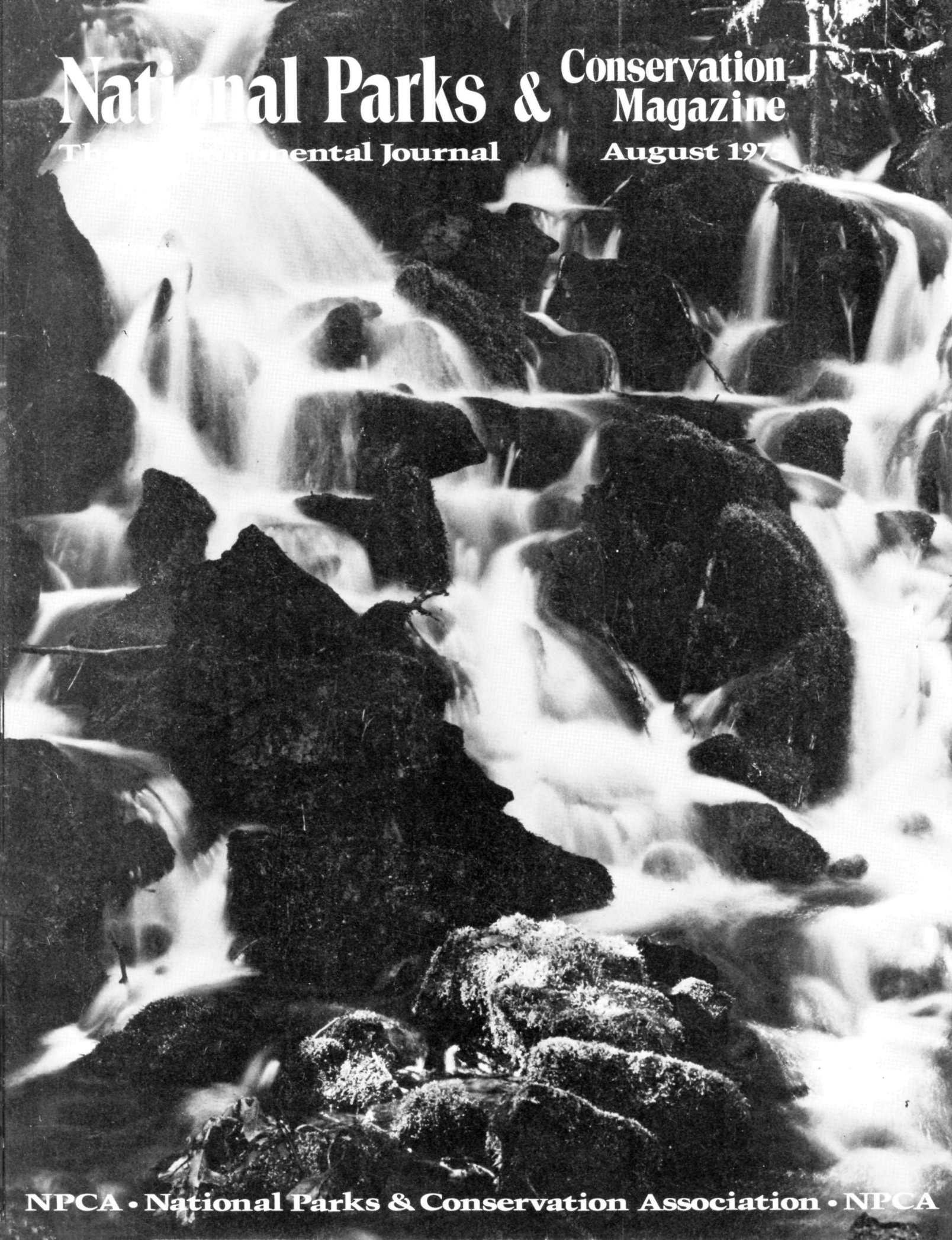

National Parks & Conservation Magazine

The [illegible]nental Journal

August 197[illegible]

NPCA • National Parks & Conservation Association • NPCA

Planetary Prospect: II

LAST MONTH we considered the opportunities which lie ahead for America, now that the Indochinese involvement has come to an end, in working with others toward the creation of a humane world order.

Of necessity the United States will be a leader in these efforts in proportion to its economic strength, technological competence, and long history of commitment to the democratic cause. But the keynote will be cooperation, not domination.

The global panorama at this time, to be sure, is appalling. Men could hardly have mismanaged their common affairs on this planet more disastrously.

In thirty years time we have grown almost callous to the possibility of annihilation by nuclear war. We have watched the population of the earth climb to a point where the planet cannot sustain it. We have seen the earth, air, and waters, indeed the oceans, so polluted that life within them fails. We have drifted from the land, the green fields and forests, into urban conglomerates within which neither the amenities nor the necessities of life can be provided.

We have moved rapidly toward the exhaustion of the mineral wealth of the globe and the extinction of innumerable species of plants and animals. Having squandered the fossil fuels, we turn toward uranium for energy, and indeed toward plutonium, risking genetic destruction. And we sink under the burden of the armaments which our fears and enmities appear to require.

A PERSON may shake off a nightmare and awaken to reality. The moral and mental capacities of humanity should be able to cope with and dispel these horrors. No one could live for a moment with such chaos in his own household or business. It is time to put the planetary house in order.

To begin with the simple and familiar, the growth of a worldwide system of national parks and equivalent reserves becomes more important year by year. A representative network of marine and estuarial reserves should be created rapidly, within which vital scientific research related to plankton and oxygen may be conducted, imperiled ecosystems may be rescued, and the beautiful plants and animals which may otherwise become extinct can be saved for human enjoyment and understanding.

WITHIN the protective jungles of Indochina, before the recent war, several endangered species of primates, the imperiled Sumatran rhinoceros, the last remnants of an ungulate thought to be the ancester of our domestic cattle, and sundry races of great cats lived in peril of extinction. When shall we know whether they survived the defoliation, the carpet bombing, and the slaughter by hungry armies? Fire, poison, and herbicides: poor weapons against men, easily turned against the users; like poison gas, they can perhaps be outlawed. The effort should be made.

Suspended during the hostilities in the face of enormous human danger and anguish, the question of ecocide, as it opened in that conflict, recurs and insistently demands an answer. Can any issue make it more clear that conservationists, environmentalists, and ecologists cannot stand aloof from the planetary issues of our times, from questions of war and peace?

AFTER Alamogordo, many nuclear scientists, appalled by the forces they had helped to turn loose, joined in the dissemination of knowledge about the destructive powers of nuclear weapons. For perhaps a decade, before the presence of these forces in the world had become commonpleace, it was widely realized that a nuclear exchange, even before the hydrogen bomb, would leave very little of life, not certainly of civilization, on either side. But as time wore on, and as discussions turned around cities or silos as targets, the barious reentry vehicles, and preemption and retaliation, it was forgotten that nothing, but nothing, would be left after such an exchange. Environmentalists must join in a new effort toward full understanding.

The nuclear monster has indeed broken loose from his chains; how then get him back into irons? The Nonproliferation Treaty can still be strengthened. The SALT talks must continue, but in an effort to reduce, not merely limit, nuclear weapons. The potential pilfering of weapons-grade materials facilitates blackmail by outlaw nations and individual terrorists. The spread of nuclear fission as an energy source threatens the world with effluent leakage, catastrophic meltdowns, and long-lived radioactive waste pollution; we seem to be headed for the burial of wastes in salt beds, an expedient the safety of which has certainly not been proved. The conservation of

Continued on page 31

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COVERS Man and Nature in the Great Smokies, by Ed Cooper
In addition to spectacular scenery, diverse wildlife, and lush forest wilderness, Great Smoky Mountains National Park preserves old pioneer cabins and outbuildings and a water-powered gristmill as living history exhibits of the isolated and primitive way of life of the tough and independent mountaineers who once lived there. (See page 4.)

National Parks & Conservation Association, established in 1919 by Stephen Mather, the first Director of the National Park Service, is an independent, private, nonprofit, public service organization, educational and scientific in character. Its responsibilities relate primarily to protecting the national parks and monuments of America, in which it endeavors to cooperate with the National Park Service while functioning as a constructive critic, and to protecting and restoring the whole environment. Life memberships are $600. Annual membership dues, including subscription to National Parks & Conservation Magazine, are $120 Sustaining, $60 Supporting, $25 Contributing, $18 Cooperating, and $12 Associate. Student memberships are $8. Single copies are $1.50. Contributions and bequests are needed to carry on our work. Dues in excess of $12 and contributions are deductible from federal taxable income, and gifts and bequests are deductible for federal gift and estate tax purposes. Mail membership dues, correspondence concerning subscriptions or changes of address, and postmaster notices or undeliverable copies to National Parks & Conservation Association, 1701 Eighteenth Street, NW, Washington, D.C. 20009. When changing address, allow six weeks' advance notice and send address label from latest issue along with new address. Advertising rates are available on request from headquarters in Washington.

weathered american chestnut trunk
jack jeffers photograph

Shadows of the Past in the Great Smokies

The serenity of the Great Smoky Mountains is deceptive, for these ancient hills have witnessed many life-and-death struggles and are soaked with human blood and tears

by CHARLTON OGBURN

In preparation for a report on the wilderness of the ancient southern Appalachian Mountains, Charlton Ogburn spent parts of two years exploring the area in a camping bus and hiking and backpacking through it for some 350 miles. He found Appalachian wilderness at its most dramatic in the cloud-forests of the Cherokees' Atali Unega, or White Mountains—known to us today as the Great Smoky Mountains. There he found lush virgin forests reminiscent of tropical rain forests, a sweeping panorama from the summit of Mount Le Conte unequaled in the East, solitude—and the shadows of long-dead inhabitants, the tragic Cherokees. This article is an excerpt reprinted by permission of William Morrow & Company, Inc., from The Southern Appalachians: A Wilderness Quest, *by Charlton Ogburn, © 1975 by Charlton Ogburn.*

THE FOREST, the silence and the solitude that form the profoundest impression of the lone hiker in the southern mountains enclose you within steps of your striking out. You are in the province of the trees, intensely aware of their presence through a swiftly sharpened alertness to externals. There are big ones—Tuliptrees, Yellow Buckeyes, White Oaks, Sugar Maples, Cucumber Magnolias—and their lofty, interwoven tops all but exclude the sunlight. But it is not the dimensions of the forest alone that connote wilderness. It is the fallen trunks of maximum size in various stages of mossy decay. Here trees live out their life spans and, toppled at last by the years, support a succession of lesser plants as they gradually return to the soil. It is the forest's realm, and the gushing of the Little Pigeon River, having the sound of distant thunder, is the voice of the god of waters. A Blue Jay, half wild, half curious, takes note of you and wings off soundlessly. You should feel an alien here, estranged by a lifetime, by generations, of civilization. Yet you do not. Countless generations of forest-living have not been entirely obliterated. You are the prodigal son come briefly back, corrupted, it is true, by luxuries, exotic tastes and soft living on the ministrations of mechanical slaves. And yet the earth on which you set your feet with instinctive conformity to the stillness is native to them, and the undercurrent of communication, just below the level of audibility is a language of inflections that are in your blood. . . .

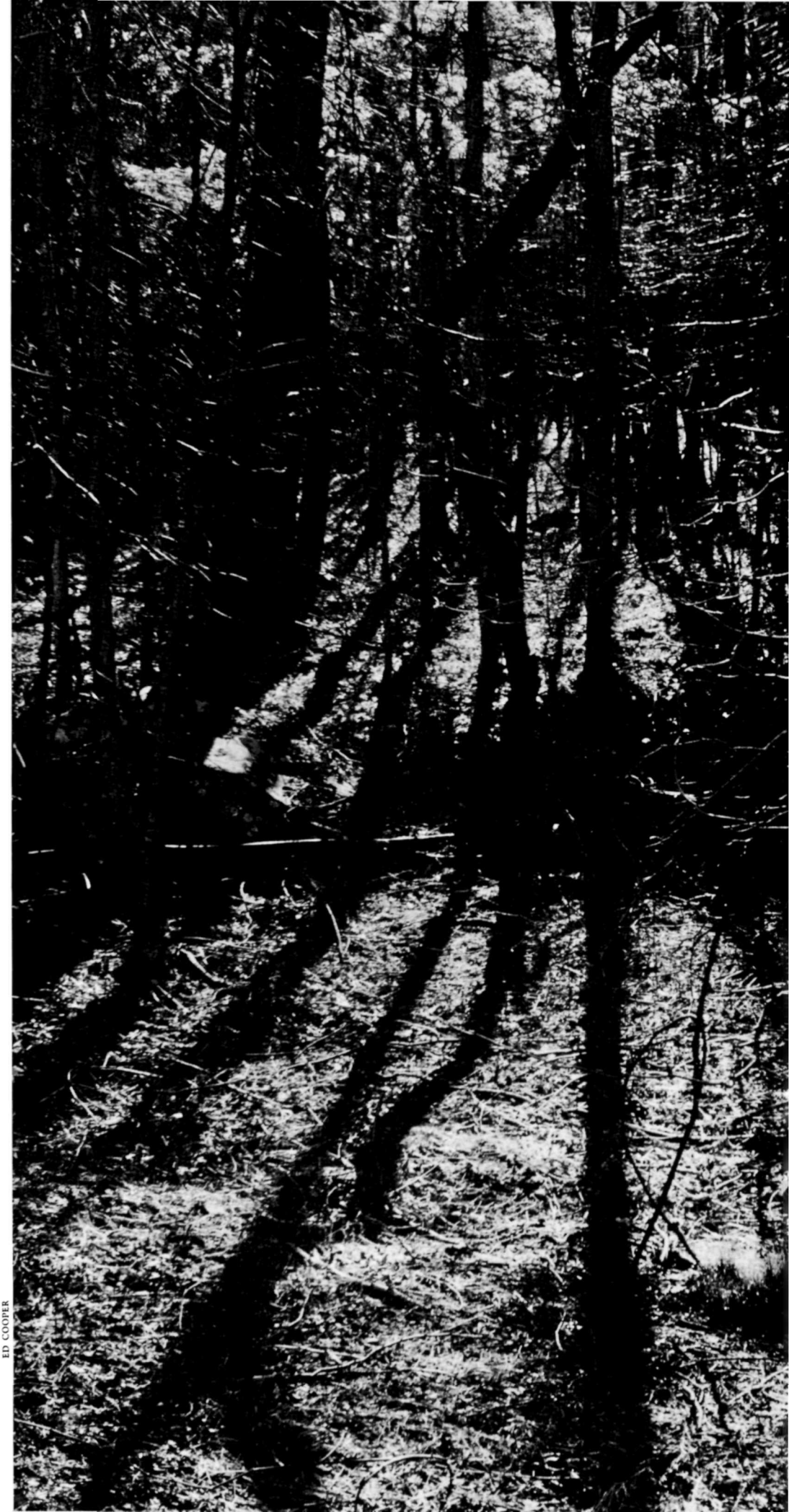
AS well as by the solitudes of the Smokies I came away struck by the extent of modern man's reversion to the condition of an embryo. You cannot be in wilds without having it disturbingly borne in on you what a dependent you are in the womb of civilization. You are like a diver in an undersea world of coral and kelp, good only as long as his packaged air lasts. A consequence of the realization is that you look with a renewed and profound respect on the wild creatures you encounter. The little Chestnut-sided Warbler busy in a Pin Cherry on a shrubby ridge of Old Black, and the Ruffed Grouse that with its fist-sized young roars off from the fine, bright green sedge carpeting an open woods on Cataloochee, lack your reasoning power, your far-ranging knowledge, your strength, your dextrous hands. Yet they are fully competent on their own in the wilderness, where you would prove more helpless than one of the little orange Efts scarcely able to inch along, toddling, that you occasionally meet on the trails.

Equally you think with deepened respect of the human beings who have survived on their own, or almost so, in the Appalachian wilds. Of them all, none had it harder than the Cherokees who fled to the fastnesses of these very Unegas from the implacable hostility of the white Americans. At the time of the outbreak of the French and Indian war in the mid-eighteenth century, the invasion of the Cherokees' homeland in the Southern highlands by whites from the North and East had not been long under way. However, the inevitable conflict had already established the savage pattern of reprisals and counter-reprisals. As the war between the two Old World powers intensified in the New, the Cherokees, thoroughly alienated by the American colonists, took up arms against their erstwhile British allies. Defeated, they fell back upon the most secure refuge they knew, the Atali Unega. Here, it is said, they lived like beasts. The Cherokees were not, it should be said, a tribe of primitive forest hunters. The first white explorers had found them dwelling in log huts and villages and growing

maize, beans, sweet potatoes, squash and fruits. They were an advanced people, and their sufferings in the wild mountains were not much less than their dispossessors' would have been.

With the end of the war the security of the Cherokees' remaining lands was guaranteed both by a treaty of peace and friendship with their late foes, and by the Royal Proclamation of 1763 forbidding inroads by the colonists upon Indian lands across the Appalachians. But nothing could stem the tide of land-hungry Americans, which soon poured into the reservations. In 1776, rightly seeing no hope for themselves but a British victory, the Cherokees again took sides against the colonists in the warfare. In retaliation, upwards of 6,000 well-armed Georgians and Carolinians razed their towns, killed all who could not escape, men and women alike, destroyed their crops and left their children to starve or sold them into slavery; it is said that children of the survivors twenty years later ran screaming at the sight of a white man. Again, those who escaped sought safety in the mountains. Here it was as before. Land too rugged for human acquisitiveness is unlikely to attract game animals either, and at the trails' ends in the Smokies the refugees barely staved off mass starvation on a diet of roots, frogs, snakes, berries and the inner bark of trees.

They came through, or most of them did; but even that was not to see an end of it, to be the last time. The Cherokees had come through the Revolution still in possession of 43,000 square miles of territory. This the whites coveted. In 1828 the doom of the aborigines was sealed by two events. Gold was discovered at Dahlonega in north Georgia and the Indian-hating Andrew Jackson was elected President. It did not matter that the Cherokees had adapted themselves to white civilization, living on farms, governing themselves through an elected legislature and printing a newspaper in the 86-character alphabet devised by the illiterate genius Si-kwa'-ye—



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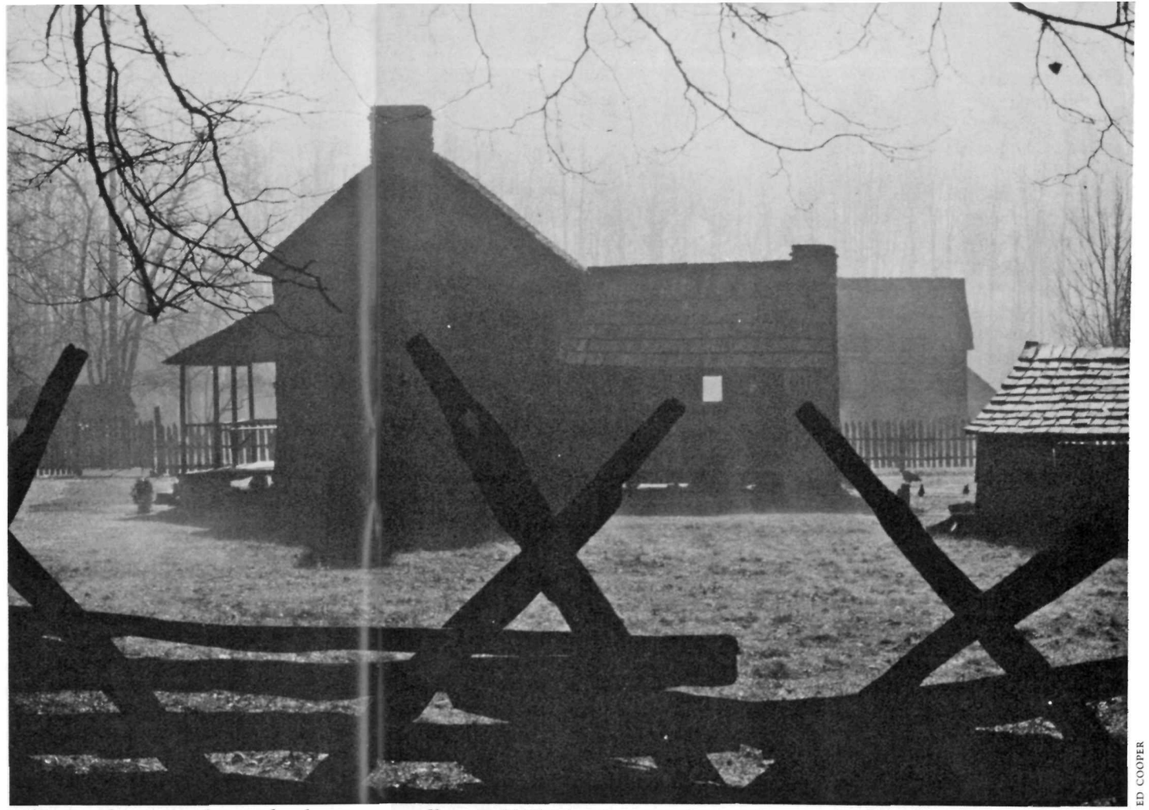
Sequoya—or that they had even been so elevated by our example as to have acquired Negro slaves. Georgia declared all their lands within the state appropriated, their legal rights abrogated, and was backed up by the Federal Government. General Winfield Scott rounded up 14,000 of them and in 1838 sent them off on the infamous Trail of Tears to Oklahoma, on which a quarter died. Of the expulsion a Georgian soldier, later a Confederate colonel, wrote: "I fought through the Civil War and have seen men shot to pieces and slaughtered by the thousands, but the Cherokee removal was the cruelest work I ever knew." Some one thousand of them, those of purest blood and most conservative outlook, according to Horace Kephart, eluded the troops and hid out in the Smokies, half of them—again according to Kephart—between Clingman's Dome and Mount Guyot. Here many died of starvation before General Scott was appeased and called off the hunt.

But there was blood to the end, which came with the death before a firing-squad of an aging Cherokee, Tsali, and his three sons. The four had been captured with their families by Scott's soldiers. However, when in the course of a forced march his wife had been prodded to keep up, Tsali gave the order to fall upon their captors, which they had done and killed them. The price of amnesty set by Scott was the surrender of the four. Tsali gave in to his chief, who had urged his compliance, and it was to the latter that his last words were addressed. He said, "And it is by your hands, Eutsala, that I am to die? We have been brothers together; but Eutsala has promised to be the white man's friend, and he must do his duty, and poor Tsali is to suffer because he loved his country. O, Eutsala! if the Cherokee people now beyond the Mississippi carried my heart in their bosoms, they never would have left their beautiful native land—their own mountain land. . . . It is sweet to die in one's own country, and to be buried by the margin of one's native stream."

SETTLERS had begun to penetrate the Smokies even before the turn of the century, beginning with the valley of the Oconaluftee, the main gateway to the present National Park from North Carolina. Almost as early, others on the far side of the range, moving down from the northeastern Tennessee settlements, began to push up the streams to fertile coves in the foothills of the Great Iron Mountains, as the Smokies were originally called. In 1818 John Oliver became the first settler in Cade's Cove, a valley bottomland looking southward up to the main ridge of the Smokies, dominated from here by Thunderhead. About five miles long by from one to one and a half wide, the cove was inhabited by a hundred families living much as their pioneer forebears had when it was marked for incorporation in the National Park. The cabin built by Oliver close to his original homestead has been preserved, as have a number of other houses and outbuildings of hand-shaped logs or locally-sawed boards and hand-rived shakes. Among them is an operating, water-powered gristmill. To prevent the reconquest of the cove by the forest and preserve its historic aspect, the Government leases the land for farming, under specified conditions. It is almost entirely in pasture for beef cattle; and if you take the 11-mile tour of the cove early in the morning you may well detect, along with the Herefords, a deer or two in the distance scrutinizing you.

SO THE Smokies were staked out by the whites for their livelihood. At the same time the white man's God was proclaimed among them. "In those days, as the saying went," Michael Frome recalls, "the first sound in the wilderness was the ring of the settler's axe and second the greeting of the traveling preacher, the circuit rider, at his front door." Baptists and Methodists, for the most part, these dedicated men rode the steepest and rockiest trails, through rain and swollen streams, to snatch souls from the evils of the frontier—drink, violence, profanity and estrangement from elevating influences. While adding another mouth to feed and body to bed down in the small cabin, they were generally welcome, at least as new faces and bearers of tidings from the larger world.



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White settlers moved onto lands expropriated from the Indians and struggled to wrest a subsistence from the valleys and hillsides. But now they too have gone, and the national park preserves their hand-hewn homes and outbuildings as memorials to a vanished way of life.

DISCIPLES of that third preoccupation of white civilization, the quest for knowledge, came a little later to the Smokies, in the 1850's. The first of the explorers was Thomas Lanier Clingman, a man of energy and courage and also, it would seem, arrogance and ambition, a mining prospector who became a United States Senator and Confederate General. His natural curiosity and zeal to promote the North Carolina Mountains took him first to the Blacks and the Balsams, then to the main ridge of the Smokies and to its supreme summit. In this expedition he was accompanied by two prominent scientists, Samuel B. Buckley, a naturalist, and Samuel L. Love, a physician. The most eminent scientist among the explorers, however, was Arnold Henry Guyot, a compatriot and lifelong friend of the great Swiss zoologist, Louis Agassiz. A professor of geography, Guyot became a luminary of the Princeton faculty as Agassiz had of the Harvard. After spending five years mapping the northern Appalachians and Adirondacks, he turned to the South. Working over the Black Mountains and finding eleven of their peaks higher than Mount Washington, he then, in 1859, came to the Smokies. Here, with Robert Collins, a local mountain man whom Clingman had engaged to act as his guide, and a horse, Guyot spent the summer "struggling up the steep, trackless, laurel-tangled slopes of Smoky burdened with supplies for a week or more, and handicapped still further by a bulky, fragile barometer," a Tennessee historian of the Smokies, Paul M. Fink, writes. "But though laboring under such difficulties, so painstaking was Guyot with his observations and subsequent calculations that the figures he cites for the various points in the Smokies seldom vary as much as a score of feet from the latest altitudes announced by the United States Geological Survey." Guyot and Collins traveled the entire length of the crest of the Smokies, which the Appalachian Trail now follows, and must have been the first white men to do so.

All those explorers, together with Joseph LeConte (a chemist of Charleston) and those most responsible for the creation of the National Park, have had their names given to dominant mountains of the range. Most of the euphonious Cherokee names—names not easy for whites to remember, it may be admitted—have been supplanted. If mountains have to be named for human individuals at all, we may be grateful that the names of Clingman, Guyot and LeConte are distinctive and have a quality not unsuitable to the usage. But I could wish that I knew nothing of the finite human beings who bore them and could think them the names of mountains only.

AS FOR THE CHEROKEES, it is the descendants of the thousand who found refuge in the Smokies who today occupy the Qualla Reservation at the southeastern corner of the National Park. If, lacking sufficient agricultural land to support the 3,300 they now number, they are dependent on tourists for a living, half still normally speak their own language. Their traditional crafts have not been entirely forgotten, or their medicine, based on plants and practiced by conjurers. Restitution of what their people as a whole have lost is of course impossible. We can hardly hope that the slain Cherokees were warranted in believing, as they may have to the end, that their wounds would be assuaged in Lake Ataga'hi, beneath Kuwahi'—Clingman's Dome—invisible to mortal eyes. But perhaps the protection we have given the Atali Unega may be seen as a gesture of atonement to the spirit that they believed imbued the whole of Nature, animate and inanimate, and, all things considered, may be imagined to have made these mist-hung mountains its special abode. ■

A distinguished nature writer, Charlton Ogburn is well known for his prize-winning work, *The Winter Beach* (1967). Born in Georgia, Mr. Ogburn has known the southern Appalachians all his life. His eloquent and authoritative book, *The Southern Appalachians: A Wilderness Quest,* published this spring by William Morrow & Company, Inc., offers the reader the opportunity to experience all aspects of these mountains with a sensitive and profound interpreter.

The Trail of Tears

On the occasion of his eightieth birthday in 1890 John B. Burnett wrote a "birthday story" for his sons and grandsons—an eyewitness account of the exodus—parts of which are excerpted here.

. . .The removal of the Cherokee Indians from their life long homes in the year of 1838 found me a young man in the prime of life and a Private soldier in the American Army. Being acquainted with many of the Indians and able to fluently speak their language, I was sent as interpreter into the Smoky Mountain Country in May, 1838, and witnessed the execution of the most brutal order in the History of American Warfare. I saw the helpless Cherokees arrested and dragged from their homes, and driven at the bayonet point into the stockades. And in the chill of a drizzling rain on an October morning I saw them loaded like cattle or sheep into six hundred and forty-five wagons and started toward the west.

One can never forget the sadness and solemnity of that morning. Chief John Ross led in prayer and when the bugle sounded and the wagons started rolling many of the children rose to their feet and waved their little hands good-by to their mountain homes, knowing they were leaving them forever. Many of these helpless people did not have blankets and many of them had been driven from home barefooted.

On the morning of November the 17th we encountered a terrific sleet and snow storm with freezing temperatures and from that day until we reached the end of the fateful journey . . . the sufferings of the Cherokees were awful. The trail of the exiles was a trail of death. They had to sleep in the wagons and on the ground without fire. And I have known as many as twenty-two of them to die in one night of pneumonia due to ill treatment, cold, and exposure. Among this number was the beautiful Christian wife of Chief John Ross. This noble hearted woman died a martyr to childhood, giving her only blanket for the protection of a sick child. She rode thinly clad through a blinding sleet and snow storm, developed pneumonia and died in the still hours of a bleak winter night. . . .

The only trouble that I had with anybody on the entire journey to the west was a brutal teamster by the name of Ben McDonal, who was using his whip on an old feeble Cherokee to hasten him into the wagon. The sight of that old and nearly blind creature quivering under the lashes of a bull whip was too much for me. I attempted to stop McDonal and it ended in a personal encounter. He lashed me across the face, the wire tip on his whip cutting a bad gash in my cheek. The little hatchet that I had carried in my hunting days was in my belt, and McDonal was carried unconscious from the scene. . . .

THE TRAIL OF TEARS, by Robert Lindneux (1871–1970) WOOLAROC MUSEUM, BARTLESVILLE, OKLAHOMA

Born in New York City, Robert Lindneux was orphaned at an early age, and a wealthy aunt sponsored his education by private tutors. Showing artistic talent, he went to Europe to study art. While in Paris Lindneux met "Buffalo Bill" Cody who was there with his wild west show, and he developed a consuming desire to see the American West for himself. Eventually he did; making Denver his home, he traveled throughout Colorado, Wyoming, and Montana working as a ranch hand and living with the Crow, Cheyenne, and Oglala Sioux. In Montana Lindneux met Charles Russell, and the two artists became friends and worked together in Russell's studio. The story of the Cherokee exodus deeply moved Lindneux and inspired him in 1942 to paint his conception of the ordeal, which is reproduced here from the original oil painting at Woolaroc Museum, Bartlesville, Oklahoma, by kind permission of The Frank Phillips Foundation Inc.

The long painful journey to the west ended March 26th, 1839, with four-thousand silent graves reaching from the foothills of the Smoky Mountains to what is known as Indian territory in the West. And covetousness on the part of the white race was the cause of all that the Cherokees had to suffer.

Ever since Ferdinand DeSoto made his journey through the Indian country in the year of 1540, there had been a tradition of a rich Gold mine somewhere in the Smoky Mountain Country, and I think the tradition was true. . . .

In the year of 1828, a little Indian boy living on Ward creek had sold a Gold nugget to a white trader, and that nugget sealed the doom of the Cherokees. In a short time the country was over run with armed brigands claiming to be Government Agents, who paid no attention to the rights of the Indians who were the legal possessors of the country. Crimes were committed that were a disgrace to civilization. Men were shot in cold blood, lands were confiscated. Homes were burned and the inhabitants driven out by these Gold hungry brigands.

Chief Junaluska was personally acquainted with President Andrew Jackson. Junaluska had taken five hundred of the flower of his Cherokee scouts and helped Jackson to win the battle of the Horse Shoe leaving thirty-three of them dead on the field. And in that battle Junaluska had drove his Tomahawk through the skull of a Creek warrior, when the Creek had Jackson at mercy.

Chief John Ross sent Junaluska as an envoy to plead with President Jackson for protection for his people, but Jackson's manner was cold and indifferent toward the rugged son of the forest who had saved his life. He met Junaluska, heard his plea but curtly said, "Sir your audience is ended, there is nothing I can do for you." The doom of the Cherokee was sealed, Washington D.C. had decreed that they must be driven West, and their lands given to the white man, and in May 1838 an Army of four thousand regulars, and three thousand volunteer soldiers under command of General Winfield Scott marched into the Indian country and wrote the blackest chapter on the pages of American History.

Men working in the fields were arrested and driven to the stockades. Women were dragged from their homes by soldiers whose language they could not understand. Children were often separated from their parents and driven into the stockades with the sky for a blanket and the earth for a pillow. And often the old and infirm were prodded with bayonets to hasten them to the stockades.

In one home death had come during the night, a little sad faced child had died and was lying on a bear skin couch and some women were preparing the little body for burial. All were arrested and driven out leaving the child in the cabin. I don't know who buried the body.

In another home was a frail Mother, apparently a widow and three small children, one just a baby. When told that she must go the Mother gathered the children at her feet, prayed an humble prayer in her native tongue, patted the old family dog on the head, told the faithful creature good-by, with a baby strapped on her back and leading a child with each hand started on her exile. But the task was too great for that frail Mother. A stroke of heart failure relieved her sufferings. She sunk and died with her baby on her back, and her other two children clinging to her hands.

Chief Junaluska who had saved President Jackson's life at the battle of Horse Shoe witnessed this scene, the tears gushing down his cheeks and lifting his cap he turned his face toward the Heavens and said, "Oh my God if I had known at the battle of the Horse Shoe what I know now American History would have been differently written."

. . .The fleeting years have come and gone and old age has overtaken me, I can truthfully say that neither my rifle, nor my knife are stained with Cherokee blood.

. . . Murder is murder whether committed by the villain skulking in the dark or by uniformed men stepping to the strains of martial music.

Murder is murder and somebody must answer, somebody must explain the streams of blood that flowed in the Indian country in the summer of 1838. Somebody must explain the four-thousand silent graves that mark the trail of the Cherokees to their exile. I wish I could forget it all, but the picture of six hundred and forty-five wagons lumbering over the frozen ground with their Cargo of suffering humanity still lingers in my memory.

Let the Historian of a future day tell the sad story with its sighs, its tears and dying groans. Let the great Judge of all the earth weigh our actions and reward us according to our work. . . . ■

THE BERMUDA PETREL RETURNS FROM OBLIVION

The Bermuda petrel is making a comeback thanks to the work of a dedicated conservationist

by DAVID R. ZIMMERMAN

JUST OFFSHORE of Bermuda is a handful of windswept, wave-torn, rocky islets, some no larger than a kitchen garden. They lack most amenities. Some have virtually no vegetation; others are topped by grass or a few shrubs.

The deep blue waters of the Atlantic swirl and eddy at their bases. Because the islets lack beaches, landing on them is treacherous work, even in the best of weather. One scrambles ashore from a jouncing skiff, cutting and bruising one's hands on sharp coral.

These few tiny bits of land, totaling four or five acres, are the sole remaining breeding ground for the Bermuda petrel *(Pterodroma cahow)*, or cahow (pronounced Ka-HOW), a bird that for three hundred years was believed to be extinct. When it was rediscovered, in this century, its end in fact was near. Thanks only to the lifelong dedication of an intrepid conservationist has the cahow managed to survive—and it now is thriving.

David Wingate is a thirty-nine-year-old Bermudan of Scottish descent. In 1951, as a teenager, he was a member of the scientific expedition that first definitively rediscovered the cahow. Since the late 1950s, when he finished his college training at Cornell University in New York State, Wingate's major pursuit in life has been the conservation of the cahow. As a government administrator, he has risen to the position of Bermuda's chief conservation officer.

The Bermuda petrel is an ocean wanderer and spends the vast majority of its life—sometimes years at a time—afloat on or aloft over the sea.

The cahow has relatively large, gull-sized wings on a comparatively small, pigeon-sized body. While searching for food the bird planes effortlessly on the wind, suddenly veering downward to snap up a minnow or squid off the crest of a wave in its hooked bill.

Like most birds of the open oceans it is conservatively colored in shades of white, black, grey, and brown. Atop its bill are two tubules through which it, like other petrels, expels salt from the seawater that it drinks after the water has been purified in a tiny desalinization organ in its head.

Once the cahow leaves its birthplace, it spends its entire life at sea, returning to its native islet only to breed. Where it wanders between fledging and breeding, nobody knows, for there are few if any reliable recorded sightings of cahows over open water.

The cahow is one of only two surviving species of birds endemic to Bermuda, the other species being the Bermuda white-eyed vireo. At the time of Bermuda's discovery, there well may have been hundreds of thousands, or even millions, of cahows nesting in Bermuda. The bird's name is believed to come from its wailing cry, which terrified Spanish sailors who had been shipwrecked on Bermuda's treacherous shoals. Wrote one captain, who was driven ashore there in 1603:

"At dusk such a shrieking and din filled the air that fear seized us. . . . One seaman said . . . 'What is the devil trying to tell me? Out with it! Let's hear what it is!' I replied: 'Alas! These are the devils reported to be about Bermuda. The sign of the cross at them! We are Christians!' "

Once ashore, the Spaniards, and the British who followed, found that the cahows were both tasty and unafraid of humans. They were attracted to light and literally flew into the campfires. Thousands were slaughtered, and countless thousands of others fell prey to introduced hogs, rats, and dogs that roamed Bermuda, digging up their burrows and eating their eggs and tender, fat young.

The cahow soon vanished from the main island of Bermuda, but it survived on some offshore islands and islets. During a famine in 1615 the British governor sent 150 settlers to one of these islands to feast on cahows, and within a year or so the species was presumed to be extinct.

ONLY in this century did naturalists begin to discover specimens that seemed to be the long-vanished cahow. The first specimen was taken from a rock crevice in 1906, and two others were found dead in 1935 and 1945. Then in 1951, when an expedition was sent by the American Museum of Natural History to search for it, a living cahow was found incubating an egg in a burrow on one of the tiny rocky islets. Wingate, who was present, says the day's real significance lay in the "rediscovery of the cahow's breeding place. . . . For the first time, man was actually in a position to do something to help the species in its long struggle against extinction."

This help came just in time. Several more cahows were found after the initial discovery. The assumption was that the cahows had survived on the tiny islets because man's camp followers, the rats and the pigs, rarely reached them. But there was another threat. Each pair of cahows lays only one egg per year. The same deep burrows where the cahow incubates its egg are used for incubation by another species, the dramatically beautiful white-tailed tropic bird *(Phaethon lepturus)*. The tropic birds arrive much later in the season, when the cahows' eggs are just hatching. Given the opportunity, the tropic birds destroy the cahow egg or kill

At right, David Wingate, Bermuda's chief conservation officer, displays a Bermuda petrel frozen in eternal flight. A native to the Bermuda isles, the petrel, or cahow, for centuries was thought to be extinct but was rediscovered on a 1951 expedition, in which Wingate took part. Thanks to Wingate's efforts the petrel's future seems to be secure.

GORDON HIRESON, BERMUDA NEWS BUREAU

GORDON HIRESON, BERMUDA NEWS BUREAU

Natural enemies nest side by side (above). The bird snoozing in the limestone nest is the beautiful white-tailed tropic bird. A Bermuda petrel chick rests in the apartment below. Were it not for the man-made baffle the tropic bird would kill the cahow chick and expropriate the petrel's nest. The baffle system is one of the main reasons why the rare species of petrel has managed to survive; the opening of the baffle is too small to admit the tropic bird. At right, a petrel fledging tries its wings.

BERMUDA NEWS BUREAU

the chick in expropriating the nest burrow for their own. Under these conditions, only an occasional cahow survives to fledge.

Several scientific parties sought ways to save the cahow. Poison was put out for the few rats that managed to swim to the islets. The tropic birds were a more difficult problem. An attempt was made to put wire screens over the burrow mouths by day, when the cahows were out fishing and the tropic birds were on shore. This meant, however, that someone had to camp on a breeding islet, or be able to reach it twice daily by boat, which storms and gales often prevented.

The cahow's would-be saviors seemed stumped until two of them realized that the cahow is a fraction of an inch smaller than the tropic bird. Doorways might be put on the burrows that would admit cahows but keep out the larger tropic birds. After much experimentation, a doorway, or *baffle,* was built that was five inches wide by two inches high, with a quarter-inch groove in the bottom for the cahow's breast. The baffle effectively kept out the tropic birds while permitting the cahows to pass through. This invention, by naturalists Richard Pough and Richard Thorsell, is noteworthy because it is probably the first technique ever devised to assist, in nature, the reproductive ability of a bird facing extinction.

Bermudan Wingate was away at college at this time. When he returned to Bermuda in the mid-fifties, he found that cahow conservation had faltered. Baffles were still not installed on many burrows; and, indeed, the information regarding correct dimensions for them was not passed on to him. He spent two months living on one of the islets, studying the birds and redesigning the baffles, which he erected wherever he could find a cahow burrow.

"I practically lived with the birds," Wingate says. "In search for the clues to some of the mysteries, it now became necessary to come and go regularly, almost regardless of the weather.

"There were many nights when I found myself in the same terrifying predicament as the early Spanish and Portugese navigators who had been shipwrecked [nearby] four centuries before. . . . I soon discovered that the greater part of the cahow courtship activities take place only on the darkest and stormiest nights.

"On one such night in February 1960 . . . my course took me close by a small islet which has been searched by day and passed on moonlit nights on many occasions, without the faintest clue of occupancy. But this wild and unforgettable night it was alive with cahows in flight. It had eight additional nest sites [that had not previously been known]."

By 1961, Wingate's deployment of baffles had ended the tropic birds' depredations against the cahows.

Then a new menace arose. The cahows' reproductive ability faltered; few chicks fledged. DDT, used on the North American and other continents, was found in cahows' addled eggs. The cahow again seemed doomed, but prohibition of DDT in much of North America and Europe came just in time. Finally, in the 1970s, the cahow's reproductive yield increased significantly for the first time. There were thirteen fledglings in 1971, seventeen in 1972, twelve in 1973 and 1974, and eleven in 1975. Wingate believes the world's population of cahows may exceed one hundred birds.

The Bermuda government has declared all the cahow's islets as bird sanctuaries, and all possible nesting areas are protected by law.

Thanks to David Wingate's tireless effort in patrolling the islets, locating the burrows, and providing each with a baffle, the cahow's future, for the moment, seems secure.

THE high point of Wingate's year is spring, when the chicks leave their burrows and vanish out to sea. Most of the burrows penetrate six feet or more into the islet's rocky soil and are curved so that the chicks cannot be seen. But on one or two of the burrows, Wingate has built a lid over the nest chamber at the burrow's end, so that he can look in on the maturing chick.

When I was visiting with him on one of the islets, he lifted up one of the lids and used an old rearview mirror from an auto to reflect sunlight down onto the chick. I peered in. The chick was remarkably large—young cahows can weigh more than their parents—and was covered with soft, grey down. It bobbed about for a few moments in the unaccustomed light, then Wingate closed the lid, returning it to its accustomed dark and silence.

In a few weeks, he told me, the cahow would develop its flight feathers. Then it would begin emerging from its burrow each night to exercise its wings in preparation for flight. These exercising bouts become increasingly longer each night.

Usually on the seventh night of exercising the bird takes off in a whirr of wings and flies away to sea. Wingate, watching from nearby, tries to observe each one depart. "It gives me a great feeling of achievement," he once said when asked why he keeps this vigil. "Another year got through successfully." ■

David Zimmerman is a free-lance magazine and book writer specializing in medicine and natural science, especially ornithology. His latest book, *To Save a Bird in Peril,* about management of endangered birds, is being published late this summer by Coward, McCann.

PLACER COUNTY BIG TREE GROVE

Is the northernmost grove of Big Trees a separate race of giant sequoias?

by HAROLD BISWELL

THE PLACER COUNTY Big Tree Grove is the smallest and most northerly of about seventy to eighty natural groves of giant sequoia (*Sequoiadendron giganteum*) that occur only in the Sierra Nevada Mountains of California.

The grove is located about 40 miles northeast of Auburn, California, in the Tahoe National Forest, at an elevation of about 5,250 feet. In 1935 the grove was set aside as a Big Tree Public Service Site. In 1949 it was reclassified as a recreation area to include 160 acres, with the sequoias in the middle of the tract. At this later date the name was changed from the Placer Group to Placer County Big Tree Grove. The area lies about sixty miles north of the Big Tree Groves in Calaveras Big Trees State Park. That distance represents about one-fourth of the 250-mile north-south range of giant sequoia, from the Placer County grove to the Deer Creek grove in Tulare County. Although no other gap between groves is so great, the range map shows considerable distances between several of the northern groves.

John Muir was the first naturalist to put forth a theory to explain the disjunct distribution of the groves. He thought that at the beginning of the Pleistocene Era a continuous giant sequoia forest extended along the west slope of the Sierra Nevada and that glaciation carved up the former unbroken forest into a series of segments representing the modern groves. According to Philip Rundel, who studied the distribution and ecology of giant sequoia in the Sierra Nevada as recently as 1969, "the hypothesis is made that a relatively continuous giant sequoia forest along the west slope of the Sierra Nevada was dissected by conditions associated with the Wisconsin glaciation, although not to the extent suggested by Muir (1876). In the central Sierra Nevada, disruption of the giant sequoia forest was severe. Altithermal conditions, following the Wisconsin, hypothetically restricted the remaining elements of the giant sequoia forest to montane sites characterized by mesic soil moisture conditions throughout summer periods of drought." Altithermal was a period of general warming and reduced precipitation beginning about eight thousand years ago and ending about four thousand years later.

The Placer County Big Tree Grove was discovered by Joe Matlock, an old miner, in 1855. The grove now consists of six living trees and two fallen ones. The living trees are probably five hundred years old or older. In the spring of 1862, as a result of excessive rain, the largest tree then standing fell. This tree was reported to be sixteen feet in diameter and was known as Theodore Roosevelt. The other, now known as Fallen Tree, may also have come down during that wet period.

The first written description of this grove was recorded by William W. Price in the *Sierra Club Bulletin,* Vol. 1, pp. 17–22, 1893. He reported that the grove had long been known to the people in that section of the country, as proved by the various dates from 1860 to 1890 cut into the bark of alders growing along the stream. Price said that deer, bear, and mountain lions were abundant in the area as indicated by many tracks. He wrote, "One of the smaller trees has long been the playground of bears, as the whole trunk is scratched and scarred by their continued frolics. They had been there the night before as we conjectured from the tracks on the ground and the freshly torn bark. One fellow had climbed up fully seventy-five feet, leaving long strips of bark to mark his progress. On one tree the date 1890 had been cut deep into the bark; with curious instinct, it seemed, a bear had deliberately tried to stratch it out, to remove as it were all traces of man from his favorite haunt."

Price also reported that in 1855, when Joe Matlock found the grove, a large tree twenty-eight feet in diameter was standing. "It was dead, however, and blew down in a storm in the fall of that year. For twenty years it was the wonder of all the miners in the mountains around. But this trunk has probably disappeared in the fierce fires that have raged through the forests; we could not find a trace of it, but probably some parts sill remain in

the dense brush thickets which we could scarcely penetrate."

On August 14, 1920, twelve boosters from the Auburn Commercial Club visited the grove, led by state senator W. B. Lardner. A committee of five was appointed to name the trees and official measurements were made. At that time the largest three trees standing measured, respectively, ten feet in diameter at breast height (now ten feet, two inches); eight feet, ten inches (now nine feet, three inches); and four feet, ten inches (now five feet, one inch). They were named Pershing, Joffre, and Haig, respectively, for the commanders of the United States, French, and British forces in World War I. The fourth largest measured four feet, six inches (now four feet, seven inches) and was named Lardner for the state senator. The grove was named the Placer Group by the committee. There is no record that the two smaller trees were either named or measured at that time. They now measure four feet, seven inches and two feet, respectively.

The Pershing has been reported to be 225 feet tall, and the Joffre, 250 feet tall. The Joffre is on the bank of a small creek that runs through the grove and is a more nearly perfect specimen than the Pershing, which is up a north-facing slope a short distance from the creek, in a drier area. The other four trees form a close group a few feet from the creek. Probably all four are of the same age even though they vary in size.

All trees, alive and dead, are so close to each other that a circle with a radius of two hundred feet could easily encompass all eight.

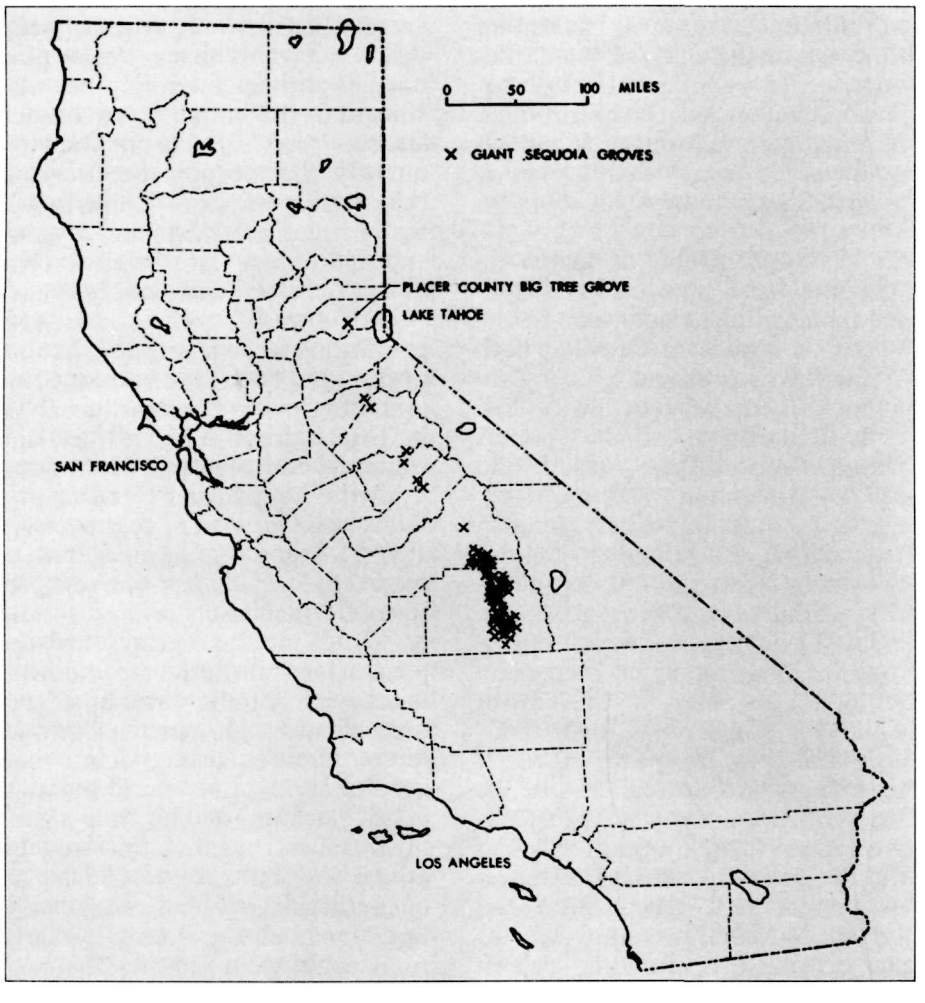
All six living trees appear healthy. It has been reported that the bark on these trees is thinner than that on the giant sequoias farther south. This may be true; however, the bark of giant sequoia is soft and fibrous, and tree squirrels often strip it for making nests, particularly from younger trees. It is possible, then, that stripping accounts for some of the thinness of bark in a grove of so few sequoias. In addition, more activity by bears in this northern area may have contributed to the thinness of the bark.

No natural reproduction of giant sequoia has ever been found in this grove, which led some to believe that the seeds are sterile. In early June 1973, I journeyed to the grove and collected several cones from the ground beneath the trees. Arrangements were made with the U.S. Forest Service Institute of Forest Genetics to test germination of the seeds. After some had been stratified for forty-five days, only one of one hundred from the Joffre tree germinated, and that seedling died within a short time. After that, 1,180 seeds from the Joffre tree were stratified and planted and by early December, eleven had germinated. At present five of these seedlings are stong and healthy.

Earlier, in 1972, Jack Carpender of the Forest Genetics Institute and Al Johnson from the University of Minnesota Landscape Arboretum collected some cones from the ground. Carpender's test of 200 seeds showed no germination, but Johnson had better luck. He obtained four seedlings from an unknown number of seeds, of which only two normal seedlings survived.

Results with the collections made in June 1973 stimulated further interest, and in October of that year LeRoy Johnson, Manager of the Institute of Forest Genetics, arranged for Jack Carpender and others of the staff to collect cones and cuttings from the Pershing and Joffre trees. This was done by

The Placer County Big Tree Grove is much farther north than other Big Tree groves, which has led scientists to speculate that the Placer County trees are a separate race of giant sequoias.



Reproduction and protection
of the Placer County Big Tree Grove
should be encouraged by proper management

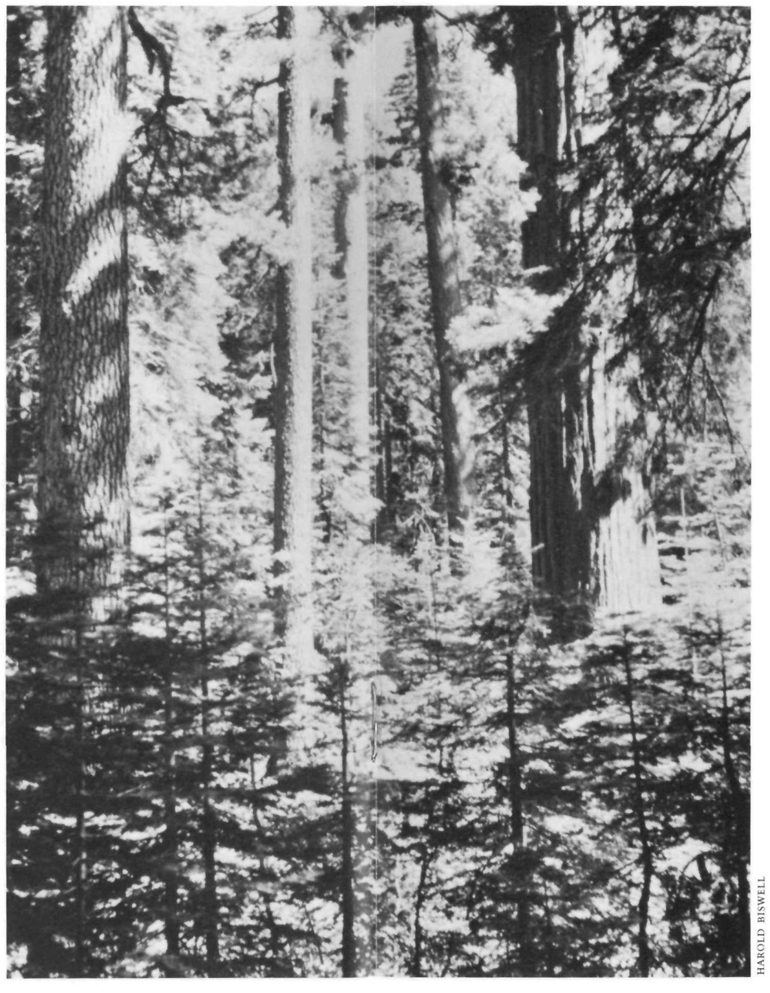
shooting off the cones with a rifle. In February 1974, germination was tested and ran somewhat less than 1 percent. Seeds from this same collection were sown in the research nursery, and now the Institute of Forest Genetics at Placerville has approximately 200 healthy seedlings, varying in height from three inches to nine inches, about equally divided between seed from the Pershing and Joffre trees. So now we have proof that two of the trees, at least, produce fertile seeds capable of germination and early seedling survival. Normal germination of giant sequoia seeds from other groves is about 30 percent.

THE ECOLOGY of giant sequoia seedlings has been studied in detail in recent years in the Redwood Mountain Grove at both Whitaker's Forest and King's Canyon National Park by Bruce Kilgore, Richard Hartesfeldt, Thomas Harvey, James Agee, myself, and others. Under natural conditions, fire is the most important factor in renewal of the species. Without fire, very little natural reproduction would occur anywhere. In the Placer County grove, which is surrounded by dense cover, there is no reproduction, but in the North Calaveras Big Tree Grove about sixty miles to the south, excellent reproduction followed an intense lightning fire a few years ago. Similar examples are found in many of the Big Tree groves. Late summer fires favor seed germination and seedling survival by removing duff and debris, thus allowing seed to come in contact with nutrient-rich mineral soil; by destroying damping-off fungi and other pathogens; by creating a light ash layer, which keeps the surface soil from drying out too quickly; by increasing infiltration so that moisture is added to the soil; by destroying competitors; and by causing sequoia cones to open and cast seed immediately in the loose ash.

However too-frequent fire is a great killer of young sequoia trees. It is conceivable that resinous pine needles of the ponderosa pines that surround the grove have carried surface fires into the area so frequently that sequoia seedlings, if they were present, could never really become established. A moderately intense late summer fire about every twenty-five years would probably create the best conditions for regeneration. In that event, the new plants that come following a fire might reach a height of thirty to forty feet, and some would escape destruction from the next fire.

To assist growth of mature trees and to foster natural propagation of seedlings in Placer Grove, prescribed broadcast burning should be done in the spring, for the present at least, and no wide fire lanes need be built. After broadcast burning through portions of the forest, the remaining debris and dead trees could be placed in small piles and burned. The final result of broadcast burning followed by piling and burning would be an open, parklike forest with wildflowers in the spring. The large trees could then grow safely.

The Pershing tree at right is crowded by large sugar pine and white fir in the understory. Because fire has been virtually eliminated from the grove by man's intervention, dense cover such as that which surrounds the Pershing tree grows and thrives. Such cover interferes with the Big Trees' reproduction by creating a hostile environment for germination and growth. Prescribed broadcast burning may be the answer to encouraging the reproduction of Placer Grove's Big Trees.



HAROLD BISWELL

BECAUSE no natural reproduction was occurring in the Placer County Big Tree Grove, several artificial plantings of seedlings from trees in southern groves were made—efforts that have generated some controversy. The first was in 1928, by the Native Sons of the Golden West, when ten small trees were planted along a draw in what seemed to be the most favorable spot. Four of these trees survive and now measure eleven, eight, five, and four feet in height. This plantation made little growth because of competition from other vegetation. A second planting, by the Forest Service in 1949, placed about fifty small seedlings throughout the entire grove. I found none of these trees on my recent visits. Like the first planting, the second seemed to suffer from competition. In 1951, the Auburn Lions Club, in cooperation with the U.S. Forest Service, planted thirty-six potted seedlings ten to twelve inches tall over about one-third acre that had been cleared by bulldozer. The seedlings probably came from the Mountain Home State Forest, one of the southernmost giant sequoia groves. The seedlings were watered a couple of times during the dry summer period, and now all survive and are doing well. The tallest are about thirty-six feet. The average diameter is about six inches; the largest measures nine inches. On the edge of the plantation is a large and beautiful sugar pine about seven feet in diameter. Beside the plantation and at the edge of the trail are a plaque and a small, black granite stone. The plaque reads AUBURN LIONS CLUB, MEMORIAL PLANTATION, ESTABLISHED 1951, and the stone: PLANTED IN MEMORY, ENID E. TURNER 1914–1969. A Lions Club member told me that other memorial stones will be added from time to time.

Geneticists are much disturbed by the plantings that have been made in the Placer County Big Tree Grove. William J. Libby, professor of genetics, Department of Forestry and Conservation, University of California at Berkeley, said, "They agree that the intent of perpetuating the grove by this means is commendable, but if this stand is a distinct ecological race of giant sequoia—as it might be—its future scientific and practical value will be destroyed eventually by the introduction of non-natives to the grove." Research on the genetics of the six giant sequoias in this grove as well as on certain trees in twenty-six other groves is now being done by Lauren Fins, a Ph.D. graduate student at the University of California, Berkeley. Her research will yield valuable information on whether the northernmost grove is actually a separate race.

There has been some controversy over the memorial grove, with the geneticists determined to remove all "imported" sequoias and the Lions Club just as determined to preserve the memorial. But such polarization is unnecessary. Nonnative trees in the grove could be replaced with the new seedlings from the Pershing and Joffre trees. This action would not destroy the memorial grove but would update and improve it to bring it more into harmony with nature. Perhaps the 1951 plantation could be replanted to a mixture of seedlings from both the Pershing and Joffre trees. However, two other small plantations should be established, one of seedlings from the Pershing tree and the other of seedlings from the Joffre. Clearings should be made by cutting all trees and underbrush, and the seedlings should be planted according to the most modern and successful techniques. Perhaps the seedlings should be watered as necessary during the first summer to ensure high survival and rapid growth.

The Placer County Big Tree Grove at the very least represents a beautiful, isolated stand of giant sequoia. As such, reproduction of these trees and protection of mature trees should be encouraged by broadcast burning in the area to reduce accumulated fuels. But this grove may also represent a distinct race of giant sequoias. If so, only seedlings from the grove's original trees should be allowed to grow within the area. If these policies are followed, generations to come will enjoy the splendor of the offspring of these magnificent giants, long after the parent trees have fallen and disappeared from sight and memory. ■

Harold Biswell holds the position of Professor Emeritus, Department of Forestry and Conservation, University of California, Berkeley. For years he has researched the component of surface fires in natural vegetation systems and how fire can be harmonized with vegetation management. Several of his articles have appeared in this magazine.

Waste Oil: *Untapped Resource*

Recycling oil could eliminate an insidious source of pollution and provide millions of gallons of high-quality oil

by BRUCE MYLES

SAFELY disposing of waste crankcase oil after you've taken it out of your car isn't easy. Kurt Jacobson, an Environmental Protection Agency official, points out that there is no system for recycling oil purchased from a store or service station. "Your best bet is to bury it in a hole about a foot deep," Jacobson advises—seriously.

The do-it-yourself auto oil-changer is a focus of efforts to solve the waste oil pollution problem. His oil accounts for about one-eighth of the potentially polluting waste oil—also called lubricating oil—generated annually by autos and industrial and transportation equipment, according to Carl Uhrmacher, director of Maryland's waste oil recycling program. Clean disposal must be found for about 1.1 billion gallons of lubricating oil annually, according to the massive "Waste Oil Study" sent to Congress by the Environmental Protection Agency (EPA) last year.

Waste oil, it has been shown, poses a threat to the environment through groundwater and stream pollution. Small concentrations in surface or groundwater can foul drinking water and kill certain marine organisms, whereas higher concentrations slowly kill freshwater fish, EPA explains. Maryland and other states report contamination of wells by waste oil. "Once a well is poisoned with oil, it's poisoned forever," says Maryland's Uhrmacher.

CHESTER HIGGINS, JR., EPA-DOCUMERICA

The oil slick surrounding the Statue of Liberty in New York Harbor seems somehow symbolic of our waste oil disposal problems. Most people think of oil pollution in terms of publicized oil spills from ships, but a grave threat is also posed to our groundwater, streams, and coastal areas by dumping of used lubricating oil. Each year the transportation industry and other industries, gas stations, marinas, and auto owners improperly dispose of millions of gallons of oil that instead could be re-refined for use as lubricating oil or clean fuel.

Waste oils do not threaten the environment when they are properly recycled back to lube oil or reprocessed for use as clean fuel by electric utilities and industry. But recent production of re-refined lube and hydraulic oil has been only about 100 million gallons a year, even though these oils are in short supply, according to B. R. Williams, operator of a custom re-refining shop for waste railroad crankcase oils. He also is president of the Association of Petroleum Re-refiners, which represents more than twenty—the majority—oil re-refiners. He contends that lube oil re-refining production could be as high as 310 million gallons a year if the federal excise tax and a "used oil" labeling requirement were removed.

"Oil never wears out—it mostly gets dirty—and when properly refined can be used again and again in the same way and for the same purpose as new oil," Williams explains. Refuting the myth that used oil is second-rate, he notes that since the beginning of re-refining in 1915, millions of gallons of waste oil have been converted into good, usable products. Thousands of hydraulic systems, railway car journal bearings, and innumerable pieces of factory equipment have had long and trouble-free lives using re-refined oils.

ACCORDING to EPA, about 40 percent—500 million gallons—of waste oil collected is blended with fuel oil, with or without processing to remove con-

taminants like lead, and is then sold as fuel. But if lead is removed from the lube oil before burning or is controlled to minimize emissions during burning, the oil could be cleaner than residual oil or coal, emitting less particulates and sulfur. Lead is transferred to the crankcase oil from gasoline during combustion.

The uncontrolled burning of contaminated waste oil in home burners, schools, or industrial boilers, leading to local air pollution, may be the most troublesome waste oil problem today. Burying waste oil in a sanitary landfill or spreading it on land may be acceptable on some areas, but care must be taken not to pollute groundwater by leaching of oil through the soil.

Millions of gallons of waste oil have been dumped—often illegally—on land and in water. Garages, waste oil collectors, and even some re-refiners have disposed of it in this way. But due to the increased value of waste oil, collectors in many areas are now paying instead of charging service stations for the oil. "Essentially no oil is being dumped by collectors," EPA concludes. Furthermore, industry has sharply reduced its dumping due to the greater demand for waste oil.

Some communities are attempting to set up collection stations for old auto crankcase oil. The Federal Energy Administration plans to sponsor local recycling demonstrations to educate auto owners. The self-changer has been known to flush his oil down the toilet, throw it in the trash, and dump it on a vacant lot or on his premises and even down the sewer drain, causing fires in sewage treatment plants, according to pollution control officials.

Collection of waste oils from automotive and industrial service facilities is the weakest link in the recycling disposal scheme, industry and government officials agree. Most of the one thousand to two thousand collectors are poorly equipped and operate only in urban areas. Some industrial users like Ford Motor Company have their own waste oil re-refined for reuse, and some re-refiners collect their own oil. But the bulk of waste oil is collected by small, independent companies who can't always guarantee a supply to re-refiners.

NEITHER state nor federal laws comprehensively control waste oil collection and disposal, EPA concludes in its study. Both fail to require that it be saved and collected. But Maryland, Massachusetts, and Vermont have launched waste oil management programs, and a few other states say they are studying the problem if not already encouraging waste oil reclamation. Many states have procedures to regulate some element of the waste oil stream—collection, storage, transport, or disposal.

There are problems to untangle, and EPA recommends the following measures as essential for a state waste oil recycling program: licensing of collectors; approved disposal methods and facilities, including stations for small quantities; supervised record-keeping by collectors and users; and re-refining in virgin crude refineries that do not now recycle oil because metallic contaminants can adversely affect some key catalytic refining processes.

The oil industry could supplement its pipeline and tanker trucks with equipment at refineries to re-refine and reprocess waste oils, EPA suggests. This is done in several European countries. In France, for example, large oil firms and refineries have created a private company to collect wastes from all the country.

Despite the fragmented state of collection, re-refining and disposal systems, EPA concludes in its report that the need for further legislation at the federal level is not clear. The agency maintains that the re-refining industry seems workable and that the energy shortage has sufficiently mitigated the economic uncertainty that the industry faces. It further states that no technical impediments to recycling of lube oil exist, although more economically and environmentally acceptable re-refining methods have to be developed in order for the industry to expand.

But many congressmen, industry representatives, and individual EPA officials critize EPA for failing to recommend new legislation to stimulate the industry by equalizing tax treatment of waste oil and replacing the inferior "used" labeling requirement with a "recycled" label. Others suggest that the federal government provide other incentives for increased waste recycling.

EPA's Jacobson suggests that communities set up local used oil collection stations similar to waste paper and metal collection stations. "All you would need is a tank to collect it," he says. "You would have no trouble finding someone to pump it out."

Although the demand for lube oil has been leveling off since 1955 due to the increased intervals between oil changes, its 1.3 percent average annual growth rate for 1965–1973 can't be ignored. This growth was due to the increased demand for industrial lubes. Meanwhile, the amount of waste oil available for recycling is expected to grow at about 2 percent a year. This opportunity should not be missed. About 70,000 barrels of oil could be added annually to our energy supply if all waste oils were processed into clean industrial and utility fuels.

Let's make sure that there is no more dumping of waste oils, that the re-refining industry becomes healthy, that waste oil fuel is clean, that consumers benefit from a cleaner environment and a greater supply of lube oils, and that recycling helps preserve our natural resources. Then we won't be burying the car's old crankcase oil in a hole in the ground. ■

Bruce Myles began his research on waste oil recycling while a graduate student in science communication at Boston University. A free-lance contributor on environmental problems to the *Christian Science Monitor,* he now writes for the *Energy Users' Report,* a weekly report for industry and government.

NPCA at work

Park visitors this summer may notice that the standard of service is not quite what it used to be. National Park Service Director Gary Everhardt announced with regret earlier this year that some traditional services in the national parks—from guided nature walks to trail maintenance—would have to be reduced for budgetary reasons.

In testimony on National Park Service appropriations for Fiscal Year 1976, presented on invitation before a congressional subcommittee, NPCA warned that the serious shortage of funds and personnel that the Park Service now faces will reduce both resource protection and visitor services. NPCA stated, "The 1976 National Park Service budget can easily be excused as a victim of poor economic conditions. However, to assume that the federal budget for national parks needs to reflect the slowdown in automobile sales is erroneous, and such an assumption fails to consider the importance of the National Park System, even in—or especially in—a time of economic stress."

Director Everhardt has predicted a record number of visitors in national parks during 1975, for a total of some 227 million visits, up almost 10 million from last year. Many park visitors choose national park vacations partly because they are relatively inexpensive. Whatever the reason, the national parks together are absorbing an impact of visitation equivalent to the entire population of our nation.

Despite the fact that our national park and wildlife programs are heavily used and highly visible, NPCA noted that they receive a strangely low priority for federal dollars. The federal budget request for 1976 totals $349.4 billion; of this only 0.2 percent goes to the combined programs of the National Park Service, the Fish and Wildlife Service, and the Bureau of Outdoor Recreation—compared to 27 percent for the Pentagon, for instance.

Federal grants to state and local governments total more than $5 billion for highway construction in 1976, while grants to states from the Land and Water Conservation Fund allow only $175.8 million in federal aid for outdoor recreation opportunities. The U.S. Army Corps of Engineers is requesting more than $1.09 billion for construction alone. A single Corps project—Libby Dam in Montana, for example—can have a total estimated cost greater than the entire budget request of $346.8 million for the Park Service.

As detailed in two recent staff reports in this magazine ("Budget Plans Starve the NPS," in June and "The Crisis in National Park Personnel" in April), the prevailing view in the President's Office of Management and Budget (OMB) seems to be that priority spending goes for highway construction and river impoundments, while parks can take care of themselves.

The trend in recent years has been for Congress to appropriate funds and personnel ceilings generally in accord with NPS budget requests—budgets that usually already have been tailored to minimum levels by OMB—and then to stand by helplessly while OMB applies still more restrictions in the form of end-of-year permanent employee ceilings and impoundments.

NPCA provided the Congress with detailed, specific recommendations for actions that could be taken to overcome this problem, including steps to guarantee that funds appropriated for NPS personnel will in fact be spent for permanent staff compensation at the congressionally authorized level of operation.

In addition, NPCA pointed out that OMB imposes end-of-year employment ceilings on the National Park Service in a process analagous to the impoundment process itself. From the standpoint of appropriation procedures, budget and personnel are inseparable. NPCA recommended that the Congress consider applying the concepts of impoundment and deferral disapproval found in the Budget and Impoundment Control Act of 1974 directly to operation of national parks.

NPCA also testified on many other aspects of park budgetary matters. For instance, a backlog of $262.277 million in the Land and Water Conservation Fund could be appropriated and applied to both state and federal land acquisition programs. This would be useful to NPS, however, only if personnel ceilings are lifted.

NPCA recommended against confirmation of Stanley K. Hathaway as Secretary of the Interior. Hathaway, a former governor of Wyoming, was nominated by President Ford to succeed Rogers Morton in the cabinet position and confirmed by the Congress.

In testimony presented on invitation before the Senate Committee on Interior and Insular Affairs, A. W. Smith, President and General Counsel of NPCA, discussed "the need for a great conservator in this vital position of Secretary of the Interior. The nominee falls short of the standard by a long series of tests." NPCA objected to:

- Hathaway's advocacy of enlarging the airport at Grand Teton National Park, Wyoming;
- The nominee's promotion of development of Wyoming's coal resources without strict environmental standards and without ensuring conservation of the state's water resources;
- The fact that he seems to have supported objectionable exceptions to air pollution control legislation in Wyoming;
- Hathaway's condoning of the shooting of the golden eagles by woolgrowers in Wyoming, carried out from aircraft;
- His apparent lack of understanding about the ecological consequences of indiscriminate poisoning of wildlife, particularly on public lands;
- Hathaway's seeming preference for unecological, large-block clearcutting of commercial timber; and
- An attitude indicating that he favors rapid exploitation of mineral resources and is thus ill-equipped to deal with problems such as those posed by the push for development of off-shore oil.

Although Mr. Hathaway's appointment has now been confirmed, NPCA feels compelled, because of our responsibility as a protector of the national parks, to put this opposition on the record for the public. This is because Mr. Hathaway has become, as

the new Secretary of the Interior, the major federal trustee for our national parks and other public lands, as well as for fish and wildlife preservation.

The welfare of predatory wildlife on public lands is in serious jeopardy again. In a recent meeting of the President's Domestic Council agencies the majority of the representatives, including the Interior Department, voted to recommend modification or revocation of Executive Order 11643, which was issued in 1972 to stop the poisoning of mammals and birds on public lands. Environmentalists fear that Interior's support of this recommendation portends future adverse actions by new Interior Secretary Stanley K. Hathaway.

The Domestic Council, acting under heavy pressure from sheepgrowers, recommended to President Ford that this Order be either rescinded or modified to allow poisoning of predators when other methods of control have been "determined" unsuccessful.

NPCA President A. W. Smith immediately contacted President Ford to express our emphatic dissent with this recommendation of the Domestic Council, stating that, "This Order resulted from years of combined effort by responsible conservationists; its revocation or serious modification would predictably result in a strong reaction of conservationist sentiment against your Administration." Smith said that the government could institute alternative measures that would protect the interests of the sheepmen without a resumption of "brutal and destructive" predator management methods.

NPCA members concerned about poisoning of predatory animals on our public lands could write or telegraph President Ford to urge him to allow Executive Order 11643 to remain unchanged at least until he can meet personally with representatives of the conservation movement to obtain full expression of their views.

Hon. Gerald Ford
President of the United States
Washington, D.C. 20500

Assateague Island, the "jewel of the East Coast" described in our January Magazine, must be preserved from the ravages of development. NPCA recently testified on invitation before the Senate Subcommittee on Parks and Recreation concerning S 82, a bill introduced by Maryland Senators Charles McC. Mathias and J. Glenn Beall to revoke congessional authorization for an island-long road and 600 acres of commercial development on Assateague.

The 1965 Act that established a national seashore on this slender Vriginia–Maryland barrier island authorized construction of a north-south highway and commercial facilities.

NPCA strongly supported a repeal of Section 7 of the Act, which provided for overnight accommodations on the island. This Association pointed out that although in 1965 local officials and citizens strongly supported commercial development of the island, this is no longer the case. Many people now realize that Assateague attracts more visitors each year *because* it is natural and undeveloped and that it would be just as profitable—if not more so—to place the commercial developments on the mainland or in the town on nearby Chincoteague Island.

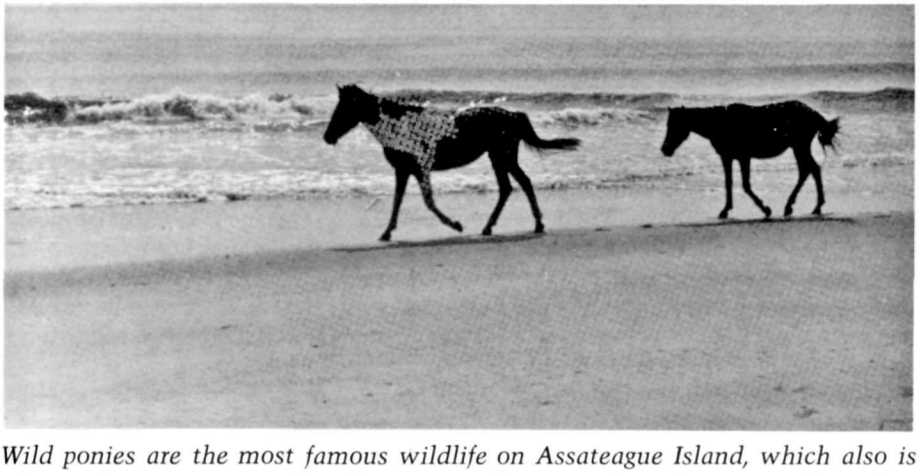
Section 9 of the Act, which authorizes a road down the middle of Assateague connecting the bridges at each end of the island, should also be repealed, NPCA testified. We observed that "a realization that there are several extensive wash-over areas along the length of Assateague which would at a minimum require excessive road maintenance has helped to dispel enthusiasm for the island-long road.

"There are substantial potential hazards in building the usual national recreation area road, which has a hard surface and a total width of 32 feet. Such a road would encourage people to tour the island and north-south through-drivers to seek a change from existing mainland routes. The road, along with the proposed availability of 14,000 parking spaces on the island, most probably would result in considerable automobile congestion and would visually mar the natural aspect of the wild island. A road the length of this very narrow island would mean that no part would be remote from the automobile."

Moreover, NPCA testified that a high concentration of automobiles would bring noise and air pollution to the area, upsetting the peaceful and healthful environment that visitors today experience and jeopardizing habitat and wintering grounds of countless varieties of birds, as well as Sitka deer and Chincoteague wild ponies.

However, NPCA opposed another section of the bill that would have offered financial compensation to the local county for what some perceived as a loss of revenue if the road and overnight facilities were not built on the island.

NPCA believes that compensation not only would set a bad precedent for future similar situations in other parks, but also is totally unnecessary. Although it is true that park concessions operating on Assateague would pay state and local sales taxes and income tax, they would not, as we un-



CECIL W. STOUGHTON, NPS

Wild ponies are the most famous wildlife on Assateague Island, which also is a haven for snow geese, Canada geese, and many other migratory and resident birds. Swamp fever recently infected about half of the pony herd on the island; the infected ponies were isolated from healthy animals.

derstand it, pay property tax to either state or local governments because the facilities would be on federal property. If on-island concessions are eliminated by S 82, and not supplanted by the development of equivalent accommodations outside the park, then Worcester County, Maryland, would indeed lose revenue.

However, we are convinced that repeal of Section 7 would *stimulate* the early construction of motels, restaurants, and other visitor facilities by private enterprise on private lands near the national seashore. These private, off-island visitor accommodations would pay state and local sales, income, *and property* taxes—thus increasing total revenues accruing to Worcester County over what would be realized with concessions inside the national seashore. There is no doubt that the reason that local entrepreneurs have delayed beginning these needed off-island developments during the ten years since the establishment of the national seashore is the likelihood of concession development on the island.

Following the hearing and Interior Committee approval, the full Senate passed S 82 on June 4, 1975, with an amendment removing the compensation provision from the bill. House hearings may well have occurred on a similar bill, HR 7407, by publication time. Introduced by Rep. Robert E. Bauman (R-Md.), HR 7407 contains a requirement for a comprehensive study by the Interior Secretary of the Assateague Island National Seashore and the compensation provision.

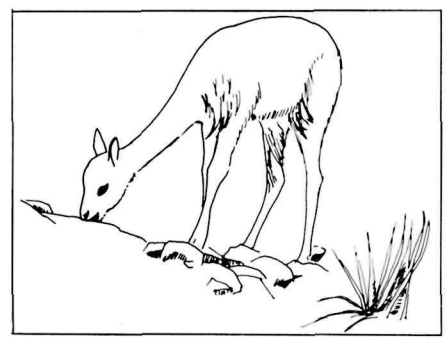
To squelch attempts by developers and off-road vehicle groups in Virginia who want to use the beach of Back Bay National Wildlife Refuge for four-wheel-drive vehicle access, NPCA has once again intervened in a lawsuit on behalf of the Interior Department. (See June 1975 NPCA at Work.) Private interests are appealing a decision favoring the Interior Department in a lawsuit that sought to alter vehicular access regulations issued by Interior's Fish and Wildlife Service (FWS).

NPCA opposes use of the refuge beach by swarms of off-road vehicles and supports the present FWS regulations restricting use in order to protect the beach and wildlife habitat.

Mechanized ski facilities at Lassen Volcanic National Park should be phased out rather than expanded, NPCA recently advised park superintendent William Stephenson and Park Service Director Gary E. Everhardt.

A recent communication with superintendent Stephenson confirmed that the forthcoming draft master plan for the park will include a proposal for new mechanized lifts and new base development to accommodate recreational skiers. However, it will omit from consideration the alternative of phasing out ski facilities at Lassen.

This is a glaring omission in view of the Park Service mandate to protect and preserve national park resources. NPCA told Mr. Stephenson that increasing ski facilities within a national park to meet increasing demands—at the expense of natural values—runs against the public interest.



Mechanized ski facilities are a popular form of recreation, but they are inappropriate intrusions in a national park environment. Furthermore, in this case, despite the local interest in such facilities, the land at Lassen is not challenging for this type of skiing. The terrain and snow conditions, however, are excellent for cross-country skiing, an activity compatible with preservation.

NPCA stressed to Director Everhardt that not only are the proposed developments troublesome, but the policy procedures concern us as well. That is, the park is moving closer to a program of ski development without any systemwide directive from the new policy document, "Management Policies of the National Park Service," by which park superintendents or planners can guide their thinking on ski developments.

NPCA supports NPS proposals to phase out ski developments in other parts of the Park System such as Hidden Valley Ski Area in Rocky Mountain National Park. However, instead of applying the same excellent thinking to Lassen, officials are considering expansion.

The controversy at Badger Pass ski area in Yosemite National Park has demonstrated the futility of considering "minimal" ski facility improvements or upgraded facilities in isolation from the long-range plans for a park, because this only provides the basis for justifying future development. (In 1972–1973, ski facilities at Badger Pass were expanded virtually without public approval, during a time when the environmental impact statement was still under preparation.)

In consideration of these issues, NPCA urged Director Everhardt to initiate a review of ski facilities in national parks in order to set up a systemwide policy discouraging the development of new ski facilities in national parks. The policy should support phase-out of existing facilities. Second, we asked the director to reverse the decision by park officials to exclude phase-out of ski facilities at Lassen as an alternative in the draft master plan.

NPCA is trying to obtain corporate disclosure of environmental data for the benefit of those current and potential stockholders who wish to choose corporations in which to invest their money based on ethical as well as economic criteria.

In cooperation with the Corporate Information Project of the Natural Resources Defense Council, NPCA and others are participating in public proceedings concerning regulations under consideration by the federal Securities and Exchange Commission (SEC).

The SEC was established in 1934, in response to the bitter experience of the stock market crash of 1929, to provide the fullest possible disclosure to the investing public and to protect the interests of the public and investors against malpractices in the securities and financial market.

SEC recently began taking public testimony as to whether it should adopt regulations requiring disclosure of certain types of information that at present are not available to investors interested in socially responsible deci-

sionmaking. New corporate disclosure rules could dramatically change the situation.

The SEC is considering adopting rules to require corporations to describe publicly, for each major activity or product, such information as: the nature and extent of any resulting environmental pollution or injury to natural resources; the feasibility of reducing such pollution or injury with existing technology—including data on alternatives and costs; prospects for improving technology; existing and proposed expenditures for reducing such pollution or injury; disclosure of whether a corporation has changed its products, projects, production methods, policies, investments, or advertising to advance environmental values; and a general statement of policy toward environmental issues and concerns.

NPCA President A. W. Smith stated to the SEC, "We would certainly use the information we obtain in any way which would be useful to further good environmental policies by the corporations . . . and to discourage bad ones. . . . But no change in corporate policy can be effected by stockholders or other concerned citizens without information about the decisions and policies being determined by management. . . . What is really needed here is complete public access to all policy-formulating processes within the corporation which have any bearing on the public general welfare—environmental, ecological, sociological, economic, legislative, and political."

It is apparent that NPCA requires more information on corporate environmental activities as a protector of the nation's parks; as a nonprofit organization that itself depends on making sound, ethical investments; as a representative of our members who wish to be ethical investors; and as a public interest group concerned with restructuring society to protect the environment and cope with other pressing social needs.

Implementing progressive, environmentally conscious policy does not necessarily detract from the financial success and growth of a corporation, and can actually be beneficial. Examples of this were well documented in the recent SEC proceedings by the Council on Economic Priorities (CEP). CEP concluded that in addition to ethical concerns about corporate investment, many investors believe that irresponsible firms will eventually pay a price for disregarding such social concerns as the environment, and that a company's social ranking may be an indication of the quality of management and perhaps even an indicator of future profitability.

One example cited was that of Weyerhaeuser and Owens-Illinois, two of the profit leaders in the pulp and paper timber product industry, who have established first-rate pollution control records starting in the late 1940s, long before they emerged as profit leaders in the industry. In contrast, International Paper, a profit leader in earlier years, failed to invest in adequate pollution control equipment when it was in the strongest financial position, and subsequently fell behind its competitors.

At press time, the SEC was about to release its proposed rules for ethical disclosures. NPCA plans to submit comments to the SEC on the capacity of these rules to meet our concerns.

NPCA members who also are concerned with these procedures should write to the Office of Public Information, Securities and Exchange Commission, 500 N. Capitol Street, Washington, D.C. 20549, and ask for a copy of SEC's proposed rules for corporate disclosure of environmental matters. Members then could express informed comments to the SEC. It would be particularly helpful if your comments included personal examples of any of your own attempts to obtain environmental information from corporations and/or a statement of why you would want such information.

In steadfast opposition to expanding airport facilities at Cape Cod National Seashore, NPCA recently recommended to seashore superintendent Lawrence C. Hadley that the National Park Service oppose airport "improvements" and urged that this NPCA recommendation be communicated to the Cape Cod National Seashore Advisory Committee (an NPS-sponsored citizens group) at a scheduled meeting.

Not only are present airport facilities an intrusion into this outstanding seashore area, but expanding such facilities would furthermore represent a dangerous precedent in violation of stipulations in the act that created the National Park Service to protect all our national parks.

Therefore, NPCA remains strongly opposed to any expansion or "improvements" of airport facilities at Cape Cod National Seashore involving either runway extensions or construction of parking aprons, new fenc-

ing, lighting, or other improvements. Our objections are specifically based on the following criteria:

- The National Park Service Organic Act stipulates that airports are appropriate in or near units of the National Park System only when such facilities are necessary to the functions of the Department of the Interior. We are not aware of any such determination for the Provincetown airport.
- To upgrade this airport on the basis of projected air traffic demands would only provide justifications for increasing air traffic into the national seashore in the future, thus permanently establishing the presence of an already inappropriate facility in a unit of the National Park System.
- The Provincetown Municipal Airport Master Plan, sponsored by the Provincetown Airport Commission, is not a function of the Department of the Interior and does not adequately consider the relationship between the airport and the national seashore that surrounds it.

Cape Cod National Seashore, NPCA stressed to Mr. Hadley, has benefited from high standards of protection and preservation under National Park Service administration, and the proposed airport improvements would do nothing to advance these objectives or serve the public interest. NPCA thanked the superintendent for his consideration and past good work on this issue.

NPCA protested plans to transfer management of three western game ranges to the sole jurisdiction of the Bureau of Land Management (BLM), and has contended that the ranges should instead be managed completely by the wildlife-oriented U.S. Fish and Wildlife Service (FWS). (These ranges have been jointly managed by the two agencies.) Criticism about the transfers voiced by NPCA and other national conservation groups culminated in recent congressional hearings in both the Senate and House.

In February 1975 the Administration first publicly proposed transfer of FWS jurisdiction over Charles Russell National Wildlife Range, Montana; Charles Sheldon Antelope Range, Nevada; and Kofa Game Range, Arizona, to BLM. NPCA and more than twenty other national conservation organizations strenuously protested the transfer to President Ford and to then Secretary of the Interior Morton.

BLM management of these wildlife ranges would place units of the National Wildlife Refuge System under the sole jurisdiction of an agency other than FWS for the first time, a precedent that should be avoided, especially in light of BLM's multipurpose management responsibility and its past record. (See December 1974 News Notes.) Under BLM, range administration would no longer give predominant attention to wildlife management and preservation concerns, but would likely expand to permit mining and grazing activities to an unprecedented extent.

In invited testimony before the Senate Commerce Committee's Environment Subcommittee and the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, NPCA strongly supported enactment of HR 5512 and S 1293 (amended), which would legislatively

transfer these three ranges to the Fish and Wildlife Service for administration and would require an Act of Congress for any future transfers.

NPCA told these committees, "We believe strongly that the BLM, with its multiple-use management policies, would not be capable of providing the sort of dominant-use management which the game ranges require. If the Administration were not planning to increase the other, non-wildlife uses of the ranges, then why transfer them to BLM management when the FWS is the agency with the mandate and the expertise to administer areas for the highest wildlife values?"

But these three are only the tip of the iceberg—the Interior Department has already proposed under the Alaska Native Claims Settlement Act that two extensive areas in Alaska, the Iliamna National Resource Range of 3 million acres and the Noatak National Arctic Range of 7.5 million acres, should be managed by BLM as units of the National Wildlife Refuge System when established.

In addition, we have heard reports that other Alaskan wildlife refuges, such as the Arctic National Wildlife Range and the Kenai National Moose Range, may also be under consideration for transfer to BLM.

Faced with mining threats to Glacier Bay National Monument in Alaska, the National Park Service recently agreed to request that the Secretary of the Interior temporarily withdraw the monument from new mining claim location pending completion of a mineral study. The Park Service decided to make the request following an urgent plea from NPCA. Potential wilderness areas in this national monument are vulnerable to encroachment under a 1936 law. (Although mineral development of any NPS unit clearly violates the intent of the 1916 act that created the Park Service, a law opening Glacier Bay monument to mineral entry passed hastily during the depression.)

NPCA members can help by writing the new Secretary of Interior to urge that he comply with the Park Service request described above. (See May 1975 issue for more information.)

Stanley K. Hathaway
Secretary of the Interior
Washington, D.C. 20240

news notes

A scant eight miles from the most primitive part of Glacier National Park in Montana is a site in British Columbia on which an industrial firm plans to develop a huge coal mine.

The proposed mine would straddle Cabin Creek, a Canadian tributary of the North Fork of the Flathead River, at a site some eight airline miles from the northwest corner of the park. A subsidiary of Rio Algom Mines, a large consortium based in Toronto, has been conducting extensive exploratory activities, and Rio Algom is expected to apply for a mining permit for some 63 million tons of coal at the Cabin Creek site. The destination of the coal would be Japan. (This amount is part of an estimated 5 billion tons of coal in a larger British Columbia region, some of which is located in less environmentally critical areas.)

Concerned citizens, including biologists and park administrators, are apprehensive that the mining and related developments will severely degrade the pristine water quality of the Flathead River, which follows the western boundary of Glacier National Park and drains into Flathead Lake, the largest natural freshwater lake west of the Mississippi and an important economic resource.

In addition to water pollution, the mining industry would introduce roadways, a railway link, and some 3,000 to 7,000 people into the area, thus disrupting virtually untouched wilderness habitat. (Only a handful of people now inhabit the area in question.) Glacier National Park and vicinity provide habitat or breeding range for grizzly bears, timber wolves, moose, wolverines, elk, white-tailed deer, golden eagles, bald eagles, osprey, bighorn sheep, woodland caribou, and other wildlife. (Several of these species are endangered or threatened.)

In response to the Cabin Creek problem, a broad cross-section of the Flathead community has joined into the Flathead Coalition. Coalition representatives say it would seem almost impossible to mine coal in Cabin Creek without adverse impacts on the water quality of the North Fork and Flathead Lake. Vice-chairman Gene Albert emphasizes that the company will be blasting away at the overburden (the hundreds of tons of soil and rock above the coal) and that, "It is virtually impossible to remove or store this overburden without some or much of it ending up in Cabin Creek. There are two mountains on either side of Cabin Creek, 600 feet away from the creek, which are to be leveled to extract 63 million tons of low to high volatile bituminous and semi-anthracite coal." The river would be polluted by materials leaching from the mine site, such as nitrates and possibly sulfur, phosphates, and arsenic.

Rio Algom has said it will install dams to control siltation, but this would pose other problems. Glacier park superintendent Phil Iverson is worried about the resultant regulation of the flow of water in the Flathead River because periodic flooding is part of the natural ecosystem. It ensures that the Big Prairie area, which is so essential to wildlife, is not invaded by trees. Iverson says the northwest area of the park has "the most fascinating ecological balance I have ever seen," and that a change in river flow would disrupt this balance. In addition, Canadian biologists experienced with dams of the type that Rio Algom proposes say that water carrying suspended particulates regularly spills over the dams, and sometimes the dams wash out, flooding the rivers involved with pollutants.

Iverson says the National Park Service, along with a task force including thirty-seven other federal and Montana agencies, is working to provide decisionmakers with hard data on the effects that coal development would have in the area.

The problem, of course, is complicated by the fact that the proposed mining site is located in Canada. However, many Canadians also are disturbed at the prospects of the mining project. On June 21 Montana members of the Flathead Coalition and coalition members from the British Columbia Wildlife Federation joined the Alberta Fish and Game Association for a summit meeting.

The two Canadian groups called upon the provincial government of British Columbia and the national government of Canada to declare a moratorium on coal exploration and

development permits for the duration of the current Canadian Coal Block Study. (Rio Algom does not yet have a development permit, which is the permit to mine.)

Although the British Columbia government claims the company would have to meet strict regulations, the coalition says that it would be unwise to depend on enforcement of mining laws, because once the company obtains a development permit, it will be free to mine (and thus to pollute) during the time it takes to apply for and receive a third required permit, the "pollution permit." Sometimes this third application process takes several years. Citing a lack of cooperation by the provincial government, the coalition is considering legal action.

Some coalition members also point out that the Canadian officials and the U.S. State Department are stalling in considering this case under the U.S.–Canadian Boundary Waters Treaty of 1909. The International Joint Commission is charged with considering cases involving pollution of water crossing the border. Because the company has already invested some $3 million in exploring Cabin Creek, it seems certain Rio Algom plans to mine the site. Therefore, many people think that multilateral talks under the 1909 treaty should begin now rather than waiting for issuance of a development permit.

Wayne Herman of Kalispell, Montana, who was responsible for forming the Flathead Coalition, says he would be happy if Canada extended Waterton Lakes Park to include the upper Flathead. (Waterton Lakes is the Canadian section of the Waterton–Glacier International Peace Park.)

As a possibility on the U.S. front for protecting the water quality of the Flathead, many people in Montana propose that the river be included in the Wild and Scenic Rivers System.

NPCA recently joined the Flathead Coalition. Watch for future reports in NPCA at Work.

The push for energy development poses another grave threat to Glacier National Park—but this time from within the United States. The U.S. Forest Service (USFS) is releasing a draft environmental impact statement on some 236,000 acres of proposed oil and gas leases in the Flathead National Forest, just west of Glacier Park. USFS is recommending that the Bureau of Land Management deny lease applications for 53,323 acres of prime wilderness; grant leases for 111,954 acres in "more developed" areas; grant applications but deny surface occupation rights in 53,727 acres; and hold action on 16,996 additional acres until land use studies are completed. NPCA is opposed to any leasing for oil and gas development on national forest land, especially in areas adjacent to NPS units.

SAVE THE DUNES COUNCIL

Taken on May 17, 1975, this photo records U.S. Steel Company excavating sand (background) and dumping industrial waste (left) on the eastern edge of its land in Gary, Indiana. The company reportedly committed these acts in disregard of congressional hearings a week earlier on proposals to add this area (known as "Miller Lagoons and Woods") to Indiana Dunes National Lakeshore.

Eleven-year floods hit Glacier National Park in late June, forcing temporary evacuation of park visitors and washing out roads, waterlines, and backcountry bridges. Six to ten inches of rain inundated the park on June 19 and 20, and there were massive snowslides west of Logan Pass. At press time no one was known to be missing or injured, and officials hoped to repair most damages right away.

Protesting "legislation by bulldozer" at dune lands in Indiana, the Save the Dunes Council charged late in the spring that U.S. Steel Corporation was continuing to mine sand and dump wastes on dunes property at the edge of the company's sprawling Gary Works—despite recent congressional initiatives to save the area.

To confirm the charge, the citizens group says council members inspected the site in the presence of U.S. Steel officials after congressional hearings on enlarging the Indiana Dunes National Lakeshore.

On May 9 the House National Parks and Recreation Subcommittee held a full day of hearings on several bills to enlarge this National Park System area. These proposals call for acquisition of more than 300 acres of beach and sand dunes owned by U.S. Steel. At the congressional hearings the company strongly objected to the inclusion of its property in any national park enlargement. (The total acreage that various bills propose for addition to the national lakeshore ranges from 4,449 to 5,328.)

"Too much of this area has already been damaged," said Sylvia Troy, president of the Save the Dunes Council. "Even in this heavy industrial region, few industries have as flagrant a disregard for the public interest as U.S. Steel. Its record of ecological vandalism is known nationwide, and has made the city of Gary a symbol of urban decay."

Mrs. Troy went on to describe the problem of the Lake Michigan dune lands controlled by the steel company. "Most of this property has remained untouched and unused by U.S. Steel for over fifty years. Yet in spite of the possibility of park acquisition, the company continues to degrade portions of the dunes by mining the sand and dumping industrial waste and trash.

This random destruction of irreplaceable resources is a slap in the face to the U.S. Congress and the millions of citizens who would eventually be able to enjoy the few acres of dunes that are left."

Acting on an urgent request from Mrs. Troy, subcommittee chairman Representative Roy A. Taylor of North Carolina personally asked U.S. Steel not to alter the landscape in question until the House has had an opportunity to act upon the pending dunes park bills.

Nelson bighorn sheep once again will inhabit the wilds of Zion National Park. Next year park officials expect to reestablish a herd of Nelson bighorns such as those that vanished from the Southern Utah park during the late 1940s.

A "seed herd" of the handsome animals was trapped last year in the vicinity of Lake Mead, Nevada, by game biologists from the National Park Service and the states of Nevada and Utah. Twelve animals were shipped by truck to Zion National Park. That herd has grown to nineteen, and by next year at this time it is expected to number about thirty.

"The animals are confined to an 80-acre enclosure near the park headquarters," explains Superintendent Robert C. Heyder, "and they appear to be thriving."

Heyder says that although the Nelson bighorn sheep was common to the Zion National Park area until its disappearance, there is no ready explanation for its departure from this range.

"We know that the area once supported quite a number of these animals," Heyder says, "and our objective now is to try to re-establish the herd as part of the Park Service philosophy of maintaining as natural an environment here as possible. We believe the presence of a Nelson bighorn herd will add a further element of balance to the park ecosystem, and that the visiting public will enjoy the opportunity to observe these animals."

The bighorn is a handsome, rusty-gray species that enjoys the solitude of the canyons and the talus slopes. Timid and smaller than their cousins of the Northern Rockies, Nelson bighorns do not weigh more than 150 pounds, but nonetheless are very hardy.

reader comment

More on Yellowstone Grizzlies

The article, "The Grizzly Debate" (your April '75 issue), makes no mention that a National Park Service program is basically responsible for bringing on the rapid decline of the grizzly bear population in the Yellowstone ecosystem in the brief period, 1968–1974.

I am not debating, but am commenting based on the scientific data, in saying that prior to adoption of a new NPS program in 1968, this grizzly population enjoyed adequate protection in the park refuge which allowed it to grow slowly even though hunted in adjoining areas. However, this situation changed drastically under new NPS management and soon became one in which the death rate has exceeded the birth rate for several years. This occurred when backcountry garbage dumps, where Yellowstone grizzlies fed for most of a century, were abruptly closed with the result that many grizzlies were forced into campgrounds and other areas of human use where a large number were removed from the park or killed as a potential threat to people. Those forced into adjoining national forests were even more vulnerable; in addition to being destroyed as a threat to people, grizzlies died in predator poisoning control programs or were shot for depredations and by hunters as your article indicates the situation in these areas.

In the face of increasing public protest of these conditions, the Interior Department funded a committee from the National Academy of Sciences to make an impartial review of the data on the bears along with recommendations of their scientific and technical implications, and the NAS report was issued the summer of 1974. Among other things, it revealed: (1) that at the end of 1970 (at a critical point in the program) NPS terminated the independent Craighead grizzly bear research in the park, which had been in effect since 1959, and when grizzlies were trapped NPS stripped them of color markings by which individuals were recognized, thereby destroying an important means of obtaining accurate data; (2) methodology employed by the Yellowstone biologist to determine the size of the grizzly population from 1968–1972 produced data with "little if any meaning"; (3) that "unwisely" the chairman of a new interagency grizzly bear study team, appointed in 1973, "is from the National Park Service (whose program would be under scrutiny) rather than being a wholly neutral individual"; and (4) that "restrictions on studies of grizzlies within Yellowstone virtually excluded representatives of other agencies."

As if this were not enough, the NAS report essentially concurred with the Craighead findings that the grizzly population throughout the Yellowstone ecosystem has been reduced substantially under the NPS program, a fact that plays havoc with NPS claims that there are many more grizzlies in this population than the NAS committee could find scientific evidence to support. In fact, the NAS report stated, "The research program carried out by the National Park Service administration since 1970 has been inadequate to provide the data essential for devising sound manage-

ment policies for the grizzly bears of the Yellowstone ecosystem."

The NAS committee thus recommended prompt, adequate funding of a comprehensive research project on the Yellowstone grizzly population by qualified independent scientists, using every appropriate technique, including marking of individual bears for identification. "The single most critical question is whether bear numbers are now increasing, decreasing, or relatively stable," said the committee. "It is not possible to determine new biological parameters without reestablishing a recognizably marked element of known size in the population," the report added.

Further evidence of the NAS committee's concern is found in another recommendation that the man-caused removals of grizzlies be held to about ten per year until more research demonstrates that the Yellowstone population can be maintained under larger removals. [See November 1974 NPCA at Work. Following the NAS report, NPCA called for a moratorium in the ecosystem—Ed.]

In urging NPS and the U.S. Forest Service to support and encourage independent research on the grizzlies, the committee pointed out that the freedom of scientists to conduct research throughout the Yellowstone ecosystem is imperative if the data essential to successful management of the bears are to be obtained. . . .

Also recommended was the creation of a nongovernmental coordinating body through which state, federal, and private agencies may seek agreements directed toward the well-being of Yellowstone grizzlies, and it was urged that the present interagency research approach be reevaluated and coordinated under this body. The need for management and research information to be circulated effectively among all engaged in the study and conservation of the bears was also emphasized.

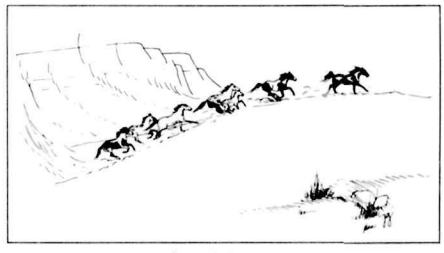
Must we continue a "debate" that does not even consider these and other "problem-solving" conclusions and recommendations of the NAS report?

Yellowstone must conclude its present "closed corporate management" of grizzly bears in which the National Park Service runs the whole show on funds provided by taxpayers. Yellowstone must, in fact, enter the latter part of the Twentieth Century where the American people are demanding an open, honest and efficient management of public resources, including bears.

Martha Shell
Kansas City, Missouri

The Burro Problem

Not all conservationists can agree with your stance on the Wild Horse and Burro Act. [Your reply in "Reader Comment" to Tammy Edwards of San Jose, Ca.] [May 1975] This emotion-packed issue, sparked by Mrs. Johnson of Reno, Nevada, drew support from animal lovers all over the country. This Act, signed into law in 1971 by President Nixon, was ill-conceived and inappropriate. Little foresight was exercised. The federal law gave complete



protection to feral horses and burros, with the maximum fine for killing one being $2,000 and a year in jail. The wild burro is in direct competition with our rare desert bighorn sheep for both waterholes and range. The desert sheep has been a protected animal here in California since 1872, and the fine for killing one of these rare creatures is a mere $500! Our Fish and Game Department has spent much time and effort, together with sportsmen, scouts, and other concerned groups, upgrading waterholes, constructing special fences, etc., to try and preserve the waterholes for the sheep and other wildlife against the destructive occupation of the feral burro.

Arizona also has problems. In 1971, Mr. Jantzen, Director of Arizona Fish and Game said, "We have feral burros occupying the same range as the desert bighorn sheep. There is direct competition with these animals, especially at the waterholes during the summertime. In some areas where the feral burros have become too numerous, the sheep no longer occupy the range." And now, in 1975, we have an exploding population of wild horses and burros, and no legal effective means of controlling them: Which should be preserved, the feral horse and burro (domestic animals living wild, but certainly not rare or endangered, as the counterpart of either can be found in most ranchers' pastures) or our rare desert bighorn sheep, a truly beautiful, magnificent wild animal which has never been domesticated?

. . . These natural areas should be preserved for our native fauna, as a matter or priority. . . .

Lucille M. Harris
California

Tammy Edwards' short letter on wild horses and burros has stimulated a very healthy debate, reflected in the above letter. On one hand, we hear from people who recognize that feral horses and burros are beautiful life forms and part of our heritage from the colorful Old West with the same survival needs as all other creatures. On the other hand, these animals—especially burros—are responsible for considerable ecological damage in fragile desert habitats.

Recognizing the damage caused by feral animals, NPCA strongly supports National Park Service programs to control feral burros in Bandelier National Monument (New Mexico) and Death Valley National Monument (California) and feral goats and pigs in Hawaii's national parks. These control programs include live trapping, fencing, and shooting when necessary by park personnel.

On nonpark public lands managed by the Bureau of Land Management, we face a vastly different problem. After decades of BLM policies permitting public lands to be overgrazed, strip mined, defaced, and denuded in the name of "range management," and overrun with off-road vehicles, talking about burro controls almost resembles quibbling. Nevertheless, in the absence of a comprehensive, ecological approach to land management policy in the BLM, we certainly recognize the need for humane controls on feral animal populations where damage to native habitats is evident.

Our purpose in our reply to Tammy's letter was to urge appeal of a court decision which declared PL 92-195 (The Wild Horse and Burro Act) unconstitutional. This Act was designed, in part, to halt market hunting practices in which bands of mustangs would be herded by aircraft and run off cliffs, causing some to die instantly

from broken necks and others to die much later from broken legs or backs. To lose this Act could mean a return to such senseless cruelty conducted not in the name of desert ecology but for dollar profit. Fortunately, PL 92-195 has been upheld.

There is no question that the Wild Horse and Burro Act has accentuated land management problems where these feral animals occur. We strongly support allowing for humane controls when they are necessary, but the Act itself and the protection it offers should not be sacrificed.

Keep the Delaware Flowing Free

Your piece on the Delaware Valley Conservation Association . . . [May 1975 News Notes] and its court fight to preserve historic buildings in the Delaware Water Gap National Recreation Area (DWGNRA) was excellent. I'd like to bring NPCA members up to date on other aspects of the Tocks Island dam issue.

The $15 million study of the environmental effects of the dam, and of possible alternatives to it, voted by Congress last summer, will be completed by the time this goes into print. The 3,000-page study and summaries of the study prepared by the Corps of Engineers and also by the Save the Delaware Coalition (an "umbrella" organization comprising 61 civic and environmental groups) will be presented to the Governors of New York, New Jersey, Delaware, and Pennsylvania in August. Congress will probably decide whether to opt for construction of the dam or for deauthorization when it returns in the fall.

In the meantime, the National Park Service has been working on a series of alternative plans for the DWGNRA. Under a cooperative agreement, the Appalachian Mountain Club has prepared a plan for dispersed recreation, showing how a system of trails, shelters, campsites, and canoe routes could be designed and managed for a park centered about the free-flowing Delaware.

This plan, together with recent publicity about the richness of the archeological sites in the area, should give an extra spurt to the fight to defeat the dam and to create a natural systems park instead. . . .

Hope Cobb
Princeton, New Jersey

conservation docket

A report on selected bills and recent legislative activity in the 94th Congress follows. Descriptions indicate those who introduced the bills and committees to which bills were referred.

Strip Mining: HR 25—To regulate surface coal mining operations. After passage by the House and Senate in early May, President Ford vetoed the bill on May 20. On June 10, the House failed to override this veto by a vote of 278 to 143—three votes short of the two-thirds majority needed to override.

Alaskan Conservation: HR 6089, S 1687, S 1688—To designate certain lands and waters in Alaska for national conservation purposes to be administered as units of the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, and National Forest System. HR 6089 and S 1687 are the administration's recommendations for adding 83.47 million acres to these public land systems. S 1688, on the other hand, although generally similar, would create larger units of National Park and Wildlife Refuge Systems and smaller units of the National Forest System, and includes a total acreage of 106 million acres. Senators Jackson (D-Wash.) and Fannin (R-Ariz.), and Rep. Sullivan (D-Mo.). Interior.

Klondike Gold Rush: S 98—To establish the Klondike Gold Rush National Historical Park in Alaska and Washington in four units totaling 13,279 acres. Passed the Senate June 4. A similar bill, HR 1194, has seen no action in the House. Senators Stevens (R) and Gravel (D), and Rep. Young (R), all of Alaska. House Interior.

Flathead Area Wilderness: S 392—To establish the Great Bear Wilderness of 378,200 acres in the Flathead National Forest and Lewis and Clark National Forest as a component of the National Wilderness Preservation System. Would set up a wilderness zone connecting Glacier National Park and the Bob Marshall Wilderness Area.

Grand Canyon: HR 4109—To amend the Grand Canyon Enlargement Act to reinstate the provision for a wilderness review of the enlarged park that had been inadvertently omitted from the conference report in the 93rd Congress. Passed House April 21 and Senate June 2. Rep. Taylor (D-N.C.).

Redwoods: HR 5193, HR 7631—To increase the size of Redwoods National Park in California by 74,000 acres embodying the watershed management concept on Redwood Creek. Rep. P. Burton (D-Calif.). Interior.

Valley Forge: HR 5621—To establish the Valley Forge National Historical Park in Pennsylvania totaling 3,500 acres. Rep. Schulze (R-Pa.). Interior.

Wetlands: HR 5608—To extend the program of the Interior Department for acquiring wetlands habitat until 1983 and to nearly double the authorization to $200 million. Rep. Oberstar (D-Minn.). Merchant Marine and Fisheries.

Land and Water Conservation Fund: S 288—Amends the Land and Water Conservation Fund Act to permit a state to use up to 25 percent of its share of LWCF money for planning and development of indoor recreation facilities such as swimming pools and ice skating rinks. Sen. Burdick (D-N.Dak.). Passed the Senate May 21. Referred to the House.

Indian Nations: S 1123—To establish the Indian Nations Trail as a component of the National Scenic Trails System, extending for 200 miles across the former Indian nations lands of Oklahoma. Passed Senate May 21. Sen. Bartlett (R-Okla.). Referred to the House.

City of Rocks: S 1214, HR 5010—To establish the City of Rocks National Monument of 32,000 acres in Idaho. Senators McClure (R-Idaho) and Church (D-Idaho) and Representatives Hanson (R-Idaho) and Symms (R-Idaho). Interior.

Wild Horses and Burros: HR 4577—To amend the Wild Horse and Burros

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Act to provide additional authority to the Secretary of the Interior to manage free-roaming horses and burros on the public lands. Representatives Whitehurst (R-Va.) and Hechler (D-W.Va.). Interior.

National Forest Jobs: S 1146—To provide jobs for unemployed people carrying out an intensified forest improvement program for the control of the pine beetle and for other management purposes on national forest lands and through cost-sharing on other nonfederal forest lands in South Dakota, Nebraska, Wyoming, Colorado, and Kansas. Sen. Abourezk (D-S. Dak.). Agriculture and Forestry.

Colorado Wilderness: S 267 and 268—To establish the Flat Tops Wilderness in the Routt and White River National Forests, and the Eagles Nest Wilderness in the Arapaho and White River National Forests, both in Colorado, as components of the National Wilderness Preservation System. Sen. Haskell (D-Colo.). Passed Senate June 5. Referred to the House.

Conservation Corps: HR 7692—To establish a Conservation Corps in the Departments of Interior and Agriculture. Rep. Duncan (D-Ore.). Education and Labor.

Whale Teeth: S 229, HR 2057—To amend the Endangered Species Act of 1973 to permit interstate commerce in whale bone and teeth brought into the United States prior to 1973 and art objects (principally scrimshaw) made from them. Sen. Kennedy (D-Mass.), Rep. Studds (D-Mass.). Senate Commerce and House Merchant Marine and Fisheries. The Senate passed the bill in May 1975. House hearings were held on June 10.

Whale Protection: H.J. Res. 448—To impose a mandatory ban on the import of all articles produced or distributed by companies engaged in commercial whaling of the three species that the International Whaling Commission still permits to be killed—fin, sei, and sperm whales. These species are on the U.S. endangered species list.

Deep Seabed: S 713, HR 1270—To provide for the orderly development of the hard mineral resources of the deep seabed pending adoption of an international treaty. These minerals are the so-called "manganese nodules," rich in copper, cobalt, nickel, and manganese, which range in size from that of an egg to football size. Sen. Metcalf (D-Mont.) and Rep. Downing (D-Va.). Senate Interior and House Merchant Marine and Fisheries.

OCS: S 426, S 521, S 825—A number of related bills to deal comprehensively with development of oil and gas resources on the outer continental shelf, including exploration, development, production, conservation, and environmental protection for the resources and surrounding waters and coasts. Senators Hollings (D-S.C.), Jackson (D-Wash.), and Case (R-N.J.). Interior.

Continued from page 2
energy and the development of alternatives to nuclear fission become planetary imperatives. The greatest danger is the propaganda that there is no danger.

THE WORLD may have learned some important lessons during the long and seemingly futile years of pressing for population stabilization in the name of voluntary parenthood. People, so it seems, and as we might have known, want children as a purpose of their lives, for security in old age, and as outreach beyond death. But unemployed children accord no security; and what developing country can afford a modern social security system if it cannot, because of the pressures of hunger, industrialize? And must not work in the wide world for women, with new functions, with money of one's own, with broad social contacts, come rapidly if small families are to be sought or accepted?

Prerequisite to population stabilization will be the acceptance of a moral standard of not more than two children. Such a practical standard, adopted voluntarily, as contrasted with the appeal of voluntary parenthood, which can well mean six children in many places, can give people guidance for conduct in terms of a concern for both family and community. Applied soon enough within an institutional structure of clinics, equipment, and paramedical assistance to remote villages, and within the framework of particular subcultures, it could bring a rapid stabilization and even a substantial reduction of populations by the end of another century.

THE transnational corporation emerges on the world scene as more powerful than many governments. Within its country of origin it often may dominate the state. The size of the public bureaus reflects the unrestrained growth of the firms. Will forces emerge within the corporations themselves to move them toward the public interest? Can public institutions for international collaboration be fashioned in time to compel such responsibility?

Some psychiatrists have been convinced for a time that the rigidities and inhumanities of the modern corporation, its unresponsiveness toward stockholders, employees, and consumers, its mindless preoccupation with profit and growth, and the rise of its symbiotic counterpart, the gigantic government bureau, have resulted in subservience and despair in the average man which move him by a secret wish for death, toward murder and suicide, hence the acceptance of domestic violence and worldwide nuclear catastrophe. If this be true, the humanization of the corporations and the agencies becomes a first order of business for mankind.

NEXT YEAR the nations of the world will gather in HABITAT: the UN Conference on Human Settlements at Vancouver, in Canada. The big cities we have created all over the planet, strangely enough in the agricultural as well as the industrial countires, are in large part uninhabitable. They are sinks into which the unemployed of the countryside have drifted. How can their frustrated inhabitants find release again to the land and to communities of moderate size in the open countryside?

The new cities should be built for permanence. They should be structured in the love of nature, with open space; in the love of history, preserving the traditional connection; in the love of community, with meeting places.

BY THE TIME of the Stockholm Conference on the Human Environment in 1972, the world had seen the failure or frustration of many efforts at the solution of a vast congeries of grave planetary problems. The interest in the restoration of a natural environment shone forth as a great hope for international cooperation and recovery. That hope must not be allowed to die.

For Americans, the ideals of worldwide democracy can never be abandoned. In the great multinational conferences of the United Nations a fascinating variety of peoples converges; the spokesmen of some of the most brutal dictatorships on earth sit down with free men on the basis of a voting equality to work out their differences by the democratic process; such rigors must be instructive.

At the turn of the past century people looked forward to a world of peace and plenty which could be realized in their lifetimes. War, proliferation, and a runaway technology have brought disaster instead. But the date of the advent of the Community of Life, so we may still hope, has only been set back. Not today, but a hundred years hence—perchance two hundred—will be the time for fulfillment. But the time for action is now.

—Anthony Wayne Smith

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