its breakdown products, DDE and DDD, in the bats' bodies.

Declines in southwestern bats have occurred in this colony and in other bat colonies located in caves near agricultural areas where pesticides are commonly used. The young accumulate pesticides during the nursing period, as shown by studies uncovering residues of DDT, DDE, DDD, and dieldrin in the bats. However, at first the bats are probably protected from toxic effects because the chemicals are stored away in their fat deposits.

The experiments of Dr. Don Wilson of the National Museum of Natural History and Drs. Kenneth Geluso and J. Scott Altenbach of the University of New Mexico indicate that many young bats likely die during their first migration because the body fat is then mobilized, releasing toxic residues that may subsequently reach the brain. Wilson says, "The bats carry high enough residues to kill them if they expend enough fat fast enough."

Although the scientists are still exploring the pesticide hypothesis, experiments do indicate greater residues of DDE in bats at Carlsbad than in other areas,. It is unknown whether the foraging areas used by Carlsbad bats contain insects with higher chemical residues than the foraging areas of other colonies and whether the maternal bats are picking up the pesticides while in this country or in Mexico. If future funding permits, researchers hope to explore this and other aspects of the problem.

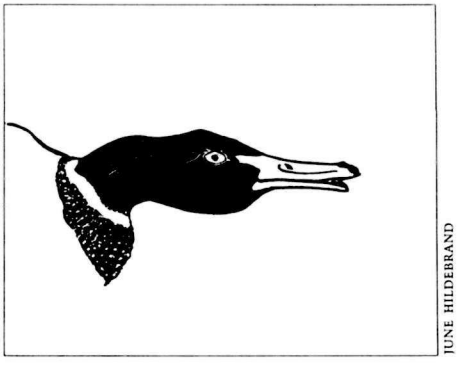
Mexican free-tailed bats and their young migrate at this time of year from their maternity colonies in Carlsbad (below) to Mexico. Many young likely die during migration.

NATIONAL PARK SERVICE

presidential veto of the bill was a strong possibility.

BLM: HR 13777—Both the House and Senate have attempted to establish guidelines for the management, protection, and development of public lands under the Bureau of Land Management (BLM). The House passed the controversial bill to amend the BLM Organic Act by a vote of 169 to 155. It would define the BLM's management role in a number of areas and would apply to both BLM lands and to national forests created from national lands. Under the bill, 5,000-acre tracts of land could be withdrawn from mining, logging, grazing, or any other use for up to ten years unless either the House or Senate object within ninety days of the withdrawal. This provision applies to all but Alaskan lands and wildlife refuges. Under the formula originated by Representatives Sam Steiger (D-Ariz.) and James Santini (D-Nev.), a new method of figuring the fees charged to private interests who use public lands for grazing their stock would allow fees to decrease as production costs increase. Although Rep. Robert Eckhardt (D-Tex.) objected to the formula on the grounds that it would put grazing fees below fair market level, the House passed the amendment 40 to 14. Other amendments would permit BLM officials to enforce public land laws and would prohibit indiscriminate dumping of oil shale residue on federal lands. A similar bill, S 507, passed the Senate earlier this session. A conference will iron out differences in the two bills.

Tax Reform: HR 10612—This piece of legislation contains two provisions of interest to NPCA members. The



JUNE HILDEBRAND

first would provide tax incentives to improve and rehabilitate historic structures and would discourage demolition of historic buildings slated to be replaced by modern ones. The second would clarify Internal Revenue Code Section 501 (c) (3), which restricts the degree to which private nonprofit organizations like NPCA can actively influence legislation. The amendment would define the exact amount that such organizations could participate in the legislative process. Because current law is unclear on this point, many organizations believe that they cannot determine whether they are within the bounds of the law. Both provisions were introduced as amendments in the Senate to a bill that had already passed the House. Because of these and many other differences, a House-Senate conference will be necessary to reach agreement.

Tule Elk: H. J. Res. 738—This legislation calls for a joint federal-state effort to preserve the tule elk by providing habitat for at least two thousand of these animals in California. At press time, the President was expected to sign the bill.

New bill

Condor Habitat: HR 10867 and S.J. Res. 209—Legislation to prevent mining in Los Padres National Forest would have an added benefit. It would also protect habitat of the rare and endangered California condor, possibly saving it from extinction. Under the legislation, the Pine Mountain area of the Los Padres National Forest would be withdrawn from mining. Introduced by Rep. Robert J. Lagomarsino (R-Calif.) and Senators John V. Tunney (D-Calif.) and Alan Cranston (D-Calif.). (See February 1976 issue, p. 17.)

Continued from page 2
house, may sing his medleys without pause from dusk, all through the night, and into the dawn.

YOU MAY FARM for grain, and the wise, in view of the world's hunger, will plan it that way. But the milk-cow and the steer, the sheep and the hog, and indeed even the working horse, are of the very stuff of the lives of the people on the farms, and their inseparable companions.

Among constant associates of men in the fields and the woods are the insects. Now in the late summer it is the crickets, locusts, katydids, filling the evenings and the nights with the soft wash of their song. Yellow swallowtail and monarch butterfly touch the daytime world with color, and the secropia moth travels the night. In June the fireflies fill the darkness with a music of silence. And the humble glowworm under your footsteps on the garden path reminds you that beneath the earth there are stars.

MEN ARROGANTLY SUPPOSE, living in big cities, that the universe was designed for them alone. Kept company here by redwing, kingfisher along streams, and the competent crow, by blacksnake in barns, and cricket in the grass, they remember, and know better. They relearn the lesson constantly that people are part of the web of life and live or die as they respect the relationship.

In this outdoor world you live with the weather; it may deal too vigorously with you at times, but it is one of your greatest pleasures; it is not to be tampered with. The long, dry spells of August yield to the showers of September. Thunderheads rise above mountains on hot afternoons. Slow rains drift northward from the Gulf; behind tempestuous squall-lines, mighty cold fronts move in from the southwest. Lightning rattles your telephone line; or crashes your lightning rods and plunges down the cables into the earth. We should glory in the weather—understand it, of course—but not try to tame it, for we shall surely blunder if we do, and worst of all, we shall destroy our amazement at its wild beauty.

THE SILENCES of the countryside, its deep darkness at night, its great spaciousness, which enlarge and free a person, these are treasures which somehow men must regain and protect thenceforth forever. There will be no true human security until we do so.

Silence is at the heart of all repose; men will never learn peace again until they recapture the silence of the countryside. The darkness of deep night leads us profoundly into the depths of an understanding of ourselves. Deep night reveals the dance of the stars in the skies overhead. We should learn the constellations once again.

The great spaciousness of the countryside, the remoteness, these we have lost in our cities. The wide-open spaces are the manifestation of the freedom on which we say our nation was founded. The anonymity of cities cannot substitute for the freedom of the open fields, the mystery of woods, the long view from high mountains.

THE WEST has always had its traditions of meditation; it did not need to learn them from the East; yet it is good that the Eastern and Western traditions are meeting. Without the practice of meditation, modern man, and particularly Western man and his imitators in the emerging lands, will lose himself in the traffic and the clamor. Reflection, to be sure, is not impossible in a quiet room in a city, nor in a hidden urban park, but such sanctuaries are few and frail. Out in the country, of course, one can stay drenched in the business of the world, and in the quarrels and the avarice that spoil men's lives. But the silence is there in the country house, if you will pause for it; and you may step out into the garden, and the deep woods are not far away, where you can be utterly alone. A true human culture of personal integrity will take its stand once again in the countryside.

The earth turns from the sun through the scorch of afternoon; leaves it behind in the flame of the sunset, far out in the frozen wastes of interplanetary space, center of life and warmth of our world. And again we stand beneath the canopy of the stars. The Great Triangle spreads itself overhead: Vega in the Lyre; Deneb in the Swan; Altair in the Eagle, southward toward the fiery heart of the Galaxy. Northward Cassiopeia climbs the sky; the Big Dipper points to Polaris. One thinks of the shepherds of old who guarded their flocks by night. We too, if only a saving remnant, hold treasures here to be guarded for all mankind.

—Anthony Wayne Smith

A wild river . . . a crisp forest . . . shy wildlife . . . The nation's great natural wonders belong to you, and they are waiting for you in America's national parks. Now, this autumn, is a perfect time to visit them.

For more than fifty years NPCA has been watching over these parks, to protect and preserve them for you. Only through your contributions can we continue our vigil. If you love nature and the great experiences the national parks offer, please give generously today.

NATIONAL PARKS & CONSERVATION ASSOCIATION
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