

NATIONAL PARKS



*Conservation
Magazine*

The Environmental Journal

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Natural Stand Forestry

FORESTERS, economists, and students of government met recently in the city of Washington to compare viewpoints on forest policy at a forum organized by Resources for the Future.¹

One of the sessions focused on the problem of investment in forests, around a background paper by Dean John A. Zivnuska.

The President of the NPCA was invited to participate in the session on investments, and did so as an individual. He offered the case for ecological forestry in the sense advocated by NPCA for many years—essentially selective cutting.

THE WORLD MOVES rapidly into a population and resources position which compels a re-examination of the basic assumptions of an endlessly expanding economy. The rapid stabilization and eventual reduction of populations, worldwide, become a matter of human survival. The exploding technology of extraction and exploitation must also be restrained, lest it wreck the ecological and economic foundations of society.

The productive capacity of the forests of the world in pulpwood and timber must be viewed within the constraints of the forest ecosystems. Those ecosystems produce commodities such as water and oxygen which are indispensable to all life on earth. There is grave danger of a severe overshoot in the utilization of all the living resources, such as the forests and the fisheries, and consequent collapse and widespread human misery.

The paper by the President of the NPCA is reprinted as follows:²

In commenting on Dean Zivnuska's excellent paper, I would suggest that regulation is forced saving rather than forced investment.

It is true that present controversies turn to a significant extent around harvesting methods.

I would prefer to reserve the term silviculture for what I would like to call ecological forestry.

Silviculture in this sense has been a lost art, but it should be recaptured.

I am using the term deliberately and with the intention to be provocative.

Silviculture in that sense, in my vocabulary, means methods of management which preserve the soil, water, watercourses, water tables, vegetation, wildlife, soil microorganisms, microclimate, and recreational, scenic, and aes-

thetic resources of the forest, and certainly the forest itself, while permitting an abundant harvest of forest products. Silviculture in the sense of ecological forestry means the maintenance of an ecological diversity, and hence excludes artificial monocultures. Silviculture means mainly individual or group selection, shelterwood, or at the most, small patch clearcutting.

Ecological forestry, in this sense, results in an *even flow* of products. It results in the long-range protection of the capital investment in land and forest. It probably results, over the long haul, in the most prudent and profitable employment of investment capital.

We are talking about investment. Ecological forestry means retaining the capital already invested in the standing forests, and drawing on the annual growth as income. It means letting the forest re-invest in itself (reseeding into openings resulting from cutting) to maintain its productivity. It means accelerating the growth rate, hence productive investment, by thinning.

Ecological forestry means market stabilization. Harvesting is restricted to the accelerated growth rate. If the system is applied to all timberlands, restricted marketing maintains price levels. Prices rise to carry the internalization of ecological costs and to place forest products on that legitimate level, presumably higher than at present. Such price levels would attract the new capital investment in forestry which this Forum is presumably seeking. At such levels, other products might well take over a portion of the housing market; so be it, there are plenty of other good building materials, and forest products should be priced at ecological levels.

Ecological forestry can, if we wish, mean intensive management. As visualized here, it does indeed mean intensive management. It means that cuttings on short cycle eliminate the less promising trees, speed up the growth of the remaining stand, and remove production approximately equal to the normal natural kill-off in the woods. Ecological forestry does not mean letting nature alone, but means operating a productive forest while at the same time maintaining the forest ecosystem.

Silvicultural management, in my sense of the term, can perhaps be summed up best as light selective thinning through all age classes on short cycle and long rotation. It implies a good system of access roads and the use of light machinery which will not needlessly disturb regeneration. It implies an artist's eye and a craftsman's hand in the management of the woods.

The objective of regulation should be to require the employment of ecological forestry methods on all forest lands. Such regulation would mean the conservation and preservation of the forest capital, and thus should be regarded as exacting savings, not investment. It should be regarded as requiring timber owners to protect, not squander, their capital. In that light, regulation would not require public compensation, because it would improve the property.

The establishment of the requirement of ecological forestry in respect to public forest lands can obviously be accomplished by legislation. Rates of cutting then become a question of secondary importance. The rates will depend on the long-term even-flow productivity of the forests, and will be geared to maximum sustainable yield with adequate margin for error.

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FRONT COVER Glen Echo Carrousel, by John M. Tyson
An exquisite, intricately carved old wooden carrousel is one of the attractions at Glen Echo Park, a National Park Service unit on the Potomac River outside Washington, D.C. The innovative programs of this park could serve as a model for other urban parks all over the country. (See page 20.)

BACK COVER American chestnut burr, by U.S. Forest Service
In less than fifty years an accidentally introduced disease from the Orient virtually wiped out the dominant tree of the Eastern hardwood forests—the American chestnut. See page 8 for the tragic story of the loss of the native chestnut tree and the details of NPCA's efforts to restore it.

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VOYAGEURS — The Wilderness Park

The nation's thirty-sixth national park is a wilderness that appears today much as it did when adventurous fur-trading canoemen of the eighteenth century traversed its intricate waterways and portages.

by JOHN A. BLATNIK

WITH A SONG for every occasion and plumes in their bright red caps to indicate that they had been baptized "Nor'Westers," French Canadian adventurers of yesteryear, led or assisted by Indians, paddled and portaged tremendous loads along a 3,000-mile fur-trading highway stretching from Montreal to Lake Athabasca. Twentieth century adventurers can now get a taste of part of that maze of waterways and "portages," which are wilderness paths that bypass the treacherous spots in the water highway, in a new national

park named after the tough and romantic canoemen.

Voyageurs National Park, on Minnesota's Canadian border, after one of the longest gestation periods of any national park, is now open to visitors. Though still a year or so away from official establishment, the park's main tourist "facilities"—the forests of the Kabetogama Peninsula and the clear waters of Kabetogama, Namakan, Rainy, and Crane Lakes—have been open to deer, timberwolves, wild fowl, and people since the end of the last ice age ten thousand

years ago. They will remain substantially unchanged under National Park Service management.

The nation's thirty-sixth national park will be a wilderness park, with emphasis on sports such as hiking, camping, canoeing, and fishing in summer and cross-country skiing, snowshoeing, and ice fishing in winter. Traveling by foot or camped by a fire or an ice hole, the visitor acquires an immediate feel for the land as the Indian knew and cared for it. Motorboating—and in winter snowmobiling—will be permitted on the

larger lakes but motor vehicles will be entirely prohibited on the peninsula.

Campsites within the park will be left in their present primitive condition. Although a full range of visitor accommodations will be available outside the park, state and local planning will assure that park-generated development enhances rather than detracts from the natural beauty of the park itself.

This new national park has three purposes, rigidly adhered to by the National Park Service: preserva-

tion of a uniquely beautiful, water-oriented area; recreation for a nation increasingly divorced from the peace of solitude and the humility engendered by the powerful forces of nature; and restoration to its rightful place of an almost forgotten chapter in the history of the North American continent—the eighteenth century fur regime in the Northwest, of which the Voyageurs were the mainstay.

WHEN THE FIRST white men entered northeastern Minnesota about 1660, the forest Sioux inhabited the land. Soon, however, the Chippewa Indians had taken over. These Indians depended for their livelihood on fish, berries, maple sugar, and plentiful populations of caribou, moose, deer, black bear, beaver, and other wildlife. A pleasant people, they introduced the Voyageurs to corn, pemmican, and birchbark canoes, as well as the harvesting and preparation of wild rice.

This extensive northern area en-

compassing Voyageurs National Park, the Superior National Forest, and Grand Portage National Monument—now dedicated to peace, recreation, and history—soon became the center of the great fur-trading empire built by the Hudson's Bay Company and the North West Trading Company, which spanned the continent from Montreal to the Rocky Mountains. The backbone of this empire was the "highway of the Voyageurs"—the network of turbulent streams, storm-whipped lakes, and rock-and-mud portages over which the Voyageurs toiled from Montreal to Lake Athabasca and the far-flung trading posts on the eastern slopes of the Rockies.

Each spring, when the tumultuous streams of the Northwest broke their bonds of ice, the "Northmen," in tiny six- to eight-man canoes loaded to the gunwales with furs traded from the Indians, would begin the tortuous journey east to Grand Portage at the northernmost tip of Minnesota. Here

NATIONAL PARK SERVICE



Through beautiful water passageways such as the one at right the hardy and adventurous Voyageurs paddled tremendous loads of furs in their canoes from the late 1600s to the early 1800s. This portion of the old Voyageurs' water highway is now in Voyageurs National Park in Minnesota on the Canadian border. Although the tough and romantic little canoemen were instrumental in plundering the wildlife of the Northwest for furs, now the wildlife of Voyageurs National Park—moose, deer, timberwolves, and many others—will be protected.



they met eight weeks later with the "Montrealers," who had paddled west via the Great Lakes. Furs were traded for next winter's supplies and the few weeks of revelry a year's wages would buy, before the return trip by paddle, pole, and portage began in August. Each year it was a race against time, against the fierce ice and snows of winter in the Northwest. The furs continued their trip east with the returning Montrealers, and thence to the chic salons of Paris and London.

The Voyageur, who greeted his life of eighteen-hour paddling days (at two cents an hour), and of long portages carrying up to two or three times his own weight in supplies, with an equal sprinkling of oath and song, disappeared from the lakes around the 1830s—and from the history books as well. Even the loggers, in the persona of Paul Bunyon, are better remembered than he. Now, in Voyageurs National Park and nearby Grand Portage National Monument, he will be restored to his rightful place as

a colorful pioneer of the Northwest.

THE PARK'S lake country looks today much as it did when the Voyageur traversed it. Wild and imbued with a sense of vastness, it has superior geological interest. It is part of the oldest land mass in the world and is associated with the northern Shield region: a land surface carved by continental glaciation into an endless maze of waterways with a mantle of trees. Voyageurs National Park will encompass over 219,000 acres of which about 80,000 are water.

The Kabetogama Peninsula, which comprises the main land area of the park (75,000 acres), is typical of the course over which the Voyageurs paddled or shouldered their canoes—interior lakes, streams, and portages accessible only by foot and canoe. Although modern technology has produced the wonders of aluminum canoes and freeze-dried foods in place of the heavy bark canoes and pemmi-

can, visitors from the sedentary twentieth century should have no difficulty experiencing firsthand some aspects of Voyageur life.

Campsites on the peninsula are designed for tents alone—one or a very few to a site, enabling those who choose the outdoor life to find the solitude they seek.

Fir, aspen, spruce, pine, and birch now cover the land down to the water's edge. Moose, deer, timberwolves, and beaver inhabit the peninsula as they did in Voyageur days. The Park Service hopes, too, that careful management of the forests will some day bring caribou back to the area.

The peninsula is almost totally surrounded by water, the main access route now as it was for the Voyageur. The waters range from narrows less than a hundred feet across to major lakes several miles wide, dotted with islands and bounded by rocky points or more accessible sandy beaches. The large lakes, subject to the same sudden squalls and storms as Lake Supe-



NATIONAL PARK SERVICE



rior, can toss a Chris Craft about with the same ease as they once battered the Voyageur's frail canoe.

While the Park Service is moving ahead with its plans, the state of Minnesota, regional and local governments, and concerned citizens are working to develop a perimeter plan for the area immediately outside the park to prevent the unplanned sprawl and unsightly development that deface the approaches to so many of the nation's most beautiful protected areas. Under this plan, still in the proposal stage, expanded development will be kept within already developed areas, with the location and design of new buildings and advertising carefully regulated.

The esthetic quality of streams, lakes, and recreation areas will be preserved by buffer zones of standing timber between them and any timber harvesting activities near the park; timbering and tourism form the principal economic mainstay of the region. Water quality will be maintained by monitoring

programs and detailed review of proposed development projects. Water use will be regulated and wildlife protected.

Donation of state lands within the park, private land acquisition, development of visitor facilities, and formal establishment of the park were delayed until very recently, but now the Park Service is moving toward negotiation, acquisition, and establishment.

Fortunately, the visitor need not wait for the formalities to be completed. Camping is now permitted on parklands managed by the government and on lands managed by the Boise Cascade Corporation according to Park Service management practices until the Park Service acquires them. These lands include most of the Kabetogama Peninsula. Private resorts on the mainland offer an alternative to camping on the peninsula.

SIGURD OLSON, nationally recognized conservationist and one of the most powerful

voices for establishment of the park, pointed out at a recent perimeter planning session, "If our population keeps exploding, if our industrial land base keeps expanding, if all the other 'ifs' materialize, if we keep adding another million square miles of blacktop to the surface of the earth, the most unique thing a piece of country can have will be its naturalness. To see a place that is still untouched, which is still as beautiful as God made it—that will be unique in the time to come."

Voyageurs National Park is a unique natural treasure and represents a whole segment of continental history that will be preserved for our children and for many generations to come. ■

John A. Blatnik, U.S. Congressman from northeastern Minnesota, is the author of the 1970 legislation that created Voyageurs National Park. He is Chairman of the House Public Works Committee.



The King is Dead: LONG LIVE THE KING

The King of our eastern forests—the American chestnut—was wiped out by the greatest botanical disaster ever to strike this continent. But maybe there is still hope. . . .

A magnificent spreading chestnut tree dwarfs a young boy at its base.



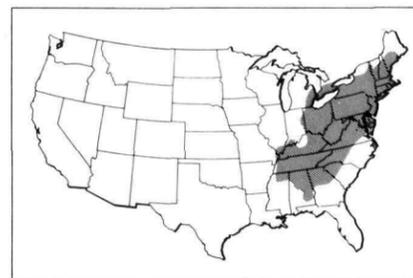
U. S. FOREST SERVICE

by WILSON B. SAYERS

IN THE MEMORY of people still living, the ecosystem of North America suffered its most massive disaster since the Polar ice cap crawled southward to begin the Ice Age. Many who stood by and helplessly watched the rapid disappearance of our native American chestnut tree—the King of the hardwood forests of eastern North America—are yet around to tell of it. And a few who fought in the struggle to save this forest monarch are still with us. But so quickly was our chestnut exterminated and so quickly did nature heal the scars left in the wake of its disappearance that not many persons today realize what happened, or that anything happened at all. . . .

IN THE VAST hardwood forests of the eastern United States—stretching from Maine to Michigan, south to Illinois and Indiana, along the Appalachian mountains to Florida, Alabama, and Mississippi—the native American chestnut was the King of Trees. *Castanea dentata* (Marsh.) Bork. is the name the botanists gave it. But

Natural range of the American chestnut, Castanea dentata



“chestnut” was the name by which everybody up and down the eastern part of the land—city dwellers and country folk alike—knew it.

The chestnut tree was not a “loner.” Though occasionally it occurred in pure stands, it usually grew in the company of other hardwoods—oak, hickory, maple, beech, gum, ash, and others. However, *Castanea dentata* was the most numerous single species in this forest, accounting for one-third to three-fourths of the trees in a stand. But not often did any of its neighbors grow as tall, as straight, and as big around the waist as the chestnut.

In early summer, with its pendants of creamy white flowers swaying in the breeze, it was a magnificent and memorable sight, especially when viewed from a high vantage point. The blossoms and shiny leaves which shimmered in the sun made it stand out among its neighbors.

This hardwood forest was a “climax” forest—a mixture of tree species that had evolved naturally over thousands of years. Its composition would not change materially again, unless drastically disturbed by man or natural causes. But even when that did happen, it sooner or later returned to its former composition if left alone. That is, it did until early this century when a foreign enemy sneaked in and killed every chestnut tree in it.

If the Creator had agreed to make a perfect tree according to man’s specifications, His offering would have pretty closely resembled the

American chestnut. It had nearly everything that man wanted and needed in a tree, and every part of it—except the leaves and roots—was used for something. “It was a grand tree,” wrote one admirer, “and one of the most useful that ever grew in any forest.”

Furthermore, it wasn’t fussy about where it grew. It thrived on both east and west slopes, on mountain tops, in valleys and coves, in poor soil and rich soil. Only it didn’t like to have its feet damp and wouldn’t grow in wet situations, such as swampy ground.

Chestnut wood was good for just about every purpose that wood is needed for—lumber, particularly from the larger trees, and pulpwood for paper making from the smaller trees and limbs. Because of its beautiful grain it was widely used in furniture and solid paneling for interior walls.

Its exceptional durability made it especially suited for products that are used in contact with the ground. Chestnut fence posts, for instance, outlasted the men who placed them. Thousands of miles of railroad track were laid on chestnut ties. And the tall, straight form of forest-grown trees, coupled with their long-lasting quality, made them highly prized for utility poles.

But that’s not all. Chestnut wood was rich in tannin, the substance used in making leather from animal hides. The tanning industry was an important one in those days, the chief economic support of hundreds of small communities. Chips ground from small trees and branches and limbs cut from large trees destined for the sawmills yielded valuable tannin. And after this was extracted, the spent chips were used by pulp mills for paper making.

Even the bark was used after it was stripped from logs, for it, too, yielded large quantities of tannin.

The majestic dimensions that the chestnut tree attained made it particularly valuable. Heights of 80 to 100 feet and diameters of 3 to



E. R. MOSHER, U. S. FOREST SERVICE



U. S. FOREST SERVICE

Pendants of creamy white blossoms in late June and early July were followed by delicious sweetmeat nuts in spiny husks after the first heavy frost.

4 feet were not unusual. And sometimes it reached diameters equaled only by some of the larger trees in the Pacific Coast forests. Forester J. S. Illick, of Pennsylvania, reported one chestnut tree found growing in Francis Cove, North Carolina, that measured 17 feet across at stump height!

The chestnut trees grew fast, too, as trees grow. Under average conditions they reached large sawlog sizes in 50 or 55 years, in a shorter time under favorable conditions.

An outstanding trait of the American chestnut was its ability to reproduce itself prolifically and grow to maturity with no help from man. When a chestnut tree was cut down, there was no need to plant another to take its place, for from the stump and roots there came the next spring four or five fast-growing sprouts to replace it. In their first year they commonly grew to a height of 8 or 10 feet with a diameter of 1½ to 2 inches. Through a process of natural selection one or two would finally reach logging size.

To pulpwood producers this sprouting characteristic was just what they wanted, for they could harvest the sprouts in 10 or 15 years.

From the nuts of the chestnut tree that escaped the notice of

people and game, there came each year thousands more young trees to take their places eventually in the mature forest.

The delicious nuts are, perhaps, the gift of the forest king that lingers most vividly in the memory of our older generation. (The chestnuts marketed today in the United States are imported, most from Italy.) They provided a dependable supply of food for man and wildlife each year. Dependable because, unlike most forest trees, chestnut trees bloomed in late June and early July after danger from killing frosts had passed. Year after year, with the certainty of the coming of the seasons, a shower of the sweetmeat nuts fell to the ground after the first heavy frost, many still in their spiny husks.

Wild turkeys, deer, squirrels, and other game animals and birds made these nuts a chief article of diet in fall and winter. And bears, just before retiring into hibernation, gorged themselves with chestnuts.

Roast turkeys stuffed with chestnut dressing were traditional for Thanksgiving and Christmas feasts in thousands of American homes. Commercial chestnut orchards thrived throughout the entire range of the tree. An important market for their produce was the vendors with their steaming, whis-

pling pushcarts on street corners in cities and small towns, selling roasted nuts to passersby.

Gathering chestnuts was an annual outdoor event for many families. Each year, after the frost brought the nuts to the ground, people took to their favorite woodlots to gather the harvest; often a small fire was built to ward off the chill. Some people even brought along a corn popper for the kids to roast some of the nuts while the older folk foraged deeper into the woods.

But perhaps the most gracious trait of the chestnut tree was its beautiful, almost breathtaking, form when grown in the open. In the forest it grew tall with a narrow crown of leaves. But in the open—in parks, on lawns, and in fields and meadows—its crown was low, rounded, and widespreading and its trunk thick and squat. In meadows cattle sought shelter under chestnut trees from the scorching summer sun. On lawns many families spread a table for a meal under the shade of the chestnut tree to escape the sweltering heat of the house on hot days.

The American chestnut was indeed a beneficent king.

THE EXACT DETAILS of the killer's appearance on these shores are not known. In fact, some pathologists at first advanced the belief that it had always been here and that it had reached a high degree of virulence at that time as a result of a favorable combination of weather and other factors. A few obstinately refused to change their minds even when studies later proved conclusively that they were wrong.

The best guesses are that the disease arrived here around 1895 on some young chestnut trees brought in from China or Japan for planting in the New York Zoological Park. Subsequent discoveries point to eastern China as its most probable source. But, however and whenever it got here, it found the environment of this New World much to its liking. The weather, with temperate climate and plentiful rainfall, was just about perfect.

All around was a bountiful supply of food. And because it was unknown here, it was able to become well established and flourished before anyone was aware of its presence and its deathly life habits.

In 1904 a Dr. Hermann Merkel noticed that the leaves at the tops and on branches of chestnut trees in the vicinity of the Bronx Zoological Park, New York City, began to wither and then turn brown. Soon it was obvious that the trees were dead. Dr. Merkel brought the matter to the attention of Dr. W. A. Murrill of the New York Botanical Garden. Dr. Murrill decided it was caused by a fungus and, in 1906, published a description of it, calling it *Diaporthe parasitica*.

In Massachusetts and Connecticut, in Pennsylvania and New Jersey, and farther westward in New York state the chestnut trees died off with sickening rapidity. Concern over the situation grew, but apparently no one did or could do anything about it. And only a few individuals showed much curiosity about what was causing it.

The once flourishing hardwood forests were left a ghastly sight in the wake of the scourge. The dead chestnut trees stood as gaunt, gray skeletons, leafless and soon stripped of their bark by the elements. In the moonlight the snags of the dead trees appeared white as ghosts against the darker background of their living neighbors.

In the spring thick clumps of sprouts rose from the bases of the dead trees, and, in the openings where the chestnut had been, lower plants and brush took over, transforming into a dense wilderness what was once a thriving forest.

Not until nearly a decade after it arrived here was this invader positively identified and its deadly nature revealed. But by then, in spite of frantic efforts to control it in Pennsylvania, it had gained so much momentum that our native American chestnut was doomed.

THE KILLER was found to be a parasitic fungus heretofore unknown to plant pathologists in America. One pathologist charac-

terized it as "the most destructive fungus pest known to forestry." After further study pathologists officially called it *Endothia parasitica* (Murr.), (And.). Commonly it was known as the "chestnut-tree blight" and the "chestnut bark disease."

It resembles in many ways the molds that appear on decaying wood, but it grows on the inside of the bark, feeding on living tissues and the sap—lifeblood of the tree. It consists of great numbers of tiny threads—so small that they can be seen only with the aid of a microscope—which branch and spread rapidly in all directions. Soon its victim, deprived of its food, succumbs.

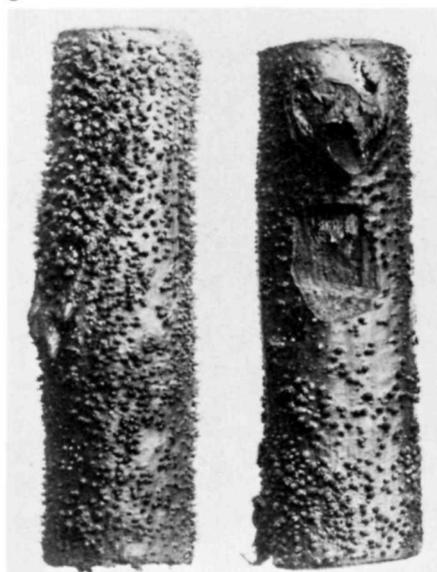
When it has grown for a time and has become entrenched in a tree, the fungus begins to protrude through the bark to produce its fruiting bodies. First they appear as mere pimples on the outside of the bark. Then the pimples burst into nasty looking yellowish pustules about the size of a pinhead—hundreds of them on a single tree, containing billions of spores, each spore capable of infecting a healthy tree.

During and for a few days following damp weather, the pustules enlarge into devilish-looking twisted "spore horns," usually less than half an inch long. These are made up of spores held in a mass by a sticky substance which dissolves in damp weather. A spore horn one-quarter inch long was found to contain more than five million spores.

The spores enter the living tissues of the trees through breaks in the bark—broken twigs and branches and bark wounds, for example. Holes left by woodpeckers and other sapsucking birds, and wood-boring beetles are common avenues of entrance. And once inside the bark the fungus begins its deadly growth.

The triumph of this scourge rests in its ability to get around; it can travel many miles with the greatest of ease. For instance, it clings to the feathers, beaks, and feet of birds. By actual count made in the field, a total of 757,000 spores were found on the body of one woodpecker. Birds, in their daily search for food and those which migrated to the South, were a major factor in spreading the fungus beyond

Fruiting bodies of the Oriental chestnut blight (below left) appear on trunks or limbs as small orange pustules that will release myriad spores to the wind. A second type of reproductive body produced by this fungus exudes a sticky, spore-filled substance that clings to the feet, fur, and feathers of forest dwellers, who act as agents in the spread of the disease. The internal destruction (below right) of tissues in the chestnut by the blight fungus produces a swollen canker that girdles and kills the tree.



U. S. DEPARTMENT OF AGRICULTURE



U. S. DEPARTMENT OF AGRICULTURE

control. But by far the most effective means of dissemination is the wind, which can carry spores 10 or 15 miles before depositing them on a chestnut tree. It is not unusual to find newly infected trees many miles from a group of dying ones—not in a straight line in one direction but in any or many directions.

Men who took part in the fight to save the chestnut tell of the effectiveness of “chimney trees” in disseminating spores in the forest. A “chimney tree” is a hollow tree with an opening at or near the ground and another near the top, such as a broken top or a hole left by a nesting bird or animal. The spores were sucked into the bottom of the tree by the draft created on a windy day and expelled high into the air to travel many miles with the rushing wind.

Insects, many of which feed on the fruiting bodies, carried the spores, too. And men and beasts also contributed unwittingly to the spread of the killer, for millions of spores clung to the fur of animals and the skin and clothing of people walking in the forest. . . .

When the blight reached southeastern Pennsylvania, citizen alarm prompted the formation of a special commission in 1911 to investigate and control the disease. In a valiant effort to save the trees, it mobilized a staff of some 300 people, including pathologists, a plant physiologist, a geographer, a chemist, entomologists, a forester, a tree surgeon, technicians, scouts, and other concerned citizens. Scouts combed woodlands acre by acre and marked blighted trees for destruction, and scientists gradually uncovered the mysteries of the killer fungus' anatomy and life habits.

Hundreds of remedies were tested by staff, but to no avail. At the same time, charlatans made fortunes by promoting “cures” to landowners. As the second year of operations drew to a close, funds were exhausted. Prospects for future funding from the Pennsylvania General Assembly soon dimmed, and field operations ceased in 1913, leaving the Ameri-

can chestnut to the ravages of the blight.

But the work of the commission had been the major scientific and practical contribution to knowledge about the blight; it aroused public attention to the need for conservation of timber resources; and it was a great factor in bringing about passage of a federal law that required strict inspection of all imported nursery stock. Hopefully, this law would make the repetition of any such event as the importation of the chestnut blight impossible or at least highly improbable.

Meanwhile, Virginia, West Virginia, Ohio, and North Carolina also were trying to combat the disease.—Editor

HOWEVER, it isn't likely that the efforts of the other states would have been able to withstand the furious onslaught of the killer, even if they had been as well financed and organized as the strug-

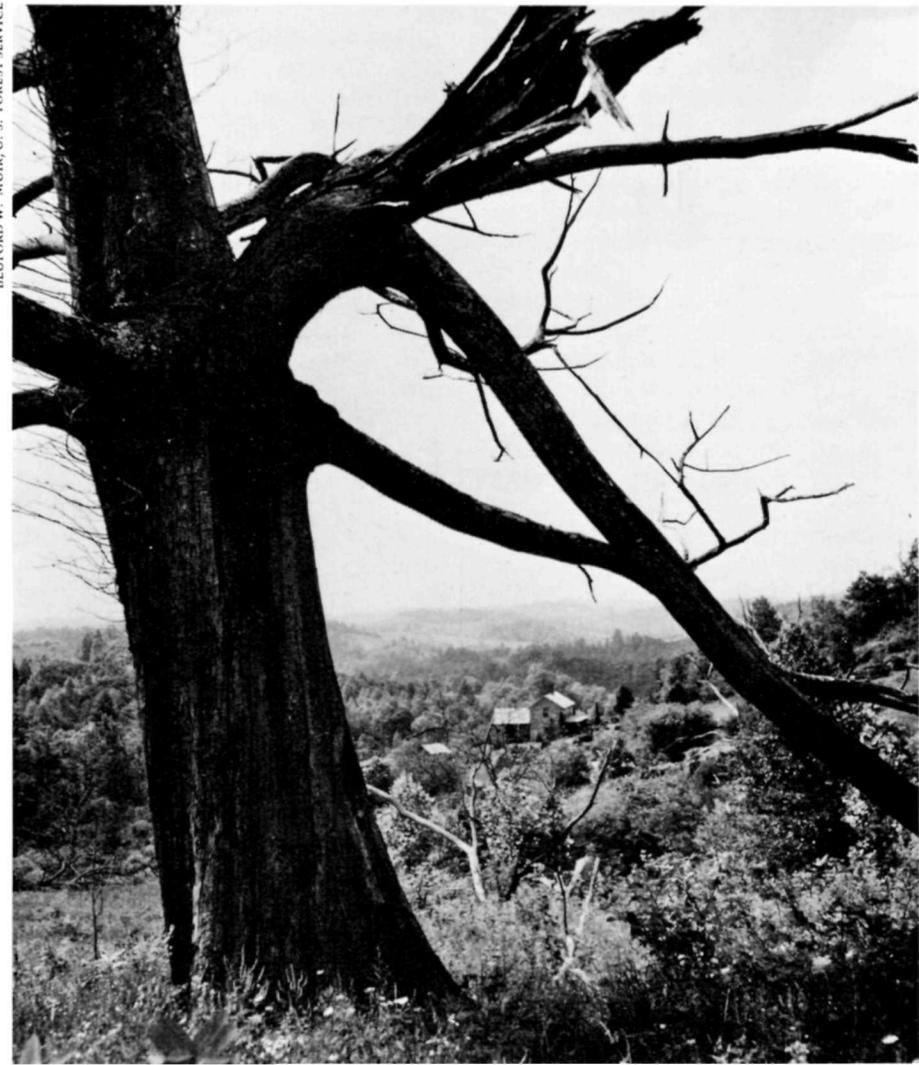
gle in Pennsylvania. So much momentum had the blight gained that by 1920 the doom of our native chestnut was certain.

Writing in the *Southern Lumberman*, on December 20, 1924, C. F. Korstian sadly reported: “The blight, relentlessly pushing forward with tremendous momentum, is now concentrating its main line forces in the Southern Appalachian region—the last great stronghold of the chestnut. Within another decade most of the mature chestnuts will have been killed over large areas.”

The emphasis then was on harvesting the chestnut trees as soon as possible so that other species could take over without delay.

If anybody saw the last of the old chestnut trees die, he left no record of where or when that occurred. But most certainly it took place somewhere about the southernmost limit of the tree's natural range—perhaps in Alabama, or Mississippi, or thereabouts, in the

A dead chestnut sentinel overlooks a typical Blue Ridge plateau scene.



BLUFORD W. MUIR, U. S. FOREST SERVICE

late 1940s or the early 1950s. And by then the scars of the disaster in the area where the blight first struck had been obliterated. The neighbors of the chestnut—mainly oaks—had taken over and the mountains were green once again. . . .

But perhaps—just *perhaps*—our chestnut has not been irretrievably lost. Maybe we might sometime have it back again as King of our eastern hardwoods.

This ray of hope is sustained by two facts: First, the ability of living organisms to adjust, in time, to adverse conditions (note the increasing resistance of insects to DDT); and second, the promise of genetics—grafting and cross-breeding.

In the first place, the blight didn't kill the roots of the chestnut trees; many of the original root systems still survive. Each year they send up sprouts as they have been doing ever since the fungus struck. At first, the sprouts were

stricken in their first year. But after the first wave of the epidemic had passed through an area, the sprouts began to live longer and grow bigger before succumbing. This process is continuing today, and some sprouts now reach heights of 25 feet or more with diameters of 10 or 12 inches before the fungus hits them. Some even bear a crop of nuts, though not in great quantities.

The more optimistic observers point to this as evidence that our chestnut is developing some resistance to the disease and may eventually attain it to a high degree. They also point to the fact that apparently the Chinese chestnut survived the blight. This was confirmed by the Explorer of the United States Department of Agriculture, Frank N. Meyer, on a visit to China in 1913. He found the blight on chestnut trees in Nanking, Anhwei Province, but noted a high degree of resistance in most of them. They surely must have

reached this happy state through the process of evolution. And so, the optimists ask, isn't it possible that our American chestnut eventually will do the same?

Most foresters and botanists, however, don't go along with this line of reasoning. They believe that the reason the sprouts live longer now is because there are fewer spores of the blight flying around in the air than there were when the epidemic was raging.

However, the possibility always remains that a blight-resistant individual will someday be found among the sprouts. Foresters and geneticists are constantly on the alert to this possibility, and so the search is continuing. . . . ■

Wilson B. Sayers is a forestry consultant and free-lance writer in the greater Washington area. This article was condensed and adapted from *American Forests*, November and December 1971 issues, by permission of the American Forestry Association.

You Can Help Restore the American Chestnut

Genetic experiments generally have followed several approaches—hybridization, mutation breeding by gamma radiation, and natural selection. None has yet produced a strain of chestnut tree with good nuts and good timber combined with blight resistance that can prevail as a forest tree.

NPCA has long advocated the natural selection approach. Any result from hybridization would be a hybrid, not an American chestnut; and radiation affects so many other genes besides those governing blight resistance that researchers working on such programs have found most mutations to be deleterious.

In 1966 NPCA proposed a long-range program for the restoration of the American chestnut. In late 1969 NPCA sponsored a symposium on the American chestnut where scientists, foresters, and conservationists gathered to exchange information and views. Now, in 1974, as reported in the August issue of this magazine, NPCA is launching its own pilot natural selection breeding program this fall. And we need your help.

If you know of American chestnut trees with some apparent degree of immunity and old enough to bear fruit, please send us some nuts (in the husk). Also tell us the diameter of the parent tree at 4½ feet above ground level, the approximate age of the

tree, and whether any indication of the blight is present. Pressed leaf samples sent along with the nuts will assist in positive identification of the parent tree. The seeds ripen from September through October. Although the natural range of the American chestnut is the Appalachian region of the eastern United States, many seedlings were once planted beyond this natural range. So American chestnuts may grow in your area even though you do not live in the Appalachians.

The objective of this program is twofold: first, to identify and propagate strains of American chestnut with some resistance to blight; and, second, to increase public awareness of the importance of restoring *Castanea dentata* to its rightful niche as King of the Appalachian forest.

NPCA's pilot project is receiving the generous cooperation of Mr. Leo Pahl of Pasadena, Maryland, who is donating his time, expertise, and use of his land to these efforts.

The seeds you send us will be planted in a nursery on Mr. Pahl's land this fall; after two years they will be replanted in a larger protected area. With time and luck we hope to produce disease-resistant trees by crossbreeding the most disease-resistant selections.

FLORIDA'S BARGE CANAL

Prospects for the Future

How can the existing structures
of the Cross-Florida Barge Canal
best be utilized
if the project is abandoned?

by HAL A. BEECHER

ON A SATURDAY in mid-June 1973 we ended a bird count of Rodman Reservoir and beached our crippled boat on Rodman Dam. Two of us walked over to the spillway, crowded with fishermen, to find a ride back to our camp. A friendly fisherman from nearby Jacksonville, Florida, volunteered to drive us the ten miles to our base camp at Orange Springs Landing.

A mile up the road was a roadblock, manned by employees of the Army Corps of Engineers. One of them stepped over to the driver's window, smiled, informed us that he was taking an opinion poll, and asked the driver his view about the future of Rodman Dam and Reservoir.

"Raise the water level all the way back up and dig that canal right on through."

A big smile from the man from the Corps. "Thank you, sir." And he waved us on through.

One vote for the completion of the Cross-Florida Barge Canal.



HAL BEECHER

THE Cross-Florida Barge Canal was originally conceived in the early 1800s as a route between the Atlantic Coast and the Gulf Coast that would avoid the pirate-infested tip of the Florida peninsula. But since John Quincy Adams' presidency the nature of communications and commerce between those areas has changed.

During the depression of the 1930s, President Franklin D. Roosevelt began construction of a sea-level canal as a project to provide employment for jobless Americans. Within a year the project was halted because of the threat of salt-water intrusion into the vital underground water system of the state and because of the economic inadvisability of the project.

A few years later the canal was revived. The threat of German U-boats in the Florida Straits provided a reason for construction of a canal across the northern part of the Florida peninsula. Congress authorized construction, but it was a low priority project and was never begun.

As late as 1951 the main reasons given for construction of the canal were military ones. By the end of that decade the Army Corps of Engineers generated many projects for themselves, including the Cross-Florida Barge Canal. In order to justify construction of the canal, it was necessary to calculate a high ratio of benefits to cost of construction.

The cost-benefit ratio has been a deciding factor in every stop and start of the construction of the canal. It is a simple dollars-and-cents figure, calculated on the basis of available data and resultant projections of construction costs, savings to users, and other side benefits and costs. However, the cost-benefit ratio depends primarily on the inclinations of the economist doing the calculations. If he is in favor of the project, the ratio is favorable; if he is opposed to the project, the ratio is unfavorable. Thus the Corps of Engineers obtained a favorable cost-benefit ratio, while the ratios obtained by economists working for railroad companies and for conservation

groups were unfavorable to the project.

In 1964 ground was broken for the Cross-Florida Barge Canal, a result of one of John F. Kennedy's campaign promises. At the end of January 1971 a federal judge issued a temporary injunction against further construction. At the same time, President Richard M. Nixon ordered a halt to construction and a study of possible uses for the completed sections of the canal. Nixon's action came in time to save much of Florida's famous Ocklawaha River.

In the summer of 1973, when President Nixon was being attacked on many fronts, pro-canal forces in Florida contested that he did not have the power to halt construction of the canal. A six-week trial in Jacksonville ensued. After months of deliberation, U.S. Circuit Judge Harvey M. Johnson ruled on February 4, 1974, that only the United States Congress has the authority to halt construction of the barge canal, thus nullifying President Nixon's action.

The first result of this decision was the allocation of money for an environmental impact statement on the entire project. Studies already completed cover only the Ocklawaha River and Rodman Reservoir. Further studies will cover the remaining parts of the canal route, although the Ocklawaha area may receive additional coverage.

Meanwhile, construction will not be resumed immediately. Further opposition is developing both in Congress and in the courts. Some politicians are predicting the end of the canal.

ASSUMING construction of the canal remains halted, the question of what to do with the existing structures remains. The canal was to run from Palatka on the St. Johns River, along the Ocklawaha (also spelled Oklawaha) River to a point near Silver Springs, then southwest to a point south of Ocala, then west to the Withlacoochee River near Inglis, and on into the Gulf of Mexico south of Yan-

keetown. Certain key structures have already been built at either end of the canal. On the west end is the Inglis Lock and Dam and several miles of canal running in a desolately straight line into the gulf. On the east end of the canal is the St. Johns Lock, the Eureka Lock, and, between them, the Rodman Dam. Backed up behind Rodman Dam is the most controversial portion of the Cross-Florida Barge Canal: Rodman Reservoir, renamed "Lake Ocklawaha" by the United States Congress. Above the reservoir, which extends to Eureka when full, is the wild Ocklawaha River.

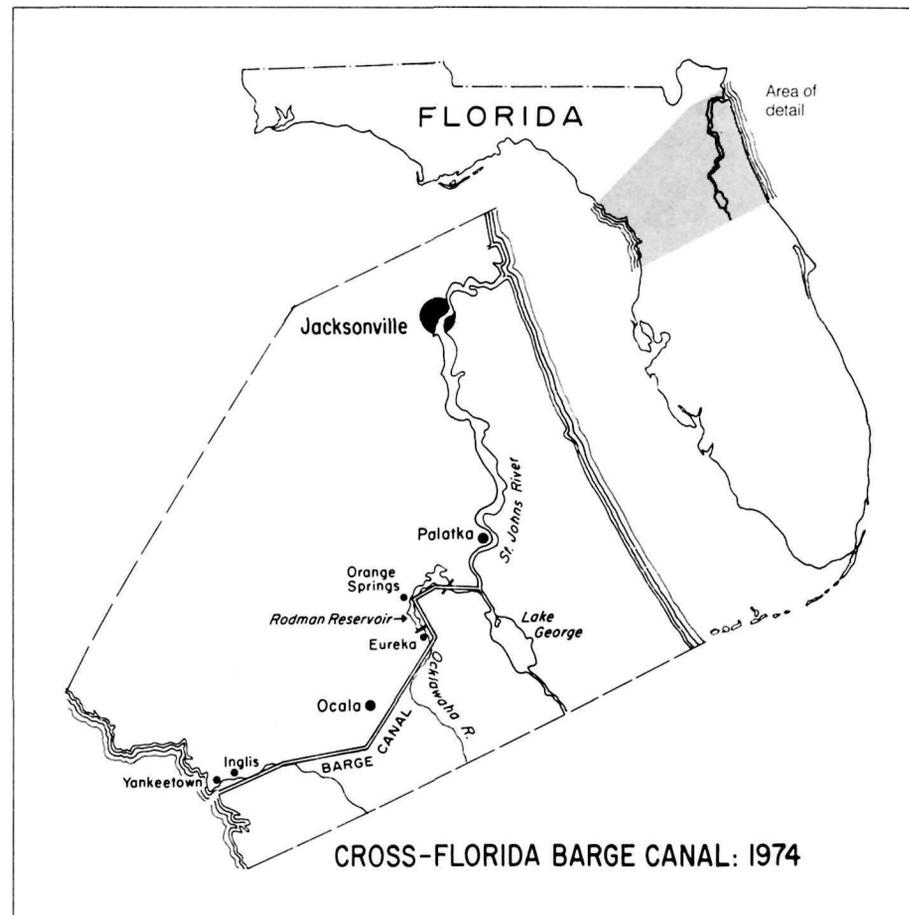
Rodman Reservoir is an eyesore of enormous proportions. Canal Authority personnel point out that the area is a project in the midst of construction and, as such, could not be expected to look beautiful. My first impression of Rodman Reservoir, under what I later concluded were optimum conditions, was that of a deserted war zone.

The lower section of the reservoir is a broad expanse of water with hundreds of floating or emergent stumps and snags. Along the shore were enormous piles of burning debris that produced huge clouds of smoke. During construction of the reservoir, the Corps destroyed a large forest of valuable cypress and other hardwood trees by crushing them with a giant tractorlike machine, allowing little harvest.

Farther from the dam are forests of drowned trees left to die at the request of the U.S. Fish and Wildlife Service. Only the cabbage palms, looking like forlorn survivors of a holocaust, retain some green. The floor of this forest of corpses is a dense mat of water hyacinths.

From Orange Springs to Eureka a broad swath was cut where the canal was to go. No dredging was done in this area, so it remained a shallow marsh, eutrophyng rapidly under the intense Florida sun.

Upstream from Orange Springs



FEDERAL GRAPHICS

along the twisting river course east of the canal clearing, the number of living trees gradually increases. Nearer to Eureka are parts of the river swamp that were not badly flooded by the impounded waters when the reservoir was full. The river in this area is swift and tortuous. A boater could watch large bass swimming even in the deepest channels, such is the clarity of the water and the whiteness of the sand on the bottom. The swamp forest is cool, dark, and shaded among the big trees even on the hottest, brightest day.

After a century and a half of promotion of the Cross-Florida Barge Canal by military and commercial interests, conservationists fear that any halt of the project by Congress or further lawsuits will be only temporary.

DURING the period that canal construction was halted by President Nixon, the main issue of the canal controversy was the water level of Rodman Reservoir. Judge Johnsen's decision has, at least temporarily, set the water level at eighteen feet. Conservationists, led by Florida Defenders of the Environment, want the water level in the reservoir lowered to thirteen feet above mean sea level (MSL), while the Corps and its colleague, the Canal Authority of the State of Florida, want to leave it full at twenty feet MSL. One reason for the conservationists' preference for the thirteen-foot level is the assumption that construction would necessarily be slower from thirteen feet than from twenty feet. The additional time would be valuable in any legal action to fight resumption of construction. There is also the belief, expressed in "Environmental Impact of the Cross-Florida Barge Canal with Special Emphasis on the Oklawaha Regional Ecosystem" by the Florida Defenders of the Environment, that lowering the water level will return more of the area to near natural conditions and allow maximum recovery of the river swamp that has been destroyed by canal construction.

The Corps of Engineers and the

Canal Authority argue that the reservoir will be most beneficial to the public when managed as a lake for recreational purposes and maintained at the twenty-foot level with occasional drawdowns. They have employed an environmental consulting firm, Baseline, Inc., of Pensacola, to study the reservoir area and make recommendations. Baseline personnel have studied several important aspects of the ecology of the area between Eureka Lock and Rodman Dam. Dr. Joe Edmisten conducted several surveys of vegetational succession along the reservoir shore and the borders of the canal. Dr. Charles Gifford and Nicole Schweiger studied the invertebrate fauna with particular emphasis on the mollusks. Dr. John Kerr studied the fish fauna of the upper reaches of the reservoir, and I counted birds, particularly aquatic species, in all parts of the reservoir.

The controversy over Rodman Reservoir is perhaps most clearly illustrated by the bird situation. The birds of Rodman Reservoir are mostly wading birds and marsh birds. There are hundreds of herons, egrets, white ibis, and wood storks, in addition to a major limpkin colony. Another bird reported from the reservoir is the endangered Everglade kite, although this area is north of its normal range. Eagles and ospreys are common over the reservoir. Thus there is a significant number of endangered or declining species of birds that occur in concentrations around Rodman Reservoir. Most of these birds are scarce or absent in the more natural river upstream from the reservoir.

David Bowman, a ranger employed by the Corps of Engineers, probably knows the birds of the reservoir better than anyone. He has argued convincingly that an attempt to return the area to its natural riverine state would leave large numbers of wading birds homeless in a state where human population pressure on bird habitat is severe. To the argument that there are hundreds of lakes in central Florida, he counters that Rodman Reservoir is the only one of

any size entirely in public ownership and hence less subject to the many threats to a lake in a rapidly growing state. Bowman proposes that the reservoir be managed for optimum water bird habitat, a common practice in many of our national wildlife refuges, few of which are strictly wilderness. Bowman claims the lake would be a positive step for wildlife rather than just a maintenance of the status quo.

But there are signs that all is not well with the bird life on the reservoir. During three and a half days of counting birds in December 1972 I saw only one common gallinule; this species should have

been abundant. Even the seminatural river between Orange Springs and Eureka showed signs of stress when the lake was at the twenty-foot level. Nowhere in that portion of the river were there any prothonotary warblers in mid-June, although they were abundant on the upper Oklawaha near its confluence with Silver River several weeks later. Anyone familiar with this bird will recognize that its absence is a major loss.

The Florida Defenders of the Environment succeeded in getting the water level of the reservoir lowered to thirteen feet in August 1972, but the Corps of Engineers raised it again in January 1973. Baseline,

Inc., conducted several studies on the reservoir in late November and early December 1972 to assess the effects of the lowered water level. Unfortunately, the value of these studies is severely limited because the reservoir area ecosystem had not had time to reach stability before the studies were made or before the water level was raised again. Furthermore, although the studies were commissioned by the Canal Authority, they were useless because the Corps did not even await the results before raising the water level.

The most conclusive of the Baseline reports was that which resulted from Dr. Joe Edmisten's

survey of vegetational succession at the eighteen-foot and twenty-foot shorelines and on some of the mudflats. His findings indicated that the area was so severely disturbed that a normal vegetational succession would not occur, and the climax forest would not reestablish itself quickly, contrary to predictions by the Florida Defenders of the Environment. Unfortunately, Edmisten based his conclusions largely on eighteen-foot and twenty-foot shorelines that were on the edges of what had been sandhills. The soil at the thirteen-foot level could be expected to be different and more conducive to swamp forest growth because that



PHOTOGRAPHS BY BROOKE BEECHER



The drowned forest of Rodman Reservoir contrasts with the cool, dark swamp forest of free-flowing Oklawaha River near its confluence with the Silver River.



level is closer to the old river bed. The few months at the thirteen-foot level before the study did not allow time for colonization at this shoreline.

IN THEIR BROCHURES about the canal, the Corps of Engineers have boasted its recreational benefits. The recreation is mainly fishing, and these new fishing areas are to be a source of income to Floridians. However, reservoir fishing is generally excellent for several years after construction of a dam but usually then deteriorates to substandard fishing. The Corps is unrealistically predicting the best of both worlds, because high quality fishing is incompatible with a commercial barge canal. However, with use of the canal for barge traffic arrested, proper management of the reservoir fishery may allow repeated fishing peaks in place of a decline.

Fishing in the Ocklawaha River is popular and high in quality. One December evening as we completed a day's bird count a fisherman coming down the river asked us to take his little fish because he had one over his limit of ten bass. When we gladly accepted, he lifted his stringer and removed his smallest—a fat four-pounder.

My wife and I made spot checks of several fishing areas and boat ramps along the canal route during the summer of 1973. The section near Yankeetown, a wide, straight ditch with high, treeless spoil banks on either side, is indeed providing a new type of fishing for many people, making salt-water bank fishing available to many Floridians who could not or would not go out in a boat through the extensive maze-like salt marshes. But this fishing is not bringing any tourist money into the state. Out of fifty cars parked beneath the U.S. Route 19 bridge, the only out-of-state license plate was from Georgia. A similar situation exists at Rodman Dam, one of the few places in the state offering tailrace fishing, and at boat landings on Rodman Reservoir, whose bass fishing might have been expected to draw out-of-state fishermen.

At one boat launch, however, there was a preponderance of cars from New Jersey, Pennsylvania, Texas, and other nonadjacent states. That area was at the confluence of the Silver River and the Ocklawaha River, far from Rodman Reservoir. I would like to attribute this to a preference of visitors for unspoiled nature. More realistically, this launch site was on a main road within a few miles of one of Florida's major tourist attractions, Silver Springs. Nonetheless, fishing and boating pressure on the river was heavy in this area, and we saw some nice catches of fish come out of the river.



The desolate western portion of the barge canal near Yankeetown (above) does provide saltwater bank fishing. Most of the catch here consists of large mullet.

Although many people would rather fish in an unspoiled Ocklawaha River, Rodman Dam is one of the few places in Florida offering tailrace fishing (right). Large catfish and bream are the main catch here.

If construction of the Cross-Florida Barge Canal is abandoned, the best use of the existing structures would be for recreation. But erosion at the west end of the canal and sedimentation in the reservoir will require long-term planning if eutrophication is to be avoided.

IF CONSTRUCTION were not resumed, what could be done about the existing portions of the barge canal? They are not what conservationists would have prescribed for the region, but we cannot turn back the clock and have them disappear. As President Nixon realized, we must try to make the best possible use of what we have.

The main focus of concern is the Ocklawaha River and Rodman Reservoir. As long as construction remains halted, the river is in no more danger than is any wild river in a populous region—but vigilance is needed. The Ocklawaha was

recommended for inclusion in a national system of wild rivers after a 1963 study by the Department of the Interior and the Department of Agriculture. This step would be valuable in continued protection of the river.

The policy for Rodman Reservoir should be established on the basis of sound information resulting from objective experimentation. The Corps of Engineers and the Canal Authority will have to cooperate with conservationists in planning a schedule for this experimentation and then maintaining it. There is also a need for cooperation on the part of conservation-

ists, some of whom are already creating a credibility gap of their own.

The best available predictions on the future of the reservoir concern the vegetation and the fisheries, but even here some questions exist. I propose that the reservoir be maintained at thirteen feet for three years with a regular program of monitoring bird populations and fishing success. Conservation organizations should participate in these monitoring programs. Plant succession, aquatic weeds, and invertebrates should be monitored on a less frequent schedule. A similar program should be carried out at the twenty-foot level. Periodic drawdowns have been mentioned frequently as a means of controlling aquatic weeds and maintaining a good fishery. This program should also be tried, perhaps for a longer time to accommodate long periods between drawdowns.

Regardless of the eventual water level in the reservoir, sedimentation will fill it fairly rapidly. During rainy seasons the Ocklawaha River with its swift current can carry a heavy silt and nutrient load, which will be deposited in the still water of the reservoir. Long-term planning for the future of the reservoir should take this into account. If the reservoir is to be maintained as such, disposal of the sediment will have to be planned. Kyle Barrineau, a Baseline ecologist, proposed occasional lowering of the water level and removing accumulated silt with a scraping machine, for use as a high-grade topsoil. The idea is good, but the Corps of Engineers has not shown any inclination toward wise use of natural resources in this project, as evidenced by their wasting of much valuable cypress and other timber.

At the west end of the canal there will be a severe erosion problem resulting in a gradual filling of the canal. Efforts are needed to prevent erosion if the area is to remain a fishing and boating area instead of becoming a shallow, stinking, eutrophied ditch. Maintenance for recreational purposes would be well justified by the

present heavy use. Where the canal extends into the salt marsh, it provides good recreational access to salt marsh areas often inaccessible except by boat. The adjacent marsh seems to be healthy with its hordes of fiddler crabs and abundant estuarine birds including brown pelicans, black skimmers, wood storks, and assorted egrets and herons. Mullet and blue crabs can be caught in abundance.

The Florida Defenders of the Environment have suggested that the portion of the canal near Yankeetown be developed into a deep-water port, an idea that is receiving a lot of consideration today. Many conservationists consider deep-water ports to be a partial answer to oil spill problems. With planning, the excellent recreational possibilities of this area could be accommodated within a deepwater port facility. Unfortunately, any development of this area will attract people and thus threaten the southern end of one of Florida's last wilderness frontiers and fisheries resources. If anything more than a recreational facility is created in this area, a great deal of regionwide planning will be needed.

THERE ARE other aspects of the Cross-Florida Barge Canal controversy besides conservation. The canal is not dead. Whatever the future of the canal, conservationists must remain involved as constructive, competent consultants, not as emotional obstructionists. Economics and geology are important in considering the future of the area. Water management is vital to peninsular Florida. All these factors will be more closely interwoven as human population pressure increases. ■

Hal A. Beecher has had a life-long interest in fishing and bird-watching. He received his B.A. in biology from Middlebury College and his M.S. from the University of West Florida. He is currently working towards a Ph.D. in ichthyology at Florida State University. He has done part-time environmental consulting with Baseline, Inc., a consulting firm in Pensacola, Florida.

HAL BEECHER





The old stone tower at the park entrance is the only original Chautauqua structure still remaining.

GLEN ECHO PARK, situated near Washington, D.C., in a scenic area on the Maryland side of the Potomac River, is imbued with a sense of history and a promise of demonstrating a new era of community service and environmental awareness for urban parks. The need for federal, state, and local cooperation in securing space around our cities for establishment of a system of urban parks has often been described. Glen Echo is an example of the kind of cooperation that could establish and develop just such a system. The park has often changed hands; at different times it has been a center of idealistic philosophy, picnics and vaudeville, big name bands, and roller coaster and cotton candy thrills. Today it is a community park with a program of both entertainment and creative education, and is administered by the National Capital Parks, a field office of the National Park Service.

The history of the seventeen acres that constitute Glen Echo Park reaches back more than eighty years to its founding in 1891 as a Chautauqua, "a national citadel of culture on the banks of the Potomac."

It began as part of the Chautauqua Movement of the late nineteenth century. Its founders envisioned Glen Echo as the national center of democratized culture and preservation of true values; the National Chautauqua would promote liberal and practical education of the masses, particularly those who were not so fortunate. A number of Victorian stone buildings were constructed, including a castlelike tower, grottoes, a

gazebo, a hall of philosophy, and a building used as headquarters by Clara Barton, founder of the American Red Cross. Renowned scholars designed a curriculum, and a spectacular amphitheater served gatherings of more than 6,000 spectators with leading educators, religious speakers, and musical artists. However, the severe depression of 1893, coupled with an epidemic of malaria from the mosquitoes of the area, caused both idea and structures to be abandoned.

At the turn of the century the park was reopened, and the buildings were used for concerts and vaudeville shows. Around 1909 the Washington Railway and Electric Company began to operate the park as a picnic grove. It was no coincidence that the company's trolley-car line from Washington, D.C., terminated at the front gates of the park. In 1921 the famous Glen Echo carousel was purchased from wood carvers of the Dentzel Company of Philadelphia, acclaimed by folk art experts and the public as masters of whimsical carousels with many different animals. By 1923, the growing amusement park included a roller coaster and, not much later, all the usual trappings of such a place. The Spanish Garden Ballroom, an enormous dance pavilion where well-known bands played, attracted teenagers and adults. On weekends during World War II, more than 30,000 fun-seekers would flock to the park; but by 1968 poor business, disorders, and riots had closed the amusement park, a Washington landmark for more than fifty years. Memories of the hal-

GLEN ECHO

CHAUTAUQUA 1974 STYLE

Glen Echo Park on the shores of the Potomac River explores ways that an urban park can stimulate creative education and environmental commitment

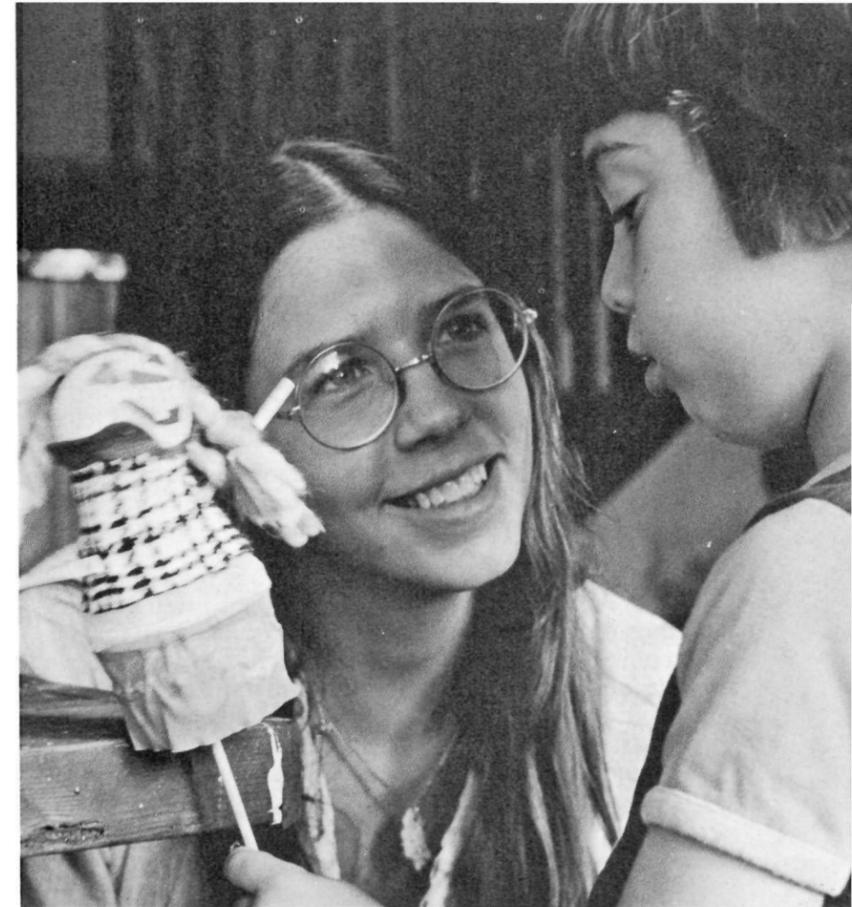
article by CHARLES B. FOWLER

photographs by JOHN M. TYSON

cyon days still lingered, but the Chautauqua values had faded from Glen Echo.

DURING this long history, cooperation with the citizenry in the area had been set as a pattern that is an important key to understanding the development of the park. The townspeople of Glen Echo had grown accustomed to the amusement park. At its peak they considered it their greatest civic asset, providing employment for a number of the community's residents as ticket sellers, clerks, and amusement-device operators. Eventually, however, the park management's land-grabs, their preferential tax treatment, and their disregard for the historical, cultural, and architectural values of the property caused the town council of Glen Echo to take legal action on several fronts to protect community interests.

In 1955 ownership of the amusement facility changed hands, and the town council was determined to bring the new owner to terms with local civic feelings. The new owner bought adjacent properties and sought rezoning for commercial use. The council, fearing such unwanted development, blocked the move. In the next decade the amusement park became involved with the national interest when the owner's attempts to commercially develop property adjoining the C&O Canal National Monument were overcome by then Secretary of Interior Stewart L. Udall's opposition to such exploitation near the Potomac River.



Glen Echo Park offers many stimulating and creative experiences for inner-city and suburban children.

The amusement park land itself had already been zoned for a variety of intensive commercial uses. Then in 1966, the owner applied for a building permit to construct five large apartment hotels on his grounds. Citizens' groups, the Montgomery County Council, Secretary Udall, and many individuals joined forces to thwart this move. Their pressure resulted in the revision of the county zoning code to forbid erection of such structures within one-half mile of the Potomac. Of course, this action did not solve the problem, because other commercial options were left open.

In the meantime the amusement park owner began to sell the many park rides and attractions. The carousel was sold to a man in California. Again the community became involved. Through the joint effort of hundreds of interested citizens, local conservationists, small foundations in the area, and local governing boards, the town of Glen Echo succeeded in raising \$80,000 to buy back the carousel.

At about the same time a solution to the land-use problem was proposed by former Maryland Senator Daniel Brewster. He recommended that the federal government trade some of its surplus land for Glen Echo Park. In a rare display of responsiveness by public officials at every level, and with the enthusiastic support of then National Park Service Director George B. Hartzog, Jr., the goal was achieved. In 1969 the General Services Administration swapped a downtown Washington office building for the site.

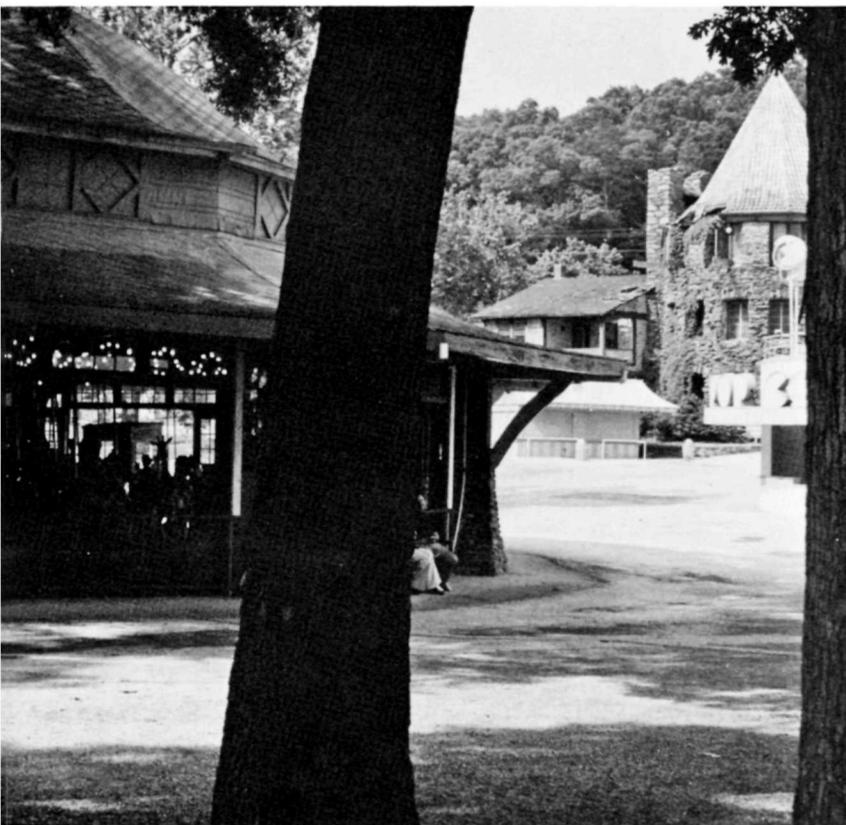
Now the controversial land was in safe hands, although officials of the National Park Service admitted they were in a quandary over what to do with it. The rescued carousel was donated to the Park Service. But what else was left in the park? Only one of the original Chautauqua buildings remained—the Chautauqua Tower, a round fieldstone structure with a rusting tin roof located at the entrance to the park. Paint peeled from the garish remnants of the dead amusement park. Only concrete bases marked the sites of the Ferris wheel and other rides. The mammoth swimming pool was badly cracked and filled with autumn leaves of several years. The Spanish Ballroom was dark and musty.

BUT THERE WERE PLANS afoot for the amusement park. A dialogue between interested citizens of the area and Park Service officials established a new purpose for the park. The rebirth of Glen Echo, although not completed, represents a remarkable creative endeavor that was made possible by government officials sensitive enough to listen and open enough to invite community involvement in every step of the planning. Russell Dickenson, presently deputy director

of the National Park Service, was director of the National Capital Parks at that time. He stood solidly behind this approach at Glen Echo. "The park," he said, "is the creative product of the people it serves. The concept and identity of the park is still evolving. We continue to seek community involvement. . . ."

One of the first major commitments was to turn the old penny arcade into a permanent home for Adventure Theater, a twenty-one-year-old adult acting company that specializes in theater for children. This imaginative use of existing building space gave hope that similar uses could be found for other structures. In order to determine the park's direction, a brainstorming session was held early in the planning period. Architectural students, artists, and many interested individuals came together for a weekend. The opening of Wolf Trap Farm Park for the Performing Arts in nearby Virginia gave impetus to the idea of a culture and arts center. However, in comparison with Wolf Trap, the arts programs at Glen Echo would call for active participation rather than passive entertainment.

In a way, the original Chautauqua conception was reborn at that meeting. Instead of the removal of existing structures, which park officials had thought



Glen Echo's famous carousel is acclaimed as fine folk sculpture. The carved wooden animals include horses, deer, antelopes, lions, tigers, giraffes, and rabbits. A wonderful old calliope accompanies the whirling carousel; and painted flowers, mirrors, lights, and ornately carved scrollwork adorn the inside and top of the carousel. But an odd, discordant note is struck by the strangely malevolent jesters grinning down at onlookers from above the heads of their gleeful, spinning children. . . .

would be necessary, the planners opened whole new possibilities for their reconstitution. If the penny arcade could become a theater, why couldn't the Hall of Mirrors become a crafts center? The space in the Spanish Ballroom would be ideal for experimental dance workshops. Old concrete bases could become pedestals for outdoor sculpture. The Cuddle Up would provide the right space for a marionette show. Other spaces were designated for artisans and educators of every type. So began the concept of the park as a multi-interest cultural center for adults and children.

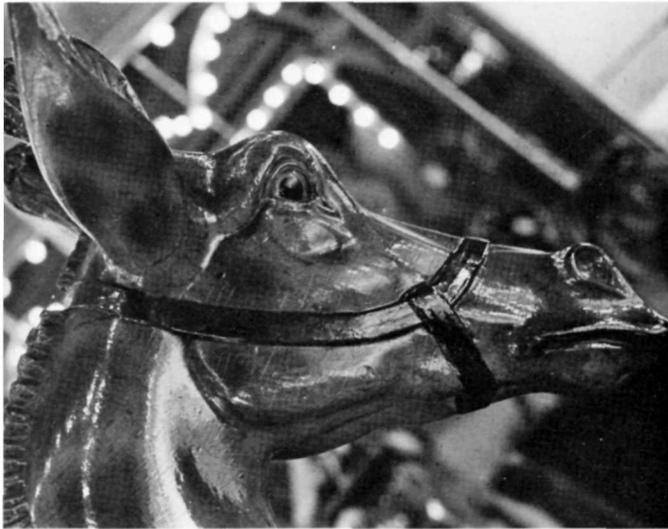
IN ITS FIRST YEAR many of the existing buildings were given a face lifting. Six yurts were constructed as additional space for the crafts program. The yurt, one of the oldest and cheapest forms of shelter, is a circular wooden structure with a sod roof that fits naturally both with nature and with the handicrafts that it houses.

Now in its third regular season, Glen Echo offers inexpensive workshops that explore the techniques and intricacies of weaving, pottery, dance, drama, batik, leather work, ceramics, furniture refinishing, photography, painting, woodworking, and other arts.

Craftsmen conduct these workshops with the assistance of apprentice-volunteers. The park recently initiated an artists-in-residence program. So far there are three residents—in pottery, sculpture, and photography. Under the park's new "human development" program, the offerings range from poetry, yoga, and natural foods to automotive awareness. A poetry festival is planned for September 13 and it is hoped that a lecture series can be developed.

The Children's Experimental Workshop provides an intensive experience. During the summer interested children explore other cultures or the interdependency of man and nature through the arts. During the rest of the year, the workshop is a unique Park Service program that offers performing and visual art experiences for handicapped children. It serves both inner-city and suburban children.

Park visitors come from throughout the metropolitan Washington area for a recreational experience that does not require the energy consumption of a longer trip. Hikers and bicyclists can easily enter from along the C&O Canal. They can enjoy a carousel ride or watch the craftsmen. They can get a taste of the whole fascinating process of making pottery, for in-



stance, and then purchase handmade items at the Glen Echo Gallery. Other activities at the park include a concert series presented by the National Folk Festival Association in cooperation with the Park Service, arts and crafts fairs, a walk-in Found Arts Workshop in which children utilize recycled materials, and street theater. In addition both the Adventure Theater and the Chautauquaters, a new marionette repertory company, now perform year-round, both on-site and on tour throughout the greater Washington area.

An Oktoberfest, a traditional German festival day, will close the park's summer season this year on October 13. Cosponsored by the National Park Service and the Montgomery County Department of Recreation, it will feature German folk music and dancing, films from Germany, and authentic German food and beverages.

IN DESCRIBING the outlook for the future, Bill Anderson, park manager, says, "Glen Echo Park has the potential for becoming a year-round resource and exchange center for the metropolitan area. It represents an attempt to preserve a delicate balance be-

tween providing a quality experience for the visitor and serving large numbers of people." Because Glen Echo Park's philosophy stresses environmental responsibility, park personnel hope to develop a complete program for recycling all crafts materials and trash generated in the park. In addition the park's location could facilitate new programs to help the visitor understand the problems of an urban river and associated ecosystems.

Thus Glen Echo Park stands as a model of responsiveness to a metropolitan community's needs. Not only have area citizens and the National Park Service acted to conserve the natural beauty of the Potomac riverfront; they also have found new ways to serve the recreational and educational needs of the greater Washington area, and pointed out a new direction for urban parks everywhere. In a larger sense, the developments at Glen Echo also represent the dynamics of a Chautauqua-style democracy. ■

Charles B. Fowler is Editor-in-Chief, *Parks and Recreation Magazine*, and Specialist in the Arts for the National Recreation and Park Association, Arlington, Virginia.

Glen Echo Park offers free demonstrations and inexpensive workshops in many arts and crafts.



NATIONAL PARK SERVICE

NPCA at work

Our National Wildlife Refuge System is threatened by the continuing failure of both the Department of the Interior and the President's Office of Management and Budget (OMB) to comply with the National Environmental Policy Act (NEPA) and other regulations and statutes, NPCA and other environmental groups claim in a suit recently filed against those two agencies. NPCA is seeking a declaratory judgment from the courts that the agencies must file environmental impact statements (EIS), as required under NEPA, on proposals for appropriation legislation and related major federal actions that carry out the activities of the National Wildlife Refuge System.

The system encompasses more than thirty million acres of land and includes some 342 individual refuge units. It is administered by the U.S. Fish and Wildlife Service, which until recently was known as the Bureau of Sport Fisheries and Wildlife (BSFW).

Because the refuge system provides wildlife with natural habitat managed for their protection and also serves important recreational needs of the American public, actions interfering with its operation are of major importance. NPCA maintains that the defendants have taken major actions to severely curtail operation, such as cutbacks in services, maintenance, and staffing of units; elimination of access to some areas; and even reductions and eliminations of maintenance and rehabilitation of wildlife habitats. In addition, they have failed to give public notice of such significant policy decisions, as well as failing to prepare and consider environmental impact statements relating to the whole system or to individual refuge units.

NPCA is particularly concerned with the failure to comply with NEPA in regard to budget proposals. The Department of the Interior prepared its budget proposals for the operation of the National Wildlife Refuge System during fiscal year 1974, as well as for other years, without preparing or considering environmental impact statements. Apparently OMB significantly reduced the Interior Department's re-

quest for appropriations for the operation of the refuge system during fiscal year 1974 and other years without preparing an EIS.

The threat of drastic cuts in services, and even possible refuge closings, was exposed in NPCA staff reports in June 1973 and May 1974. A large protest by NPCA, its members, and others last year successfully halted the threatened closures of sixteen refuges; however, only the symptoms of a larger problem were cured. As detailed in the May 1974 Magazine (page 27), the overall proposals for the BSFW budget for fiscal year 1975 were increased slightly in dollar terms over 1974; but pay raises and inflation ate up most of the "increases." The staff report tells some of the powerful ways in which OMB controls federal expenditures. For instance, the BSFW wanted to request \$6 million for acquisition of wetlands critical to migratory waterfowl; however, at a time when these wetlands are rapidly being destroyed, OMB refused to allow the Bureau of Sport Fisheries and Wildlife to have any such request as part of the President's budget.

OMB also has failed to develop formal methods and procedures for carrying out the requirements of NEPA, in violation of NEPA itself, the Council on Environmental Quality Guidelines, and Executive Order 11514.

Plaintiffs in this suit, along with NPCA, are the Sierra Club and the Natural Resources Defense Council.

"If ever there was a symbol of American political democracy, it was the meeting house," said NPCA President A. W. Smith in recent testimony presented on invitation before the Senate Interior Subcommittee on Parks and Recreation. President Smith announced that NPCA strongly supports S 2877, the Meeting House Preservation Act, which would establish a "meeting house" program by making grants available to all the states for acquiring and restoring historic sites for use as meeting houses.

The program is being organized as part of the American Revolution Bicentennial celebration. However, the

meeting houses would be permanent community centers. "The meeting houses. . . will not be exposition structures for a brief celebration," President Smith emphasized, ". . . they will be centers wherein we shall all undertake to explore our ecological, environmental, recreational, educational, and historic preservation concerns. . . . It may be the greatest merit of the Meeting House bill that it addresses itself to the problem of human community. It would create a center in each state within which all Americans, without regard to race, creed, or color, could come together to study and work."

The Meeting House proposal is significant because it embodies a concern for the community—the democratic, person-to-person community which was typical of early America. The facilitation of a warm participatory community would help us solve our practical problems in the twentieth century, and President Smith urged prompt action on the bill.

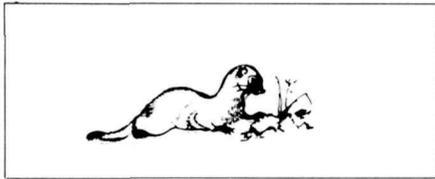
Will certain concessions in Rocky Mountain National Park continue to jeopardize the park's natural environment? Despite the excellent planning concepts previously advanced in the draft master plan for this park, the National Park Service (NPS) may be regressing into a conciliatory attitude toward the concessioners.

The draft master plan for Rocky Mountain National Park, as proposed by NPS at the January 1974 hearings, allowed for the elimination of certain concessions from inside the park, including Hidden Valley Ski Area, High Country Riding Stables, and part of the Fall River Pass Store. NPCA supported these measures as vital steps toward the protection of wilderness values in the national park. In fact, of all the public comments at the hearings, 90 to 95 percent were in favor of removal of the stables and store, and 85 percent favored phasing out the ski area.

However, in March 1974 NPS released a statement on these hearings indicating that it was not basing its final decision on this overwhelming public testimony in favor of eliminating the concessions. Apparently the Park Service was attempting to ignore public input and to allow the concessioners to operate without interruption for another six years.

NPCA protested vigorously to the superintendent of the park and to

Rocky Mountain Regional Director Lynn Thompson. Mr. Thompson responded that the Park Service had not made a final decision concerning the concessions, and that the final master plan would be forthcoming.



Evidently more public comments are needed. The final master plan will be completed by December 1974. NPCA members are urged to write Mr. Thompson and ask that the excellent measures in the draft master plan concerning these three concessions be incorporated into the final plan. Please write to

Lynn H. Thompson
Rocky Mountain Regional Director
National Park Service
655 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

Many wildlife habitats are destroyed or damaged by stream channelization, reservoirs, and other projects. Although the current Fish and Wildlife Coordination Act requires some federal agencies, before proposing or authorizing the impoundment, diversion, deepening, or modification of any stream or other body of water, to consult with the federal and state fish and wildlife agencies concerning conservation of wildlife resources, the act has not been effective for various reasons.

At recent House subcommittee hearings NPCA testified on invitation primarily in support of HR 14527, a proposed bill to amend and strengthen the act. The bill would stimulate more funding for the exercise of influence under the act by the U.S. Fish and Wildlife Service, the nation's top wildlife agency, which was known as the Bureau of Sport Fisheries and Wildlife until July 1 of this year. In addition to providing enough funding to enable the Fish and Wildlife Service to evaluate the effects of all relevant proposals, additional amendments would become necessary to ensure, through public input, that these recommendations are taken into account by the Interior Department itself. This is particularly true in the case of Corps of Engineers applications for dredging, filling, or

performing other work in navigable waters.

An important feature of the bill is a provision that would make the Soil Conservation Service (SCS) subject to the Coordination Act to the same extent as are other agencies. The SCS small watershed program has been responsible for destructive channelization of thousands of miles of our nation's waterways. The bill proposes that the act also apply to the water resource developments of the Tennessee Valley Authority and the Atomic Energy Commission.

HR 14527 and HR 10651, a similar bill, are designed to ensure that measures recommended by U.S. Fish and Wildlife Service professionals to prevent or minimize fish and wildlife losses at water resource projects are carried out on a timely basis unless the public interest demands otherwise. These bills provide for citizen suits.

In supporting the bills, NPCA urged that the thrust of funding be directed toward preservation of adequate habitat, which is the primary need of wildlife. Therefore, wildlife stocking or hatchery programs should be used only as a means of reintroducing native species to suitable habitat or preserving threatened or endangered species. NPCA also made suggestions concerning the financing of surveys required under the act.

Urging adherence to the full NEPA public review process, NPCA is fighting two proposals for road construction in the National Park System. NPCA objects to all plans for proposed developments in the national parks that are advanced prior to completion of the master plan. The roads now in question are proposed for Bighorn Canyon National Recreation Area and Great Smoky Mountains National Park.

Before 1970 the National Park Service produced master plans for planned developments with only informal public input. With NEPA (the National Environmental Policy Act of 1969) in hand, however, the Park Service has devised a new, excellent policy for compliance with the law.

Here are the steps in the process: First, a Park Service planning team draws up a master plan for a given area of the National Park System, together with a draft environmental impact statement. Public hearings are held to receive comments, questions, and crit-

icisms of the master plan and its environmental impacts. After the hearings, a final environmental impact statement is written, incorporating public comment and, hopefully, reflecting the expressed needs and desires of the public in the revised plans. Final environmental impact statements also have an open comment period—usually thirty days—which can be extended if controversial issues arise. Then the final master plan is drafted and the Park Service prepares to implement the new plan.

Occasionally the Park Service finds it convenient to circumvent the full NEPA public review process and advance development plans independently of the master plan procedures. Dormitory developments at Crater Lake and concessioner plans at Grand Canyon are two recent incidents reported in the NPCA magazine that illustrate this problem. Although a given development may or may not be a "major federal action" requiring a full NEPA statement, any national park project should be considered as a component of a plan for the use of the resource as a whole and therefore can be rightfully assessed only as a part of the master plan process. Thus, a fragmented National Park Service planning policy is unacceptable to NPCA; and incidents of isolated development plans, before publication and public review of all master plan and environmental impact documents, must not be allowed to continue.

The two proposals for national park road construction that NPCA is currently fighting are being advanced before completion of the master plans. One proposal, the Transpark Road in Bighorn Canyon National Recreation Area (Montana-Wyoming), is accom-



panied by a two-volume environmental impact statement in the full NEPA format. The other, the Cataloochee Valley Access Road in Great Smoky Mountains National Park, is covered only by an "environmental assessment"—an environmental impact report that does not carry statutory requirements for public input. Both roads would increase automobile traffic in the National Park System. Neither proposal has been presented to the public in a master plan prepared under the NEPA framework.

NPCA members can have an impact on this issue. Please write to the Director of the National Park Service and specifically request complete and undeviating adherence to the full master plan and public review process under the framework of NEPA.

Honorable Ronald H. Walker, Director
National Park Service
Washington, D.C. 20240

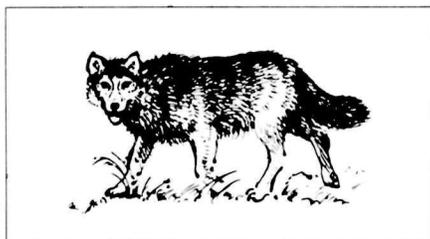
The Symposium on Endangered and Threatened Species of North America drew scientific authorities, conservationists, government officials, and interested citizens to Washington, D.C., on June 11-14, 1974. On the first meeting day NPCA Program Coordinator John W. Grandy IV, addressed the symposium, which was sponsored by the Wild Canid Survival and Research Center—Wolf Sanctuary of St. Louis, Missouri. Symposium participants have formed a working group and will meet again this month.

NPCA's representative stated that the problems of wildlife conservation can be divided into two groups. The first group consists of more easily handled problems such as the survival of an individual species or the destruction of a local area. At NPCA we call these "brush fire" problems because they can combine and ignite into larger problems. As one example, conservationists have successfully restored populations of trumpeter swans. However, the endangered species list, despite our attempts to save wildlife, continues to grow. Habitat is being destroyed at ever-increasing rates, and the destruction of many ecosystems may be irreversible.

The solution to "brush fire" problems is to force public employees and officials to respond to the will of the public. As an example of a case in which "public servants" did not serve the public interest, a branch of the

Department of Defense intended this year to bomb islands adjacent to the Aransas National Wildlife Refuge, the winter home of essentially all wild whooping cranes. It took a massive public outcry to change the bombing target range—but *the outcry should not have been necessary.*

Dr. Grandy explained how public outrage at the inability or unwillingness of some public administrators and some wildlife managers to protect our wildlife resulted in the new Endangered Species Act of 1973. The public has battled various proposals to allow the hunting and killing of endangered species listed under the Endangered Species Act of 1969—animals such as the alligator and the eastern timber wolf. It has reacted with indignation when the destruc-



tion of habitat of endangered species did not figure into Army Corps of Engineers "benefit:cost ratios." Public response to this kind of situation led directly to Section 7 of the new Endangered Species Act, which essentially states that no federal agency shall destroy, either directly or indirectly, the habitat of an endangered species.

However, despite the public mandate to protect wildlife, seemingly irrational situations abound. Black ducks can still be hunted even though black duck populations have declined more than 50 percent within the past fifteen years. Similarly, hunting seasons on the grizzly bear are still in force even as scientists argue about whether the species is endangered.

In spite of a mass public outcry against the "Nebraska Mid-State Project," the U.S. Bureau of Reclamation continues to promote the project, which would eliminate an important migratory resting place for lesser sandhill and whooping cranes.

Dr. Grandy stressed that provision of adequate habitat is the only method of preserving species over the long haul. That brings us back to the second group of wildlife conservation problems—the "large problems" such

as habitat destruction, the public lands, and energy. The solution to these problems is the same—letting public officials know what we want and what we think. However, these problems involve issues that unfortunately are not as glamorous. For instance, there is a need for land use planning that will protect critical environmental areas, thus protecting the habitat of many species. Closed hunting seasons on a species will do no good if land developers destroy all the habitat of that species.

People seem curiously unwilling to reserve public lands for wildlife and esthetic values, even while private, government-subsidized interests destroy wildlife populations on these lands at our expense and destructively and unnecessarily clearcut and overcut our forests.

The insatiable appetite of this nation for energy threatens large blocks of land. Will the U.S. Department of the Interior soon preside over the destruction of the West and the pollution of the oceans to provide energy? Dr. Grandy emphasized that public participation in wildlife conservation is mandatory. "We, as people interested in wildlife and the survival of habitat, must push the government into developing workable alternative energy systems such as solar energy. It is imperative! When the lights go out, the people of New York City and other cities will vote the strip-mining destruction of Wyoming for coal. Then where will we find grizzly bears?"

One of the few wild marsh and seashore habitats on Florida's Atlantic coast was the focus of a recent congressional hearing. NPCA delivered testimony on invitation before the House Subcommittee on National Parks and Recreation and subsequently submitted comments for the hearing record.

A proposed bill (HR 5773) would establish a Spessard L. Holland National Seashore, which would include the acreage presently in the Merritt Island Wildlife Refuge along with additional lands. NPCA was in agreement with the Department of the Interior in *not* supporting the bill. We recommended that plans to develop the area as a national seashore be abandoned, and that full protection for the wildlife refuge be continued.

The seacoast around Cape Canaveral

and the Kennedy Space Center is an area of important habitat for wildlife, especially shore birds. The existing wildlife refuge, Merritt Island Wildlife Refuge, provides essential protection and habitat for the wildlife. It is important to preserve some areas primarily for wildlife, and this area seems to be one such area. NPCA recognizes a serious trade-off between increasing visitation to an isolated seashore area

and the resulting threat of disrupting fragile wildlife habitats.

NPCA testified that the development proposal in HR 5773, including parking areas and a road down the barrier island, is an unacceptable plan. The National Park Service could never follow such a plan and still adhere to its mandate to protect and preserve areas of the National Park System.

A development plan suggested by the

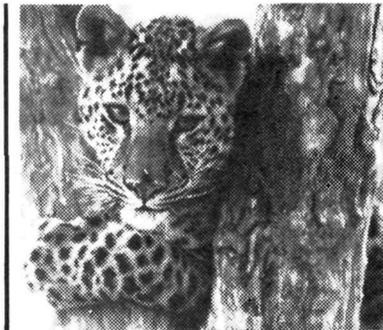
Department of the Interior (although reluctantly so) is perhaps more sensitive to the fragile nature of the seashore, but still represents an unacceptable intensive public-use scheme.

If there is a recognized need for more protection of this seashore, the Merritt Island Wildlife Refuge could be expanded to include suitable areas now incorporated in the seashore bill. But in recognition of the overriding wildlife values inherent in this area, the NPCA spokesman stated, we should not seek to increase automobile traffic and incompatible public use of this fragile, isolated seacoast.

TIGER HAVEN

by Arjan Singh

The story of one man's efforts to defend the beautiful animals who can no longer defend themselves.



"A really splendid book," reports the *London Times*. "Singh's attempt to preserve, as part of India's heritage, the tiger, the chital, the sambhar, leopard and marsh crocodile, and to build up what may possibly be the last herd of swamp deer in the world... is a continual battle against the indifference of politicians and the active hostility of farmers. Some wonderful stories of his sanctuary in Northern India, and even more wonderful photographs, which he took himself." Profusely illustrated in color and black-and-white. \$8.95 at bookstores.

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Washington, D.C. 20009

Gentlemen:

Please send me *Tiger Haven* by Arjan Singh. I am enclosing \$..... for copy(ies). I understand that 40% of the \$8.95 selling price of the book, or \$3.59 is a contribution to NPCA's conservation efforts and is therefore deductible for federal income tax purposes. NPCA is actively engaged in support for the Tiger Haven Wildlife Trust and other exciting conservation programs at home and abroad.

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Please make checks payable to National Parks and Conservation Association.

Although Mammoth Cave National Park in Kentucky has miles of undeveloped subterranean passages and castle-like chambers, no part of the cave has been officially protected as wilderness. Mammoth Cave is famous as one of the seven wonders of the world, and above both the undeveloped parts of the cave and its commercialized passages are a land and river of spectacular ecological interest and scenic beauty. A controversy concerning wilderness designation has been alive for several years.

NPCA is continuing to fight for good master planning and wilderness designation for parts of the cave itself and for lands within the park. The Association testified at field hearings in Kentucky on Mammoth Cave Master Plan and Wilderness Proposal in May 1974. NPCA was represented by Dr. Richard A. Watson of St. Louis, a professor of philosophy at Washington University and a member of NPCA's Board of Trustees. Dr. Watson is a noted expert on caves in general and on Mammoth Cave in particular and has worked for years to protect this national park.

NPCA took the position that the park should be viewed in a regional context. Most tourist services and facilities should rightfully be located outside the park in surrounding communities such as Brownsville, Cave City, Horse Cave, and Munfordville, where the local economy would benefit the most. The resulting pattern of development would protect the environment in the national park.

NPCA opposed the proposed north-south transpark road between Barren River Reservoir Lake and Nolin River Reservoir Lake. Such a road would channel traffic through the park, to the

detriment of its natural environment. Apparently this road would benefit only local business interests.

NPCA was displeased that the National Park Service (NPS) proposed no wilderness for Mammoth Cave National Park, including the inside of the cave itself. The wilderness study published by the Park Service seemed to merely justify a previous decision to exclude Mammoth Cave from the National Wilderness Preservation System. NPCA stressed that wilderness designation for underground portions of the park would not change most of the provisions in the proposed master plan, including changes to increase the number of tourists that can visit Mammoth Cave.

The Wilderness Act of 1964 provides for the establishment of wilderness in areas "where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." Such a definition is applicable to vast underground passages in Mammoth Cave, some of which have not been fully explored. NPS has not adequately considered the concept of underground wilderness despite strong citizen support.

NPCA members are urged to write letters to the superintendent supporting underground wilderness and opposing the transpark road. Write

Joseph Kulesza, Superintendent
Mammoth Cave National Park
Mammoth Cave, Kentucky 42259

In what was regarded as a solid victory for the eastern wilderness campaign S 3433, the Eastern Wilderness Areas bill, passed the Senate earlier this year.

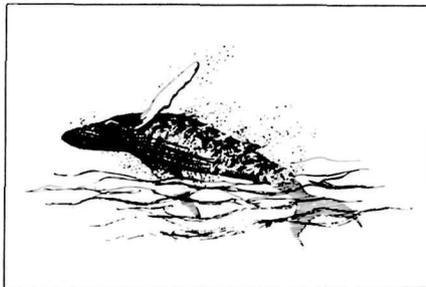
Senator Gaylord Nelson had asked NPCA and other environmental groups to submit their views on S 3433 (formerly S 316), the bill reported by the Senate Committee on Agriculture and Forestry. In answering the invitation, NPCA gave strong support to amendments that would strengthen the bill.

S 3433 calls for the instant wilderness designation of nineteen areas in eastern national forests and for further study of forty other areas. The single package of amendments subsequently introduced on the Senate floor by Senator Henry Jackson (D-Wash) was approved. In addition to other changes, the Jackson amendments limited the antigrazing, antimining, and condemnation provisions of S 3433 to areas east of the hundredth meridian.

Meanwhile, in the House of Representatives, HR 13455 (companion bill to S 316) has been reintroduced and has gained the support of many Congressmen. NPCA supported the bill in testimony presented on invitation before the Subcommittee on Public Lands.

(See June 1974 Magazine, page 27.)

"Boycott Japanese and Soviet goods," NPCA is asking its members and the general public, because these two countries have refused to participate



in a ten-year worldwide moratorium on the killing of whales. Japan and the Soviet Union account for most of the current whaling operations.

The United Nations Stockholm Conference on the Human Environment had overwhelmingly called for such a moratorium due to the severe dangers to declining whale populations posed by relentless commercial exploitation. However, the International Whaling Commission (IWC) met again in late June, and for the third year the United States failed to achieve the ten-year moratorium. However, all member nations of the commission, with the exception of Japan and the Soviet Union, agreed to selective moratoriums on commercial killing of whales. This agreement gives the commission power for the first time to set a moratorium of indefinite duration on a species when its population drops to a dangerous level. Unfortunately the IWC has no enforcement powers.

All IWC member nations had previously agreed to stop hunting the several species nearing extinction, including the severely endangered blue whale, and the gray, humpback, right, and bowhead whales. However, hunting of the fin, sperm, sei, and minke whales is a matter of dispute.

NPCA is one of seventeen organizations participating in the boycott.

The Twenty-First National Watershed Congress convened this past June in

Pittsburgh, Pennsylvania. NPCA staff forester Tom Cobb represented the Association.

Special attention was focused on NPCA's key watershed project to stop abusive clearcutting operations in northern California's Redwood Creek drainage, a small watershed that includes a portion of Redwood National Park. As NPCA members may recall, clearcutting operations have progressed downslope to penetrate critical buffer strips that border on the Redwood Creek unit of the park. Clearcutting is endangering the park's redwood trees, including a grove with the tallest trees known to man, as well as associated vegetation and water quality. NPCA has repeatedly called for implementation of more ecologically sound harvesting systems as alternatives to the current practice of removing all forest cover in one swift clearcut operation. This clearcutting demonstrates an apparent contempt on the part of the forest industries for the public interest in this unique natural heritage. NPCA has urged the Secretary of the Interior to regulate the type of timber harvesting operations, if any, that should be allowed in the area.

The National Watershed Congress is sponsored by thirty-four national farm, business, civic, and conservation organizations.

An unwise and sloppy application of herbicides to power line rights-of-way in Shenandoah National Park recently came to NPCA's attention. Although the power company had Park Service permission to apply the herbicides in order to "control" vegetation interfering with the power line, the herbicides were handled in a highly improper manner resulting in a devastated strip of land and probable effects on wildlife and water quality.

NPCA contacted National Park Service Deputy Director Russell E. Dickenson to urge that procedures be revised so that such an incident could not occur again anywhere in the National Park System. It is unfortunate that power line right-of-way scars occur in our national parks at all. However, where power lines must go through a park, the National Park Service should attempt to manage the right-of-way areas in such a way as to make them naturally attractive to wildlife. This easily can be done by favoring naturally occurring native

plants of value to wildlife, while controlling other vegetation on the rights-of-way. Mr. Dickenson is giving prompt attention to this incident, and NPCA hopes to cooperate with the Park Service in developing a workable program.

The overwhelming solid waste management problems of our national parks prompted recent NPCA recommendations to National Park Service (NPS) Director Ronald H. Walker.

NPCA stated that NPS, as the steward of valuable public lands, should be a leader in ecological solid waste management techniques. However, a General Accounting Office (GAO) report several years ago cited NPS and other agencies as generally lacking a "systematic approach to identifying and solving solid waste disposal problems."

Because many park officials are unfamiliar with the techniques for ecological waste disposal, NPCA believes that there is an urgent need for an overall reevaluation of various waste disposal methods currently used in the National Park System as well as a consideration of ecological alternatives. The Association endorsed and supported the recommendations of the

GAO report, including establishment of solid waste responsibility centers at various organizational levels, appropriate procedures for communication and implementation of solid waste policies, and a requirement for periodic inspections of all disposal sites on federal lands and disposal sites used by the Park Service on private lands.

In addition to the GAO recommendations, NPCA proposed a full recycling program for the National Park System, to be organized around the following guidelines: (1) prohibiting sale of nonreturnable containers, including polyvinyl chloride and other nonbiodegradable plastic bottles, in the National Park System; (2) establishing recycling centers for all salvagable materials, including iron, aluminum, glass, and paper, as well as practicing and encouraging environmental safeguards with a focus on recycling; (3) exploring and applying methods of composting waste within the parks.

In addition, currently available technology for converting sewage into a usable product—fertilizer—may ultimately prove to be applicable to sewage disposal efforts in the parks.

NPCA hopes to cooperate with the

Park Service in future discussions concerning solid waste management.

In opposition to construction of Marriott Corporation's "Great America Park" enterprise that is proposed for a tract immediately adjacent to Manassas National Battlefield Park in Virginia, NPCA has protested a loophole in a land use plan just published by the Prince William County Planning Commission in that state.

Despite some excellent thinking that has gone into the planning document, we object to a provision that excludes lands already zoned for intensive development from designation as critical environmental areas. The Marriott tract is upstream from the national park area in a watershed pattern. The creek bed of Young Branch drains the entire Marriott tract and then runs directly through Manassas National Battlefield Park. If disrupted by development, the watershed could pass siltation and pollution into the park during heavy rains.

NPCA urged the Prince William County Planning Commission to strike the objectionable clause in the land use plan.

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news notes

To preserve the Great Dismal Swamp, the Interior Department has recommended that the federal government purchase an additional 67,400 acres of the swamp, which covers some 210,000 acres astride the Virginia-North Carolina border. More than 49,000 acres are already preserved in the proposed Great Dismal Swamp National Wildlife Refuge, which had its beginnings in early 1973 when the Union Camp Corporation donated that acreage through the Nature Conservancy to the Interior Department.

Sparked by the gift of the key holding, the Nature Conservancy has acquired additional acreage since that time, some of which will eventually become state parklands. North Carolina recently received a Land and Water Conservation Fund grant to purchase 7,549 of those acres. Other lands, including a newly purchased parcel that leads right into the refuge, will be conveyed to the Fish and Wildlife Service.

Described as the major remaining wilderness in the Mid-Atlantic region, the Great Dismal Swamp is actually a forested peat bog rather than a true swamp, and it is a northern outpost for many southern species of plants and trees. It provides habitat for black bear, bobcat, and many smaller mammals and is a winter home for hundreds of thousands of blackbirds.

The Southwest Region of the National Park Service and the Texas Parks and Wildlife Department will cosponsor an international Symposium on the Biological Resources of the Chihuahuan Desert Region, United States and Mexico, to be held at Sul Ross State University, Alpine, Texas, on October 16-18, 1974.

The symposium proceedings will be published in their entirety by the National Park Service. For information concerning agenda, attending the meeting, or obtaining proceedings, contact David H. Riskind, Resource Management Section Head, Texas Parks and Wildlife Department, Reagan Building, Austin, Texas 78701.

A recycled paper directory is now available for locating U.S. paper companies that manufacture products containing recycled fiber. The guide lists

110 companies and their recycled paper products, the percentages of manufacturing, preconsumer and postconsumer waste contained in the papers; information about the papers characteristics, potential uses, and ordering specifications; and purchasing information. The *National Buyer's Guide to Recycled Paper* is designed for purchasing agents, bulk paper users, and any interested citizens. It is available from Environmental Educators, Inc., 1621 Connecticut Ave., N.W., Washington, D.C. 20009.

Whose land is it? George C. Matthews, a native of Florida and a determined conservationist, has been waging a one-man crusade for the past several years to determine the real legal status of lands along the southwestern coast of Florida. Matthews says he intends to protect the coastal uplands and many islands just offshore that are prime areas for an ever-increasing amount of high-rise hotel and condominium construction, and that he would like to see the unspoiled areas preserved as a "public park." He is using his background in law to work toward his goal.

Matthews questions the legality of land titles held by various developers who he says have claimed ownership by referring to a federal land survey conducted in the 1870s, the purpose of which was to convey uplands—lands lying above the mean high tide line—to the State of Florida. Apparently the surveyors did a haphazard job and omitted many upland areas and almost all the offshore islands. Thus, because these areas lie outside the boundary line of the survey and because no record has been found showing that title to these lands was transferred from the federal government in the years since the survey, Matthews claims these areas are still legally United States public lands.

The sandy offshore islands and the mangrove swamps and timbered uplands of the region provide protection against erosion of the coastline, habitat for many varieties of birds and other wildlife, and spawning grounds for many of the fish caught commercially in the Gulf of Mexico.

As the situation now stands, Matthews contends that development corporations are selling and building on these lands even though they have no valid title to them.

Besides the many lawsuits he has brought against various corporations and public officials, he has taken the action of claiming himself as "trustee for the people" for a stretch of twelve miles of relatively unspoiled islands and coast located in Collier County.

His uphill fight to save the lands is far from over, but he is making headway. The United States government is claiming as its property 418 acres of



islands in Pine Island Sound after a federal survey called for by the U.S. Bureau of Sport Fisheries and Wildlife established at last that these islands should be put on the map. In addition, pending the outcome of Matthews' "trustee" lawsuit, the Environmental Protection Agency has refused to grant builders a permit for construction near Naples, Florida; some developers are bringing suit against former title holders of the disputed lands; and title insurance companies are refusing to insure the lands Matthews claims as a "trustee for the people." A new federal survey, authorized by the Bureau of Land Management, could determine whether the thousands of acres in question are in fact public domain lands.

More Notes. . . . The Interior Department reversed its position on the Bailey Nuclear Power Plant issue, an action that brought criticism from a broad spectrum of environmental interests. Interior Secretary Rogers Morton announced at a press conference in late June that the department, apparently on orders from the White House, did not intend to pursue its previously
Continued on page 33

The Conference on the Law of the Sea

Freighted heavily with responsibility for the rational management of the natural resources of the oceans, the United Nations Conference on the Law of the Sea (LOS) was convened on June 20 at Caracas, Venezuela, for a ten-week session.

Among the good omens were an agreement on procedure, including efforts toward a consensus, followed by voting procedures, where necessary, intended to provide a workable balance between majority and minority interests.

Also auspicious was the general atmosphere of compromise, cooperation, and good will, reflecting a widespread understanding that all the nations of the earth are bound up in a single community.

Attending as a member of the official delegation of the United States was Anthony Wayne Smith, President and General Counsel, NPCA, and Chairman of the Environmental Coalition for North America. T. Destry Jarvis, Administrative Assistant, International Programs, NPCA, attended as an observer for NPCA and as its representative to a number of seminars and other meetings of nongovernmental organizations (NGOs).

A consensus seems to be developing on a 12-mile territorial sea and a 200-mile coastal economic zone, but the question is, what obligations will be imposed on coastal nations within these areas? What principles of international law will be applied?

Of considerable concern to NPCA has been the nature of the conservation principles to govern oceanic fisheries. We have advocated that the regulatory authorities (coastal nations or international organizations) be charged with a duty to establish conservation measures to maintain populations of harvested species at levels adequate for maximum sustainable yield, to provide protection for associated and dependent species, and to allow for a margin of error.

A clash of interests has emerged between coastal nations and nations operating distant-water fishing fleets.

This polarization should provide the leverage needed by a skillful diplomacy to enact regulatory articles protecting all the living resources of the seas against the overharvesting and consequent breakdown that otherwise will be inevitable under the food and population pressures of the next few decades.

In addition to provision for the compulsory settlement of disputes in such matters, the NPCA has also advocated independent enforcement machinery when actual disputes between parties do not arise. Whether a treaty emerges with adequate protective and enforcement provisions for the vital living resources of the oceans may depend on the importance attached to the protection of the food supplies of the world, as contrasted with navigation and mineral exploitation, by the delegations at Caracas.

Much of the work that should have been undertaken by the LOS Conference on vessel-source pollution was passed off last year to the Intergovernmental Maritime Consultative Organization (IMCO). The NPCA has commented on the results of the IMCO Conference in London in November, where it was represented, noting the achievements, but also the shortfalls, of that meeting. The deficiencies could still be remedied by action at Caracas; the cumbersome IMCO machinery for strengthening regulation may not be very helpful; nations wishing to protect themselves may have to act on their own by exercising their authority to exclude vessels from their ports. This applies to both construction and discharge standards; it would be better to get strong international controls.

On pollution from the exploration and exploitation of the continental shelves, it is to be hoped that machinery will be created for the establishment of international standards. Present proposals are for enforcement by coastal nations, but with some possibility of supplemental controls by the world community.

As against all efforts to create a strong International Seabed Resources

Authority (ISRA), apprehension has been expressed that restrictive controls over the mining of minerals might be imposed by majorities favoring the postponement of development. The industrial countries which have the technology would like to stake out their claims; many of the less developed countries (LDCs) would prefer the so-called enterprise system, operated by ISRA, with price and production controls and revenue raising and sharing authority.

A compromise on these issues will almost certainly have to be reached; but meanwhile strong ISRA controls over pollution from exploration and exploitation, vessel-source pollution, and certainly land-based pollution—and sufficient protection for the living resources—may go by the boards.

As contrasted with full-blown participation in the Stockholm Conference on the Human Environment by NGOs, at least in terms of parallel meetings, private organizations have been largely conspicuous by their absence in preparations for the LOS Conference and are still getting into the act belatedly. Needed from the beginning were more of the down-to-earth professional recommendations of the kind advanced by NPCA. Manifestos we have had, at Stockholm, at subsequent meetings of the UNEP, and now in connection with the LOS Conference; but these may not have much effect on the outcome.

There are some big chess pieces on the board: free transit through international straits as territorial seas are extended to 12 miles, meaning oil tankers, nuclear submarines, and such; access to oil on the continental shelves, and protection of the oceans from consequent pollution; the dredging of nickel and copper deposits, with other minerals from the ocean floor; the sharing of revenues from exploitation as between the rich countries and the poor; the protection of the seas from pollution; the rights and privileges of scientific exploration; and the survival of the imperiled living resources of the seas.

The U.S. delegation has taken a commendable position in urging the accommodation of special interests to the general welfare. A few outstanding world leaders appear to be emerging from the delegations of a number of nations. Let us hope that their abilities will be equal to the task ahead.

Continued from page 31

stated objections to the proposed construction of a power plant along the border of Indiana Dunes National Seashore. . . . To reestablish American alligator populations in parts of Arkansas and Mississippi, wildlife professionals have captured approximately 500 alligators in Louisiana during the past several months and distributed them to their new homes. . . . Louisiana wildlife officials said in July that a colony of brown pelicans is nesting again in Barataria Bay south of New Orleans. In the early 1960s pesticides had virtually wiped out Louisiana's own state bird within the state's borders, but Florida contributed 200 of the birds to Louisiana, and the regeneration of the Barataria colony was assured by the Environmental Protection Agency's (EPA) ban on the pesticide DDT in 1972. . . . DDT was sprayed on the Pacific Northwest this summer under an exemption from the general ban granted to the U.S. Forest Service by EPA. EPA granted the "emergency" exemption because of a tussock moth infestation of the Blue Mountain region of Oregon and Washington. NPCA had protested the exemption, and had urged that the Department of Agriculture conduct research on alternative biological controls. The Association recommended to EPA, the National Commission on Ecological Reserves, and the Forest Service that, at the least, several research natural areas in Umaquilla National Forest should not be sprayed. Subsequently the Pataha-Bunchgrass and Rainbow Creek natural areas and extensive buffer zones were not sprayed by DDT. Of 600,000 infested acres, 410,000 were sprayed. . . . The world's largest national park is currently being set up in Greenland. According to a report by the National and Provincial Parks Association of Canada, a new protection law will govern an area virtually covering the northeast third of the island continent. Northeast Greenland is a principal breeding area for polar bears and is one of the last refuges for the East Greenland Atlantic walrus. The area provides habitat for wildlife such as the musk ox, lemming, arctic hare, arctic fox, ermine, and many species of birds including the pink-footed goose and the snowy owl. The Northeast Greenland National Park includes three reserves for seals, polar bears, and sea birds.

conservation docket

Fisheries Conservation: HR 15619, the Fisheries Conservation Act of 1974, was recently introduced in the House by Leonor K. Sullivan, Chairman of the Merchant Marine and Fisheries Committee, and John D. Dingell, Chairman of the Subcommittee on Fisheries, Wildlife Conservation and the Environment. For the purposes of implementation of this act, "fish" is defined as including mollusks, crustaceans, marine mammals (except polar bears, walrus, and sea otter), and all other forms of marine animal or plant life, exclusive of birds. The purpose of the act is to regulate, manage, and protect the numerous valuable and increasingly threatened species of commercially harvested fish found in the ocean waters adjacent to the territorial sea (three miles) and the contiguous fishery zone (out to twelve miles) of the United States.

The method by which these measures would be accomplished requires the Secretary of Commerce (in conjunction with the State Department) to issue regulations in the form of unilateral measures of conservation governing all foreign and domestic fishing activity off the coast of the United States.

The legal basis for the unusual measure of taking unilateral action affecting the operation of vessels of foreign nations on the high seas is derived from the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas. Article 7 of the convention provides that ". . . any coastal state may, with a view to the maintenance of the productivity of the living resources of the sea, adopt unilateral measures of conservation appropriate to any stock of fish or other marine resources in any area of the high seas adjacent to its territorial sea. . . ." Article 7 further provides that these unilateral measures must be urgently needed, based on appropriate scientific findings, and do not discriminate in form or fact against *any* fisherman.

Unlike other measures now before Congress that would extend U.S. coastal fisheries jurisdiction out to a 200-mile limit, this Fisheries Conservation Act, HR 15619, is intended to

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provide for nondiscriminatory unilateral action solely for the conservation of fisheries rather than a discriminatory assertion of jurisdiction in expelling foreign fishermen. Oceanic fisheries management is one of the central issues being discussed at the Third United Nations Conference on the Law of the Sea.

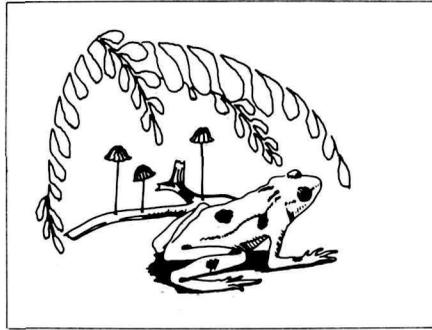
Guam Park: Introduced early in the first session of the 93rd Congress, HR 1404 would establish the Guam National Seashore on the U.S. Island Territory of Guam. Supported fully by local environmentalists, businesses and public officials, the new national seashore would consist of 13,000 acres of wilderness-type recreation area and an additional 4,600 acres of the island's reefs and shoreline. Unique coral reefs, unspoiled lagoons, tropical flora and fauna, and the high volcanic countryside would be protected. No action has been taken on this bill.

Tocks Island Dam: The controversial Tocks Island Dam proposed for the Delaware River in Pennsylvania, New Jersey, and New York recently received an \$8.49 million appropriation for construction in the Public Works for Water Appropriation Bill, 1975, HR 15155. These construction funds represent \$2.45 million more than the Corps of Engineers request.

In related action, both the Senate and House Appropriation Subcommittees on Public Works approved the transfer of \$1.8 million for land acquisition on

the Tocks Island Project from surplus Corps of Engineers funds which could not be committed by the end of fiscal year 1974.

However, Senator Clifford Case (N.J.), who supported the transfer of land acquisition funds, and six other senators from that area have opposed project construction until a comprehensive analysis of economic and environmental impacts and alternatives of the project are known. Meanwhile, the Interior Department has assured



Senator Case and others that lands acquired for the project can be utilized for the proposed Delaware Water Gap National Recreation Area regardless of whether the dam and impoundment are built.

Forestry Reform: The House recently passed and sent to conference the proposed Forest and Related Resources Planning Act of 1974, HR 15283. A joint House-Senate conference is required to resolve several differences between this and the pre-

viously passed Senate version, S 2296. While both measures are designed to intensify and increase the effectiveness of management and long-range planning on the nation's forests and related resource lands, S 2296, called the Forest and Rangeland Environmental Management Act, includes provisions that would require an assessment of commercial timber management on private lands as well as national forest lands. In addition, S 2296 directs the Agriculture Secretary to involve the public through hearings, meetings, and advisory groups.

Environment Centers: Recently the Senate passed S 1865 to amend the National Environmental Policy Act to encourage the establishment of and to assist state and regional environmental centers. To be located at an educational institution serving an individual state or a region of several adjacent states, the centers are proposed to function in the planning and implementing of research, investigations, and experiments relating to environmental pollution, natural resource management, environmental health, and other environmental problems; training of environmental professionals; establishment and operation of an environmental education program directed at the public and in the widest possible dissemination of useful and practical environmental information. Hearings have been held in the House on a similar measure, HR 35.

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Continued from page 2

Public regulation of the large holdings in corporate ownership can also be accomplished easily by legislation. Enforcement will not be as difficult as with respect to the multitudinous small holdings. The corporate administrative structure is available for management and enforcement. Regulation will place a floor under prices by requiring good practices of all producers, and hence will be beneficial to the corporate ownerships, perhaps in contrast to the small scattered ownerships. Convention dictates opposition to such regulation by business; long-term self-interest might well recommend support.

Regulation should be federal, because the market is at least continental. In fact, it should require ecological practices by American corporations abroad. We have a responsibility to the less developed countries to help them conserve their forest capital.

Regulation eliminates the problem of exports *versus* domestic markets. The objections to exports have turned around the depletion of the forest resource on the one hand, and pressures for over-cutting to provide for domestic needs such as housing while heavy overseas shipments were in progress. Regulation would prevent depletion and over-cutting, and the question of exports would be for the market to decide.

In respect to small ownerships, there is both a financial and an enforcement problem. The public might well acquire managerial easements directed toward ecological forestry. Considering the impecunious condition of many farmers, the purchase price for such interests might be attractive. This approach would protect against the liquidation of stands after significant public investment in economic and technical assistance. It should be accompanied by public investment in local integrated industrial plants for the production of wood products ranging from liquid fuels to structural timber. Producers cooperatives would grow up around such a structure of woodlands management and industrial production.

The ecological management of our forests would harmonize the competing interests which will otherwise remain at war. The problem in the recreational use of the forests is not one of investment, but of the protection of the recreational environment. The same is true for wildlife. The same is also true of the seeming conflict between wilderness and commercial forests; ecological forestry can provide the unbroken forests which are one of the objectives of wilderness preservation. Over the long run, ecological forestry will also meet the requirements of those who think mainly in terms of the physical productivity of the forest.

Only with due obeisance can one enter the august portals of Resources for the Future to question the expanding economy. It is a little like entering Chartres Cathedral and questioning the existence of the Virgin Mary. But the truth is, in this age, that economic stabilization will replace the expanding economy, willy-nilly. Economic stabilization or equilibrium can be differential in nature; many people need more, and some can do with less; we all need more good products and fewer bad ones; the rich countries can hardly accept much more industrial production, but could use more education and services.

The kind of intensive management that has been proposed by others here, with heavy clearcutting now, and at best a long period of regeneration, and perhaps no recovery, would be highly destructive to economic stability in the timber industries over any reasonably long term.

The present general economic and ecologic situation in the world with respect to natural resources generally is that we are headed toward a reckless overshoot which must necessarily be followed by collapse and general human mis-

ery. We are compelled to work toward ecological and economic stabilization, and the way to do that, as far as the forests are concerned, is to abandon the clearcutting and replanting system and get into even-flow operations which are part of the basic concept of ecological forestry.

IN A CIVILIZATION characterized by widespread disintegration, the breakdown of language and rational communication is commonplace. This has happened with scientific and professional terminology in forestry.

A generation ago, selective cutting meant what it means today in NPCA policy statements and the quoted paper. It has now been defined professionally as highgrading, as resulting in a culled forest. It is used on occasion as meaning the seed-tree system, and rejected as resulting in desiccation, the opposite of ecological forestry.

It has been well said that we have no name anymore for the art of selective cutting, other than the general term silviculture, as used in the quoted paper, or forest management. Selection may now be referred to usefully, however, as natural stand management, in contrast with plantation management, a helpful nomenclature. Selective cutting may also, and properly, be regarded as the best form of even-flow forestry.

ONE THEME which ran through the Forum was that a heavy public investment should be made in big-machinery, high-pesticide clearcutting and replanting (referred to inaccurately as intensive management) on the most fertile timberlands, including the best land in the national forests and (with public assistance) the best land of the corporations, while the remaining small private holdings could be largely abandoned, and the least productive areas could be given over to recreation and wilderness.

We strongly dissent from that thesis. All forests, except where parks and wilderness areas have been set aside expressly for complete preservation, should be managed for even-flow, multicommodity productive purposes, and for their cultural and recreation uses, under the imperative of protection for the forest ecosystems.

—Anthony Wayne Smith

FOOTNOTES

¹Proceedings published by Johns Hopkins Press, August 1974, as *Forest Policy for the Future: Conflict, Compromise, or Consensus*.

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