

NATIONAL PARKS & *Conservation Magazine*

The Environmental Journal

January 1972



PROGRESS in the EVERGLADES

PRESIDENT NIXON's recent announcement that the Administration will recommend the establishment of a Big Cypress National Fresh Water Reserve to protect the water supplies of Everglades National Park in Florida will be acclaimed in its general outlines by practically all conservationists.

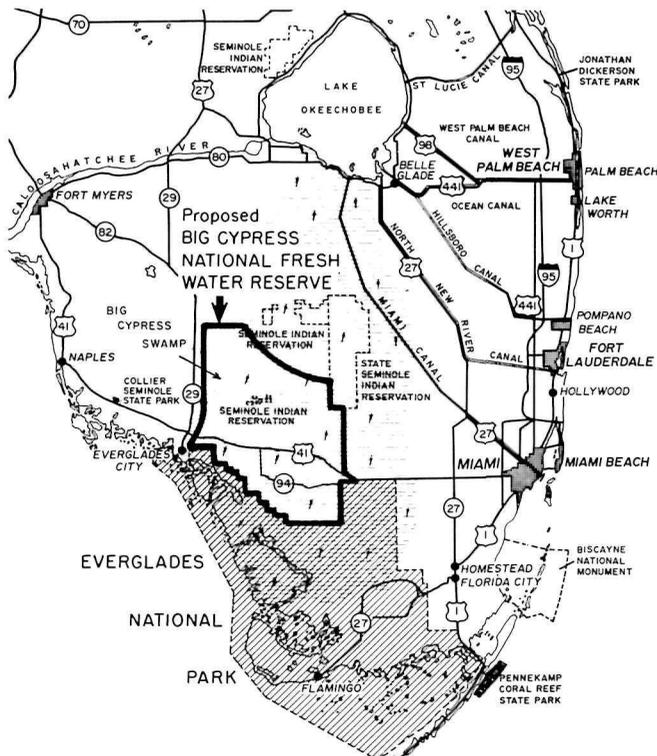
The proposal looks toward the acquisition of requisite legal interests in 547,000 acres of largely unspoiled swamp north of the Park and west of Conservation Area Three.

Almost simultaneously the Senate Committee on Interior and Insular Affairs has been holding

hearings in Florida on legislation proposed by Senator Henry M. Jackson, Chairman of the Committee, and Senator Lawton Chiles of Florida to establish a National Recreation Area with somewhat comparable acreage.

The two approaches represent a bipartisan convergence on the need to protect Big Cypress Swamp with its indispensable supplies of fresh water in perpetuity for the benefit of the people of Florida and America.

Many conservationists will have grave doubts about the advisability of one provision in the Administration proposal, that the State of Florida would manage the area under agreement with the Secretary of the Interior, though at no cost to the federal government. The danger is that a serious precedent would be set for the slippage of areas in the National Park System, the National Forest System, and the National Wildlife System into state hands. But no doubt these problems will be ironed out in due course by the responsible Congressional committees. The commitment to the preservation of Big Cypress Swamp is fundamental, and highly commendable.



In late November 1971 President Nixon announced that he would propose legislation for federal acquisition of 547,000 acres of the Big Cypress Swamp, adjacent to the northern boundary of Everglades National Park, for creation of a Big Cypress National Fresh Water Reserve. The swamp, which has been under threat of drainage and development, is a prime source of ground and surface water vital to the Park's existence. Arrows indicate direction of the slow north-to-south flow of water in the region.

IT MAY BE WELL at this juncture to recall the recent history of the protection of Everglades National Park and the surrounding region.

The NPCA warned by editorial in January 1969 that a project for the construction of a giant jetport in Big Cypress Swamp might imperil the existence of Everglades National Park by destroying its water supplies and otherwise injuring the natural setting.

Shortly thereafter, the Presidents of NPCA and the National Audubon Society were chosen Co-Chairmen of the newly formed Everglades Coalition, consisting of major conservation organizations and two large labor organizations, the United

Continued on page 43

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COVER *Quiet Morning, by Esther Henderson*

The national park concept was born 100 years ago with the establishment of Yellowstone National Park in March 1872. Now national parks all over the world preserve areas of scenic and scientific value where the visitor may thrill to vistas of awesome grandeur or contemplate the universe in the rippling reflections of a mountain lake—and in the process perhaps learn something about himself.

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

Freeman Tilden Riches of Being

The Century Since Yellowstone

IN THE EARLIEST DAYS of my association with the National Park Service, I was made aware of a semantic matter that gave ardent preservationists, particularly naturalists, great frustration. It was the language used in the classic legislation that created Yellowstone National Park and would govern all the great parks to come. The Act of 1872 provided for "a pleasuring ground for the benefit and enjoyment of the people . . . the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities or wonders . . . and their retention in natural condition." The question was asked, "How can it be done? Unimpaired? Does not one part of the provision nullify the other?"

For myself, I never could feel a high degree of anguish about this apparent dilemma. It seemed to me, and still seems to me, that the case is not unlike a private benevolent trusteeship in which there is some muddiness in the original terms, or where, since the gift, some important changes in conditions have occurred. The natural thing, in such a case, would be for the trustees to scrutinize the *intent*. The intent of the Yellowstone Act of 1872 was bluntly stated by Senator George Vest when he was appealing to his fellow senators for its passage. He said, in effect, "let us Americans show the world that we are interested in something besides the almighty dollar!"

There was a sting in Vest's words that must have made many Americans, including some Congressional members, wince. For that reconstruction period following the Civil War was a new low for the nation in public and private morals. Not that it was a time of affluence for the majority of the people. Far from it. But for those with financial and political clout, it was a time of joyous piracy and the looting of natural resources, including the public domain. It would be hard to imagine a more unpropitious time to embark on a program of cultural appeal: Black Friday on the New York Stock Exchange had occurred but a few years before, and the panic of 1873 was soon to follow.

Yellowstone National Park was set aside precisely for other than material gain or riches. It was to be preserved in perpetuity for the mind, the heart, and the spirit of the American people—and for that matter for the people of the whole world. And I have never been able to give the words "pleasuring ground" and "enjoyment" their lowest possible definitions. Is not one of the greatest pleasures

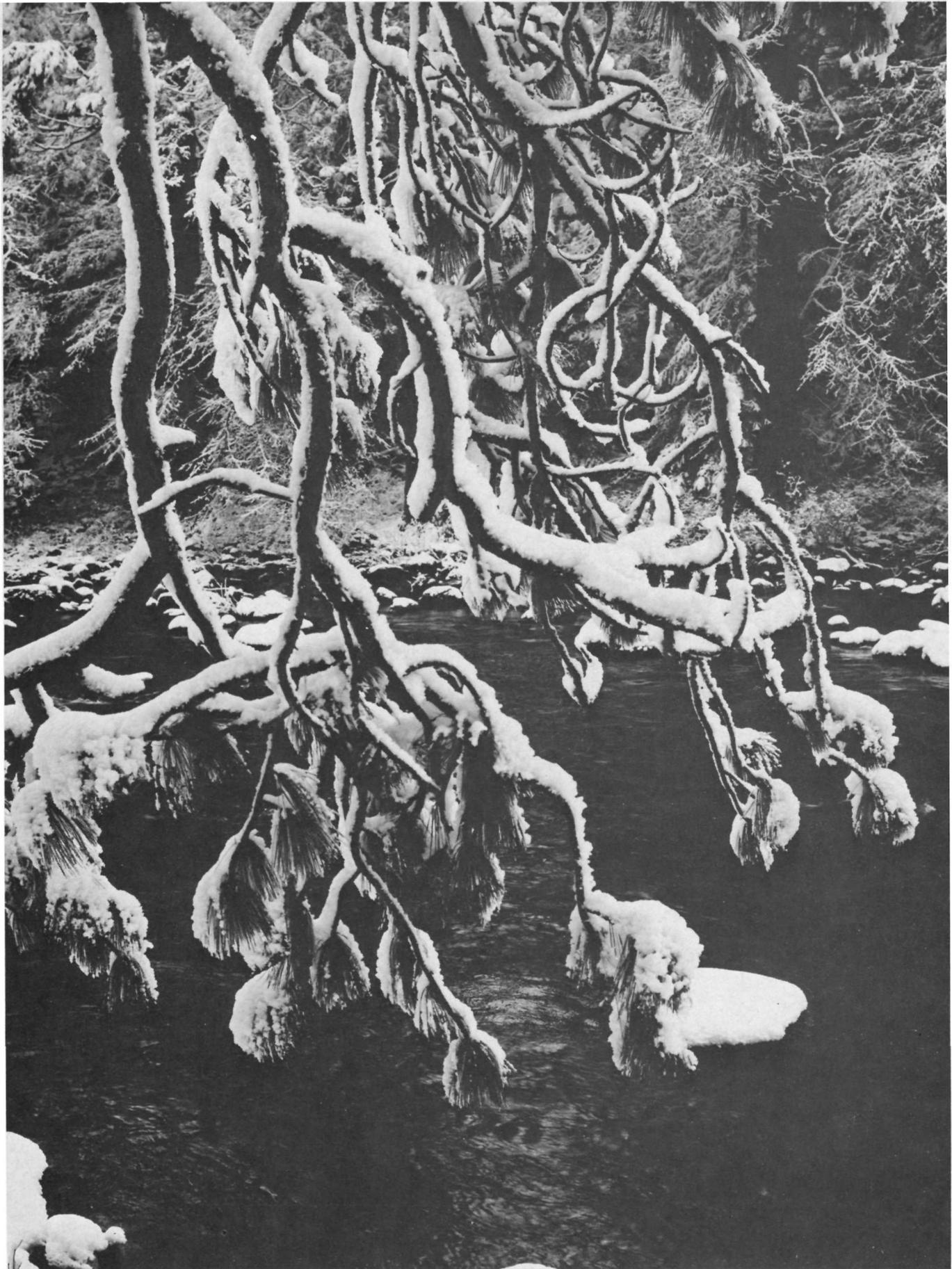
for a human being his self-realization? Must the word "enjoyment" be restricted to Thursday-at-the-State Fair or romping on sandy beach?

No; it is clear that Vest, backed by that small but vocal minority of conservationists that already existed in the nation, aimed at the very first for a new land value—one that did *not* exploit; one that did *not* feed everything into the machine; one that aimed at the riches of Being, rather than the riches of Having. Granted that man exploits natural resources for his very existence, and grant that great good has come from the cunning artifacts the skill of the human hand has been able to achieve: Yellowstone National Park, since 1872, has stood for an admonition against gluttony.

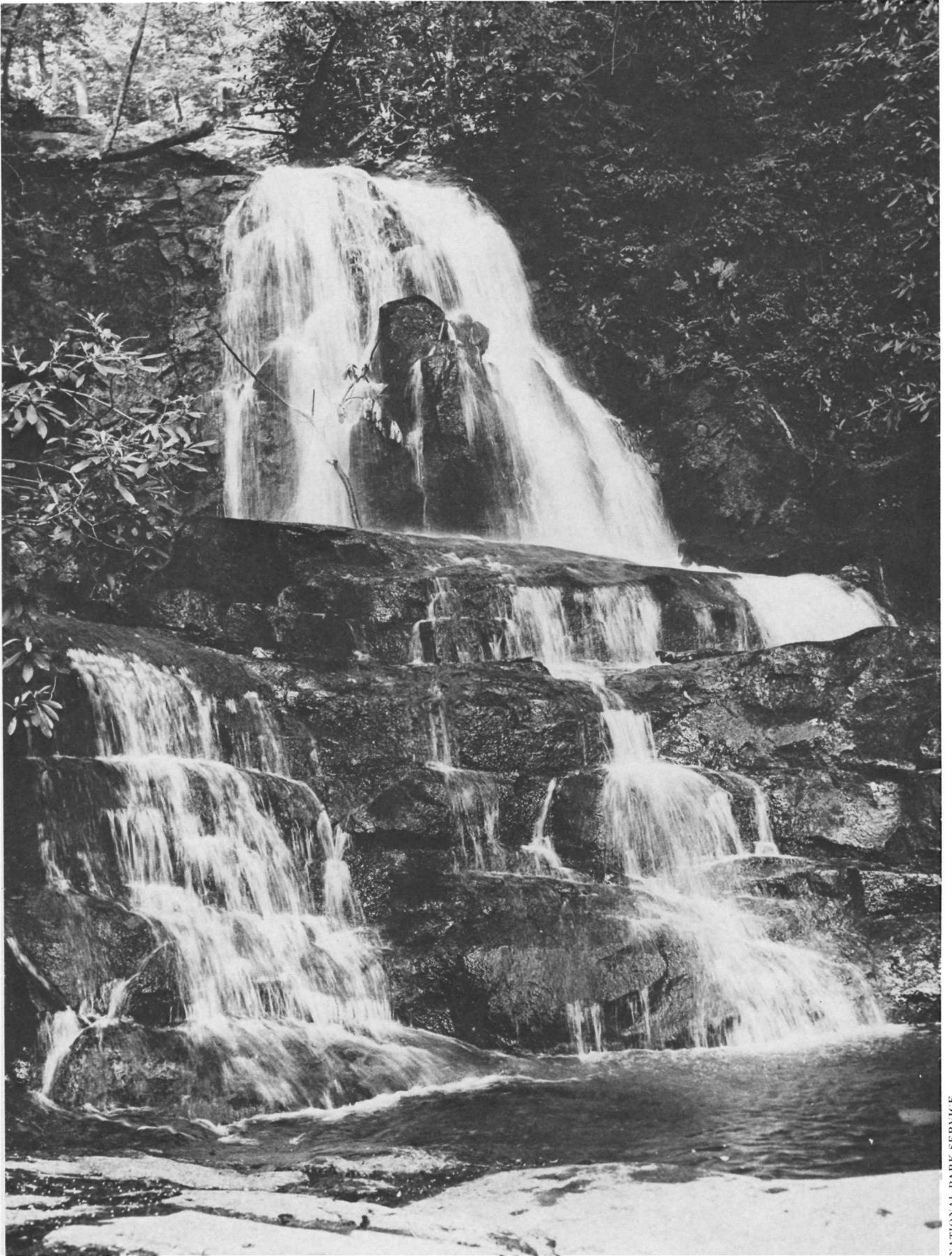
Years after the persistent preservationists of 1872 received a vote of confidence from a somewhat reluctant and apathetic Congress, a great philosopher of land ethics, whose book *The Sand County Almanac* is in the knapsack of every lover of wilderness, put into one terse sentence the fundamental policy for the national parks. They should be dedicated to "the highest quality of use," said Aldo Leopold; and what, for example, is a use of that highest quality?

Two young men, Terry and Ronny Russell, hiking, backpacking, going respectfully but unafraid into the wilderness areas of the national park system, came up with the simple answer to the above question. In a little volume, *On the Loose*, which later was published under their names, they declared: "It feels good to say, 'I know the Sierra' or 'I know Point Reyes.' But of course you don't. What you know better is *yourself*, and Point Reyes and

"Riches, by definition, are either a *being* or a *having*. If I conceive of them as a being it is obvious that I am rich not because I have much—rather, all having is dependent on the riches of my nature. . . ."



Merced River, Yosemite National Park, California



NATIONAL PARK SERVICE

Dark Hollow Falls, Shenandoah National Park, Virginia

Is not one of the greatest pleasures for a human being his self-realization?

the Sierra have helped.” In intimate contact with a pristine life unit these two young men were able to make the supreme discovery—themselves.

THE INTERPRETERS of the National Park Service, increasingly over the years, have been doing fine work in bringing home to more and more deracinated Americans their place in nature, and therefore among their fellow men. But the interpretation program, I think, will not have reached its highest efficacy until it capitalizes upon the natural and proper self-interest—almost the craving—of the visitor to the parks, to find out something about himself. The naturalists have done splendidly in revealing the interrelation and interdependence of the organic life in an ecological unit, and the archeologists and historians have served well to verify what we have begun to call “human ecology,” but always it will remain that each individual visitor will be more curious about his own existence than about the life of the raccoon or that of a Revolutionary War hero. Selfish? Well, at any rate, it is the intelligent self-interest that builds the platform of our civilization.

In the presence of a little world of unspoiled nature, the visitor to a national park asks himself the questions: “Who am I? What is my proper place in all this I see around me? How do I relate to what I see, hear, and otherwise sense?” Then he is at the margin of understanding, not only of what the park is preserving but of his own manifold duties and problems—and something of the pros-

perous use of the leisure that modern technology has awarded mankind.

At this mention of “technology” I am reminded back to the title of my essay. I have always been surprised that one of the most eloquent statements about *riches* came to me in a little book printed in Germany in 1946 under the title of *Die Perfektion der Technik*. It was written by a man skilled in the sciences but even more adept, I think, in humanism—Friedrich Georg Juenger. In an early chapter called “The Delusion of Wealth” Juenger had this to say about riches:

“Riches, by definition, are either a *being* or a *having*. If I conceive of them as a being it is obvious that I am rich not because I have much—rather, all having is dependent on the riches of my nature. . . . So considered, riches are an endowment of nature . . . they are the original wealth, an added measure of freedom. For riches and freedom are inseparably joined together, so that riches of any kind can be appraised by the measure of freedom they contain. Riches in this sense may even be identical with poverty: a rich being is consistent with a not-having, with a lack of material possessions. . . . Where riches consist merely in having, the capacity for enjoying them does not necessarily go with them. Indeed, it may be lacking.”

Can it be doubted that the grand cultural idea expressed in the creation of Yellowstone National Park was an investment in the riches of being? And can it be doubted that an exclusive interest in the riches of having can result

. . . there is no such thing in nature—and consequently in human life—as unlimited material growth.

Forest along Suiattle River in North Cascades, Washington





Heavy surf, Cape Cod National Seashore, Massachusetts

Constant change, ebb and flow, compensations.

in a human condition where existence fails of justification and indeed becomes in danger of extinction? If there were such doubts, nearing the end of the century after Yellowstone, they were dramatically answered.

It came with explosive suddenness, when it arrived. The revelations were so frightening that they had a sort of thrill in them. The word "environment," which had been for long viewed as merely part of the jargon of the bird-watcher, by the media of communication, now has a magical quality about it—almost as though it were a great discovery that man really has any such thing. Now he has; it is even close to him.

The old certitudes come tumbling. The exact scientists climb down, one after one, from their ivory towers, and confess that after all they may not be untouchables—they may have some responsibility for the end results of their amazing discoveries of the "hows" of the cosmos. The applied scientists, although they maintain that there is an element of boogerman in all this talk, yet admit that there is still a crisis and want an orderly and *unemotional* look, forgetting that a minority of good thinkers had been foreseeing possible catastrophe for years, just exactly because they *possessed* emotions, instead of confiding altogether in the benefits of mechanics. Even the technologists think there may be an imbalance that should be corrected, but most of them fear it will mean some sad days for profits. A few of them—not many—are willing

to concede that in the use of natural resources to manufacture commodities, with all the attendant wasting of dwindling ores, there *may* be such a thing as priority. Is the snowmobile or the trailbike, for instance, as important in human happiness as the incandescent lamp or the refrigerator?

Pollutions of air and water, even of the oceans; hard insecticides found in the bodies of birds in the Arctic and Antarctic zones; lowering of the watertables; and above all a booming population almost worldwide. I do not complete the long list—there is a momentary lull in the whole matter as a conversational gambit. But don't let that temporary diminishment of interest fool anyone—and I'm sure it would fool the cleverest of the operators of machines for turning out more and more material wares. The challenge for man's life on this planet is in the open. From now forward it will be discussed with less excitement and more effect.

Chief shock of all to most of the world that had not thought about it is the jolting realization that there is no such thing in nature—and consequently in human life—as unlimited material growth. For wisdom, moral and spiritual growth, yes—so far as we can know.

Read the beautiful essay of Ralph Waldo Emerson on "Compensation." Emerson was not a scientist, but his intuitions about natural laws were phenomenal—and even the greatest of physicists place intuition high on the scale of understanding. Emerson saw—partly because he loved wilderness and could learn from it—that nature apparently aims at equilibrium, yet not a balance that would freeze. Constant change, ebb and flow, compensations. Out of our ignorance we could dare to say that even nature does not

know how much is too much. The question may be irrelevant. The facts determine, and the factors are many. How many rabbits are too many rabbits, and how many foxes are too many foxes, before either of them run out of their food supply? Simply there comes a time when the imbalance begins to correct itself—and a new cycle is under way. One of the Greek philosophers had as his adage “Nothing in Excess.” He did not discover that truth in Yellowstone, but he did arrive at it because he studied nature in some similar domain of beauty and wonder and truth and order.

I say, in spite of the fact that the “environmental hysteria,” as one alarmed manufacturer of pesticides unkindly called the awakening, has pretty well disappeared from the front page, it remains very much alive and perhaps the better for a calmer approach. After all, it was a big dose for the public to take, all at one gulp. The battle to save mankind from the results of his own skills and brainchildren has not even begun. It will entail some fundamental social and economic changes that we will take without liking.

How are we to emerge from the dismal swamp of environmental imbalance in which we have mired ourselves? Who can say? I have recently concluded a year of countrywide

“Who am I? What is my proper place in all this I see around me? How do I relate to what I see, hear, and otherwise sense?”

Pines in North Cascades, Washington

Until his retirement in 1971 Freeman Tilden had spent nearly 30 years with the National Park Service as a consultant and writer on park interpretation. His thinking has been instrumental in the modern development of that art by federal, state, and private agencies and organizations.

travel, in contact with workers in the field of conservation. I confess I have not found them abounding in optimism. Some of them see no solution—but they refuse to quit the struggle. For myself, my optimism is of a limited kind, but it affords me a degree of hope. It is based upon my observation that as the bad news has reached the public, it has been greeted with a larger amount of *comprehension* than would have been possible in any other period of the nation’s life. Puzzlement and shock, yes, certainly. But comprehension of the principles involved. A hundred years of patient effort, stemming from the founding of Yellowstone; the valiant efforts of interpreters in the national parks, the state and municipal parks, and the many organizations that have been promoting the knowledge of the land ethic—these have not been in vain. There is good emotion, and there is understanding, which formerly had no existence. Granted, that emotion is not performance, and understanding is not effort. But emotion is a requirement, and understanding is an imperative. If we are prepared to make the necessary sacrifices, which will not be happy in their first effects, we can obtain, without going back to the tallow candle and the oxcart, a right proportion of the riches of being for which Yellowstone stands. ■



Although Crater Lake National Park was established before the National Park Service came into being in 1916 (created in 1902, it is the fifth oldest national park), it is an outstanding example of what a park should be as defined by Congress: "[its] purpose is to conserve the scenery and the natural and historic objects and wildlife therein. . . ."

This park sits astride the crest of the Cascades in Oregon, a range of predominantly volcanic peaks that extends from northern California to northern Washington. Some of the notable peaks of North America stud this range: Shasta, Hood, St. Helens, Adams, Baker, and Rainier. Most of the large volcanic peaks of the high Cascades are cones built by the eruption of fragmented rock as well as lava flows.

To the geologist they are "young," for they have been active at one time or another during Pleistocene and Recent times, or roughly over the past 2 million years.

Perhaps some 6,600 years ago a large volcanic cone, built of numerous smaller cones or their parts, stood at the present site of Crater Lake. Studies indicate that this volcano, known to geologists as Mount Mazama, reached an elevation of nearly 12,000 feet and was approximately 10 miles in diameter at its base. During its final stages of eruption it extruded vast quantities of fragmented volcanic material and collapsed thereafter, forming a caldera, or huge collapse pit. After the caldera filled with water, the resulting lake had depths ranging to nearly 2,000 feet, making our modern Crater Lake the deepest in the nation.

K. R. CRANSON

CRATER LAKE NATIONAL PARK

Wizard Island from the rim of Crater Lake



PHILIP HYDE

Within the boundaries of Crater Lake National Park there are examples of several other kinds of volcanic cones. Union Peak and the lower portion of Timber Crater represent smaller and less explosive "shield" volcanoes such as those found in the Hawaiian Islands. Cinder cones are scattered over the entire park, reminding the visitor of the "goosebumps" he acquires on a chilly day.

Cinder cones are built by a particular kind of volcanic activity. They result primarily from the explosive eruption of thick, liquid rock technically called magma, or by ejection of rock particles that have already solidified. This material may range in size from dust and ash to cinders and large chunks of broken rock.

Cinder cones are easily identified by their symmetrical shapes as well as by composition, but they are usually small. The other types of volcanic cones along the Cascade range have been built to a rather large size, sometimes towering several thousands of feet high with bases measuring several miles across. Cinder cones seldom exceed a height of more than 1,200 feet above the surrounding land surface and at most have a base diameter of a mile and a half. The symmetry of many cinder cones is remarkable; some look like sandpiles dumped on the ground from a giant pail. Slopes are steep and are preserved by the interlocking tendencies of their fragmental material.

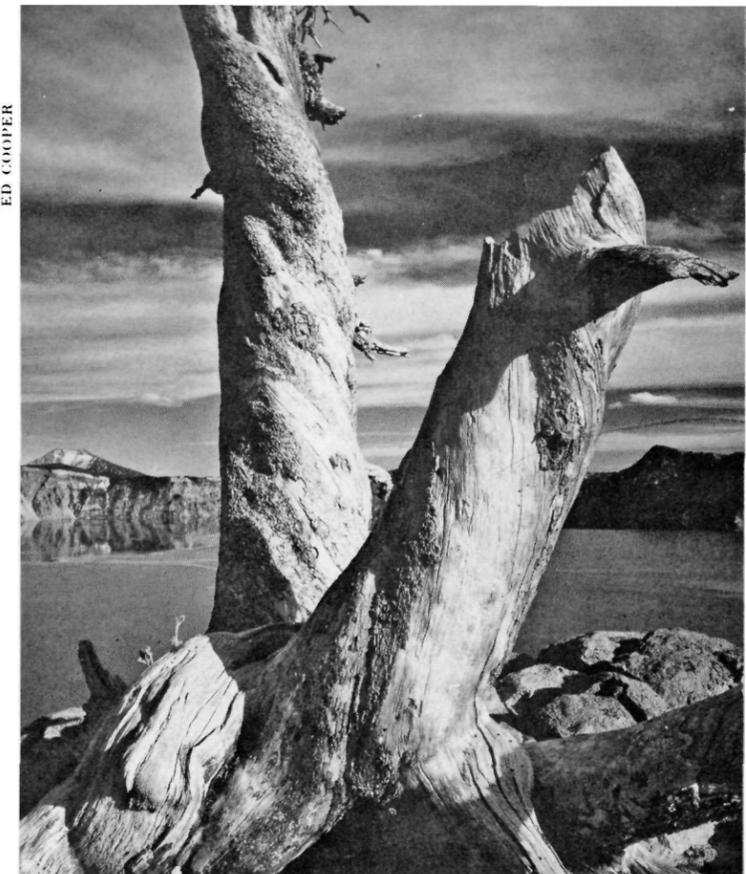
The occurrence of numerous cinder cones about a larger composite volcanic cone is usually a sign of old age of the large cone. As smaller eruptive cones are built, the supply of molten rock is diverted from the main vent and extruded from the volcano's flanks or even in the terrain

surrounding the main cone. At Crater Lake this stage of activity marked the beginning of the end for Mount Mazama; for during the cone-building process it collapsed to form a huge caldera.

Sometimes cinder cones may form on or near the main vent of an active volcano. Such cones may also be interpreted as an indication of old age of the parent, for their construction often is a prelude to a final and perhaps explosive eruption.

Crater Lake Park possesses at least 13 cinder cones, with several others bordering the boundaries of the park. The most spectacular of the cinder cones in the park—perhaps in the entire region—is Wizard Island, situated in the lake about a half mile from the western caldera wall. In addition to its odd location, Wizard Island has several other distinct characteristics. Rising some 760 feet above lake level, the island displays a nearly perfect conical shape. The same remarkable symmetry is noted in the crater at its summit. Although not very large—90 feet deep and a little over 300 feet in diameter—this crater looks like an inverted cone. Wizard Island and two other cinder cones that occur below the lake surface were quite recently formed, geologically speaking. A small lava flow protruding in a westerly direction from the base of the island probably represents the most recent volcanic activity within the park.

On the western flank of ancient Mount Mazama is a very small cinder cone. Although rather conspicuous from Rim Drive (which circumscribes the lake), Forgotten Crater, as it is known, was not even noticed until 1932. It makes a



ED COOPER

Gnarled whitebark pine tree on crater rim



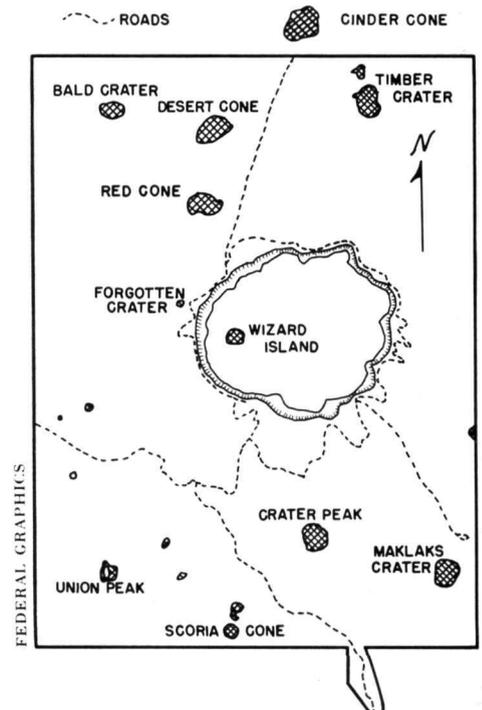
striking contrast to Wizard Island, being quite low, and it is about twice as long in an east-west direction as in its north-south dimension. There are two small depressions in the top of Forgotten Crater, the larger being only about 50 feet deep. Two lava flows issued from the side of this cinder cone—a small flow to the south and a much larger one to the west, both of which may be seen today.

Traveling clockwise around Rim Drive from Forgotten Crater brings two prominent cinder cones into view. Red Cone and Bald Crater are in the northwestern quadrant of the park. A third cinder cone, Desert Cone, also is located in this area but is hidden from view along Rim Drive by Red Cone. These three cinder cones are considered the youngest in the park save for those in the caldera, and they display a fresh appearance with little vegetation on many of their slopes. None of the northern cones illustrates well-formed craters, although Red Cone has a small crater that is breached on its north side. Red Cone rises about 1,000 feet above the surrounding terrain and is one of the largest cinder cones in the region. Various types of volcanic bombs, or frozen clots of molten rock, dot the flanks of the cone, some of which are as much as 8 feet long. Desert Cone also displays volcanic bombs, although of a smaller size. Some bombs are found on Bald Crater, but more striking there are the several basaltic lava flows that originated near the summit. The dark rock type called basalt is not common in the park.

Two prominent cinder cones are among a large group occurring in the southern part of the park. Maklaks Crater lies in the southeastern corner of the area, whereas Crater Peak is directly south of the Mazama caldera. Both are medium-sized cinder cones, Maklaks being more than



CRATER LAKE NATIONAL PARK



600 feet high and Crater Peak about 750. Both appear symmetrical as seen from a distance, and they occupy separate ridges, which fact tends to emphasize their height. Crater Peak displays a shallow crater, breached on its southwestern side. Some bombs are found near this cone, but most of its fragmental material is rather small. Maklaks Crater was originally named Diller Cone, in honor of an early geologist who studied the terrain that is now within Crater Lake Park. However, one of the submerged cones in the lake now bears Diller's name. Maklaks Crater actually displays no crater at its summit, which is nearly flat. The original crater was plugged by fragmental material thrown out by weak explosions that occurred near the close of its active eruptions.

ED COOPER



There are many other cinder cones in and around Crater Lake, and all up and down the once fiery Cascade Range. They are, however, somewhat overshadowed by the larger and more spectacular volcanic peaks of the range. In any case, their symmetry represents a charming example of nature's artistry, and their study offers an opportunity for further understanding of a violent phase in earth-shaping. ■

K. R. Cranson worked as a naturalist at Crater Lake National Park during the summers of 1967 and 1968, at which time he studied volcanic areas in and near the park. He studied geology as an undergraduate student at Michigan State University.

Left, near a wall of Mazama's great caldera a spiny ridge of volcanic rock breaks the surface of Crater Lake and has been called the Phantom Ship. Top, whitebark pine and Crater Lake: for a dead volcano, a solemn epitaph. Bottom, the caldera of ancient Mt. Mazama from the air: today, a clear blue lake occupies the ruin of a Pleistocene volcano.



dammed if you do

ISABELLE LYNN



ALL PHOTOGRAPHS COURTESY BUREAU OF RECLAMATION

A. G. D'ALESSANDRO

Boats are moored on Folsom Reservoir in central California. The Bureau of Reclamation's Folsom Dam is visible on the horizon at left.

Would you be astonished if an agency of the U.S. government were to erect a 10,000-foot mountain in the eastern part of Kansas? Of course you would.

But let's suppose that there is such an agency. We can call it the Bureau of Pleistocene Reversal and place it in the Department of the Interior, where it would nicely balance the Department's Bureau of Reclamation and complement some recent Park Service developmental tendencies. Certainly the Army Corps of Engineers could find within the new agency uses for their talents comparable and equally fulfilling to those now enjoyed by the Bureau of Reclamation.

Benefit-cost ratio studies for the proposed mountain would show that in a period of 150 years its users would pay back the American taxpayer in full. This would be done by means of an intricate system of charges: for example, 50¢ for just looking, \$1 for circumnavigating by car at the base, \$5 for climbing, \$10 for camping, and so on. And everyone would agree that although Kansas is not a mountain state, this is hardly reason for Kansans to be without a mountain.

Of course this is ridiculous—or is it?

A recent (1970) Bureau of Reclamation document, *Recreational Impact of Reclamation Reservoirs*, using the tedious Sociology 127 approach usual in such matters, contains the seeds for just this kind of ecosystem wrecking. The essential kernels lie in the last section, titled "Perceived Trends in Demand for Reservoir Recreation Opportunities." Please note "demand." In the best Madison Avenue tradition of salesmanship, the Bureau first creates a demand and then proceeds to fill it.

But there is important information in Commissioner Armstrong's foreword: "Public recreation has become a major function of Federal Reclamation multipurpose projects." This is a far cry from the original purpose of the Bureau, which was to impound water for irrigation of arid lands, and, possibly, for flood control. (However, according to economist Kenneth Boulding, then at the University of Michigan, quoted by John Lear in *The Saturday Review* of October 23, 1965, "The truth is that what we call 'flood control' means the eradication of little disasters every 10 years or so at the cost of a really big disaster every 50 or 100 years in any given flood plain. No flood control program is able to protect a flood plain against the 100-year flood. After all, that is why the flood plain is there!")

No one would or could deny that the recreational attraction of a large body of impounded water is a very great side benefit to millions of Americans who happen to live in the vicinity of Bureau projects. But it would be a long step in the wrong direction to say that this requires—or even suggests—that reservoirs be built solely for their recreational aspects.

This recreational impact study proves many things, among others that lots of people like water-associated activities—or water sports, as we used to call them. What the study does not take into account—and this seems of considerable importance to all of us—is that even more millions are disinterested in this sort of thing. Leaving aside the report's two reservoir recreationist composite personalities—one who is 30 to 49 years old, out of state, with two and one-half kids and an income of \$10,000; the

other a local blue-collar (or young executive!) with a \$14,000 income and perhaps no kids—we are still faced with millions and millions of other sorts of people whose only water orientation involves bathing, dish and clothes washing, sprinkling the lawn, and washing the car. With concerted effort, television advertising, and the like, people who may prefer golf, tennis, riding, hiking, bridge playing, or just settin' can be reprogrammed to demand fishing, powerboating, and water skiing (abetting air pollution and minor gas and oil spills); swimming; or simply watching the waves lap an artificial shoreline. But why? Why not leave them alone to do their own thing?

One compelling reason seems to be economic. Land values in the immediate vicinity of a selected impact area, the study assures us, increased four times. Whom does that benefit? Landowners benefit, of course, and those who sell powerboats, campers, and fishing tackle, as well as the ones who operate the recreation facilities. In other words, the beneficiaries are local business and the manufacturers of the "toys" the reservoir recreationist needs to keep himself happy.

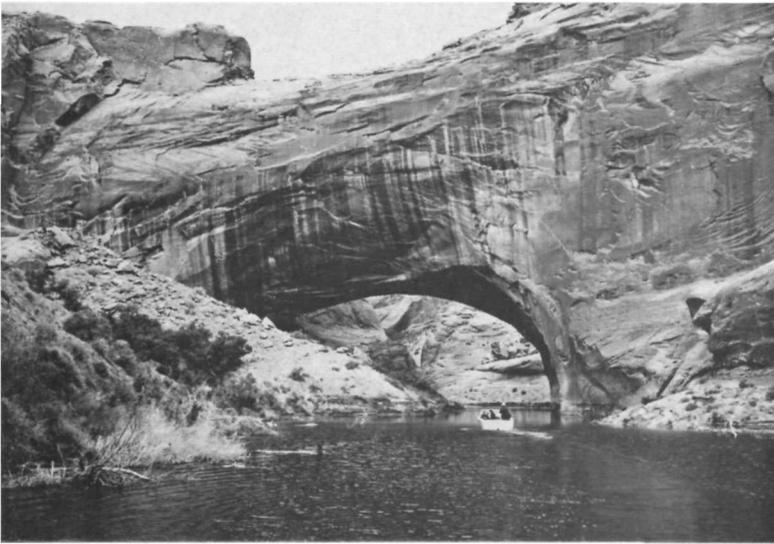
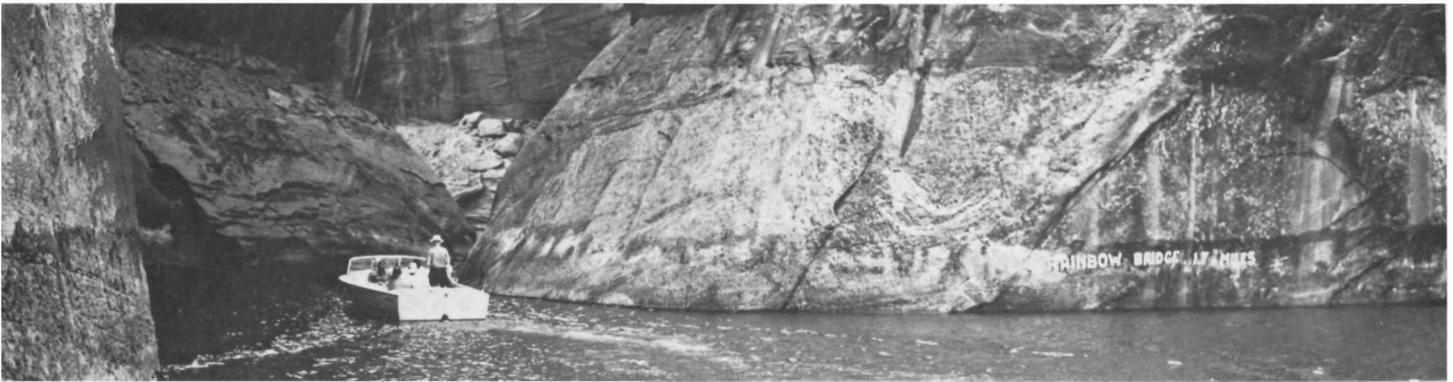
The much-touted benefit-cost analyses, remarkably, always "prove" that the economic value of whatever project is under consideration will exceed costs of construction. But listen to what one man with unassailable credentials, Colonel Edwin R. Decker, St. Louis District Engineer of the Army Corps of Engineers before his retirement last year, has to say about benefit-cost analysis: "It's as dead as the dodo. It's intellectually incestuous—it just makes me sick. They come down the aisle swinging their incense and chanting 'benefit-cost.'"

"You can adjust the B-C ratio to justify any project. . . . But costs increase faster than benefits so that by the time a project is completed the B-C ratio is meaningless." (Quoted in the *St. Louis Post Dispatch*, October 5, 1971.)

I know something at first hand about two Bureau of Reclamation reservoirs. I live 3 miles from one, Bumping Lake in Yakima County, Washington, and 50 miles by road or 12 as the crow flies from another, Rimrock, also in Yakima County. Because these projects are within the Snoqualmie National Forest, both the Bureau and the Forest Service compile statistics on their use. The discrepancy between the two sets is interesting, although it may illustrate nothing more than the impossibility of compiling statistics for this kind of thing. The Bureau, for example, gives a total of 75,500 visitor days in 1970 for Bumping Lake. The Forest Service figure is 48,400. Rimrock, according to the Bureau, had 154,000; the Forest Service says 88,600. In both instances I have deleted from the Forest Service figures additional "use days" that do not match Bureau categories, for example those at resorts, recreation residences, and so on. In spite of this adjustment the statistics are far apart.

For at least 45 years the Bureau of Reclamation has

Active in the conservation field since 1958, Isabelle Lynn is author of the original proposal for the establishment of Cougar Lakes Wilderness Area in the state of Washington. Since 1956 she has been a partner in the Double K Mountain Ranch, Goose Prairie, Washington.



According to the Bureau of Reclamation, Gregory Natural Bridge (left) attracts many boaters "now that rising Lake Powell water has made it easily available." Not yet inundated but in danger should the water level behind Glen Canyon Dam be raised is famous Rainbow Bridge. Below left, flooded Glen Canyon (Lake Powell) is a playground for motorboats. At right, Rainbow Marina clings to the arched walls of Aztec Canyon, one of many water-filled tributary canyons behind Glen Canyon Dam.



PHOTOGRAPHS BY MEL DAVIS



Bumping Lake Reservoir in Yakima County, Washington. The area around the Bureau of Reclamation reservoir has been proposed for federal protection as Cougar Lakes Wilderness Area.

dreamed of enlarging Bumping Lake. They have studied and restudied the matter: their 1966 Bumping Lake Enlargement Proposal ran to 70 pages, exclusive of maps, charts, graphs, photos, attachments, and letters of transmittal. In that year they claimed 35,500 visitor days per year; they projected 200,000 immediately following the enlargement and 800,000 within 40 years.

The area surrounding Bumping Lake has been proposed for inclusion in the National Wilderness Preservation System as the Cougar Lakes Wilderness Area. I mention this only to give you a clue about the setting for this mountain lake. The whole area is steep, fragile wilderness. The valley floor of the Bumping River drainage, which absorbs most of the recreational use and abuse, is 12 miles long and perhaps from a quarter mile to a mile wide. The current plan is to raise the dam 130 feet. This would reduce the valley floor to 9 miles in length, with water lapping the mountains in some places. Eight hundred thousand visitor

days a year? The short recreational season must also be considered: it is rarely over 4 months long. During the other 8 months the country is buried under 8 to 10 feet of snow. The average annual snowfall at Bumping Lake is 37 feet.

You may well wonder what is happening in this valley now under the impact of 75,500 (or even 48,400) visitor days a year. It is trampled, degraded, cut up, dusty (this is country of very little summer rainfall); the roadside is littered with garbage despite the efforts of the Forest Service with garbage pickup, Smokey Bear, and now the owl bit. One shudders at the thought of the lake bottom, for 50 years the repository of bottles, cans, fish-egg jars, lunch sacks. The Forest Service in the last few years has constructed a new and—if you like this sort of thing—attractive trailer campground at the lake. Each trailer has its own slot with firepit and is screened by trees for privacy. On the Fourth of July in 1971 as many as three trailers were crammed into some of those slots. This pleasant area soon

will, with that kind of use, be in a class with some campgrounds the Forest Service has had to "put to bed" in an effort to stimulate regeneration. The answer is not, obviously, to bring more people into the valley.

Rimrock, larger and more accessible year-round than Bumping Lake, has its summer homes routinely vandalized, and no longer do decorative arc lights line its spillway at night, because "reservoir recreationists" have shot them down so often they are no longer replaced. (There apparently is another kind of recreationist not described in the Bureau's publication.)

Intelligent and farsighted planning of the way we use our nation's resources has not been a widely heralded concept in the United States. There has been a marked tendency toward linear extrapolation that is not valid at all, although it is much beloved by the governmental bureaucracy. Take waterskiing as one example. That this sport is highly popular in 1971 does not mean that most Americans will be indulging in it by 2000. Actually, waterskiing may enjoy as much favor in 2000 as curling and croquet do now. And if surfing enthusiasts grow more numerous, will we need wind machines on artificial lakes for those who seek the ultimate ninth wave?

"In conclusion, it can be seen that the creation of a reservoir can have a significant impact on the quantity and quality of recreation opportunities available in an area. Future demand for reservoir recreation areas is expected to increase greatly, and the greatest demand will be for reservoirs near the metropolitan areas of the country." [Emphasis added.]

So ends the Bureau of Reclamation's *Recreational Impact of Reclamation Reservoirs*.

The United States happily is blessed with lots of water. Among other things we have, close to the largest population centers, the Atlantic and Pacific Oceans. To cater to water-loving midwesterners there are five Great Lakes. There are thousands of miles of rivers, streams, and creeks running their courses throughout this country. Natural lakes, pools, and ponds can scarcely be counted—there are so many. Even dry Texas has its complement of lakes and rivers not to mention the Gulf of Mexico, as well as many artificial reservoirs. To judge the relative recreational potential of reservoirs, it may be instructive to have a look at a few of those in Texas:

Lake Austin. In 1915 this lake had a storage capacity of 32,000 acre feet; by 1924 this was reduced to 2,900 because of sedimentation. In 1967 the lake no longer existed.

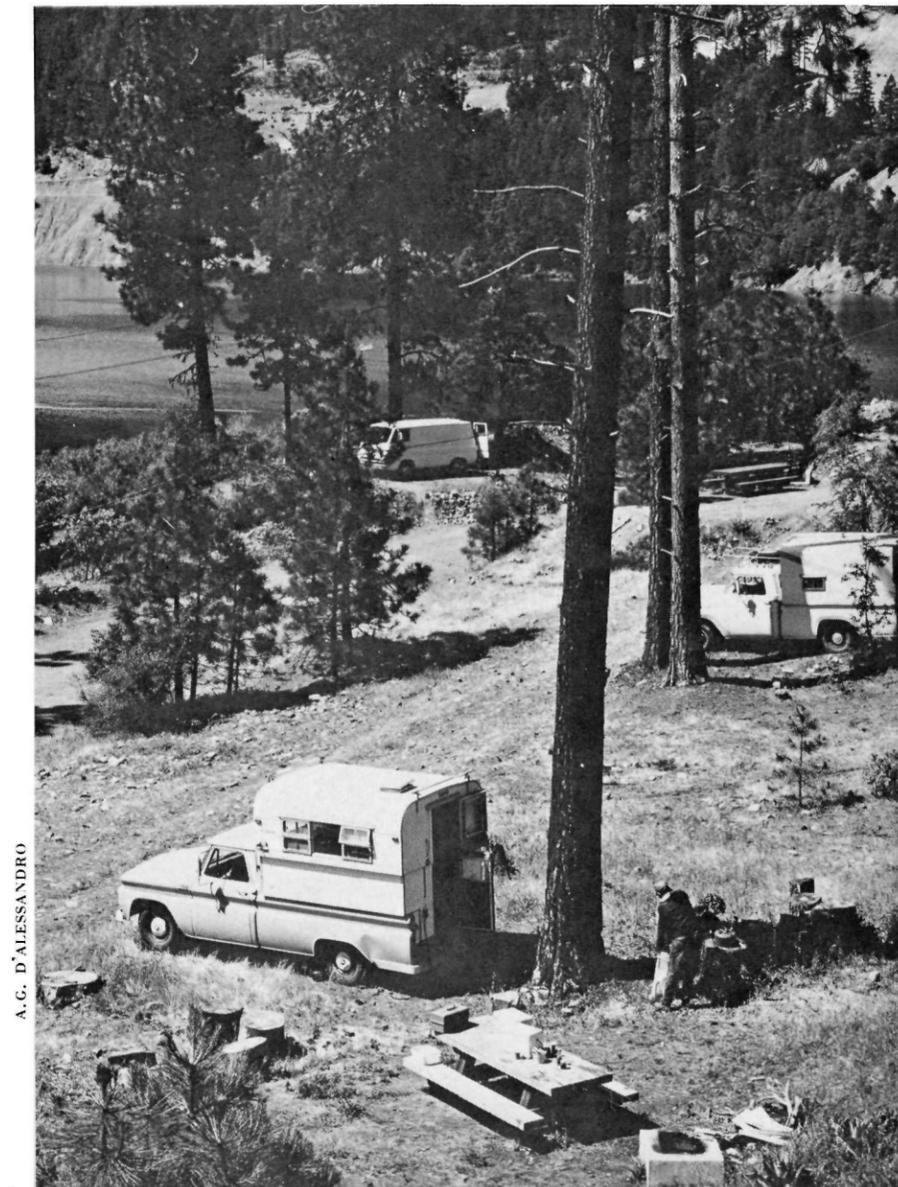
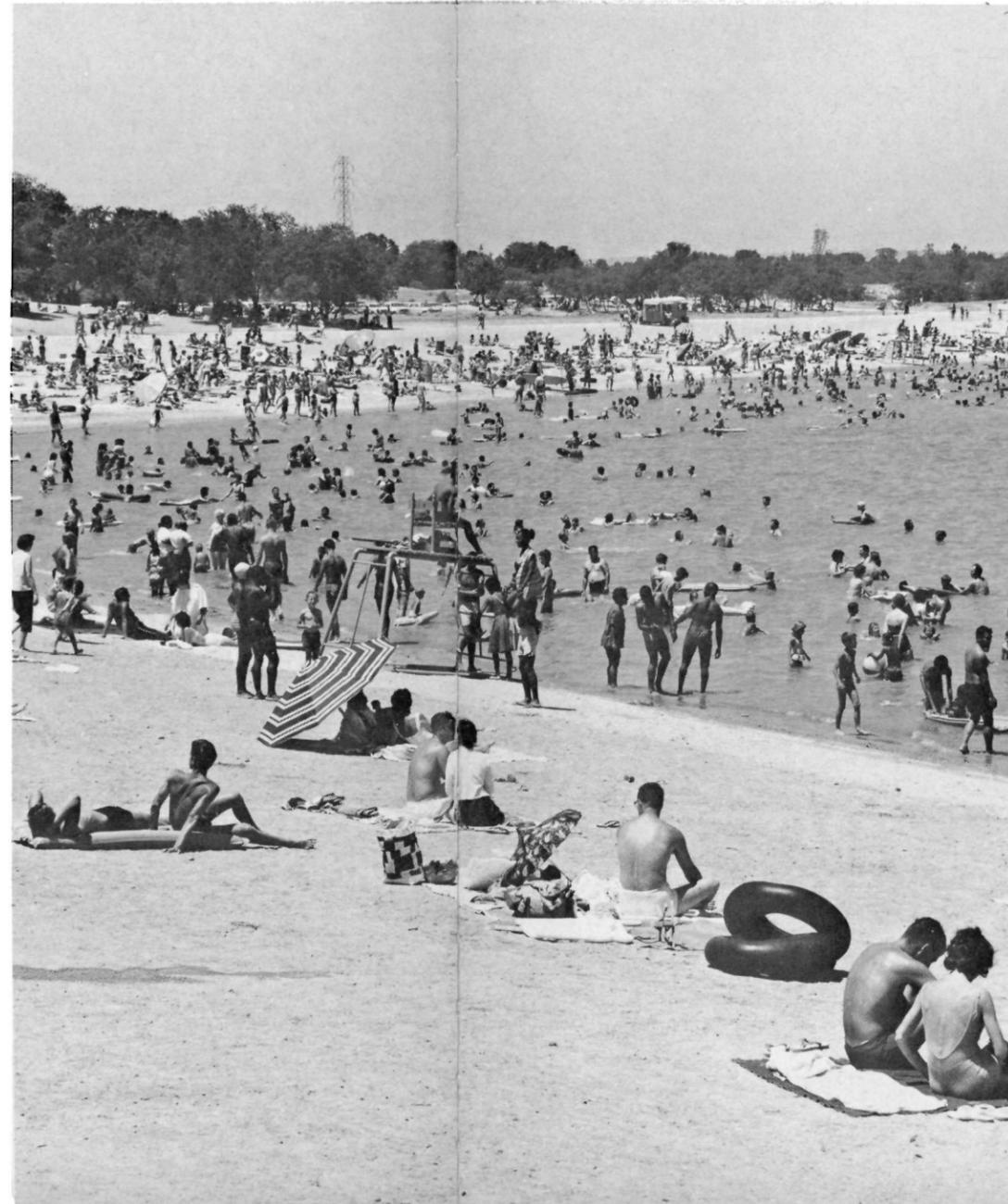
Lake Kemp. In the 36-year period between 1922 and 1958, 98,200 acre feet of sediment were deposited in this



F.S. FINCH

Swimmers and picnickers crowd Folsom Reservoir in California (below left), the most heavily used Bureau of Reclamation artificial lake. The shores of nearby Lewiston Reservoir (below) have been partially cleared to allow camping. Above, boat trailers line the ramp roadway at Waheap Landing on Lake Powell.

A.G. D'ALESSANDRO



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J.C. DAHLIG



reservoir, reducing its capacity from 560,000 acre feet to 461,000. Close to 3,000 acre feet of silt are deposited annually.

Lakes Waco and Corpus Christi. These two reservoirs were so silted that new lakes were built over them. Does anyone suppose that the problem of siltation in these Texas reservoirs has been taken care of? It hasn't; silt was and is a nasty problem, at least in Texas.

The Wenatchee National Forest in Washington boasts a dam that is sanded in. I have recently read that fishing and hunting have been prohibited in some Tennessee Valley Authority lakes because of the high mercury content of their waters. The public demand, in the case of Tocks Island Dam on the Delaware, seems to be that it not be built.

Along with air and soil, water occupies the top spot for maintaining life on our planet. Yet, shortsightedly and catastrophically, we have used it to serve as a giant Disposall for the byproducts of our economy of waste. There is little that makes sense in the promotion of new "holding basins" for water. We have such basins and streambeds naturally and in abundance. We have a need for *clean* water, in its proper setting, not more water dammed in artificial lakes.

There is endless talk about "protecting" our environ-

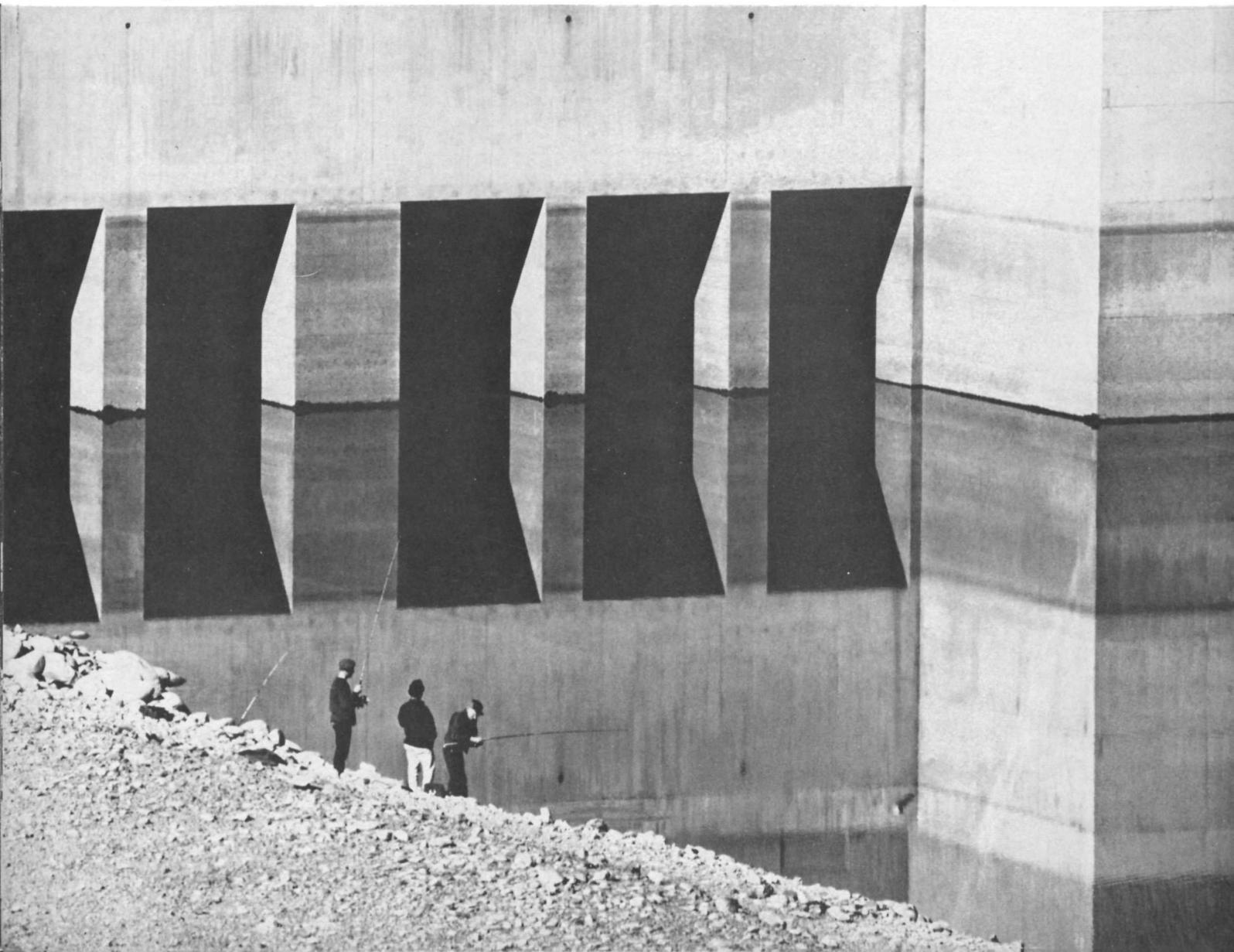
ment, cleaning up the lakes, rivers, and oceans. How can we even make a start on this Augean-stable cleanup when an official of the Environmental Protection Agency, urging housewives to return to phosphate detergents, piously observed, "When you weigh the death of a child [she had eaten a nonphosphate detergent] against the possible death of a lake there's no choice. The human health factor has to outweigh any environmental damage." (*Time*, September 27, 1971.) Where, one may well wonder, is the human health factor when all the lakes, rivers, and oceans are approaching the point of no return?

As far as I know EPA never talks about soap, never mentions that in thousands of years of use soap has never caused any environmental damage. Why? Because soap is made of materials found in nature and nature has enzymes to degrade it completely.

Talk is indeed cheap; cleanup is monumentally expensive as well as a political football. Sometime in the next few years (very few) cleanup will have to get off the drawing boards and into the muck we have created. In the meantime, babble about new reservoir "playgrounds" is not only irrational but dangerous—if we plan to go on living here, that is. ■

Fishing at the Francis J. Carr Powerhouse in the Bureau of Reclamation's Trinity River facilities in central California.

A.G. D'ALESSANDRO



THE PROFIT MOTIVE AND THE ENVIRONMENT

An address delivered by Anthony Wayne Smith, President and General Counsel, National Parks and Conservation Association and Chairman, Environmental Coalition for North America at a meeting of the Conservation Committee of The Garden Club of America in New York City on October 12, 1971. Mrs. W. L. Lyons Brown of Harrods Creek, Kentucky, and Delray Beach, Florida, is Chairman of the Conservation Committee of the Garden Club. She is the member from The Garden Club of the Steering Committee of the Environmental Coalition for North America. Mr. Smith is Chairman of the Advisory Committee to the Conservation Committee of The Garden Club.

THIS IS AN OCCASION to which I have been looking forward for a long time. Your hospitality here today has been quite overwhelming, and I am grateful.

The Garden Club of America and the National Parks and Conservation Association have been closely associated in many constructive activities, to my personal knowledge, for a dozen years and more.

Recently this cooperation has been even more creative than ever, thanks to the initiatives of Mrs. Brown, Mrs. Waller, Mrs. Byrd, and Mrs. Greeley, among others. This cooperation can be critically important for America in the years ahead.

I shall be speaking here today as President and General Counsel of the National Parks and Conservation Association, except that I have no authority from the Association to deal with matters involving legislation. I shall be speaking also as Chairman of the Environmental Coalition for North America, and if I touch on matters necessarily involving legislation, I shall do so in that capacity or as an individual.

This has been a very enjoyable occasion already for me, and I am sorry to start off by being dismal.

But courage is one of the more admirable qualities of the human race. It should lead men and women to face the facts of potential disaster where these exist; only so can preventive measures be taken in time.

LIFE ON THE PLANET earth is in grave danger. The distinguished social psychologist and psychoanalyst Dr. Erich Fromm has said that the *probability* is that within 50 years, and perhaps much sooner, all life on earth will have ceased to exist; not the *possibility*, but the *probability*.

Among the reasons are the persistent accumulation of deadly armaments, the systematic poisoning of air, water, and soil, and a powerful death wish which may be present in malignant form in about ten percent of the human race.

The spectacular advances in developing new strains of wheat and rice may have reduced the likelihood of catastrophic famines during the next quarter century, but not the omnipresence of dreadful malnutrition among perhaps two-thirds of the people of the world.

I happen to have been involved personally in the past, and am still involved, one way and another, in the economic and military aspects of this crisis, but today I shall be concentrating on the environmental aspects.

I have been invited to discuss the environmental situation in relation to the operations of the profit motive, and I shall focus on those relationships in the activities of the large industrial and commercial corporations.

After I graduated from the Yale School of Law, I practiced here in New York in the financial district in association with the late William J. Donovan of O.S.S. and other fame. Our

practice was a large corporation practice, much of it in the anti-trust field. I was an independent businessman before I studied law. I can understand some of the problems of business managers.

PROFIT IS A CONDITION precedent to the operation of any business. This is true in communist, socialist, and capitalist countries alike. This does not and cannot mean, however, that profit is the only major consideration by which business managers must direct the operations of their enterprises.

Parenthetically, I direct the operations of a rather successful non-profit corporation, the NPCA. Non-profit corporations do not speak of net income as profit, but as excess of income over expense. But they must guard that excess with an alert eye, or cease to operate.

It was amusing and pathetic to read recently about the efforts of the Russians to prevent and reverse the pollution of Lake Baikal in Siberia, the largest body of fresh water in the world. In 1960, orders were sent down that Baikal must not be polluted; the state corporation managers paid no attention. Some eight years later, when the pollution had become deadly, directives were issued to clean up the lake. The managers either paid no attention or were unable to comply. New orders have now been issued.

All this is instructive, as showing that Russian society is not quite so monolithic as you might suppose; but more importantly, that the problems of the poisoning of air, water, and soil, which Fromm and others think may prove lethal, are universal, not the fruit of any single economic or political system.

As another example of the same proposition, the Caspian Sea is dying. The Sea is a body of water which was always in a delicate ecological balance, an almost stagnant lake, with complex internal gradients. Pollution has been pouring into it from the paper mills of Scandinavia, from the factories of the Soviet Union, East Germany, and West Germany, and no doubt also from agriculture all around the coasts, including Denmark. Capitalistic West Germany may be doing the best job at trying to clean up the mess. But capitalism, socialism, and communism have been making generous contributions to the death of the Caspian.

THE MODERN CORPORATION is a fascinating institution. It is different from what it thinks it is. At least since Berle and Means we know that it is run by managers, often effectively self-perpetuating, and yet with dominant stockholders, usually minority stockholders, exerting an ultimate restraint. And most of us have known for a long time that the large corporations are the dominant institutions of our age.

The big public agencies, the commissions, boards, bureaus, grew up in response to the corporation. The history of the New Deal is largely one of that response.

The big labor unions grew up in response to the power of the corporations. This also was a large part of the history of the New Deal. It was the entire history of the old Congress of Industrial Organizations, the former labor federation, with which I served as Assistant General Counsel through almost its entire life. And so I understand the labor relations side of the industrial managerial process.

Because of the power which business managers exert, to say nothing of the personal wealth of which many can dispose, their decisions are of basic public importance. The large private corporations are not private institutions, even though hundreds of thousands of people may use them as savings banks. Their impact on the economy, on the environment, on

employment, on the structure of cities, and on the quality of life for everyone, makes them *de facto* public institutions.

IT IS NO LONGER TRUE, if it ever was, that businessmen, even when thinking only in terms of their own interests, could rely on profitability as an adequate guide to policy. Managers who are also men of social vision, and there are many of them, think of their corporations as units in a productive economy, not merely as money machines. They must learn to think of their enterprises more and more as participating in environmental processes which can be beneficial or malignant to human society, depending on the conduct of the corporations.

I am suggesting that corporation managers must cultivate an ecological conscience, and a humanitarian conscience as well. It is no longer good enough to say that one is not in business for one's health, or for the welfare of society, or for the welfare of the world; the corporations are indeed in business to make money, or they would be out of business, but they are also in business to produce beneficial, not harmful commodities, and to do so by methods which improve, not impair the environment and the community, because the corporations are public institutions.

AS THE ECONOMIC and social chaos of our society deepens, more and more public regulation becomes inevitable; inevitable, that is, unless corporation managers can assume a greater share of responsibility for the consequences of the operations of their enterprises. I would argue today for the rapid assumption of such responsibility.

Let us look briefly at some of the major aspects of the environmental crisis; first of all, atmospheric pollution. American factories (and Russian as well) are still belching forth intolerable quantities of poisonous gases and dust. The power plants are doing the same thing.

Much of this pollution can be eliminated, and some of it can be converted to useful byproducts. Regulation is coming, because human beings do not intend to be smothered. Much better than forced regulation would be a strong voluntary movement within industry to police itself.

Take thermal pollution. This has been bad enough with conventional power plants. It is going to be much worse with atomic energy. Even if we get over from fission to fusion, the thermal pollution problem will be grave. For the rivers it means pressures for the storage of water in farm and forest country which will have serious environmental repercussions. The pumped-storage reservoir compounds the problem. The big reservoir, with its deep and hideous drawdowns, may now be a thing of the past for pollution dilution purposes, but the battle against the reservoir for cooling water and pumped storage is just beginning. We are aware of the limitations and complexities of cooling towers, particularly dry towers, and the additional costs they impose on production, but we shall have to get going with them. Regulation will force this course on industry; how much better it would be if industry took the initiative.

Take the energy crisis, which is central to the environmental crisis. Everyone knows that electric power consumption has been skyrocketing far beyond the growth of population. Among the causes is the mismanagement of our cities; the plunge into air-conditioning, with our office buildings otherwise hermetically sealed, has multiplied the energy requirements of the cities; likewise the digging underground for parking spaces; with stress on ventilation and illumination.

We seem to be locked into this trap. We got there because we did not plan ahead. We got there because we think that gadgets can solve all problems. And because people, and specifically entrepreneurs, were pushing air-conditioning without regard for the environmental and economic consequences.

A group of utilities apparently intends to build seven or eight big atomic reactors in the Susquehanna River Basin. The Army Engineers are designing a number of storage reservoirs in the farm and mountain country of Pennsylvania and New York to provide cooling water; these reservoirs will destroy the localities.

A rider in the Rivers and Harbors Bill of 1970 rescinded for the Susquehanna certain provisions of the Water Pollution Control Act which would prohibit reservoirs for the dilution of pollution, including heat pollution, where other methods of pollution prevention are available, and which require the disclosure of beneficiaries. The plans for the Susquehanna are secret and ought to be exposed.

On the Potomac, where conservationists fought off some 16 Army Engineer reservoirs intended for the dilution of pollution during a campaign which lasted a dozen years, one reservoir got by, known as Bloomington. The pretext is that the water is needed for Washington; but Washington has the water in its nearby estuary.

THE PRESSURES, in my opinion, are from industry; we, the people, are making industry a gift of a reservoir which will cost \$100 million to help flush industrial and thermal pollution. Pressures of this kind are irresponsible; if the public has to subsidize big industry, let the subsidy go to methods which will truly protect, not destroy the environment for the people in the locality.

But there is also a promotional problem involved; in this energy crisis the combined social effort should be to reduce power consumption. The advertising of electric gadgets by the utilities should stop. Electric power rates should be inverted, increasing with large consumption. The regulatory commissions could do this; the utilities ought to support the effort.

The consumer is going to pay any way, either in rates or taxes. I believe that a rational electric rate structure would have the support of consumers and environmentalists alike. Will it have the support of industry?

Take water pollution. We have just witnessed one of the most disgraceful retreats ever executed by a powerful government. All of the Federal agencies with responsibility for the prevention or mitigation of water pollution have announced that phosphate detergents are here to stay.

Run back in your memory over this evolution. First we had soap, which was serviceable. Then we had detergents, the first generation, which bubbled, and our creeks and rivers overflowed with bubbles. Then we had phosphate detergents which did not bubble; but they polluted our streams, rivers, and estuaries with a secondary pollution consequent upon the overstimulation of algae by fertilization, the death of the algae, the death of the fish, and so forth.

And so, for this reason and many others, pollution prevention laws were passed and agencies set up and given responsibility for preventing water pollution, pollution by detergents among others. The corporations ran advertisements to the effect that they were working on a new generation of detergents; please be patient, because the new ones might be worse than the old; and apparently, indeed, they were.

The washing machine manufacturers had built their business on detergents; the notion had also spread, aided by advertising, that every man's collar must be spotless when it came back from the laundry. A reasonably good wash job was good enough for our ancestors, who survived; the public health aspect of a spotless collar is questionable; we could still go back to soap.

In executing their hasty and embarrassed retreat, the public officials noted that we might be able to improve our municipal treatment plants to remove the excess phosphates. Before the

detergent ruckus started, some of us were working on the problem of reducing the phosphates used by municipal treatment plants; now the plants will apparently be asked to get along without phosphates, and yet to accept an overload from the domestic washing machine and many other sources in addition. Meanwhile, the industrial pollution of our rivers, as distinguished from municipal pollution, has hardly been touched.

AS A NATION, we are caught in another trap; the washing machines should have been programmed for soap from the beginning; it is bio-degradable, non-phosphate. A well managed economic system would have done some ecological analyses well in advance; it would have presented the American people with equipment which would have done no ecological harm. This is a place where some boycotts by housewives might be valuable. The Garden Club has already been helpful.

Tough regulation is coming in these matters; people react strongly against being poisoned when they know it is happening. It is probable that the next few Congresses will see legislation giving the Environmental Protection Agency authority to prevent the corporations from placing products and equipment on the market until positive scientific proof has been given that no adverse ecological or environmental results will ensue.

This means big research and development operations for the corporations. It means absorbing the environmental costs or deferring production. The consumer will be opposed to taking over these costs, whether by price increases or tax increases. The consumer is getting to be better organized. Environmentalists and consumers will be working together.

Take the management of our forests. I was associated with Gifford Pinchot, America's first great forester, when he was Governor of Pennsylvania. I set up a forestry program in the old CIO, because we had trade union members in the timber industry, and because I was always concerned about the forests. Pinchot was my first consulting forester.

We embarked more recently in the NPCA on an effort to find and describe a few examples of good forestry in the United States; we had a brief shock at the beginning, because we thought we might not find any good examples. We are discovering them gradually, but they are hard to come by.

Most timber harvesting in America is clear cutting, a method which has devastating effects on soil, water-courses, many forms of wildlife, and recreational, environmental, and scenic factors. Clear cutting is faster and cheaper, but it is not silviculture; it is not, as a general thing, good forestry.

Our big corporations are exploiting these practices all over the world. The Indonesian forests for example, virgin tropical stands, are about to be clear-cut by American corporations under contract. Tropical soils wash away, burn up in the heat, bake into rock when forests are clear-cut. This has happened in Viet Nam as a result of military defoliation.

I am one of those who thinks that the overseas practices of American timber companies should be brought under regulation within America; else, we shall be a grimly destructive force elsewhere in the world. And the remarkable thing about it is that many of the major companies have good foresters and highly defensible long-range plans for their own holdings. An ecological conscience is clearly at work in some of the companies.

And yet, conservationists have been arrayed against the timber industry in bitter legislative battle during the last two or three years; the central issue being whether our national forests are to be heavily overcut under contract with industry as contrasted with harvesting on a sustained yield basis by ecological methods with a view to stable and perpetual yield.

THIS BATTLE REPRESENTS an enormous waste of social energy; why should business run a campaign of this kind, forcing us to run a counter-campaign. I would venture to predict that the counter-campaign will be successful. Meanwhile, the companies get themselves a bad name.

And take the pesticide matter. We are poisoning our wildlife and ourselves with DDT and other hard pesticides. The world has become so addicted to them, economically, technologically, medically, that the habit will be hard to break. To the everlasting credit of a number of major corporations which were making DDT, they have withdrawn from the business. The companies which have stayed in the business are likely to get what they richly deserve.

We have to move over from hard pesticides to soft pesticides and then to biological controls. I was a rather large commercial dairyman for about 15 years and I know what this means to agriculture. Pesticide promotion programs, conducted with all the resources of modern advertising in the farm journals, have pushed American agriculture into a corner on pesticides.

I am working with Pennsylvania State University, providing my land without charge, on experiments for the control of the alfalfa weevil by parasitic wasps; the experiments are proving to be successful. When farmers use pesticides to kill weevil, they kill the parasites themselves.

NOW, MY POINT IS that public efforts to get regulation over these abuses and to prohibit the worst have usually been opposed, not supported by industry. This is an objectionable situation, to put it mildly, where large numbers of the American people find themselves arrayed against the institutions which produce the commodities by which they live.

Take the automobiles and the highways. This is a place, as the signs used to say on the churches, for meditation and prayer. How long is it going to take this nation to outlaw the poisonous exhaust from our automobiles? The haze which hangs over the eastern seaboard seems to be almost continuous and permanent. The congestion of traffic in our cities is ludicrous, though tragic.

I realize that some of the automobile manufacturers are working on alternatives to the present type of internal combustion engine; likewise the Environmental Protection Agency. The United Automobile Workers have issued a strong call to get going fast.

Environmentalists are pushing for the dedication of highway trust funds to the formulation of a sound national transportation policy, which might among other things restore commuter passenger rail transportation, reducing the need for enormous jetports, slowing down the proliferation of dual highways everywhere.

Industry, which has the know-how, should be taking the lead in all these efforts. The public relations benefits would be obvious; but that is not the point. The point is that the corporations have an ecological and humanitarian responsibility in these matters; the impact of the corporations on our total society is the impact of public institutions. Can the environmentalists, the consumers, labor, and industry get together to work for a constructive national transportation policy, and indeed an international policy to avoid such fracasas as the SST?

Take a side glance at the Trans-Alaska Pipeline. This was going ahead great guns until about a year and a half ago when the environmentalists stopped it in court. We organized the Environmental Coalition for North America on the issue, and that also had something to do with holding things up. The probability is that it will be held up a lot longer; a good bit of money is tied up. The oil industry should have planned ahead.

The proposed line would gravely impair the delicate Arctic tundra, interrupt caribou migration routes; cross a dangerous earthquake zone; require loading to tankers at Valdez, and a dangerous journey down the coast. The alternative route up the Mackenzie River through Canada, south to Edmonton, forking southeast and southwest has not been fully explored.

The Alyeska Consortium plays with palliative notions; what is needed is to cancel the project unless the Canadian route proves economically and environmentally feasible. What is needed is a genuine effort by the oil industry to serve the public interest.

Consider the international situation. We have three major United Nations Conferences coming up in the next three years; on the Human Environment in 1972, on the Law of the Sea in 1973, and on Population in 1974.

THE NPCA HAS proposed a new specialized agency to be known as the Environmental and Population Organization; this could be split into an Environmental Protection Agency and a Population Stabilization Organization. But in any event new machinery is needed for these purposes.

A year ago this past summer President Nixon proposed a Seabeds Treaty providing for a World Heritage Zone beginning at the 200-meter depth line in the oceans which would be managed by institutions established under the United Nations to prevent destructive exploitation. The General Assembly expanded the idea to comprise all marine resources.

The Conference on the Law of the Sea in 1973 will deal with this proposal. Unless we get favorable action, the nations will embark on a destructive and competitive mining of the resources of the seas and the sea beds. The main opposition to the treaty seems to be coming from segments of the oil industry; this would be shortsighted, to say the least; this is the kind of thing we have to get away from.

Nothing is to be gained by carping criticism. Where criticism is deserved, it should be vigorous; but suggestions are always in order as to what should be done. In fact, I think it is often a great disservice in this period of crisis to enumerate and describe all the impending disasters, to relate all the horrors in detail, without suggesting remedies; for this procedure builds up anxiety, and psychologists know that anxiety often induces paralysis.

For example, without getting at the moment into the question of population, a key factor which in my opinion underlies all the rest, it is not good to reiterate the dangers of the population explosion without proposing measures to deal with it. There are indeed some rational ways to stabilize and reduce population. Almost everyone knows by now that we have a population crisis. The question is what to do about it.

When we talk about the environmental crisis we must talk about measures for its abatement. When we talk about corporate irresponsibility in the environmental field, we should suggest courses which responsible managers might take.

Responsible industrial managers, in my opinion, should be working for effective public regulation of the abuses in their industries. It has always been rather standard practice for management to oppose regulation. But the truth of the matter is that regulation bears upon the irresponsible; the responsible companies which would like to follow sound practices, guided not only by their ecological and humanitarian consciences, but by sound public relations considerations as well, always find themselves undercut by the fast-buck-only people.

IN OTHER WORDS, men of conscience in industrial management should be working with the environmentalists, not against them, to devise legislative, economic, and political measures

which will help their industries function on an ecological and humanitarian basis.

If the modern corporation were merely a money making machine, such a proposal would be ridiculous; I would be a silly sentimentalist to advance it. But the modern corporation is in fact, willy-nilly, a social institution; it is going to be bound into the ecological and humanitarian mainstream of modern society, whether it wants to be bound or not. It will be bound by public regulation or public ownership unless it undertakes to commit itself to sound social purposes.

The public-interest purposes of the corporations, and the self-interest purposes of the well managed corporations, as contrasted with the more predacious business units, call for a measure of soundly conceived regulation and for public institutions which will help steer industrial processes in benign directions.

Public spirited corporate management will support, in my opinion, well-thought-through measures to prevent employers from threatening employees and their unions with shut-downs and removals where environmental protection statutes are enforced. I think there will be a strong coalition between the unions and the environmentalists on this kind of thing; industry should take the lead, not have to be dragooned.

Public spirited industry labors under certain disadvantages with respect to competition; this is obvious. The public-bet damned-people have short range advantages. Combinations to refrain from the development of noxious products can be looked on as combinations in restraint of trade. This was hardly the spirit in which the anti-trust laws were conceived; and yet this result can occur in practice. Agreements between the Department of Justice and industry permitting such cooperation are seldom subject to adequate public scrutiny, let alone control, and will not be acceptable to consumers or environmentalists.

But agreements to refrain from the development and marketing of harmful products and equipment, arrived at pursuant to any changes in the anti-trust laws which might be necessary, could be subjected to review by the Environmental Protection Agency; appeals to the Council on Environmental Quality by either party and review by the President might be in order. The organizations of consumers and environmentalists may be exploring these possibilities together in the next few months.

Please bear in mind that we are talking about the crisis of life on the planet. The human race can poison itself into extinction, and take all other life with it, within the next 50 years, unless it makes up its mind to survive.

FINALLY, THERE IS AN obvious method in my madness in bringing these questions to your attention. First of all, the Garden Club is one of the leading conservation organizations of America in its own right. Its component clubs are exerting a powerful influence for good. We must build up our cooperation directly and through the Environmental Coalition.

But secondly, many of you have the ear of the most able and future-oriented business executives of the country. The public-spirited business executives of America can help to save the day for this country and the world if they choose. They need your encouragement.

Even without their help, of course the day can still be saved, because the environmental movement is growing rapidly stronger. But with the help of the managers of our corporations in the self-policing of industry and in getting the necessary public review and regulation, this critical battle in the history of life on earth can more assuredly be won.

The time is short, the dangers great, the rewards of success magnificent. Let us try to rise to the challenge, all of us working together.



Leontine Nappe

THE DESERT PUPFISH PRISONER OF CHANGE

IN A DEEP SPRING tucked away at the edge of the southern Nevada desert, close to the main portion of Death Valley National Monument in California, an inch-long Devils Hole pupfish swims amid the rubble of an underwater rock shelf, feeding on algae and tiny invertebrates. Toward the close of summer and the spawning season, this fish and some 700 companions inhabit Devils Hole spring, which has a mine-like surface opening about 40 feet long and 10 feet wide.

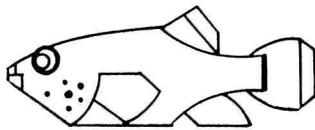
As fall progresses, less sunlight reaches the rocky shelf far down in the throat of the spring. During winter months no sunlight whatsoever will reach the ledge; algae will die, and many copepods and amphipods as well. Many of the pupfish, weakened by hunger, will be attacked by planarians—small, freshwater flatworms that also inhabit the spring. Perhaps 200 of the handsome little desert fish will live to see the return of sunlight and a new spawning season.

These little creatures, of which ten living species and subspecies have been identified in the Death Valley region,

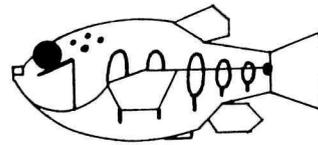
DEPARTMENT OF THE INTERIOR

In Cottonball Marsh—the dying remnants of an Ice Age lake in Death Valley—lives a newly discovered pupfish that seems at home in water far saltier than that of the seas.

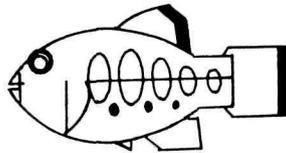




DEVILS HOLE PUPFISH
Cyprinodon diabolis



WARM SPRING PUPFISH
Cyprinodon nevadensis pectoralis



TECOPA PUPFISH
Cyprinodon nevadensis calidae

and a closely related poolfish make their habitats in various desert springs scattered about the arid counties of Nye and Mono-Inyo in California. They are, in truth, strange prisoners of a long-term climatic change that has occurred in this present desert land. The pupfish springs themselves have been compared in their significance to science with the famed Galapagos Islands, for the divergence shown by their tiny inhabitants is every bit as striking as that of Darwin's finches.

Dr. Robert R. Miller, ichthyologist of the University of Michigan, made the early careful studies of the Death Valley fishes and has been instrumental in bringing them to the attention of the public. The pupfishes (genus *Cyprinodon*), he finds, are related to others now found to the south and east into northern Mexico, even to the Caribbean islands. At some time in the remote past some of these fishes migrated across the Continental Divide in southern New Mexico and into the Colorado River basin. The pupfishes then were able to move from the Gila and lower Colorado Rivers into the streams and lakes of the Death Valley region.

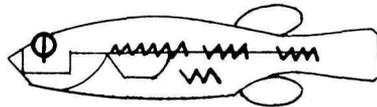
But with the retreat of the latest or Wisconsin phase of Pleistocene glaciation, the climate of the Death Valley region became increasingly arid. Lakes and streams dried up. Habitat for the pupfishes became more and more constricted, until finally the animals were confined during fairly recent times to desert hot springs and their outflows, the water supply of which comes from underground sources, and to the saline remnants of former lakes. Estimated dates for actual isolation of the pupfishes range from 3,000 years to 50,000 years, depending on geographical location of habitat.

Since separation and isolation of the original stock of pupfish—a short time ago, geologically speaking—the animals have made some truly remarkable adaptations to their new and seemingly hostile habitats. In one spring in California, for example, a species of pupfish seems very much at home in water temperatures of up to 108 degrees Fahrenheit. The Cottonball Marsh pupfish of Death Valley can tolerate, in the remnants of a former glacial lake, a salt concentration several times that of seawater. The adaptation and rapid evolution of the original pupfishes into numerous species and subspecies over a relatively short time are

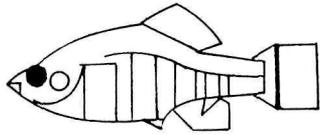
matters of great interest both to the thoughtful lay person and to the scientist. In one of a series of articles surveying the pupfish and its habitat, published in the magazine *Cry California* (Spring 1970), Sterling Bunnell wrote that the pupfishes “represent one of the most striking examples of evolutionary change now to be found on our planet. Their research potential in genetics and evolutionary studies is enormous and still scarcely touched.”

TODAY the progressive invasion of pupfish habitat by man and his work has already eliminated at least three forms of these fascinating creatures, and five other forms are listed by the Fish and Wildlife Service as endangered. The reasons for this state of affairs are quite clear. As categorically stated in a recent Department of the Interior study of the matter, they are: introduction of predator and competitive fishes; destruction of habitat by drainage, filling, land clearing, and diversion of surface waters for irrigation; pumping of water from the pupfish springs and mining of underground water with subsequent lowering of spring levels; pesticides that find their way into the springs and seeps; and “overzealous” taking of pupfishes by collectors.

In recent years conservationists and scientists—prominent among whom have been Dr. Carl L. Hubbs of the Scripps Institution of Oceanography and Dr. Miller—have been pushing strongly for better protection of the desert pupfishes and the related killifish (genus *Empetrichthys*), of which but a single species remains. The growing interest has already resulted in a series of conferences at Death Valley Monument headquarters, attended by interested conservationists of the Pacific Southwest, scientists, representatives of both the Nevada and California fish and game commissions, and various land-management agencies of the Department of the Interior. The meetings reviewed the present status of the several species and subspecies of the pupfish and canvassed various courses of action for their protection. Out of the conferences, also, came The Desert Fishes Council, “dedicated to the preservation of America's desert-dwelling fishes,” with E. Philip Pister of the California Department of Fish and Game as first chairman. The Council's mission will be to tie together all



PAHRUMP VALLEY KILLIFISH
Empetrichthys latos latos



OWENS PUFFFISH
Cyprinodon radiosus

LINE DRAWINGS BY P. CRAIG PHILLIPS, BUREAU OF SPORT FISHERIES & WILDLIFE. MAP BY FEDERAL GRAPHICS.

available expertise on the environmental problems of desert fishes and to make recommendations as to what ought to be done to insure them a future.

Another result of increasing interest in the desert pupfishes was the formation of an intradepartmental task force within the Department of the Interior "to devise and to immediately apply appropriate action required to save the pupfishes." Represented on the task force was the National Park Service, Bureau of Sport Fisheries and Wildlife, Bureau of Land Management, Bureau of Reclamation, Office of Water Resources Research, Geological Survey, and the office of the Interior Department's solicitor. The task force began its pupfish studies during the spring of 1970 and recently published a progress report in a brochure titled *Status of the Desert Pupfish*, available on request from the Office of Information, National Park Service, Department of the Interior, Washington, D.C. 20240. In a case involving the Devils Hole pupfish, which lives in a small detached section of Death Valley Monument and has the most restricted natural range of any vertebrate on earth, the "appropriate action" mentioned by the task force was not long in forthcoming, under the following circumstances.

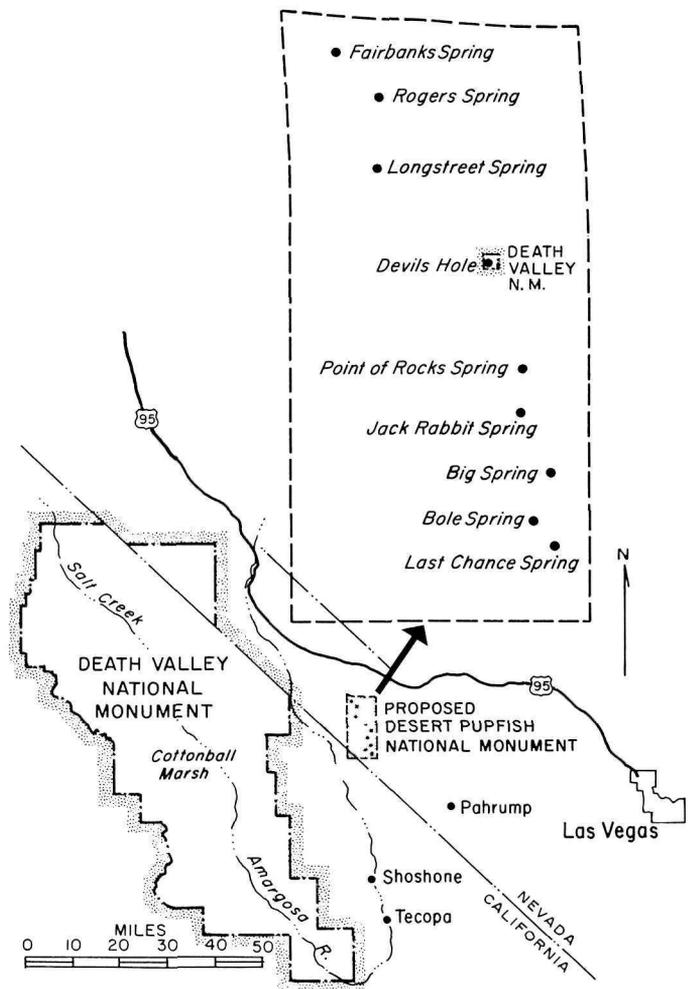
The Geological Survey, which has been monitoring the water withdrawals from three of the pumped wells during the irrigation season by a nearby ranching operation, was threatening to dry up the one place in Devils Hole used by the pupfish for spawning. In August of the past year the Department of Justice, at the request of the Interior Department, filed a suit to halt the water withdrawals. As it turned out, the matter was settled out of court, with the ranching operation agreeing to stop pumping from the three wells—for the present, at least.

Several things are currently being done to insure that the endangered forms of the pupfish are not further reduced in numbers. Water levels and food conditions in the various springs are checked regularly by personnel of the concerned Interior Department agencies and at in-

tervals by state agency and university people. Additional springs are being sought out as refuges for endangered forms of pupfishes, and some transplants have already been made with success as yet undetermined. (Criteria for transplant sites are quite exacting. Biological, physical, and chemical aquatic conditions must duplicate original environments as closely as possible; springs or other sites must not contain related species, must have reliable water supplies, and must be free of the threat of adverse uses.)

The intradepartmental task force also endorsed propagation of endangered pupfish forms in certain aquariums, public and private, where adequate precautions against hybridization are to be strictly observed. Hybridization would, as the task force pointed out, result in fishes valueless to science in restocking natural habitats, should such emergencies arise.

Efforts in behalf of the desert pupfishes so far mentioned obviously are of a stopgap nature. Perhaps the most promising approach to protection in the longer view, and one on which conservationists, scientists, and quite possibly state and federal governmental agencies could unite, would be based on creation of a national monument, national scientific reserve, or national wildlife refuge centered on



PROPOSED DESERT PUFFFISH NATIONAL MONUMENT

Mrs. Nappe is a native Nevadan and a graduate of the University of Nevada. She has been active in campaigning for protection of the state's endangered wildlife, and as executive secretary of a Nevada Endangered Species Committee she has played an important part in securing a state Endangered Species Act.



DEPARTMENT OF THE INTERIOR

Big Spring, above, in the Ash Meadows region of southern Nevada, contains some 2,000 pupfish that have been under the protective eye of a private citizen. At Big Spring the pupfish coexist with a population of mosquitofish and Amargosa speckled dace. Dale Lockard of the Nevada Fish & Game Department is in the foreground. Below left, the minelike opening to Devils Hole, a 40-acre detached section of Death Valley National Monument in Nevada, which is home to the Devils Hole pupfish, said to have the most restricted range of any vertebrate in the world. At right, rare pupfish are being gathered in Devils Hole for a transplanting operation.

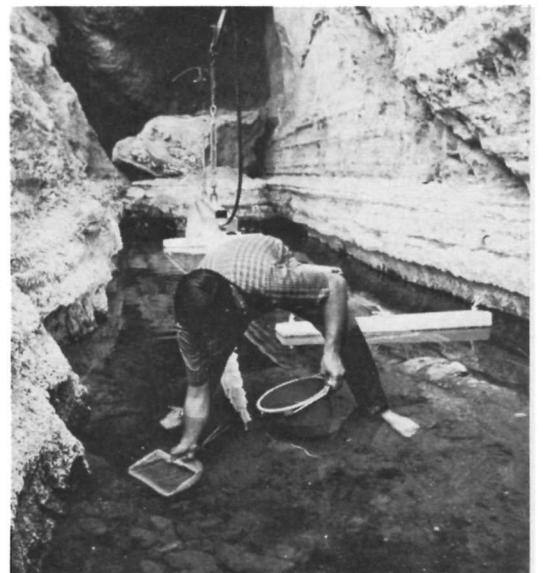
the Ash Meadows region of southern Nevada, with a small portion crossing the state line into California. Here are located numerous desert springs containing a number of forms of the desert pupfish, some of them classified as endangered. The national monument idea already has been formally introduced in Congress by Senators Alan Cranston and John Tunney, with Senators Fred Harris and Gaylord Nelson as cosponsors, and by Congressman Edward Roybal in the House of Representatives.

The monument approach will present difficulties, particularly in the matter of water rights in a region where water is a precious commodity. Nye County, Nevada, in which Ash Meadows is located, is a huge county with a sparse population; it would like to broaden its economic base by attracting ranching and farming. Las Vegas, not much more than 100 miles away, is looking at the underground water resources that nourish the pupfish springs. And there are other problems, though none of a seemingly insoluble nature. Dr. Richard G. Miller of the Foresta Institute, who kept a diary on pupfish habits in pre-task force days, says that temperature levels are a critical factor and that water supply must be guarded. Overheating or overcooling can destroy total populations of pupfish. Simply stated, the only way to really secure the future of the desert pupfishes is to save the springs themselves. In the long run this means more than federal management of isolated waters. It means protecting the surrounding lands and waters that influence the habitat quality in the springs.

IN A SENSE these tiny fishes present Americans of all walks of life with a great and subtle challenge. It is easy to wax enthusiastic over mighty canyons, towering mountains, pristine valleys, or jewel-decked caverns. They speak in grand tones of the artistry of nature. But what of the seemingly insignificant pupfish, living out a precarious existence in a remote desert pool? Are we not obliged to feel that he, too, is a part of nature's artistry and design? The answer to that question today will in some measure model our approach to the weightier environmental tasks that loom ahead. ■



PHOTOS BY CECIL STOUGHTON, NATIONAL PARK SERVICE





Funmobile Folly

Peter Harnik

THE SNOWMOBILE, a hybrid recreational vehicle that combines two skis with the tread of a tank, has virtually completed its invasion of the northland. Although a great deal of hostility and resistance remains among the natives, spokesmen for the machine say they have the situation under control. Nothing short of a massive governmental counter-attack, they feel, could dislodge the powerful snowmobile from its control of the northern United States and Canada.

Official chroniclers of the snowmobile's meteoric take-over have attributed the machine's success to its brilliant analysis of the American mentality. They point out that it caters to our infatuation with noise, speed, and the great outdoors. They delight in showing how the machine fills the need for "healthful" activity without demanding any work. They write in tones of hushed admiration about the machine's advertising campaigns showing young girls flying through the air on snowmobiles.

Most important, they say, was the timing of the machine's introduction. The first snowmobile prototypes appeared in the mid-'50's, but the machine did not go into mass production until the early 1960's—just in time to take advantage

of the new crop of consumers born during the post-war baby boom.

There are nearly 2 million snowmobiles in North America, up from less than 100,000 in 1965 and 259 in 1959. Snowmobiling is now a billion-dollar industry.

The snowmobile industry credits the sport with revolutionizing winter in the northern states and in Canada. Industry spokesmen say that tourists, snowmobilers, and vast sums of money have been lured northward, and that the traditional flow of northerners to Florida and other southern spots in winter has been stemmed.

Susie Scholwyn, founder of *Snow-Goer* magazine and popularly known as Snow-Goer Susie, has been officially designated the "World's First Lady of Snowmobiling" by Wisconsin Governor Warren Knowles. Mrs. Scholwyn summed up the sport's appeal in Congressional testimony last April:

"More and more of the neighbors in the [Wisconsin] area were buying these fantastic little machines," she told Nevada's Senator Alan Bible, "and, lo and behold—winter was turning into FUN! The little snowmobile had become a

drawings by Robert Osborn



funmobile—one that had made winter something to look forward to! Everyone in the area looked forward to weekends, with their picnics, trail-riding, exploring, scavenger hunts, and social gatherings. People who had had a 'bar-room tan' developed rosey cheeks and healthy appetites. Retirees joined in. Many in their fifties and sixties, who were not enthused about the muscular sport of skiing, found that the snowmobile was the answer to their dreams.

"Summer home owners in the area began to visit their cottages during the Christmas Holidays, then more often during the entire winter—sometimes almost every weekend."

Unfortunately, some of the people who visit summer cabins in the dead of winter do not own them. Complaints of vandalism have increased with sales of snowmobiles. Cabins and shacks that had been unreachable and unprotectable now are at the mercy of snowmobilers, some of whom justify causing damage on grounds of "fun" or, worse, "need"—it is cold in the northern woods in midwinter.

State troopers and state legislators began receiving other, more serious complaints as the snowmobile boom swept the nation. For one thing, litter began to turn up in hitherto pristine places. For another, the number of mangled snowmobilers began to mount.

One hundred and two people were killed in snowmobile accidents last year, and 428 injuries were reported. These figures represent a casualty rate about 6 times as high as that of automobiles. Many snowmobilers, in fact, were killed by automobiles, but others were crushed by trains, decapitated by fences and wires, and lured to frigid deaths by wide expanses of glistening, thin ice.

The snowmobile industry steadfastly maintains that the machines are safe and that accidents and mishaps are overwhelmingly the fault of reckless, careless operators—"the rotten apples in every bunch." While there is truth to the contention, there is also evidence that the average snowmobile is a fairly shoddy piece of merchandise. Brakes have failed, throttles have been known to freeze in the "open" position, handlebars have bent and broken, and almost every engine has proven dangerously loud and dirty. Furthermore, the design and construction of snowmobile seats has been uniformly inadequate, and frequent spinal and back injuries have occurred even with proper use.

The actual mechanical faults of snowmobiles, however, probably lead to fewer fatalities than do the manufacturers' advertising policies. Like its relatives the all-terrain vehicle

and the dune buggy, the snowmobile is promoted as a "go anywhere, do anything" machine. Its image is one of power and adventuresomeness and not one of caution and restraint, either on the part of its drivers or for the benefit of the natural environment.

With names like Stinger, Hurricane, SST 443, Rocket, and Firebird, these machines were not built to appeal to those who wish to use them on quiet, peaceful treks into the wilds. The average snowmobile owner, according to surveys, is a 40-year-old skilled laborer or manager who earns somewhat over \$10,000 a year; the average snowmobile driver, according to general observation, is his teenage son.

Snowmobile users have descended heavily upon both public and private lands. Because few snowmobile owners are large enough landholders to suit their explorative urges, and because the machines are prohibited, for the most part, from public roadways, snowmobilers have taken to traversing the countryside with abandon. Their practices have ranged from illegally using national park lands to snipping fences and wires on private land and, in more extreme cases, to terrorizing children at play and racing around and around the properties of "unpopular" neighbors.

State regulatory agencies, although ordinarily reluctant to move aggressively on such problems, have begun to recognize the beginnings of a crisis. The North Dakota State Outdoor Recreation Agency, for instance, issued a statement that said, in part: "The step by [the North Dakota] government to tighten up [snowmobiling] rules has been a direct result of foolhardy snowmobilers who cannot tell what time of night it is, or the difference between public and private property, or have any common sense for the safety of passengers, pedestrians, and the like. A cut fence, trampled crops, dead livestock, and assorted abuses have ruined the hunter-farmer relationship. Snowmobiling is approaching this unreconcilable plateau."

Even if a method of restricting snowmobile operators to responsible persons were to be developed, a number of extremely serious problems with the machines would remain. These problems relate not to questions of health and safety, nor to legal problems, but to a critical area that is much harder to quantify and to analyze: the wintertime ecology.

In previous decades questions about environmental wear and tear, the balance of natural species, and related "crank" issues probably could have been shrugged off by snowmobile enthusiasts. In this age of Earth Days and environmental lobbies, however, these same issues are given serious consideration. In fact, at a symposium on snowmobiles and other all-terrain vehicles at Michigan State University in April 1971, representatives from industry complained that the meeting was too environmentally slanted.

The Michigan State symposium, which brought together many of the top people from industry, government, and the public sector who are interested in and working with all-terrain vehicles, provided the most exhaustive critique of the off-road phenomenon to date. For those who delight in charting the meteoric rise of particular industries, the symposium provided ample backpatting. For those who study governmental policy, there was much sidestepping and fencesitting on the part of public officials. And for those who seek to make a case against the all-terrain vehicle—and the snowmobile in particular—there were a number of serious environmental charges leveled at the machines.

The most immediate and pressing allegations related to the snowmobile's most publicized shortcoming: noisiness. The machines are noisy enough to annoy nonusers and nearby residents, both indoors and outside. Snowmobiles are so loud as to terrify certain species of wildlife and to affect the metabolic rates and breeding patterns of other species. They are loud enough to drown out the sounds of approaching automobiles and trains. Some of them, in fact, are so loud as to cause varying degrees of hearing loss among their drivers and riders. Dr. Fred Bess, Director of Audiology at Central Michigan University, stated that the winner of the Michigan International 500 Snowmobile Race "reported deafness for two solid weeks following the race."

Among his other findings at the International 500 race, Bess came up with two shockers. The noise level in the spectator area was found to exceed 116 decibels at times. This is equivalent to the sound of a chain saw at work 50 feet away. More astounding, his studies added: "Analysis of the snowmobile engine noise demonstrated that some machines produced intensity levels in excess of 140 dB [decibels] at two-thirds throttle. These levels exceed the threshold of pain." For comparison, the threshold of pain is also exceeded by the roar of a jet engine at less than 50 feet.

"In summary," Bess reported, "there seems to be little question that both stock and racing snowmobiles are capable of producing deleterious effects on the hearing mechanism. Pleasure drivers, riders, and even spectators have been shown to exhibit marked temporary changes in hearing as the result of snowmobile noise exposure. Further, stock and

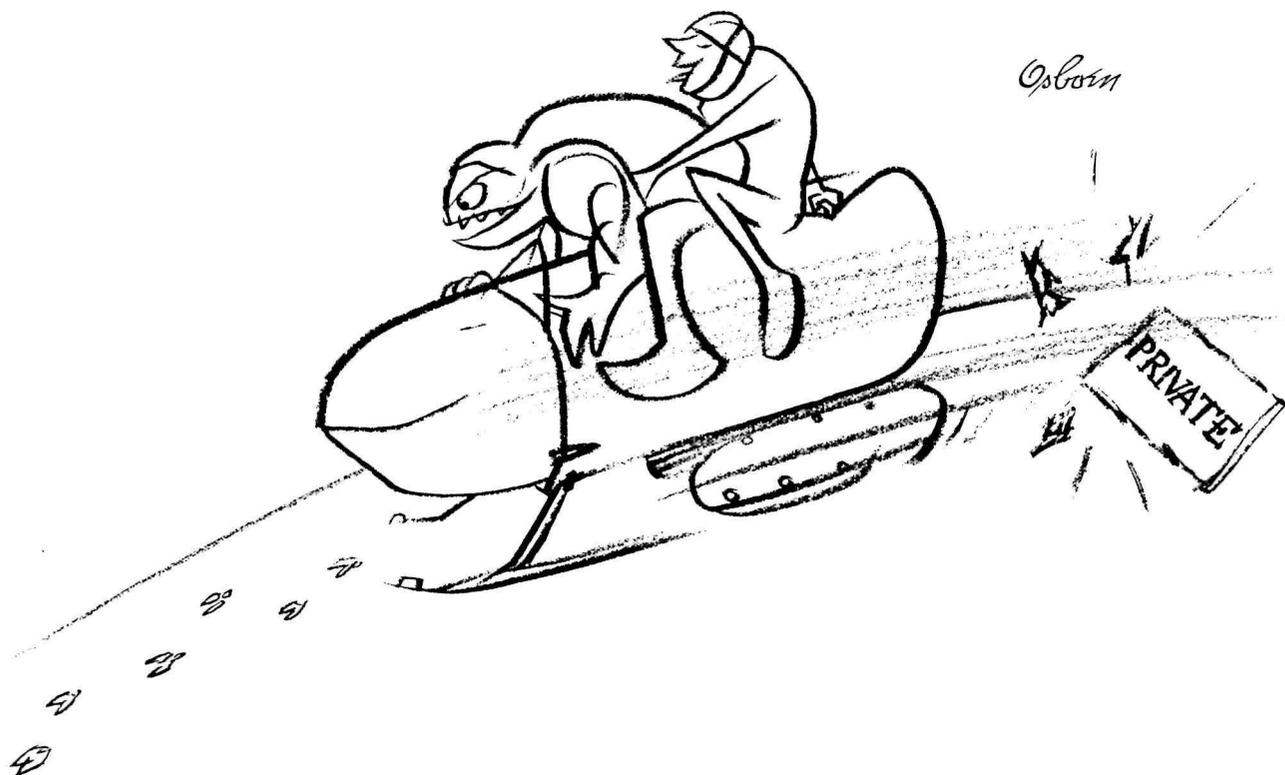
particularly racing snowmobiles are seen to produce noise levels far in excess of our safety standard."

One of Bess's recommendations is that drivers and riders wear "customized ear defenders or protectors"; some critics, however, wonder whether this is an adequate method of dealing with the problem.

According to the industry, the snowmobile is noisy primarily because it must be lightweight enough to skim across the snow. Thus, it is claimed, soundproofing must be sacrificed.

This contention is widely disbelieved. In *Invitation to Snowmobiling*, October–November 1970, Gordon Jennings, former editor of *Car and Driver* magazine, explained the real noise "dilemma" succinctly: "In almost every case, the muffling is not as effective as it might be or even as effective as it should be and the reasons are a mix of economics and human nature. Economics? An effective muffler is a complicated muffler, and complications inevitably raise manufacturing costs. Human nature? People do tend to equate noise level in any motorized vehicle with performance, while everyone scorns the real charger that has been silenced to a whisper. Understandably, manufacturers try to hit an exhaust noise-level that says 'performance' loudly enough to please the customer without making it so loud that it is likely to become wearisome or attract too much attention from the law." Of course, this approach represents another in a long series of industry practices that pass on costs to the public in the form of environmental pollution.

Researchers at the Michigan State symposium pointed out several other deleterious environmental effects of snow-



mobiling. One scientist reported that the snowpacking that occurs because of snowmobiles can clear an area of the many small mammals that live beneath the snow in the winter. Another claimed that winter snowmobiling affects the growth of crops later on in spring. Others told how snowmobile tracks, which often turn to ice from the pressure, cause erosion when the snow melts. And some complained that snowmobiling in areas where many small trees are growing causes extensive damage by breaking off the tops of the trees and permanently stunting their growth. This has been a particular complaint of tree farmers and paper companies.

The most distressing facet of these allegations and the many others that are being brought to light as research continues is that all of them are the result of the mechanical workings of the snowmobile itself. Even the world's best driver cannot fail to leave tracks in the snow, cannot avoid breaking saplings that are just below the surface of the snow, and cannot control the damage he does to crops.

The charges of environmental injury that are leveled against snowmobiles are very serious. And they do not even include such "sports" as motorized hunting, harassing wildlife, leaving behind debris, and reckless driving—all of which seem to characterize the sport wherever it becomes established.

Snowmobiling has consistently received bad press, and the industry is as defensive as it is rich. To counteract the rising tide of hostility among local populations, outdoorsmen, and conservationists, the industry has encouraged the creation of snowmobile clubs and associations—groups that can serve as self-regulatory police forces on their membership. While these clubs do a reasonably good job, they cannot, of course, make arrests for misdeeds or confiscate snowmobiles from consistently reckless users.

What the clubs *can* do, however, is exert pressure on local citizenry and governments to make more land available to snowmobiles, either through easement agreements or through purchases. In effect, the snowmobile associations have become grassroots pressure groups that push the cause of the snowmobile into the most remote areas. Thus, while little headway is made in curbing environmental and social problems, further gains are made in assuring that the snowmobile is "here to stay."

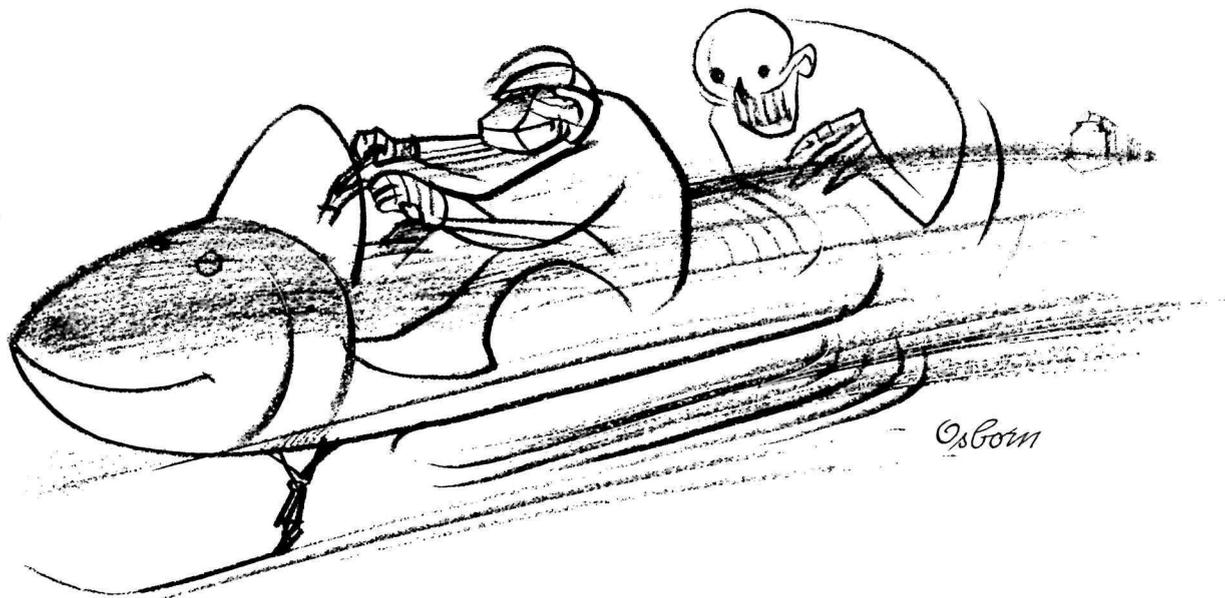
The snowmobile industry proudly hails its creation as a "revolutionary" vehicle. Although the term is applied with typical Madison Avenue flippancy, it is far truer than the manufacturers might care to believe. The snowmobile, along with its sister all-terrain vehicles, represents a major challenge to the traditional concepts of private property and individual rights.

Put simply, the snowmobile and other off-road vehicles have never had a technological precedent. Therefore, lawmakers, regulatory officials, and the courts never have had to deal with comparable entities in formulating and promulgating policy. Automobiles are sharply limited by size and design to relatively flat and well maintained roadways. Motorboats, of course, are restricted to fairly significant bodies of water, and even there they usually can be controlled. Airplanes, while often a nuisance, are restrained by their need for landing facilities. Snowmobiles, however, given snow, can penetrate virtually any area with relative ease.

Regulatory agencies have been typically slow to face the challenge. In the early days of snowmobiling, public land managers and rural officials apparently hoped the "fad" would somehow disappear by itself. They consoled themselves that the problems were slight by virtue of the small numbers of snowmobilers. Then, when the sport mushroomed in the late 1960's, it was too late. Snowmobile users had become as much a part of "the public" as nonusers in the eyes of the regulators and deserved equal protection under law. The user had, in effect, finessed the nonuser—first by being too inconspicuous to warrant attention and then by becoming too powerful to stop.

Naturally, state legislatures were even slower to react. In fact, with one exception—the almost universal banning of snowmobiles from public roads—state legislation continues to be piecemeal, stopgap, and nonuniform. Politicians tend to be even more hamstrung by divergent public opinion than are administrators.

Even the courts, the traditional guardians of individual rights, have handed down conflicting rulings. In some areas snowmobile bans have been upheld on grounds of public nuisance. In other places snowmobilers who were arrested got off with barely a warning from judges who did not con-





sider the infractions serious enough to warrant attention. And in at least one other case a property owner was denied the right to close his property to snowmobilers on the grounds that he permitted hikers to use the same route in the summertime!

So where do we stand? Until recently, virtually every federal and state land management agency had established different policies on snowmobiles. Some state parks contained specially marked and maintained trails solely for snowmobilers. Others forbade them entirely. Some municipalities and counties banned them during certain nighttime hours. Others encouraged them. The U.S. Forest Service left the decision to the discretion of Forest Supervisors, with a policy position that the use of off-road vehicles was to be considered a legitimate use of the forests—unless it conflicted with other uses. In the Department of the Interior, the Bureau of Land Management exercised virtually no control over off-road vehicles, the Park Service left the decision to Park Superintendents, and the Bureau of Reclamation had “no policy.” The Park Service indicated that it was anxious to control snowmobiles quite closely through regulation, while BLM pursued an educational approach by seeking the cooperation of user associations.

Although the Interior Department’s policy has recently been unified and consolidated through the work of a task force on off-road vehicles, this small step makes little difference in terms of widespread snowmobile use. The long term effects on the wintertime ecology are still virtually unknown. Wildlife will continue to be harassed. Young saplings will still be injured and become stunted. Nonusers from coast to coast will still be bothered by noise and fumes. Users will continue to receive aural damage and hearing loss. Unnecessary deaths will still occur. And the industry will continue to shovel in the profits.

It would be ridiculous, even in a forum such as this, to advocate a total ban on snowmobiles. The time for that has come—and long gone. The snowmobile is here to stay.

What is not here to stay, however, is the noisy, unsafe snowmobile with its largely unregulated and often reckless

driver who crisscrosses terrain without heed to ownership or ecological imperatives. Conservationists *can* fight back against domination by this machine and these abuses. In fact, nonusers and regulators alike have the obligation to force the snowmobile industry and snowmobile users to absorb all the costs of their Fun Machine.

This means the snowmobile noise level should be limited to no more than 72 decibels at a distance of 50 feet, no matter how much that adds to the cost of the machine. This is equivalent to the sound of a vacuum cleaner at 10 feet.

Snowmobiles should be banned from high-density areas, from areas of ecological value and fragility, from areas of historic importance, and from areas that are important to wildlife. They should also be excluded wherever there is inadequate snow cover to protect saplings. And in each case it should be the snowmobiler who must prove that an area can safely be opened up, not vice versa.

Snowmobiling should be limited to daytime use except in emergencies and in cases of real economic hardship.

A luxury tax should also be placed on the machines, with the money slated for research into the damage caused by off-road vehicles.

Most important for effective regulation, snowmobilers must be required to have a license that is mandatorily revoked for a year in the event of any offense.

The snowmobile, with all of its life-saving and death-dealing capabilities, has lived “off the land” for too long. It has amassed some very large debts to the society around it, many of them unknowingly. Nevertheless, it is time to pay all the debts back. It is up to aggrieved nonusers and conservationists to make sure that the debts *are* all paid back and to take steps so that no more are incurred. ■

Peter Harnik is editor of *Environmental Action*, a biweekly muckraking magazine published by the Washington, D.C.-based organization of the same name. He was an assistant editor of *Earth Tool Kit*, a guidebook for citizens who wish to combat environmental destruction.

Permanent Institutions within the United Nations for the Protection of the Human Environment

During the summer of 1970, on invitation of the Swedish Government, the Secretary General of the United Nations, U Thant, issued a call for a United Nations Conference on the Human Environment to be convened at Stockholm in June 1972. The Under Secretary General of the United Nations for Environmental Affairs, Maurice F. Strong, who is in charge of the Conference, made it known to the Non-Governmental Organizations accredited to the United Nations that their suggestions with respect to permanent institutions to deal with environmental problems would be welcome. The National Parks and Conservation Association submitted the present preliminary document on November 3, 1971, in response to that invitation.

In his call for the United Nations Conference on the Human Environment in Stockholm in 1972 the Secretary General of the United Nations indicated that a desirable outcome would be the establishment of permanent institutions for the protection of the environment.

We are well aware that a number of the member nations look with disfavor on the establishment of superfluous or overlapping agencies.

For this reason the preliminary recommendations herein contained relate to the creation of desks or offices which could be located in the Secretariat or within existing institutions, or which could if desired be located within a new organization.

The functions and relationships of the various offices proposed will require much more careful study than has been possible for the present preliminary proposal. The list is in many respects merely suggestive, although in some cases the need for the office could be demonstrated clearly, and may be urgent.

It is suggested that a continuing analysis be undertaken both before and after the Conference by the responsible public agencies, national and international, with the assistance of competent nongovernmental organizations.

If a new specialized agency were to be established, administrative and fiscal relationships would be desirable to integrate its work more closely with that of the central agen-

cies of the United Nations. The present proposal would contemplate such integration.

The offices which in our present opinion should be established, wherever located, would be as follows:

1. *Water Pollution.* Technical and other assistance to Members in water pollution abatement within their countries. Liaison with agencies which may be established by the U.N. Conference on the Law of the Sea, 1973, with respect to marine resources and pollution. Development of recommendations to the United Nations for additional programs, gathering of information, surveys, research, to the extent feasible with respect to the subject.

2. *Atmospheric Pollution.* Essentially the same structure as that of the Office of Water Pollution, except that no institutions will exist comparable to those which may result from the Conference on the Law of the Sea.

3. *Ecological Agriculture.* The world is caught in a dilemma; modern agricultural methods will be needed to feed hungry people; these methods now involve great quantities of chemical fertilizer and pesticides. Grave water pollution, affecting the entire world, results from pesticide pollution and to some extent from fertilizer pollution. Needed is a changeover from hard to soft pesticides and thence to organic methods of pest control wherever possible. The FAO has responsibility for accelerating food production; the proposed responsibilities cannot be placed within FAO; a cooperating office is needed to expedite the changeover. This office might have responsibilities similar to those for water and atmospheric pollution, but with special liaison responsibility to FAO.

4. *Ecological Medicine.* The problem is similar to that related to agriculture. The insects are becoming immune to pesticides; the pesticides are dangerous for human life. Techniques of vaccination, inoculation, immunization, and medication must be substituted as rapidly as possible for medical techniques based on pesticides. Wetlands drainage has undesirable ecological consequences; it can be curtailed if preventive medical techniques can be developed. Most

of these techniques are already well advanced. The functions of the Office of Ecological Medicine would be similar to those described above but the liaison relationship would be to WHO.

5. *River Basins.* River basin planning and management is going through a basic transformation in the developed countries. A limit has been reached on the use of the big reservoir. Its destructive social, economic, and ecological effects are now better understood than a generation ago. The difficulties encountered with the Aswan Dam are but one example; the recommendations which have been made by ecologists for the Mekong basin illustrate the transformation. Grave economic, ecological, and sociological problems are involved. This office would be concerned with technical and programmatic aid to Members with respect to river basin management.

6. *Ecological Forestry.* Modern techniques permit the rapid extraction of timber resources in areas previously untouched. Methods currently in use in industrial countries may be highly unsuitable for the agricultural countries, particularly in the tropics; serious impairment of timber lands may result. Silvicultural methods are available which will yield materials and income from the forests without their destruction. The functions of this office would be to lend assistance to the developing countries in utilizing but at the same time protecting their forests. Liaison with forestry programs in FAO would be maintained.

7. *Mineral Resources.* The readily available mineral deposits of the world are nearing exhaustion in some cases. Industrial countries have been drawing very heavily on these resources; the less developed countries may need them for their own development. The wise use of mineral deposits, orderly extraction, and conservation require international attention which has not thus far been forthcoming. This office would concentrate on this problem.

8. *Genetic Resources.* The genetic resources of the world are in great danger. Many species of plants and animals are facing extinction. Seed banks for plants, and perhaps the equivalent for animals, should be established to hold these species available until proper conditions can be created in the world for permanent protection in nature. Many other survival devices can be visualized, including transplants, zoological and botanical garden reserves, etc. The International Union for the Conservation of Nature could be a scientific consulting agency for this office. In any event the office should maintain liaison with the IUCN and any other comparable organizations; also with the proposed World Heritage Trust. It might foster the establishment of survival areas under U.N. protection to preserve genetic pools.

9. *Population Stabilization.* The subject matter of the U.N. Conference on the Human Environment is closely related to that of the projected U.N. Conference on Population in 1974. Many offices dealing with population in one way or another already exist in the United Nations structure. The function of this office would be to facilitate communication and cooperation among the existing population related of-

fices and any international institutions which may emerge from the U.N. Conference on Population. If established promptly it might make helpful recommendations to the Conference. While all resources management problems must be approached on their merits with specific solutions, population pressures result in background difficulties with each specific resource.

10. *Urban Studies.* One of the subjects mentioned specifically in the call for the Conference on the Human Environment was that of urbanization. There is a world-wide trend of population away from the land and into the large metropolitan centers; thence a reverse trend in part to the suburbs. The result has been, worldwide, an appearance of serious large city problems which begin to surpass the capabilities of metropolitan governments. Solutions lie along lines of inner-city planning, suburban planning, transportation, the construction of housing, the provision of open space, and more basically the rearrangement of the underlying population flows by suitable social, governmental, and industrial methods. The functions of this office would be to assist the member nations and develop any feasible inter-governmental institutions.

11. *Industrial Studies.* It is widely supposed that industrialization is desirable; speed and extent of this process can often be debated. The function of the office would be to facilitate planning, research, administration, as desired by member nations, and perhaps to propose international arrangements. Liaison would be maintained with existing national and international development agencies; the focus for this office would be on environmental aspects.

12. *Economic Programs.* Environmental problems all have their economic aspects. In many cases ecological methods of resources exploitation and management are considered to be uneconomic. This is often merely a matter of definition; in other cases compensatory economic arrangements may be needed. The function of this office would be to provide assistance and consultation along these lines. Liaison would be maintained with existing programs; the new contribution would be the focus on the environment.

13. *Technical Programs.* The need for and function of this office would be similar to those of the Office of Economic Programs, but in the technological fields. Novel techniques can be made available, as an example, water pollution prevention programs. Technology is moving rapidly in many of these fields and the information should be available to the developing and developed countries alike. Liaison with UNESCO; emphasis on environment.

14. *Cultural Programs.* Newly appearing environmental dangers, and also the new techniques available for coping with them, often require changes in cultural outlook on the part of subcultures. These will always be largely the responsibility of the member states with respect to their own peoples but scientific and economic assistance can be given by international agencies. It would be the function of this office to coordinate such efforts. Liaison with UNESCO and other centers.

15. *Transportation.* Basically related to many environmental questions is the need for a worldwide transportation system to provide for the needs of the peoples without injuring the environment. The problem of the supersonic transport and possible injury to the ozone blanket of the earth, not to speak of atmospheric transparency, heat absorption, noise pollution, is an example. The development of a worldwide transportation program which would be acceptable to the member nations should not be impossible. The function of this office would be to expedite this effort.

16. *Ecological Studies.* A worldwide understanding of the implications of the concept of ecology has been spreading rapidly in recent years. The world must concern itself with the ecological management of resources and environment. This is a fundamental science to which all other resources and environmental management problems must be referred. The office would provide Members with ecological technical advice and assistance. Liaison with UNESCO and IUCN.

17. *Military Programs.* The effect of military programs can be a serious one in regard to environment. The limitations on an office in the United Nations concerning itself with such matters are obvious; the Members will normally regard military defense requirements as taking precedence over other considerations. On the other hand, military establishments may wish to consider remedial measures for the undesirable consequences of their activities within the limitations of defense. Adequately circumscribed, this office could be helpful to all concerned.

18. *Parks and Reserves.* Valuable independent work is being carried on with respect to national parks and equivalent reserves by the International Union for the Conservation of Nature and other private or quasi-private organizations. Nonetheless these reserves are such an important part of the total picture that a permanent official office would appear to be valuable. It would maintain contact with UNESCO and other U.N. agencies concerned with biological resources as well as with IUCN, but would relate these activities to the overall environmental problem and to the United Nations generally. It would maintain liaison with the proposed World Heritage Trust in park matters. It might promote the establishment of Survival Areas worldwide to preserve genetic pools.

19. *Organized Labor.* The labor movements of the world have a heavy stake in the restoration and protection of a good life environment for people everywhere, particularly industrial workers. Conditions of life in the big cities for industrial workers have been worsening. Open spaces, for example, are greatly needed. This office would maintain contact with International Labor Organization and facilitate the improvement of environmental living conditions where desired.

20. *Energy Resources.* Basic to almost all environmental problems is that of energy resources. Involved are hydroelectric, fission, fusion, geothermal, and solar sources of energy, as well as fossil fuels. Some of these resources are being exhausted rapidly worldwide, and the utilization of

others may cause grave environmental problems. Many existing agencies in the United Nations structure are concerning themselves with facets of this issue, including the International Atomic Energy Agency. This office would maintain contact with these efforts and endeavor to formulate a worldwide energy program.

21. *Soil Resources.* Basic to food production and human survival is the conservation of soil resources. The industrialized countries have had an opportunity to establish workable soil conservation programs; in some cases they have had acceptable soil conservation programs. In any event the experience should be passed along to the developing countries for such use as they care to make of it. The industrialized countries themselves need to be spurred into more effective action. The function of this office would be to provide such stimulation and assistance.

22. *Historical Resources.* The environment comprises more than the natural setting and includes the cultural setting for human life as well. Air pollution has been resulting in the permanent impairment or destruction of invaluable art collections and architectural treasures. The proposed World Heritage Trust will no doubt pick up a considerable responsibility in these respects, but the relationship between the Trust and the problems of the environment generally need to be considered. It will do no good to place famous buildings of great historical and architectural value in a register for preservation if the pollution of the atmosphere results in their destruction. A special office is needed to focus on this problem.

23. *Non-Governmental Organizations.* Great interest has been shown in the U.N. Conference on the Human Environment by non-governmental organizations worldwide. These organizations can be extremely helpful to the Members participating in the Conference, to the Secretariat, and to the specialized agencies with respect to environmental and resources problems. This is a question of a two-way dialogue, not merely an information office. The present Office of Public Information at Headquarters and the Secretariat of the Conference office at Headquarters have both been doing excellent liaison work with the non-governmental organizations. The NGOs themselves are just beginning to establish their autonomous machinery for cooperating with these and similar U.N. agencies. It seems likely that international cooperation will be developed as one of the results of the U.N. Conference. The Office of Non-Governmental Organizations would be responsible for stimulating and coordinating such activities.

Comment: As noted above, these offices could be set up in the Secretariat, but they would require action by the General Assembly or other concerted action by Members, also financing. For the most part they could not be set up within the existing specialized agencies; for example, the Office of Ecological Agriculture will have a different, although compatible, function than that of FAO; likewise the Office of Ecological Medicine will have a parallel but different purpose from those of WHO. In our judgment the establishment of a specialized agency to be known as the Environmental Protection Organization would be the best solution. ■

NPCA at work

Wilderness comments The Association recently presented its views on wilderness in two areas managed by the Interior Department's Bureau of Sport Fisheries and Wildlife—the Desert National Wildlife Range in Nevada and the Moosehorn National Wildlife Refuge in Maine. The latter consists of two separate units, the Baring and Edmunds, along with two small islands.

The Bureau has proposed nearly a million and a half acres of the huge Desert Wildlife Range as wilderness and has suggested that more acreage could be added should the Air Force discontinue use of part of the unit. NPCA, on invitation to testify in the matter, has strongly endorsed the Bureau proposal. It has recommended, however, that the Bureau's proposed width of roads and associated rights of way in the refuge wilderness be scaled down from 116 feet to 30 feet. The width advocated by the Bureau is seen as necessary to provide adequate roadside parking and shifts in desert roads; the Association has suggested as an alternative that 1 acre be set aside for every 5 miles of established road, and that future development of the acre be restricted to parking and turnaround use. Under the Association's alternative some 51 additional acres of wilderness would be realized for every 5 miles of road and right of way. The modification also would have the merit of concentrating private vehicle parking, which would make enforcement of game laws and other refuge regulations easier.

Terminating primitive trails also would be scaled down in width under the Association's recommendations: from a right of way width of 110 feet to 25 feet, with a potential wilderness gain of 51.5 acres for each 5 miles of trail. The 2-acre parking facility at trail's end proposed by the Bureau would be retained in the Association's modification.

NPCA also has commended the Bureau on its wilderness planning for the Moosehorn Refuge in northeastern Maine. There the Bureau has added a portion of the Baring Unit to its original study plans, outlined several years ago, so that total wilderness at Moosehorn would include 5,360 acres. (At the time of the first official proposal it was not feasible to include any part of the Baring Unit; but the Bureau at that time stated that it would consider such addition if changing conditions made it possible.)

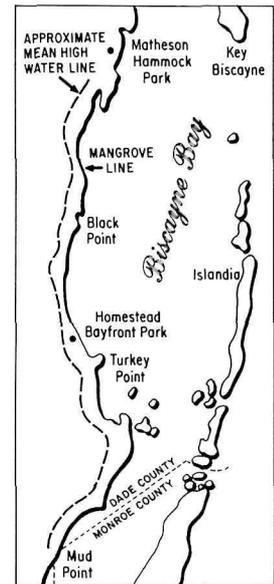
In regard to the present proposal the Association has recommended that the Natural Forest in the Baring Unit, with some other lands, be recommended by the Bureau for wilderness. Despite the vast extent of Maine's timberlands, the Association pointed out, little remains that can be called natural forest land. An area like the Natural Forest also is needed to maintain an ecological balance of habitat for wildlife; in particular, at the Moosehorn Refuge, for the moose and eagle, which require some climax forest.

Bulkhead line A long-standing controversy in which environmentalists have won at least an initial victory has centered over placement of the so-called "bulkhead line" along the shore of southern Biscayne Bay on the lower east

coast of Florida. The shore in controversy lies within Dade County, which includes Miami and its satellite cities, and runs south along Biscayne Bay from Coral Gables.

To appreciate the importance in south Florida of the bulkhead line—an arbitrary line along a shore to which landowners may dredge or fill—one must have some familiarity with the nature of the south Florida shoreline. Here, dry land merges almost imperceptibly into the sea, and an outgoing tide uncovers a wide expanse of terrain which cannot accurately be described as either land or water—it is a mixture of both. Along the south Florida coast this transitional zone is usually occupied by a dense stand of mangroves, whose tangle of stilt-like roots provides shelter and breeding grounds for all manner of marine organisms, some of them important to the Florida economy. A bulkhead line set along the outer limits of the mangroves allows their destruction by dredging and filling, while one set at mean high tide preserves a green belt along the shore. Such a belt may sometimes be quite wide; always it is a source of fascination to Florida visitors, and to many scientists.

Florida and other conservationists long have urged a mean high-water bulkhead line for some 28 miles of the west shore of Biscayne Bay to modify, in some measure at least, its prospective development and commercialization. In May 1971 both county and state agencies concerned with the matter approved a bulkhead line coinciding roughly with the outer limits of the mangroves—meaning that developers could dredge and fill to the approximate

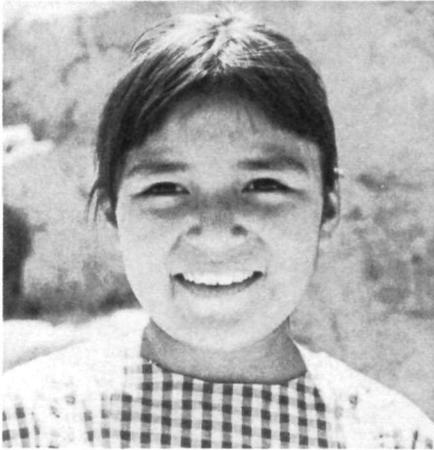


THE MIAMI HERALD

low-water mark. In July a group of conservationists took the matter to Dade County Circuit Court to prevent if possible dredging and filling of the shoreline and destruction of the mangrove strip and its aquatic life and esthetic value. Research for the group of plaintiffs was coordinated by Robert Eisenbud, now special assistant to the president of the National Parks and Conservation Association.

Subsequently, the court ruled that the county and state had failed to satisfy a Florida law requiring that ecological as well as other aspects of the public interest should have been taken into account in setting the bulkhead line and that the seaward location of the line was contrary to the public interest in conservation. The court ordered the county either to establish the line at mean high-water line or reopen the hearing record and hold new public hearings on the matter.

In November 1971 the Dade County Commission held a public hearing on the bulkhead line. This Association was represented at the hearing and joined with local and



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state conservationists and with state and federal agencies in demanding that the bulkhead line be located at or near mean high-water line to protect the ecological integrity of southern Biscayne Bay as well as its value for human recreation. As of presstime the county commission has not made a decision on the matter. When the decision is made, it will be subject to approval by the appropriate state agency—the Board of Trustees of the Internal Improvement Fund—which will then hold another public hearing.

Hardwoods forest studies During October the Association's administrative assistant, forestry, Peter A. Twight, spent several weeks in the forest lands of Wisconsin and Illinois examining and evaluating potential study areas and collecting information for the Association's northern and central hardwoods forestry studies, a part of its overall program in ecological forestry. Dr. Leon Minkler of the Syracuse University School of Forestry acted as consultant for the two studies.

Forest lands of the Goodman Lumber Company in Wisconsin were chosen as focal point for the northern hardwoods management study. The holdings of this company, which has a long history of good forest management, have been cut selectively on a sustained yield basis for more than 40 years.

The central hardwoods study area chosen was the Kaskaskia Experimental Forest near Carbondale, Illinois, which has been managed by the U.S. Forest Service over a period of years for group-selection silviculture. Field data from both studies are currently being compiled and analyzed at NPCA headquarters.

Neabsco dredging project The Army Engineers currently propose to dredge a small-boat channel 100 feet wide and somewhat more than a mile long in Neabsco Creek, a small tributary of the Potomac River in Prince William County, Virginia.

NPCA recently has commented on the Corps' preliminary environmental impact statement for the project, which it characterized as largely superficial. In particular, the Association objected to the proposed disposal of dredged material in adjacent highly productive marshlands, an operation that also has drawn adverse comment from the Bureau of Sport Fisheries and Wildlife. Overall, the Association said, the Corps' document sounded more like an economic justification of the project than an environmental impact statement; it noted that the benefit-cost ratio was based on a low discount rate and a project life of 50 years in a stream carrying a very heavy load of silt. In general, supportive environmental impact factors seem to have been considered at the expense of others non-supportive, the Association com-

mented; it strongly recommended that all environmental and economic impacts be fully presented by the Engineers in their final impact statement.

conservation news

The ivory-bill The question of whether the ivory-billed woodpecker is an extinct species, long argued by ornithologists and conservationists, has sprung up anew with the reported sighting and photographing of the bird in South Carolina. The species is supposed to have become extinct in 1935, but sightings in several of the southern states have been reported from time to time since then, without photographic authentication. Now William M. Campbell, president of a South Carolina chapter of the National Audubon Society, not only has reported a new sighting "by at least two highly qualified observers," but also says that photographic evidence was obtained. We are sure conservationists will follow this development with deep interest, for, if the latest sighting is supported by the camera, it obviously would pose the question of protective possibilities.

Natural landmarks Thirteen new entries have been made in recent weeks on the National Registry of Natural Landmarks—ten of them being outstanding caves and springs in several states. The registry, administered by the National Park Service, includes sites of natural history interest which have been managed in an outstanding fashion and maintained in relatively undisturbed natural state.

The thirteen new landmarks are: Bartholomews Cobble in Massachusetts, a privately owned tract said to contain the greatest natural concentration of fern species in the nation (43); the Devils Sinkhole in Edwards County, Texas, a collapsed limestone sink; Enchanted Rock in Llano and Gillespie counties, Texas, a peak of granitic rock which is part of the so-called

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Enchanted Rock batholith of that state; Ezell Cave in Hays County, Texas; the Garden of the Gods in El Paso County, Colorado, owned by the City of Colorado Springs, one of the nation's greatest displays of the geological phenomena called "hogbacks"; Ichetucknee Springs in Columbia and Suwanee counties, Florida; Longhorn Cavern in Burnet County, Texas, a very large and not wholly explored cavern in ancient limestone; Manatee Springs in Levy County, Florida, sixth in size among the great springs of central Florida; Maramec Spring in Phelps County, Missouri, one of the big and scenic springs of the Missouri Ozarks, which at one time was the site of an early iron-making operation; Natural Bridge Caverns in Comal County, Texas; Rainbow Springs in Marion County, Florida, second largest group of springs in Florida; Shelta Cave in Madison County, Alabama, which contains an underground lake with a wide range of aquatic life, some species of which are unique; and Silver Springs in Marion County, Florida, greatest spring of the central Floridian aquifer and one of the world's largest.

Minnie Creek . . . So-called "vest pocket breeding sanctuaries" in built-up areas are rarities. The world boasts of perhaps only three; one in Japan, another in Stone Harbor on the south coast of New Jersey, and a third in a small tract known as

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This volume of key editorials from the National Parks and Conservation Magazine: The Environmental Journal, is at once a history of environmental awareness in the United States and a history of the part the NPCA played in bringing about the growth of this awareness.

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Minnie Creek, last remaining natural land in a rapidly developing housing project in Margate (greater Atlantic City), New Jersey.

The first two sanctuaries enjoy government protection. The third, Minnie Creek Refuge, with headquarters at 9 Essex Court, Margate, New Jersey 08402, is highly vulnerable. It is owned in part by a developer, whose tract is already marked for home lots. Another section is municipally owned. The whole area takes its name from a tidewater estuary that spawns innumerable fingerlings (minnows, locally "minnie"). Many are the young of game fishes that will make their way to bay and ocean. Adjoining the creek in the refuge is a stand of bayberry and other thicket trees that provides one of the vanishing nesting grounds for heron and egret on the Eastern flyway. Few sites meet the nesting requirements of the gangling waterbirds; they must have a thicket dense enough to support the weight of bulky nests, with protection from natural predators. This relatively small spot affords sanctuary for an incredible number of the great birds.

Some 9 species of egret, ibis, and heron raise their young here, later to migrate south to the Everglades and to Central and South America. Competent ornithologists say that some of the big birds also winter in Margate. Time and again, during a sunset or sunrise in the right season, all the species that bestow their majestic grace on Margate can be identified, some without benefit of binoculars. Circling in great skeins and flocks come American egrets, snowy egrets, cattle egrets, glossy ibis, Louisiana heron (rare), little green heron, little blue heron (also rare), black-crowned night heron, and yellow-crowned night heron.

Dr. Willard Rosenberg and Manny Carr of Margate are co-chairmen of a committee of conservationists, largely made up of Margate residents, that is addressing itself to the permanence of this refuge. Though the matter is a Margate issue in the first instance and finally must be resolved by local residents, it is really as boundless as the flight patterns of the great birds themselves; and people of other communities have joined the preservation crusade at Margate.

"After watching wave upon wave of the birds returning to their nests and hearing the swelling tide of their low-pitched lullabies of contentment and well-being, it is difficult to imagine that a few revolutions of a bulldozer would wipe out this priceless splendor for the sake of municipal ratables," says Linda H. Nesbit, of the Minnie Creek Conservationists. And support in the fight to save Minnie Creek Refuge is being sought of people of all communities who value the vital part played by birds in the finely meshed chain of Life.

conservation docket

EVERY CONGRESS CONSIDERS hundreds of measures bearing on conservation and environmental matters. It is not possible to list all such bills in the Conservation Docket, so some selectivity must be exercised. The bills presented below, with their Senate (S) or House of Representatives (HR) numbers, have not been noticed previously in this column unless a specific action is mentioned. Members of this Association, as citizens, are free to write to the committees to request that they be placed on notification lists when bills come up for public hearing. When notified of hearings, they can ask to testify or they can submit statements for the hearing record. To obtain copies of bills, write to the Senate Documents Room, U.S. Capitol, Washington, D.C. 20510, or to the House Documents Room, U.S. Capitol, Washington, D.C. 20515. When requesting bills, enclose a self-addressed label.

National park, monument, historic site, or recreation area legislation introduced and referred to House or Senate Interior and Insular Affairs committees, or which has been acted upon otherwise, has included:

PARK: HR 7136, to establish the existing Arches National Monument in Utah as Arches National Park; Senate agreed to a House amendment to S 30, a Senate-passed bill for the same purpose, and the bill was cleared for Presidential signature. Signed by the President November 12.

PARK: S 26, to revise the boundaries of Canyonlands National Park in Utah; Senate agreed to several House amendments and the measure was cleared for Presidential signature. Signed by President Nov. 12.

PARK: S 29, designating the existing Capitol Reef National Monument in Utah as Capitol Reef National Park; House insisted on an amendment and agreed to a conference requested by the Senate.

HISTORIC SITE: HR 11533, to authorize the Secretary of the Interior to establish the George Washington Boyhood Home National Historic Site in Virginia.

SEASHORE: HR 11339, to amend the Act of September 1965 which provided for authorization of Assateague Island National Seashore; House Committee on National Parks and Recreation concluded its hearings.

RECREATION AREA: S 1977, to establish the Oregon Dunes National Recreation Area on the coast of Oregon; passed by the Senate.

RECREATION AREA: HR 6957, to establish the Sawtooth National Recreation Area in Idaho; reported favorably by the House Interior and Insular Affairs Committee.

Measures recently introduced on fish and wildlife matters include:

WILDLIFE PROTECTION: HR 5060, to amend the Fish and Wildlife Act of 1956 to provide a criminal penalty for shooting certain birds, fish, and other animals from an aircraft; House agreed to a Senate amendment, clearing the bill for Presidential signature. The measure became law with signature by the President November 18.

MARINE SANCTUARIES: S 1446 and S 1452, to create marine sanctuaries in areas leased under terms of the Outer Continental Shelf Lands Act in areas off the coast of California; Senate Subcommittee on Minerals, Materials, and Fuels concluded hearings on the bills.

MARINE MAMMALS: House Concurrent Resolution 387, a joint resolution instructing the Secretary of State to call for an international moratorium of 10 years on the killing of all species of porpoises and dolphins; passed by the House.

PREDATORY MAMMALS: S 2821, to provide

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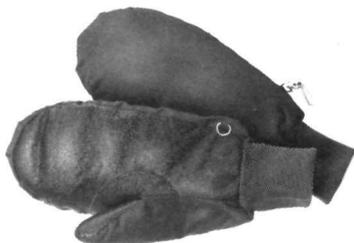
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for a study by the Secretary of the Interior of methods of control of predatory birds and other animals on the public lands; introduced and referred to the Senate Committee on Commerce.

Other measures of general interest to conservationists and environmentalists introduced or acted upon in recent weeks are: RIVERS: HR 11561, to de-authorize the Lake Erie-Ohio River Canal; introduced and referred to the House Committee on Public Works.

WATER RESEARCH: HR 10203, to amend the Water Resources Research Act of 1964 to increase the authorization for water resources research and research institutes; passed by the House.

ALASKA PIPELINE: House Joint Resolution 956, directing that no further action be taken on development of the trans-Alaska oil pipeline until a comprehensive and independent study is made of the economic and ecological aspects of a trans-Canada pipeline; introduced and referred to the House Interior and Insular Affairs Committee.

GEOTHERMAL WATER: House Concurrent Resolution 448, expressing the sense of Congress that the Bureau of Reclamation should accelerate its investigation of geothermal resources as a potential major new source of fresh water supplies for the western United States; introduced and referred to the House Interior and Insular Affairs Committee.

NATIONAL FOREST: HR 11403, S 2761, and S 2762, to authorize and direct the Secretary of Agriculture to acquire certain lands and interests in lands within the Cache National Forest of Utah; introduced and referred to the House Interior and Insular Affairs Committee.

NATIONAL FOREST: HR 11182, authorizing acquisition of lands within the Vermejo Ranch in New Mexico and Colorado for addition to the national forest system; hearings held by the House Subcommittee on Forests and approved for full committee action.

WATER POLLUTION: S 2770, the Federal Water Pollution Control Act Amendments; passed by the Senate.

NATIVE CLAIMS: S 35 and HR 10367, the Alaska Native Claims Settlement Act of 1971; Senate passed the House bill after amending it to contain language from its own bill.

PESTICIDES: HR 10729, to amend the Federal Insecticide, Fungicide and Rodenticide Act as amended, to prohibit importation of certain agricultural commodities to which economic poisons have been applied; passed by the House.

STRIP MINING: S 2777, the Strip Mine Control Act of 1971, designates the Secretary of the Interior as permit authority for surface (strip) mining, establishes performance standards for strip-mine permit

applications, and provides for reclamation of land affected by strip mining; hearings held by the Senate Interior and Insular Affairs Committee.

STRIP MINING: HR 10758, identical House version of S 2777, introduced and referred to the House Committee on Interior and Insular Affairs, which has held hearings on the matter.

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Continued from page 2

Automobile Workers and the United Steelworkers. The Coalition launched a determined battle to protect the Park, the conservation areas north of the Park, and Big Cypress Swamp against destruction by the jetport.

Throughout the succeeding months, and for almost a year, the Everglades Coalition built up its strength and made effective representations to the Secretaries of the Interior and Transportation. Eventually the matter was taken to President Nixon, with the result that an agreement was negotiated between the federal government, the State of Florida, and the Dade County Port Authority for the relocation of the proposed jetport to an ecologically acceptable site. Even the existing training strip at the jetport site was to be moved in due course. This was indeed a victory for the conservationists, but its implementation had to follow, and is still incomplete.

It then became apparent that even though the jetport were stopped, Everglades National Park might die for lack of water which should be coming through conduits from Lake Okeechobee and through Conservation Area Three. In testimony given on invitation the NPCA and the Everglades Coalition insisted that no more funds should be provided for the Central and Southern Florida Flood Control District until firm guarantees had been incorporated in legislation that channels newly constructed and planned by the Army Engineers would actually be used to supply water to the Park. Strong support arose in the Senate and House, and the guarantee was obtained.

AFTER THESE VICTORIES, environmentalists faced the problem of accelerated dredging, filling, and drainage by private interests in the Big Cypress. Most of the water supplied to the Park, particularly its western side, reaches it through Big Cypress. The NPCA and the National Audubon Society participated in successful litigation to stop the creation of a drainage district in Gum Slough, but this was merely a holding operation. It was obvious that strong state or federal con-

trols over land use, preferably by federal acquisition, would be essential if the Swamp and the Park were not to be ruined.

As it became apparent that the struggle was shifting from a confrontation with the Executive Branch to the promotion of legislation, the Environmental Coalition for North America, of which the President of the NPCA as an individual is Chairman, the Washington representative of the Sierra Club Vice-Chairman, and the Coordinator of Environmental Action Secretary-Treasurer, joined in the effort. It supported the stand of the Everglades Coalition for the complete protection of the Big Cypress Swamp and endorsed the establishment of a federal reservation.

Studies developed under the chairmanship of the Director of the National Park Service offered a number of alternatives, from outright federal acquisition through a variety of other techniques. The Everglades Coalition and the Environmental Coalition recommended outright federal acquisition. The cost was variously estimated at above \$100 million. The Office of Management and Budget had interposed strong objections to such an expenditure, and had recommended compromise plans. The introduction of the Jackson-Chiles legislation and other bills followed, and now the epochal statement by the President.

THE PEOPLE of Florida and of America made it very clear during this long struggle that they were determined to protect Everglades National Park and the Everglades and Cypress country in Florida. The Everglades Coalition was one of the first of the powerful combinations which have arisen recently to combat the many modern threats to the life environment. The Environmental Coalition has also taken issue with the promoters of the Trans-Alaska pipeline, dams on rivers, and wildlife poisoning. The tentative success of the battle to save the Everglades shows what unity and cooperation among environmentalists can do. The main thing now is to preserve that unity and with it the priceless treasures of the Everglades region of southern Florida.

—Anthony Wayne Smith





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