United States
Environmental Protection
Agency

Office of
Public Awareness (A-107)
Washington D C 20460

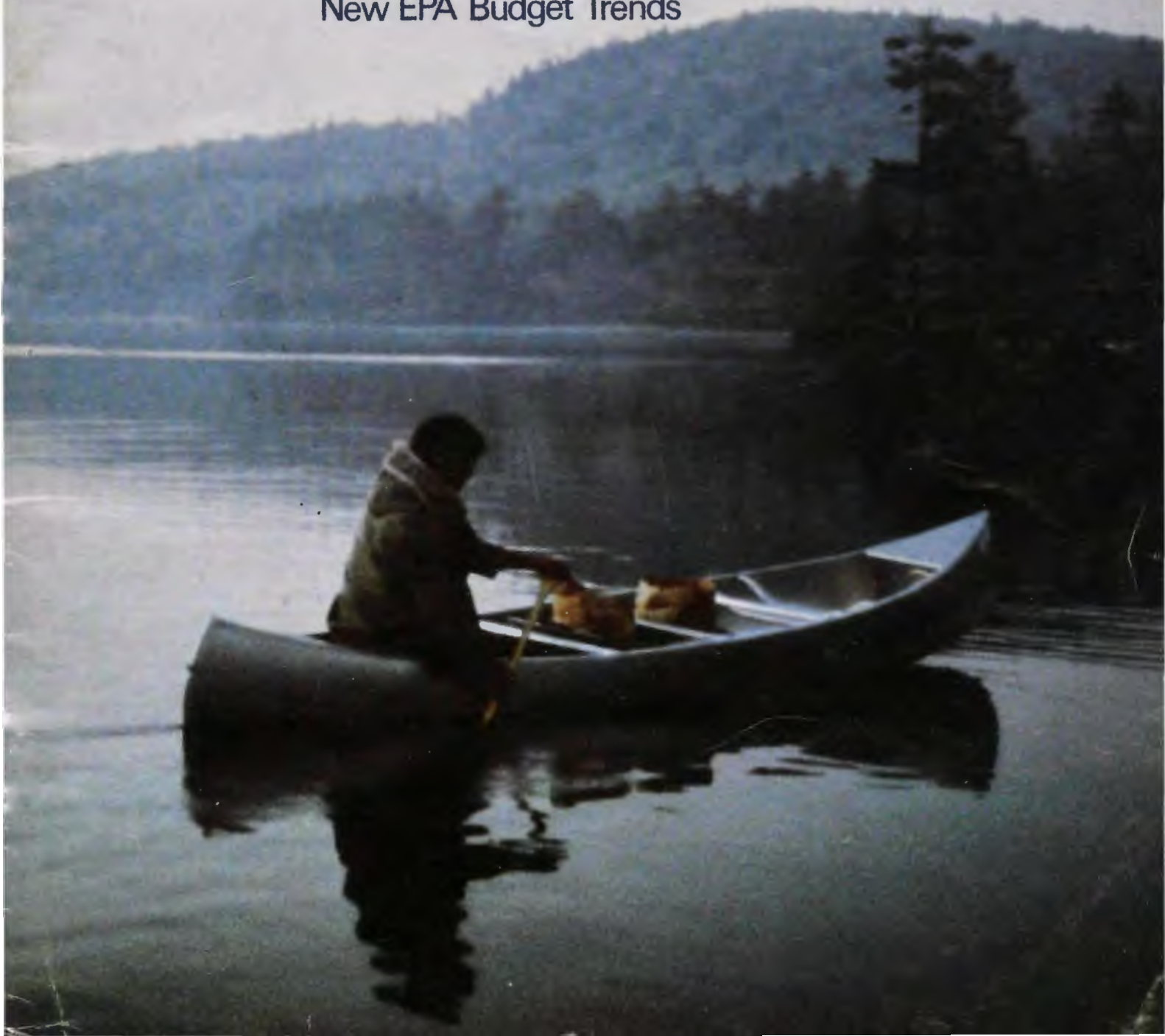
Volume 7
Number 5
May 1981

EPA JOURNAL

Our Stake in the Outdoors

Visibility in the National Parks

New EPA Budget Trends



New Leadership for EPA

The nomination of Anne McGill Gorsuch as EPA Administrator has been approved unanimously by the U.S. Senate. Also endorsed without dissent by the Senate was Dr. John W. Hernandez for EPA Deputy Administrator.

Gorsuch, an attorney and a former member of the Colorado Legislature, told the Senate Environment and Public Works Committee at her confirmation hearing that "the President is committed to the preservation and enhancement of environmental values, and *that* is a commitment I share."

(See Hernandez biography on inside back cover)

Anne M. Gorsuch

Gorsuch, 39, has been a lawyer with the Mountain Bell Corporate Law Department in Colorado since 1975. From 1974-75, she was hearing officer for the Colorado Real Estate Commission and State Boards of Cosmetology, Optometrics, Nursing, and Veterinary Medicine. From 1971-73 she was Deputy District Attorney in Denver and from 1968-71 she was Assistant District Attorney, Jefferson County, Colo.

Gorsuch's governmental experience includes membership on President Reagan's Transition Team, serving on the Advisory Committee on Intergovernmental Relations. From 1976-80, she was a member of the Colorado State House of Representatives. Her activities included Vice-Chairman of the Judiciary Committee; member of the Finance Committee and Appropriations Committee; Chairman of the House State Affairs Committee; and Chairman of the House-Senate Legal Services Committee. She was voted outstanding Freshman Legislator. She was also a member of the Transportation and Energy Committee; House sponsor of air pollution control inspection and maintenance legislation, and Chairman of the Interim Committee on Hazardous Waste.

Her civic activities included service as a member of the Board of Directors, YMCA; the Mercy Hospital Civic Advisory Board; as Commissioner, National Commission on Uniform State Laws; and as a member of the Colorado and American and Denver Bar Associations.

Gorsuch graduated from the University of Colorado Law School with an LL.B. in 1964 and from the University of Colorado at Boulder, with a B.A. in 1961, She studied three summers at the National University of Mexico. Her academic achievements include undergraduate honors program, the Mortar Board scholastic sorority, the University of Colorado Law Review where she was Assistant Business Manager and member of the Board of Editors, Phi Alpha Delta legal fraternity, and Fulbright Scholarship to Jaipur, India.

Born in Wyoming, Gorsuch moved as a child with her parents to Denver. She was graduated from the Saint Francis de Sales High School there.

Excerpts from Gorsuch Testimony:

"The President is committed to achieving a new federalism in which the decisions and the power to implement those decisions will be shifted from the banks of the Potomac back to the level of government which is closest and most accountable to the people it serves. I share that commitment. No greater opportunity exists for implementation of that new federalism than that presented to the Administrator of EPA, who is charged with exercising powers and duties, the clear Congressional intent of which was to involve the State governments as full and active partners in the achievement of national environmental goals.

"The President is committed to regulatory reform, and here I believe it is important to emphasize that the reform is not limited to withdrawal of unnecessary or overly burdensome singular regulations, but envisions a much broader scope involving the process by which new regulations are formulated and current regulations evaluated. We should seek and accept input from all points of view, evaluate alternatives in light of best possible information, and then select the least costly options—in terms of both indirect and direct costs to the consuming public—consistent with the goals and policies of the law.

"I share the President's commitment to the goal of regulatory reform. I am confident that you will concur in my judgment that there is no greater opportunity to effectuate that goal than the opportunity to serve the people of this country as the Administrator of the Agency charged with developing the regulatory framework for such vital industries as farming, steel, autos and mining, to name a few. How such industries are regulated impacts the daily lives of each of us through our utility bills, the market availability of new chemical substances, and the control of pollutants in our air, water and land."

Gorsuch said "as Administrator-Designate, I recognize three responsibilities of paramount importance: the protection of public health and welfare through restoration, preservation and enhancement of the quality of our environment; faithful implementation of the intent of Congress as expressed in our environmental protection statutes; and the development of policies that accommodate the national objectives articulated by the President. It is my expectation, if confirmed, to play an active personal role in the development of these policies as they affect EPA and the laws it administers. I have been assured personally by President Reagan that this will be the case. If confirmed, these will be my primary objectives, and I would expect the American

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EPA is charged by Congress to protect the Nation's land, air and water systems. Under a mandate of national environmental laws focused on air and water quality, solid waste management and the control of toxic substances, pesticides, noise and radiation, the Agency strives to formulate and implement actions which lead to a compatible balance between human activities and the ability of natural systems to support and nurture life.

Articles

Departments

Front cover: Canoeist on a misty evening paddling on Twitchell Lake, New York, in the Adirondack Forest Preserve.

Opposite: A view of mountainous terrain and waterfall in Yosemite National Park in California.

Photo credits: Utah Travel Council; Ernie Day, The Living Wilderness; U.S. Forest Service; Fred E. Mang, Jr., and M. Woodbridge Williams, National Park Service; Anne LaBastille, Documerica; Tom Baumgardner, Armco; Union Camp Corp.; Connecticut Department of Economic Development.

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The EPA Journal is published monthly, with combined issues July-August and November-December, by the U S Environmental Protection Agency. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget

One of the healthy characteristics of democracy is full dialogue about the many options we possess as a society. As Congress reviews the Clean Air Act this year, it is useful to consider divergent points of view. In this issue we report the viewpoints of John J. Kearney, Senior Vice President of Energy and Environment at the Edison Electric Institute, and Paul Pritchard, Executive Director of the National Parks and Conservation Association.

Is the Air Visibility of Our National Parks Being Adequately Protected?

Yes and No

By John J. Kearney

The issue of visibility protection in our national parks grew out of esthetic concern for the West. Various groups complained that air pollution was reducing the long, clear views that visitors to such national treasures as the Grand Canyon had enjoyed for many years. Numerous environmental organizations singled out coal-fired power plants as the problem's primary cause.

When Congress reviewed and amended the Clean Air Act in 1977, the question of visibility protection was considered, and a number of changes were made to prevent significant deterioration of air quality in general and visibility values in particular. Remedying existing and preventing future visibility impairment became a national goal. Congress designated certain "Class I" areas, such as national parks and wilderness areas, for special protection, effectively limiting industrial and energy development in or near these areas to small, clean operations. The Environmental Protection Agency Administrator and Federal land managers were directed to protect visibility under procedures for review of new pollution sources. Furthermore, existing industrial facilities near the designated areas faced the possibility of procedures that could mandate the installation of additional controls to restore visibility.

Now, the time has come to answer the critical question: Is the air visibility in our national parks receiving adequate protection?

The answer is yes and no.

On the positive side, the law provides an overabundance of legal mechanisms to impose—at a potentially huge cost to consumers—a variety of control technologies on some existing power generation facilities, and it also contains provisions forbidding construction of new facilities that might threaten visibility.

At the same time, the answer is no. For all its idealism, the law, as now written, may be doomed to producing little more than a succession of public policy failures. In fact, the Federal effort to address visibility protection is a striking example of how poorly conceived environmental improvement efforts can adversely affect national economic and energy independence goals without producing the desired improvements in environmental quality. This failure

The view in Bryce Canyon National Park in Utah

The Threat to the Parks

By Paul Pritchard

The national park idea is one of the truly unique contributions which the United States has made to the world community. Since the establishment of the first national park, Yellowstone, in 1872, the concept of preserving scenery for the enjoyment of present and future generations has been one which fills many Americans with pride at the mere thought of such grand spectacles as Yosemite Valley, the Grand Canyon, Denali, the Olympic rain forest, and many others. Annually, several hundred million visits are paid to the units of the National Park System by American citizens and foreign visitors alike, each to be thrilled by the spectacular scenery in these natural wonders. Although the concept of preserving natural areas in their unimpaired state has been an essential element of the national park idea since its inception, the parks' great popularity and universal appeal has come, until quite recently, almost entirely as a result of the scenic grandeur for which they are known worldwide.

In 1981, the continued opportunity for these hundreds of millions of visitors to view these spectacles is in serious doubt. Current provisions of the Clean Air Act Amendments of 1977 and the implementing regulations of the Environmental Protection Agency which purport to require protection of visibility in the national parks, are inadequate to accomplish the task.

In fact, amid growing indications that air pollution may well be the chief threat to the parks in the 1980's, conservationists all across the country are seeking to strengthen this provision of the Clean Air Act as the U.S. Congress goes about the business of reauthorizing this law in 1981.

In its May 1980, "State of the Parks" report to Congress, the National Park Service verified that pristine air quality is endangered in almost half of the National Park System's 327 units. As an aside, it should be noted that although visibility impairment may not in itself produce adverse health effects, such impairment is a harbinger of more serious threats to human health as well as biotic resources in the parks.

In 1913, when Congress was busily engaged in enacting legislation to establish Glacier National Park, its report on

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stems from the inability of the rulemaking effort to focus on the real issue and, hence, the real causes of visibility impairment.

The good intention of protecting visibility in our national parks became a regulatory nightmare with the Clean Air Act amendments of 1977. Congress, working with inadequate data and misinformation from environmental groups who overstated their case, passed visibility provisions that had little basis in fact. Many of the basic assumptions on which the provisions were based have since been proven false.

It was assumed, for example, that the lion's share of the visibility problem was a result of emissions from regional stationary sources, particularly coal-burning power plants. Later it was assumed that sulfates produced by the sulfur dioxide from these stationary sources were the prime contributors to visibility impairment. As a result, power plants were singled out for Federal attention, while other industrial sources were left to State jurisdictions.

A useful, scientific data base on visibility was nonexistent when the 1977 amendments were considered. In reality, our basic understanding of the components that produce visibility impairment is still in its infancy. Serious scientific inquiries into the dynamics of visibility were not undertaken until after the amendments became law. Sadly, this "shoot first, ask questions later" approach to environmental goals, which is not peculiar to visibility requirements or even to air quality legislation in general, has not created a constructive regulatory atmosphere in which to solve problems. Doubly sad is the fact that those who question the wisdom of the fast-action approach tend to fall victim to charges of "foot dragging." This, too, makes cooperation all the more difficult, leading to higher costs for problem solutions.

Since the visibility requirements were passed in 1977, a fair amount of research has been undertaken to gain a better understanding of the complex combination of man-made and natural factors that interact to produce visibility impairment. An analysis of these data questions the original assumptions on which we base much current law.

Preliminary findings of an ongoing EPA-industry study in Northern Arizona, for example, indicate that long-range transportation of urban pollution is a much more significant factor in visibility impairment. Regional coal-fired power plants which had been considered the major factor were determined to be relatively insignificant. This study—called Visibility Impairment due to Sulfur Transport and Transportation in the Atmosphere, or VISTTA—was designed to gather data on the relative contribution of various airborne pollutants to visibility impairment.

As the title indicates, sulfur was expected to figure prominently in the results. Findings to date, however, indicate that in addition to significant pollution from urban areas and natural sources, causes of the visibility problem are not limited to sulfur-related compounds. Aerosols originating in the Los Angeles area and from forest fires, for example, were found to be significant in terms of causing visibility impairment.

To protect visibility in our national parks adequately, we must learn more about the origin of these visibility impairing substances. In some cases, we may find we cannot give adequate protection at a reasonable cost; it may not be desirable, or even possible, to prevent visibility impairment caused by forest fires. Similarly, the Los Angeles area labors under some of the most stringent air pollution control regulations in the Nation yet still has some of the worst air quality. Pollutants from Los Angeles also still affect areas like the Grand Canyon. Short of shutting down Los Angeles, there may not be much we can do about this visibility impairment.

It seems that the real hope for protecting and improving visibility lies in learning more about the science of visibility impairment. The VISTTA study and other research point out three fundamental scientific uncertainties undermining the current Federal effort to protect visibility. Perhaps the most important of these is the relative contributions of natural and man-made factors operating in tandem to produce visibility impairment. Another major uncertainty relates to the cause-and-effect relationship between specific emissions and general air quality problems, such as visibility. The third fundamental uncertainty is the identification of siting and emission control strategies to provide demonstrable visibility benefits at a reasonable cost.

The question of how much visibility protection should cost is an important one, going far beyond simple dollar figures. Current visibility requirements could affect energy and other forms of resource development on as much as 29 million acres of land in 36 States. Compliance costs could run to many billions of dollars. Before the Nation embarks on such a multi-billion dollar visibility protection effort, the public deserves to know the costs and benefits and it deserves some assurances that the huge expenditures will produce the expected results. Not only do we have no such assurances, but a growing body of evidence points to the opposite conclusion.

Industry and society do not pursue clean air goals in a vacuum. Utilities, for example, are obliged to meet new demands for electricity and, at the same time, attempt to reduce dependence on oil-fired generation facilities. Thus, the utility industry finds itself charged with the pursuit of energy, environmental and economic goals that, to some extent, conflict with each other. Any successful public policy addressing these goals should strike an appropriate balance, which of course, is neither a new nor forsaken idea. During the visibility rule-making process, several Federal land managers advocated exempting controlled burning in Class I areas from the rules, claiming the environmental benefits in managing recreational areas outweighed the adverse impact of such burning on visibility. Other social and economic benefits also must be weighed in this balance; even environmental considerations such as visibility should not be the only factor in a policy decision.

With these considerations as background, what can be done during the long term to protect visibility in our national

Another vista in Bryce Canyon National Park.

parks? To begin, we should define more clearly our visibility goals for all the "Class I" areas where visibility is judged to be a problem. Such judgments should be made according to scientific criteria for a specific region. Time and more research are required for this approach, but unless a science-based system replaces the current outdated requirements, we risk wasting billions of dollars on nonproductive, ineffective controls.

Reconsideration of the Clean Air Act is scheduled for this session of Congress. The time has come to redirect U.S. visibility requirements in light of what we have learned since 1977. Additional controls on existing sources and restrictions on new sources should be considered only after the completion of studies that address the fundamental uncertainties now blocking a workable, cost-effective control strategy. □

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the area noted that "the air about Lake McDonald is remarkably clear and pure . . . from the summit of Red Eagle Mountain one of the grandest views of mountain scenery in America, is obtainable. . . ." Similarly, when Acadia National Park was first established by Congress in 1919, the committee report described the sea coast of the park as land "where its grand rock scenery culminates in a deeply divided range of granite mountains visible from 50 miles to sea. . . ." Again, in 1935 as Congress went about the business of establishing the Big Bend National Park in Texas, the committee report noted that from the Chisos Mountains, "the outstanding views in three directions carry the eye over into the mountains of Old Mexico. From the south rim, over 5,000 feet above the river, the eye obtains the most dramatic panorama of the Chisos, a 200-mile sweep of American and Mexican terrain." And finally, when Congress authorized the Shenandoah National Park in 1926, the committee report noted that "the greatest single feature, however, is a possible skyline drive along the mountain top following a continuous ridge and looking down westerly to the Shenandoah Valley from 2500-3000 ft. below, and also commanding a view of the piedmont plain stretching easterly to the Washington Monument, which landmark of our national capital may be seen on a clear day."

Surely, the Congress has intended, throughout the 109-year history of the national park concept, that protection of the public's opportunity to behold these scenic vistas is an essential part of the purposes for which they have established these memorials to our national heritage.

Under the Clean Air Act amendments of 1977, 48 national parks and national monuments of the national park system were designated mandatory Class I areas for air quality protection, the highest level of protection afforded any area under this law. The legislative history of these 1977 amendments also made clear the requirement that the mandatory Class I areas be studied to ensure protection of those "grand vistas" or "breathtaking panoramas" which warrant additional special protection of scenic values from visible air pollution. The requirements of the Act for visibility protection are contained in a different section of the law, and require compliance independent from the provisions relating to "preventing of significant deterioration" (PSD). EPA's regulations implementing the PSD provision of the law established increments of allowable pollution for Class I areas which were designed to allow the lowest possible level of deterioration of existing air quality in the vicinity of these Class I national parks. Although the PSD provisions are important to the national parks, and are designed to keep the air quality in the parks pristine, they are not adequate to protect visibility in Class I areas.

Increases in pollution equivalent to the Class I particulate increments in a clean atmosphere could cause up to 40 percent reduction in visual range. In addition, existing gross emitters such as the Four Corners Power Plant, are not affected by the PSD provisions. PSD requirements will not protect visibility degradation caused by elevated plumes, or discolored layers, or regional haze caused by numerous sources.

In 1977, recognizing the shortcomings of the existing national ambient air quality standards and PSD and new source

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performance standards programs for the protection of visibility, Congress amended the Clean Air Act by adding Section 169a which requires the protection of visibility and the remedying of existing visibility impairment in Federal Class I national parks.

Recently, the National Park Service has identified 20 units of the National Park System which are suffering visibility impairment from existing energy development sources, none of which are affected by EPA's visibility protection regulations. These include Arches, Bryce Canyon, Canyonlands, Capitol Reef, Carlsbad Caverns, Chaco Canyon, Chiracahua, Dinosaur, Everglades, Glen Canyon, Grand Canyon, Great Smoky Mountains, Mesa Verde, Navajo, Natural Bridges, Petrified Forest, Sequoia-Kings Canyon, Sunset Crater, Theodore Roosevelt, and Wapatki. In addition, the National Park Service has identified 63 units of the National Park System which are potentially adversely affected by proposed energy facility development in the immediate vicinity.

The threat of these potential pollution sources to the parks and the urgent need to prevent visibility impairment from these sources from occurring should not be viewed as significant impediments to development and utilization of these energy production facilities. For example, in 1980 the National Park Service reviewed PSD permit applications in 25 different proposals and in only one instance, the Allen-Warner Valley Energy System in southern Utah, did the Service ultimately file an objection with EPA to the proposal. What is essential, however, is the opportunity for the Federal land manager to participate in the permit review process.

The Senate Committee report accompanying the Clean Air Act amendments of 1977 makes clear the importance Congress attached to the Federal managers' "affirmative responsibility" when it states: "The Federal Land Manager should assume an aggressive role in protecting air quality values of land areas under his jurisdiction. . . ." The House Committee report, citing the NPS Organic Act and the Wilderness Act of 1964, emphasized that air quality is a resource in our national parks which must be maintained in an "unimpaired" state. In assigning to the Federal land manager the affirmative responsibility to protect the air quality-related values of Class I lands, Congress designated the primary responsibility for protection of the Class I areas not to the Environmental Protection Agency but to the Federal land manager. The land manager as steward of these lands is mandated to take whatever actions are necessary to protect these areas from air pollution, damage to visibility; wildlife; vegetation, and recreational, cultural, and historic resources. The role of the Federal land manager in the air quality permit review process should be that of protector of air quality and air quality-related values of Class I lands.

In the 24 new source permit reviews approved by the National Park Service in 1980, the proposed facilities either demonstrated that there was no adverse effect on the Class I park's resources, or made minor location, design, or control technology adjustments in order to comply with the Class I increments and park protection. These minor adjustments are both economically and technologically feasible, but the opportunity for the Park Service to assert its responsibility for protection of these air quality-related values is essential.

As a part of EPA's regulations for visibility protection, finalized in December 1980, the concept of "integral vistas" was introduced. These views or vistas which are important or essential to the purposes of the park are ones which are viewed both from inside the park boundaries looking outward and, in some cases, from outside park boundaries looking into the park at spectacular views. Such integral vistas can be crucial to the visitor's experience, comprising a scenic backdrop or foreground. As was previously noted, from a legal standpoint, a very strong case can be made that the legislation establishing most of the national parks, with their accompanying legislative history, specifically identified as a central purpose of the park the protection of the scenic views afforded within the park, which often includes views of lands or waters surrounding the park.

Some have inaccurately portrayed the EPA visibility regulations and the Park Service's proposed guidelines and listing of integral vistas as Draconian measures that would preclude all development in large areas around Class I national parks. However, that contention does not stand up under the facts. Specifically, while the determination of an integral vista is based only on its merits as a scenic resource, any decision as to whether to protect the scene available from that integral vista rests with the affected State and is a decision based on fair balancing of energy, economic, social, health, environmental, and park resource factors. Thus for integral vista protection, criteria often sought by industry for balancing costs and benefits have been guaranteed.

Furthermore, the Federal court in *Alabama Power* ruled that Federal PSD review could not apply to sources located in non-attainment areas. These areas which do not meet ambient air quality standards frequently are the source of air pollution transported into PSD regions and the Class I parks. Thus the court's interpretation of the 1977 Clean Air Act amendments denies the National Park Service the ability to protect air quality-related values, including visibility, from the damaging effect of new sources located in non-attainment areas. Clearly, identification and designation of integral vistas does not ban most proposed developments within the vistas. As a consequence, we believe that opposition to the designation of integral vistas has been misguided since identification alone affords no automatic protection. Protection is applied only after the above-mentioned balancing of energy and environmental costs and benefits, and then only if so approved by the affected State. As proposed in the current list of integral vistas, only 21 States and the Virgin Islands would contain integral vistas relating to the national parks affecting only 45 National Park System units of the 327 units in the system.

Unfortunately, both the concept of integral vistas and the specific listing of these vistas may never be finally approved and implemented. As a requirement of the EPA visibility regulations, the Park Service must issue its final list of integral vistas and guidelines within 90 days of implementation of EPA's regulations or the affected States do not have to comply with requirements for protection of these vistas for at least two years. At this writing, the Reagan Administration had identified integral vistas guidelines as "regulations" effectively freezing their finalization. In addition, opposition to the concept of integral vistas has developed within other agencies of the Department of the Interior. A memorandum from the Director of the Bureau of Land Management to the Director of the National Park Service notes, "We believe the urgency to identify integral vistas is not justified particularly in light of the significance of other resource concerns, notably energy developments, which may be affected by integral vista protection requirements." Unless the supporters of the national parks, and particularly those concerned with the preservation of their scenic views, are able to rally significant support for visibility protection, these existing provisions of law and regulation may either be eliminated or effectively nullified either by the Administration or the Congress. At present, visibility and other air quality-related values found in the national parks are not being adequately protected because the law is not strong enough, regulations are not clear enough, and the commitment on the part of the Administration to perpetuate the values in the national parks for which they were established has not been made. □

The National Parks: An American Tradition

By Russell E. Dickenson,
Director, National Park Service

Cliffs in Yosemite National Park.

The people of the United States possess the largest and most abundant public estate of parks in the world.

The extent and diversity of this resource is in keeping with the great size of the country and the bounty of its natural endowment. It also reflects the democratic ideal, the view that the land and the wildlife it nurtures should in considerable degree be open for the use of all, not restricted to private estates as was the European custom.

By the early 1820's, the citizens of the new American nation were beginning to move across the Appalachian mountains. The Louisiana Purchase of 1803 opened a vast new territory, and migration beyond the Mississippi, which was underway in the 1830's, in the next decade became a land rush.

At this time, a few far-sighted Americans, fearing the disappearance of the wilderness, began to advocate formation of extensive parks. From such concepts, the ideals gradually developed that led to the reservation of national forests, wildlife refuges and parks.

Yet the world national park movement is considered to have begun with the act of a few men. During the late 18th century, trappers had worked the Yellowstone country, and emerged with stories of its wonders. Others began to explore, and in 1870 a party named for three of its members—Washburn, Langford and Doane—camped one night at the junction of the Gibbon and Firehole rivers.

Around the campfire they talked about what might be done to lay claim to the surroundings. But finally they decided instead to work for preservation of a great national park.

Congress moved on the park proposal with remarkable speed. On March 1, 1872, President Grant signed the bill establishing as Yellowstone National Park more than 2 million acres of the territories of Wyoming and Montana. The Department of the Interior was assigned responsibility for the park's administration.

In a few years, other areas were added by Congressional act to Interior's holdings. And under the Antiquities Act of 1906, presidents proclaimed as national monuments areas of public land containing outstanding scenic and scientific features.

By 1916, when the National Park Service was created, the Interior Department had under its jurisdiction 16 national parks and 21 national monuments, most of them carved from the vast western public lands. But their management was most haphazard. The U.S. Army protected four of the larger parks and some parks had superintendents, but no central direction existed.

The persons most responsible for setting the Park Service upon its future course were the first Director, Stephen T. Mather, a prominent businessman, and Horace M. Albright, a young lawyer, who was Mather's assistant, co-worker, and successor in the Directorship.

The Congressional act establishing the Service charged it to conserve scenery, wildlife and natural and historic objects. It envisioned use of the parks for pleasure, but "by such means as will leave them unimpaired for the enjoyment of future generations."

To execute this mandate, the Service leadership recruited a corps of professional, civilian park rangers. Mather also strove to make the parks better known and to get high quality accommodations built in them. He began to contract with private business people as concessionaires to provide food, lodging and other services, an arrangement that is in use today.

Congress soon established more areas of the Park System, many in the East. That expansion, plus widespread use of

Gorge in Yellowstone National Park

the automobile, attracted a steadily increasing number of visitors.

A presidential executive order in 1933 transferred 63 national monuments and military sites from the Forest Service and the War Department to the National Park Service. This action was a major step in the development of today's truly national system of parks—one that includes areas of historical as well as scenic and scientific importance.

During the years of World War II and the Korean War, growth of the system almost came to a standstill, but visitation continued to rise. Between 1940 and 1955, the system gained about 20 areas, while visits rose from less than 17 million to 56 million. After 1960, system expansion was accelerated and visitation became a flood. By 1970, the Park System counted 172 million visits.

The National Park Service System today comprises more than 330 areas covering 79.8 million acres, located in every State but two and including Puerto Rico, the Virgin Islands, Guam and Saipan. In 1980, 220 million recreation visits were made to the parks. (Other use—that of commuters, for example—came to nearly 80 million, bringing total visits to 300 million.) More than 16 million overnight stays were recorded in 1980, eight million of them in Service-operated campgrounds and 2.3 million others in park backcountry.

The figures on the increase in Park System acreage are misleading unless one keeps in mind that Alaska accounts for most very recent growth. In 1971 Congress provided for a set-aside of some 80 million acres of Alaska Federal land pending the lawmakers' action to designate national parks, forests, wildlife refuges and wild rivers. The designations in Alaska were completed in 1980, and more than doubled the acreage in the Park System. Nothing like this will ever happen again.

So great is the variety of the National Park System that a few paragraphs can give only a hint of its size and character. While the great scenic parks of the West are probably the best known, more than half the areas of the system lie east of the Mississippi River, and more than half were reserved primarily for historical, rather than natural, attributes. In size the differences range from large national parks that encompass thousands of square miles to historic sites that cover less than half an acre.

The natural treasures of the system include the giant trees of the California north coast, great canyons of the Sierra Nevada and the Colorado Plateau, cactus stands of the Sonoran Desert, barrier islands facing the storms of the Atlantic, and hardwood forests of the Appalachians. Active and extinct volcanoes, fossil beds, coral reefs, limestone and marble caves, and the habitat of the moose, the eagle, the grizzly bear and the alligator are protected in the parks.

Most of the Nation's major historic sites are also the responsibility of the Park Service—among them Independence Hall, battlegrounds such as Saratoga, Yorktown, Gettysburg and Shiloh, birthplaces and homes of Presidents and other celebrated Americans, forts along the migration routes to the West, and dwellings of pre-Columbian Indians.

The diversity of the Park System has been enhanced by the additions of the past two decades which have included many seashores and lakeshores, wild rivers, and national recreation areas in or near large cities.

Activities and land uses permitted in the parks vary greatly from park to park, as they must, but are mostly limited to leisure-time and learning pursuits. Hiking, picnicking, boating, camping and fishing are major activities, and winter visits are growing in popularity. But consumptive use of resources, such as timbering, hunting, and extraction of minerals and fuels, is not allowed in most Park System units.

But one endeavor common to all parks is the form of teaching the Service calls interpretation.

This concept also was introduced into the parks by Director Mather, who recognized early how much the pleasure of a park visit is enhanced by some understanding of its geology, history and plant and animal life. Although places for physical relaxation, the parklands are in a sense academies where minds and spirits are nourished with comprehension and appreciation of the wonders of the natural world. The historic sites help one keep in touch with the inspiring story of the accomplishments of those who have gone before. As a great interpretation writer put it, the parks help answer the question, "Who Am I?"

The interpretive concept has been refined over the years. Today, through talks by park personnel, exhibits, publications and audio-visual media, visitors learn the fascinating facts about these remarkable areas.

Our Nation is proud of the national park idea, which is uniquely American. But other nations, also, were interested early in such conservation. The world's second national park was Royal, in New South Wales, Australia. Gradually, most nations around the globe established parks in some form, although they differ enormously in character, size and administration. Examples range from the great wildlife parks of Africa, where numerous species still exist, to Japan's parks that may encompass houses and villages as well as farms and forests, Australia's national parks that are managed by the states, and Sweden's reservations of grand mountains and glaciers. Worldwide, "Yellowstone's Children," as they have been termed, number some 2,000 national parks and equivalent reserves.

As the U.S. national system has been growing, the Park Service has shaped policies and management practices to accommodate heavier visitation and changing social and economic conditions.

Despite crowding in some areas during certain months, the Service has kept every park open its full season. But rationing the use of some backcountry areas began in the early 1970's, and today free permits are issued in more than 70 parks to spread out the impact on certain campgrounds and hiking trails.

Economic development—the building of more highways, shopping centers, dwellings, factories, and even vacation homes—is eroding some of the natural buffers like forests, deserts and wide open spaces that formerly protected the natural resources of many parks. Now the Service must devote a great deal more effort to protecting park environments.

Many fine sites have been added to the public estate of national parks during the recent years of rapid system expansion. Yet sufficient funds and staff have not been available to enable the new areas to offer the quality of service the American people expect. To shape future plans and operations to this reality, I believe three major steps should be taken.

First, the National Park System needs a period of consolidation. Few additions should be made during the coming years so that all resources can be devoted to improvement of park facilities and the service rendered to visitors.

Second, future additions must meet the highest standard of national significance and uniqueness of characteristics. This standard should never be eroded, or we can lose what is perhaps the essential ingredient that sets the national parks apart.

The third step we should take is to allocate resources to conform to changing patterns of visitation. Our efforts must be directed where they will do most to protect resources and serve those who come to the parks.

But in making necessary adjustments, the integrity of the parks—their soundness, their unity—must be preserved. We must continue to recognize them as places of transcendent beauty and wonder, and as links with the most influential personalities and events of the Nation's advance.

Remembering this always, we will treat the parks with the requisite care to pass them unencumbered to those who come after. For this generation is making history too, and we want to be remembered as faithful stewards of the treasures entrusted to us. □

Whitetail doe live on the island of the Okefenokee

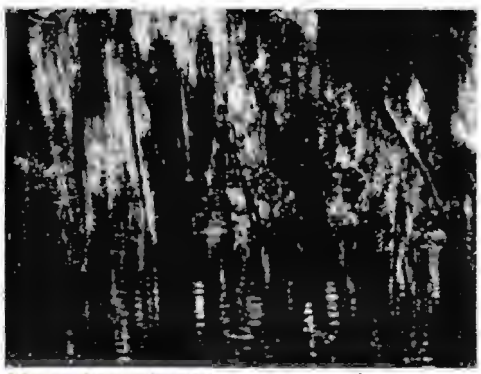
Land Donations by Industry

By Anne M. Byers

Several rare Florida sandhill cranes circle above the swamp. Far below large turtles sunbathe on logs, and alligators—some as long as 12 feet—glide with barely a ripple through dark waters. A bobcat crouches in the nearby undergrowth, its twitching whiskers the only hint that it is stalking a meal. Suddenly the quiet is broken by a pair of river otters absorbed in a game of tag, splashing in and out of the stream, sliding down mud banks, darting around tree trunks dotted with wild orchids. Startled by the activity, a pileated woodpecker flies off through the moss-draped cypress trees.

This is the "Land of the Trembling Earth"—the Okefenokee Swamp, one of the largest refuges in the country, frequented by wildlife enthusiasts and endeared to millions by the late Walt Kelly as the setting for his comic strip "Pogo." In March 1978 Union Camp Corporation, a major forest products company with extensive land-holdings in the Southeast, donated 16,600 acres of Georgia's Okefenokee Swamp to a national private conservation organization, The Nature Conservancy. The Conservancy, whose efforts are devoted to preserving threatened ecosystems and the life they support, transferred the property to the U.S. Fish and Wildlife Service for inclusion in the Okefenokee National Wildlife Refuge. The Federal sanctuary now contains 395,000 acres.

Union Camp's gift of land in the Okefenokee is only one of eight such donations the corporation has made to the Nature Conservancy since its first contribution of 49,000 acres of yet another swamp, the Great Dismal, which straddles the North Carolina-Virginia border. In presenting the Dismal Swamp land to the Conservancy in 1973, Union Camp Chairman of the Board



Moss-draped cypress trees in the Okefenokee Swamp

Alexander "Sox" Calder said, "There is no doubt in my mind that this action represents the highest and best use for the property." Furthermore, the land was appraised at $12.6 million, for which the company was entitled to the normal charitable contribution tax deduction. This demonstrates, Calder added, "that the interests of the public and an investor-owned corporation can indeed be compatible."

Gifts of land to nonprofit organizations like The Nature Conservancy offer substantial tax advantages, especially to large corporate landowners. Our country's tax laws enable private property owners to donate tracts of land and, in exchange, to receive deductions of the areas' fair market values from the owners' taxable earnings. Commenting on his firm's 26,000-acre donation to the Conservancy, John J. Stephens, vice president and Group Executive, Wood Products and Resources Group of International Paper Company, said, "The tax laws benefit everyone—from people who will enjoy the preserved lands for generations to come, to the shareowners of International Paper."

To date 36 U.S. corporations have given the Conservancy land that totals almost 126,000 acres and is worth over $68 million. Additional examples of donated natural areas include 2,138 acres from Temple-Eastex, Inc. (a subsidiary of Time, Inc.) to create the Roy E. Larsen Sandyland Sanctuary in Texas; another 11,000 acres of the Great Dismal Swamp donated by the Weyerhaeuser Company; the J. M. Huber Corporation's dual gift of eight and one-half miles of the wild Seboesis River and the 3,793-acre Crystal Bog, both in Maine; and a 42-acre stretch of land along the Little Miami River contributed by the Ohio Gravel Division of the Dravo Corporation.

Bargain sales of land to the Conservancy (selling property for less than its fair market value) not only are another way to preserve undeveloped areas, but will provide the seller with a tax deduction as well. In late 1977, for example, the St. Regis Paper Company sold 5,000 acres (and donated an additional 1,000) in Jackson County, Mississippi. The property, which supports the only known colony of the endangered, three-foot-tall Mississippi sandhill crane, was sold to the Conservancy for $3,775,000—about $700,000 less than the area's appraised fair market value.

More than ever before, long-term protection of remaining natural areas such as the Okefenokee Swamp and the Seboesis River depends on the farsighted action of private landowners. But outright donations and bargain sales of undeveloped land are by no means the only way in which the corporate world can involve itself in land conservation, nor is it the only way in which corporations can qualify for tax deductions.

In September 1977, a $75,000-cash contribution from the Atlantic Richfield Foundation enabled The Nature Conservancy to obtain options on 90 percent of an 87-square-mile island, Santa Cruz. The island, lying 23 miles off the coast from Santa Barbara, is the largest and biologically richest of California's Channel Islands. Rough and mountainous, Santa Cruz supports several rare or endangered birds—such as the brown pelican—the endangered Channel Island fox, and 31 endemic plants not known to grow on the mainland. Sea lions, harbor seals, and an occasional elephant seal haul up on the island's pocket beaches and rocky ledges; porpoises and migrating California gray whales are sighted seasonally from the shores. Another grant of $1 million from Atlantic Richfield in Spring 1978 helped the Conservancy complete its purchase of Santa Cruz, now the organization's second largest private sanctuary.

A cypress island in Okefenokee Swamp provides a background for the water lily

U.S. corporations also donate funds to the Conservancy for a variety of other purposes, not just for purchasing land. Protecting natural areas goes beyond acquiring them; it includes caring for and managing the properties after acquisition. One of the Conservancy's best known sanctuaries, the Virginia Coast Reserve (VCR), encompasses the only unbroken barrier-island chain in the U.S. preserved in its natural state. In 1980 Union Camp Corporation donated $50,000, and the Philip Morris Company $45,000, to finance continued management and protection of the 13-island preserve.

To attract further public support for the VCR, The Continental Group, Inc., and one of its member companies, Continental Financial Services Company, produced a 30-minute color film about the islands entitled "The Atlantic's Last Frontier." The Atlantic Richfield Foundation did the same for Santa Cruz, providing a color film called "Sanctuary in the Sea."

Corporate financial donations have also gone towards specific Conservancy projects or programs. A 1976 grant of $60,000 from Exxon Company, U.S.A., enabled the Conservancy to begin establishing a data bank or inventory of all natural areas across the country. Exxon was also the first corporate cash donor with a $300,000 matching grant to The Nature Conservancy's Land Preservation Fund.

Over the past several years, a number of properties without ecological value have been donated to the Conservancy by corporations and individuals and then sold to acquire and protect natural areas. The largest such "trade land" transaction to date was made by the Kimberly-Clark Corporation, which contributed 350 acres of Wisconsin property, valued at $1.5 million. The Conservancy sold most of the acreage and donated a riverfront site to the towns of Kimberly and Niagara for use as a community park. Again, the Kimberly-Clark experience reflects that a corporate gift of real estate has a positive after-tax impact on corporate earnings. To increase its financial base, the Conservancy has established the Trade Lands Program to encourage the donation of asset lands.

Land does not *have* to be acquired and owned by the Conservancy to insure its protection. For example, what is called a protection and lease agreement between International Paper Company—America's largest private owner of timberlands—and the Conservancy has succeeded in safeguarding the site of a rare golden eagle nest in the Adirondacks. Under the agreement, the 500-acre tract containing the nest is leased to the Conservancy, which must care for the site. Human activity on the property is prohibited without written consent from the conservation organization. Meanwhile, International Paper retains ownership of the land and pays the real estate taxes.

International Paper is best known to the Conservancy as the donor of the Savannahs at Genesis Point—26,000 acres of rich marshes, wooded uplands, and live-oak hammocks in the extreme eastern portion of Bryan County, Georgia. The Conservancy's subsequent transfer of the land to the Georgia Department of Natural Resources for management enabled the State to obtain Federal matching funds to purchase Ossabaw Island, which lies adjacent to Genesis Point, separated only by the Intracoastal Waterway.

Whether it is an outright donation of land or cash, a bargain sale of property, a protection and lease agreement, or a sale of asset land, The Nature Conservancy's experience over the last two decades has shown that U.S corporations can play a significant, positive conservation role. Given the challenges of the next 20 years, even greater private sector involvement will be needed if our Nation's unique natural heritage is to be preserved. □

Byers is Senior Writer at The Nature Conservancy.

Profit in Protecting the Outdoors

By W. William Pritsky

The aluminum industry has been recycling metal since 1904, when aluminum recycling plants opened in Chicago and Cleveland. But many Americans learned about aluminum recycling beginning with the aluminum beverage can 20 years ago. Even today, most people associate aluminum recycling with beverage cans.

That may be because, in a real way, aluminum can recycling extends a business opportunity and an ecology project to the general public and groups across the country who collect cans and bring them to the aluminum recycling centers.

A look at the aluminum can recycling story shows cash has been the best incentive all along. As Paul Murphy, Reynolds Metals Company Group vice president, recently explained:

"When the 12-ounce aluminum beverage cans first made their appearance in the early 1960's, the enormous possibilities for consumer recycling came into focus."

An early pilot project urged Miami residents to donate used aluminum cans to charity. The response was sporadic and low-volume.

"We did learn that an appeal to charity won't get you there!" Murphy said.

Following an example set by the paper industry, a collection center in Los Angeles was set up to receive cans and other household aluminum, paying cash on the barrelhead. The cash incentive proved an effective catalyst for a successful, continuing volume program.

"The second key," Murphy explains, "was the establishment of a network of convenient, low cost, collection or recycling centers like Los Angeles."

The aluminum industry has set about opening up the option for consumers to recycle their used aluminum, especially in areas having an abundance of all-aluminum cans. Many Americans have found they can supplement their income or generate significant sums for local civic or charitable causes by recycling aluminum.

Because it is good business, it is also becoming a big business. There are some 2,000 metal scrap dealers across the country who help supply about 100 plants that process recycled aluminum.

Over one million Americans collect aluminum cans on a regular basis, with millions more collecting cans part-time.

"For aluminum companies, used aluminum cans are like an above ground mine," William F. Hill, president, Alcoa Recycling Company, said. "Today we're tapping more than a third of this potentially inexhaustible metal source. Our goal is to double that volume over the next two or three years."

The aluminum industry thinks recyclers should know about the energy savings they generate in addition to income and resource recovery. Recycling aluminum uses only five percent of the energy it took to produce the metal originally. That is comparable to improving the miles-per-gallon of your car 19 times over. And aluminum cans can be recycled over and over again.

Consumer Innovation

In the Atlanta area where the aluminum beverage can concentration is high, student projects demonstrate the imaginative way recyclers are capitalizing on the value of used aluminum.

Take as an example youngsters, parents and directors of Henry County Junior High School Band who collect aluminum cans following races at the nearby Atlanta International Raceway. Races are attended by over 40,000 spectators, and many of the aluminum cans racing enthusiasts leave behind are picked up.

Following two recent races, the band group has collected more than 81,000 used aluminum cans, and received over $800 from the recycling center.

Band director George Henderson said money from selling the cans is used to keep the band in new uniforms. "It's easier than selling items door-to-door to raise funds," he said. "Besides, the youngsters are excited about helping to conserve a natural resource as well as the energy-saving benefits of recycling aluminum."

A different strategy is used by teachers and youngsters at Beford-Pine Day Care Center in downtown Atlanta. Ruth Nichols, head of the school, said the adults and youngsters canvass nearby homes and businesses for cans. The best contributors are neighborhood pubs, hotels and motels.

"Owners of these establishments are eager contributors," Ms. Nichols said. "They see it as an ideal way to lend a helping hand to a good cause, and it helps relieve them of having to find some way to dispose of them."

Perhaps the most imaginative aluminum beverage can recycling effort in the Atlanta area is conducted by a group of high school students who collect the cans following the annual Ramblin' Raft Race on the Chattahoochee River.

Each year, more than 400,000 persons flock to the river on a Saturday in May to float the seven-mile course in anything from air-filled inner tubes to extravagant homemade sea-worthy vessels. On the way down the river, the participants leave behind thousands of aluminum beverage cans.

The enterprising high school group collects a large number of these cans by forming a phalanx of shoulder-to-shoulder students to sweep the area clean. "The result is something like a grain field after the locusts have left," said one admiring observer. "It's picked clean."

Other students tie can collection efforts to beautification programs. Walker High School students, for example, pick up aluminum cans on the roadside during the annual "De-Trash DeKalb County" program held each May. Each youngster who brings a plastic garbage bag full of cans for recycling is admitted to a sock-hop free of charge. And big hits at the hop follow the theme: recycled "oldies" from the 1960's.

Alcoa Recycling Company's Southeast regional representative, Dan Nemeth, has started a program to help schools tie aluminum beverage can recycling to traditional newspaper collection drives. Nemeth believes most schools can more than double their recycling income by combining the two materials.

"In the same way students have educated neighbors to save newspapers, they can help the public save aluminum beverage cans," Nemeth said. "Students can collect both items on a single stop."

Growth in Recycling

The recycling ethic was born of a strong national interest in improving our environment and that attitude flourishes. Aluminum recycling will by no means solve our litter problem, but it is a start in the right direction.

Aluminum containers are increasingly flowing into recycling systems, thereby staying out of the litter stream. There is, however, another potential source of lost aluminum in the country's solid waste landfills and other disposal systems.

For years the aluminum industry has been working with municipalities to find economical and practical ways of saving aluminum and other valuable materials that go into the trash heap. This work is continuing, and some aluminum is being recovered from these sources.

Reynolds reports it has developed a unique mechanical system to recover aluminum from municipal refuse that now is in operation in Houston, Texas and in Salem, Va. The company says this new system could be regarded as a prototype for relatively low-cost, low-capital investment recovery systems that can be installed by resource recovery plants as part of their overall operation.

While efforts continue to efficiently uncover this buried treasure, of sorts, the aluminum industry is trying to make sure as little of its metal as possible gets into the solid waste stream.

Industry collections in 1970 were eight million pounds. Reynolds Metals Company estimates about 600 million pounds were retrieved in 1980, representing substantial growth in 10 years time, especially the last two.

Cans that are recycled go to make aluminum sheet for the bodies of more cans. Alcoa executives estimate one out of every three aluminum cans made by the aluminum industry comes from recycled material and that this ratio will grow to two out of three within five years.

The recycling network today consists of primary and secondary producers, scrap dealers, entrepreneurs, beverage companies and independent recyclers and has grown to more than 2,500 collection points nationwide. While the public continues to avail itself of cash payments and convenient collection, efforts are being made to involve even more individual recyclers.

Automated self-service can collectors, Alcoa's "Cangaroos," being test marketed in several grocery stores in the country are one way. Organized collections by municipalities are another.

It is clear to the industry that as energy costs go up, recycling can play an important role as a wholly domestic supply source of aluminum.

As Alcoa's William F. Hill put it, "Aluminum can recycling is an investment in America's future. Americans get a cleaner environment, can collectors earn cash for their efforts, consumers get the package they want, energy is saved and the industry gets a chance to put the used metal back to work. Everyone benefits." □

Mr. Pritsky is Technical Director-Energy/ Engineering at The Aluminum Association.

Operating the "Cangaroo," an automated self-service used can collector now being test marketed.

Piles of iron ore pellets at Armco Steel's Middletown Works are sprayed to reduce dust.

New Plan for Armco Steel

The EPA recently approved a prototype air pollution control plan for Armco Inc.'s Middletown, Ohio, steel plant that permits the company to clean up dust and airborne dirt from the plant grounds instead of installing expensive filters to trap other pollution escaping from plant buildings.

EPA Acting Administrator Walter C. Barber said that approval of the Armco plan "has opened the door for other steel firms to develop similar cost-savings programs." The Agency will try to speed approval of these plans as part of the Reagan administration's campaign to reduce unnecessarily burdensome regulations, he added.

The Armco plan has been a key test of the so-called "bubble" approach to pollution control, in which a plant is assumed to be covered by an imaginary bubble or dome with only one emission point for airborne pollutants. Instead of insisting on special pollution controls for every smokestack or other pollution sources in a plant, EPA permits the company to choose its own control plan, as long as the total emissions from the plant underneath the "bubble" comply with Federal requirements.

The Armco plan is based on a program to control dust throughout the plant grounds by paving roads and perimeter parking lots and spraying water and other dust controllers on coal and ore piles, as well as seeding open areas.

The company will also install monitors to measure expected air quality improvements. The State of Ohio has the responsibility for assuring that Armco meets air quality standards.

The EPA approval permits Armco to take these steps instead of building filter systems and other control devices to catch "fugitive" emissions that otherwise would escape from plant windows, doors, and vents. The plan is not a substitute for the controls EPA requires on furnaces and other manufacturing processes, however.

Armco, which is investing $5.6 million in dust control, said it will save at least $14 million to $16 million at its Middletown plant by following its dust control plan. If the program is duplicated at all of Armco's other facilities, it could save as much as $42 million without sacrificing air quality, the company estimates.

The company also said it will eliminate six times more particles with its plan—4,000 tons per year—than would be trapped if EPA insisted on its customary controls of "fugitive" emissions.

An EPA official said the key to approval of the Armco "bubble" was the company's claim that the new plan would lead to an overall reduction in particulate pollution in the Middletown area, bringing it in compliance with EPA's standard for particulates by the end of 1982.

EPA's bubble policy is an important regulatory reform initiative which allows pollution sources the flexibility to meet Clean Air Act requirements in a more cost-effective way. The new policy permits industry management to calculate the best way to clean up air pollution at individual plants provided overall clean air requirements are met.

A voluntary program, it differs from the traditional approach of having regulatory agencies set specific emission standards at each pollution source within a factory. The bubble allows plant managers to propose their own emission standards—tightening them in places where it is least costly and relaxing them where pollution control costs are high to achieve the same desired results. □

EPA '82 Budget Intensifies War on Hazardous Waste

The Environmental Protection Agency will step up its efforts in several areas to attack the problem of hazardous waste disposal.

The EPA budget for fiscal 1982, although showing a reduction in overall spending, will put more resources into carrying out the recently enacted Superfund legislation as well as future hazardous waste control activities dealing with permits in this area, and hazardous waste enforcement.

The Superfund, technically known as the Hazardous Substance Response Trust Fund, resulted from national concern over Love Canal and similar examples of abandoned chemical disposal sites that threatened the health of nearby residents. The fund was established through legislation passed last December 11.

The Superfund is financed over a period of five years through a combination of taxes levied against chemical manufacturers and Federal appropriations. In addition to the 1982 budget request of 503 personnel and a total of $200 million to support the program in its first full year, EPA also is requesting a 1981 supplemental appropriation of $68 million for initial implementation, such as promulgating key regulations and developing mechanisms for funds and contract management.

"Like most other Federal agencies, EPA will have less money and fewer people next year," declared EPA Acting Administrator Walter C. Barber, Jr. "As a result, we have had to make difficult trade-offs between programs to eliminate duplication and to fund only those programs which meet our most critical national environmental goals. However, we will continue to press ahead in the areas of enforcement of existing regulations, in the delegation of authorities and programs to the States where legally permissible, and in the area of providing grants to the States to carry out these programs."

The budget as proposed by President Reagan is down slightly from approximately $1.43 billion and 10,621 workyears in 1981 to $1.39 billion and 10,387 workyears. (A workyear is the equivalent of one person working one year.)

In other areas, the new budget would make major cuts in EPA's grant program for sewage treatment construction, reflecting a desire for more cost-effective orientation of the program. About $1.7 billion of 1981 and earlier year construction funds already appropriated would be cancelled. Although the new construction grants budget for fiscal 1982 calls for $2.4 billion, this would only be for projects designed to significantly improve the quality of receiving waters in the near future.

Several other State grant programs would be reduced next year. The 1982 budget contains a $34 million decrease for elimination of the Section 208 area-wide water planning grants and a $23 million decrease for elimination of Clean Lakes, Solid Waste, and Resource Recovery grants. The reductions in the water program reflect the fact that regulations and planning called for in the 1977 Clean Water Act amendments will be largely completed next year. As a result, the program's principal focus will be to carry out existing requirements rather than developing new initiatives.

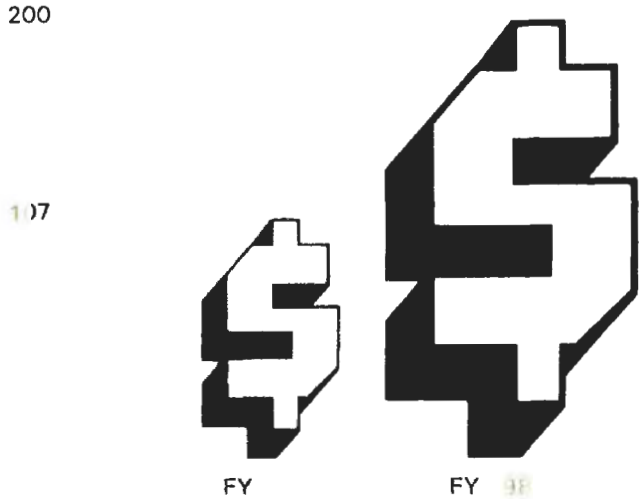
However, some of EPA's water clean-up efforts would be increased under the proposed budget. For example, the ocean disposal program would be increased by $3.1 million to study the environmental effects of additional ocean dumping sites. EPA's enforcement of controls on toxic industrial discharges also would be increased by $2.4 million and seven workyears.

Other programs that would have overall budget increases for 1982 would include these areas:

- Drinking water—An additional $4.8 million would be used to control the underground injection of wastes and to protect groundwater as well as to fund further research.
- Interdisciplinary programs—These activities, which cut across pollution control efforts and integrate research and regulations, would receive an additional $4.7 million and 14 workyears to accelerate the review and issuance of permits for new energy projects.
- Management and support—An additional $19.5 million would be used to develop an integrated toxic substances regulatory plan and to cover higher costs for office space and services.

Offsetting these increases, a number of EPA programs and activities would be reduced or phased out in fiscal 1982. The highlights include these:

- The air pollution control program would be reduced overall by $7.4 million and 22 workyears as certain work is completed in controlling exhaust emission from cars. However, enforcement to insure compliance by industry with clean air standards would be increased by $1.9 million and 36 workyears. Grants to States and local governments to support their pollution control programs would stay at the 1981 level.
- Energy research would decline overall by $34.8 million but increase by 4.3 workyears, as studies on possible toxic pollution and drinking water contamination caused by energy development would be eliminated. Research would continue on other environmental effects of coal, oil shale, petroleum refining, and geothermal energy, as well as on acid rain and coal-fired boilers.
- A reduction of $5.8 million in toxic substances control would come through eliminating some public participation grants and record-keeping and reporting rules.
- About $12 million in grants to States for solid waste and resource recovery would be ended after 1981, because many State programs are becoming self-supporting and emphasis has shifted to hazardous waste.
- The pesticides program would decrease by $7.6 million and 67 workyears in the areas of registration standards and integrated pest management research. Grants to States to enforce pesticide safeguards would increase by $782,000.
- The noise control program would be phased out by the end of fiscal 1982 and its mission transferred to the States. To accomplish this, the budget allocates $2.3 million and 29 workyears.
- The radiation program would be reduced by $4.3 million and 26 workyears, marking the deferral of some regulatory development and stressing greater emphasis on the development of standards for disposal of low-level radioactive wastes. □



The Superfund will increase from $107 million in FY 1981 to $200 million in FY 1982, and is scheduled to reach $1.6 billion in five years.

EPA Team Wins Congressional Award

Seven present and former EPA employees from Region 5 in the Midwest recently received the Excalibur Award in Washington, D.C. for their innovative cost-saving plan to develop sewage treatment facilities for rural lake areas in the Midwest.

The group received the Excalibur Award from Rep. Michael D. Barnes (D-Md.) for the Seven Lakes Project. Barnes initiated the award in 1979 to recognize outstanding contributions made by Federal civilian and military personnel. Region 5 Acting Administrator Valdas V. Adamkus said that this is the fourth citation plaque to be issued, and the first to be awarded for a team effort and to EPA personnel, although Agency projects have been nominated numerous times since the award was created.

The Seven Lakes Project team used aerial infrared photography to determine whether septic tanks and filter fields were failing. The team also used ultraviolet fluorescent scanning to determine the location and extent of septic tank effluent leakage into lakes and streams. Included in the project were lakes in Michigan, Minnesota, Indiana, Ohio and Wisconsin.

These detection methods enabled the group to recommend to local sanitary officials alternative waste treatment methods that were much less expensive than the originally proposed measures.

"The recommendations to use the alternative methods of on-site waste treatment in the rural lake areas instead of the costly sewer system installations would save residents in the seven locations $51 million," said Adamkus. Estimates indicate that the improvments recommended by the Seven Lakes team would cost $27.5 million rather than $78.5 million, the cost of the initial proposal for sewers and plants.

"The team tackled this problem to provide residents in the rural lake areas throughout the Region and country with solutions for preserving water quality in the lakes that are affordable rather than increasing assessments $4,000 or $5,000 per home," said Adamkus.

The 1977 project focused on seven Midwest rural lake areas that were selected from hundreds seeking construction grants from EPA to install sewer lines along lakes or to build wastewater treatment plants. In the project environmental impact statements were prepared to determine water quality problems caused by failing septic tanks.

The recommendations included alternatives to sewer construction such as upgrading and maintaining septic tank systems, installing new systems where needed and providing clusters of filter fields that could handle wastes from small populations and protect water quality.

The Excalibur Award selection committee is composed of seven distinguished citizens, drawn from a wide variety of professions and experiences.

The recipients of the award from EPA in Chicago are: Alfred Krause, technical specialist, Water Division; Ted Rockwell, environmental protection specialist, Water Division; Greg Vanderlaan, physical scientist, Superfund Division; Catherine Garra, community planner, Water Division; Cynthia Wakat, facilities planning specialist, Water Division; and Gene Wojcik, chief, Environmental Impact Statement Section, Water Division.

Kathleen Schaub, a former Region 5 environmental protection specialist who is now a doctoral student at the University of Maryland, also was honored for her work with the team. □

Three of the winners shown at the award ceremony in Washington are Kathleen Schaub (left), Cynthia Wakat (behind Schaub), and Catherine Garra.

Recreation and Water Cleanup

Child floats boat in pond.

Lowell, Mass., once a proud textile center of the 19th century, had been a victim of declining industry and a deteriorating core, until it developed the concept of an "urban cultural park." The plan was designed to build on the city's strengths—its location at the confluence of the Concord and Merrimack Rivers, its legacy of long brick mill buildings, and the network of canals that thread through the city. It was to be a combination of creative reuse of historic architecture, exhibits of the industrial revolution, and extensive landscaping and recreational development.

A vigorous cleanup program got underway. There are plans to protect the undeveloped banks of the two rivers, and extensive landscaping and recreational development along the five miles of canals. Hiking and biking trails are being designed to follow the same easements as wastewater collection systems.

The efforts of Lowell are typical of many communities across the country, large and small, which are rediscovering their waterfronts. In some cases, this means revitalizing rundown developed areas. In other cases, it means protecting shoreland areas still unspoiled, such as along the Little Miami River in Ohio, where a regional open space and trail system is being developed in conjunction with water cleanup programs.

The city of Lowell and the Little Miami shorefront are examples listed in "Recreation and Land Use: the Public Benefits of Clean Waters," a report put out by the Environmental Protection Agency and the U.S. Department of the Interior.

The report explains how to synchronize open space protection programs with water cleanup schedules so that waterfront land is given a high priority, and purchases timed so that property is bought in advance of dramatic pollution abatement.

This can save money initially in one of two ways: first, property values tend to rise following pollution control progress, and second, communities can save by coordinating funds from various Federal, State and local programs that may already be in effect in their areas, according to the report.

Another incentive for this coordinated acquisition is that by making this prime land available to the public, the benefits of tax expenditures on pollution control return to the public, and not to private real estate developers, the report notes.

This coordinated acquisition means that a large share of new public recreation areas could be water-oriented, satisfying the popular demand for such activities as swimming, fishing, boating and other water sports." It will also help to prevent pollution of clean rivers and lakes through erosion, runoff, and other forms of non-point source pollution," the report declares, "that would accompany indiscriminate development of shorelines, or intensive residential development at the water's edge."

The report advocates multiple use to gain extra value from a wastewater treatment plant or collection system by using it for recreational purposes in addition to its primary role of cleaning up pollution.

According to the report, the concept of multiple use can be a dollar stretcher especially when it comes to construction. For example, when heavy equipment is already on site, it is much cheaper to also build recreational facilities then. In the case where the land has to be restored in some way after construction, a little planning can ensure that it is done in a manner to accommodate some kind of recreation. Also, the environs of a treatment plant constitute a waterfront access point that is already in public ownership, and thus a possible location for boat launching ramps, for example. This can be particularly attractive in areas where opportunities for waterfront access are limited.

EPA is presently engaged in a training program to alert consulting engineers, those hired by a town or city to help design and construct a treatment facility, to the concept of multiple use.

The Agency also assists, according to the report, by providing funds for the consulting engineers working on construction grants projects to:

- coordinate with public officials and citizens interested in or charged with responsibilities for recreational and water cleanup;

- develop multiple use proposals and study their feasibility;

- design and construct the wastewater treatment system to accommodate recreational uses, even if, in some cases, this leads to extra costs, and

- design and carry out landscaping and regrading so as to promote recreational use.

"While eligibility for receiving funds is determined on a project by project basis, the Agency only funds those geared to pollution control as opposed to strictly recreational activities," the report states. The Agency provides these funds in three stages; facility planning, in which the needs of the community are examined; preliminary design following Agency and State approval; and construction. However, incorporating recreational opportunities into a project is best done in the early stages before engineering designs are approved or construction is begun.

EPA is not, however, the primary source of funds for multiple use efforts. Other Federal programs, State environmental agencies as well as local agencies and private industries are among other possible sources.

The report describes the problems which crop up in multiple use efforts as those which can quite readily be expected in programs which involve fitting a new idea into established practices. There is resistance on the part of some wastewater treatment engineers and public officials to the idea. Often they cite fear of vandalism; other times they are just apathetic to the idea itself. However, to combat these attempts to frustrate their efforts, communities and civic groups are advised to note the protection afforded in Sections 201 (g) (6) and 208 (b) (2A) of the Clean Water Act which specifically support the use of recreational opportunities.

The study cites a number of instances when the two, water cleanup and recreation, have been successfully meshed. For example:

- In Evergreen, Colo., the roof of a treatment facility was used, at the suggestion of the chief sanitation officer, for two additional tennis courts for the community, thus alleviating the congestion on the other public courts. The city also saved money by getting a group of citizens to fund the cost of building the courts.

- The construction of a support system for a treated water outfall from a wastewater treatment plant gave residents of Pacifica, Calif., a long desired ocean fishing pier. Over 55,000 people use the pier annually.

- In Barrington, R.I., due to strong public interest in the idea and a creative consultant, a pumping station was located next to an outdoor ice hockey rink and designed to form bleachers for spectators.

- In Bellevue, Wash., a suburb of Seattle, construction of an interceptor line through an undeveloped marshland is being coordinated with recreation officials to provide a bicycle path through the property.

The report notes that the most often implemented type of multiple use involves wastewater collection systems and related facilities such as pumping stations. The report suggests that this is because these facilities are scattered around the community, and thus are most accessible. Then too, there is the apparent ease with which such controls as easements, which have to be negotiated anyway, can be written to allow for development of a walking and trail system. These systems, in addition to linking points throughout the community, can turn disjointed and fragmented parklands into a cohesive recreation system.

As the Nation makes its concerted push for fishable and swimmable waters, technical innovations and new standards and requirements are making many older treatment plants outdated. Yet this is posing a problem in many communities, where abandoned plants can tie up desirable property, or worse yet, become nuisances subject to vandalism, accidents and other problems, according to the report.

"In a number of cities and towns, however, these problems are being avoided creatively by adapting outmoded treatment plants to recreational purposes," the study states. "Old plants tend to be located in dense neighborhoods, or on prime waterfront land, which make them excellent candidates for rehabilitation into parks."

Recycling an abandoned treatment plant makes sense because it eliminates an eyesore and potential trouble spot, in addition to meeting the public demand for recreational facilities, and converting otherwise wasted land and structures into new assets.

The study lists Miamisburg, Ohio, a suburb of Dayton, as an example of this creative reuse. There residents, working with city officials and park planners, turned a long-unused plant into an attractive new park. Tennis, basketball, and volleyball courts were built from old sludge beds; a splash pool and roller skating area were fashioned from the treatment plant's aeroclarifier, and an "adventure playground" was developed over the former sludge digester. The former administration building was used for restrooms and a storage area. And open land surrounding the facility is being used for a ball field and free play area. Plans of a similar nature are currently underway for outdated treatment plants in San Antonio, Texas, and Naperville, Ill., according to the study. □

Single copies of the study "Recreation and Land Use: the Public Benefits of Clean Waters" are available at the Public Inquiry Center at EPA Headquarters in Washington, D.C., and EPA regional offices.

Tourism and the Environment

By J. William Hudson

It is sometimes difficult to realize the scope of what is called tourism. Resorts and restaurants, travel agents and tourist attractions are some of tourism's obvious components, but the travel industry encompasses a much broader spectrum. Since tourists are people, they not only need places to eat, sleep and entertain themselves, but also sources of information, transportation and regulation. In short,

Tourists at Lincoln Memorial in Washington, D.C.

National Park Service ranger directs tourists near White House

tourism is defined by such a wide range of activities that it can be—and often is—the basis of the economy of a region or nation.

Because tourism encompasses such a broad spectrum of activity, it has a variety of needs. An example is the travel industry's unique dependence on two particular natural resources. First, a steady supply of fossil fuels is required to keep the transportation lifeline of the industry moving. Second, maintenance of the quality of scenic and recreational areas is vital to the well-being of the industry. These seemingly conflicting, but equally critical, needs can only be met with recognition, by both the public and private sector, that national resources must be managed in ways that consider the needs of the travel industry equally with those of other interests.

Most people think of tourism as a vacation or leisure activity without realizing the significant economic clout the travel industry wields. In fact, tourism is the third-largest retail industry in the United States in terms of consumer sales. In 1979, it accounted for more than $130 billion in domestic spending—some six percent of the Gross National Product—exceeded only by the food and automotive industries. Expenditures on travel worldwide have grown at the compound rate of more than 10 percent a year, and in 20 years it is anticipated that travel will be the number one industry worldwide.

Highly diversified, the U.S. travel industry's 1.4 million component companies—99 percent of which are classified by the Federal Government as small businesses—range from small travel agencies to large airlines and hotel chains. Travel provides a high percentage of entry-level positions and is preeminent in the employment of women, youths and minority groups. At a time when the service sector accounts for most employment growth, travel is one of the Nation's leading labor-intensive service industries. The travel industry directly employs nearly five million Americans at every level of skill and indirectly produces another two million supporting jobs. It is the largest single employer in 14 of the 50 states.

Tourism now ranks as the sixth-largest U.S. export industry, far outdistancing such widely heralded export performers as soybeans, construction materials, machinery, and business machines. Last year, foreign visitors spent $12 billion dollars while traveling in the U.S., an increase of nearly 11 percent over 1979. It has been predicted that the total number of international visitors coming to the U.S. during 1981—an estimated 23.7 million—will surpass the number of U.S. citizens traveling abroad.

Aside from the economic gains associated with tourism there are social benefits which increase the well-being of the population. For example, improved physical health due to participation in outdoor activities often results in less work time lost to illness, while relaxation and release from stress increase productivity. Various studies have shown some of the feelings experienced by persons who take part in outdoor recreation to be increased independence, self-sufficiency and self-fulfillment through discovery, risk-taking and meeting challenges encountered in the outdoor environment. It has also been suggested that participation in outdoor recreation increases social stability and family solidarity through group experiences.

Demand for outdoor recreation is on a steady climb. The rise in the number of two-paycheck families has increased disposable income. These factors, in addition to more leisure time and longer life spans, have created a boom in the tourism market, but have also contributed to crowded conditions in existing tourism facilities.

The U.S. Forest Service publication, *An Assessment of the Forest and Range Land Situation in the United States,* notes a 37 percent increase in outdoor recreation participants over the last 10 years, with the largest gains in snow and ice sports. In that time span, travel expenditures have risen 110 percent according to the study. It also predicts that by the year 2030 demand for winter sports will be up by 140 percent, 106 percent for water sports, and 61 percent in recreational land use.

The growing public appreciation of outdoor recreation has been a mixed blessing for the environment. Public demand for quality outdoor experiences has been a major factor in the reduction of water and air pollution. A study by Walsh, Gillman and Loomis of the public benefits derived from wilderness resources in Colorado shows that 87.2 and 76.9 percent respectively of the survey respondents believe protecting water and air quality are very or extremely important wilderness area values. At the same time, environmental concerns have intensified with continuing increases in recreational use of water and land resources.

What is needed is a coordinated effort by the public and private sectors to balance development and maintenance of natural resources for the growing travel market with the needs of other industries. One method of achieving this goal is by mandate of a national tourism policy that defines the travel industry's needs and ensures that they are addressed.

Currently, tourism issues are handled by scores of agencies with no single authority overseeing the final result of their actions. This state of affairs often leads to overlapping, and even conflicting, activities.

If we fail to resolve the problems that exist in tourism policy, we will suffer economically and environmentally. By responding to the needs of tourism with a law establishing a coordinated approach to solving the problems that exist, and planning for future contingencies, the Nation will enjoy a growing supply of jobs, tax revenues, money and avenues of enjoyment into the next century. □

Hudson is Senior Vice President of Membership and Industry Affairs, Travel Industry Association of America.

Wood Ducks Hatching

About two hours after sunrise the wood duck hen appeared at the entrance to her nest in a tree cavity, looked around for predators below, and once convinced it was safe, glided to the ground below.

After landing and checking warily for possible enemies, she called to her new born ducklings. The approximately 10 youngsters in the nest responded with peeping calls.

Then they scrambled one by one up to the inside of the nest hole, and paused briefly before leaping out and fluttering to the ground, which may be as much as sixty feet below the nest. Because the youngsters are little balls of dark yellow, grey, brown, and black fluff weighing less than an ounce they land unhurt.

Once the last chick was out of the nest, the mother led them to a nearby pond. With head down and neck outstretched, the cautious and furtive mother scooted across clearings and paused in the next wooded area waiting for her young to catch up with her.

In this manner, by starts and fits, thousands of mother wood ducks in the Chesapeake Bay region are now leading their broods to water.

The mother's innate skills, an increasingly favorable habitat, and some help from humans and other animals are contributing to make the wood duck, once thought to be in danger of extinction, one of the most common in the Atlantic Flyway, the East Coast migrating path used by birds between their winter and breeding grounds.

One of the most beautiful birds in the world, the wood duck was nearly exterminated in the early 1900's by unrestricted hunting and massive lumbering and land clearing which destroyed much of the bird's natural habitat of woods and swamps.

However, in recent years the wood duck, whose scientific name, Aix sponsa, means "waterfowl in wedding raiment," has been flourishing because favorable environmental conditions have outweighed the negative ones.

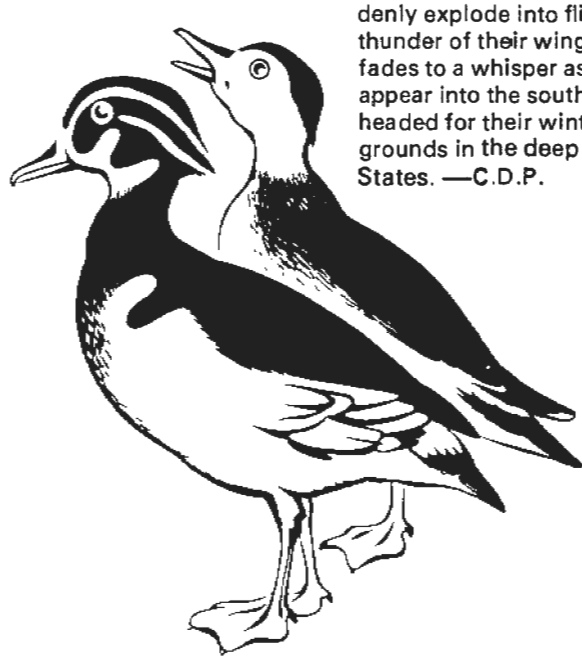
Although this secretive bird is extremely difficult to count because of its habit of hiding in wooded and marshy areas, U.S. Fish and Wild Life officials estimate the total national population at about five million birds. In some areas of the Atlantic Flyway it is the most common duck, despite the fact that every fall hundreds of thousands are shot by hunters.

Passage of the Migratory Bird Treaty Act between the U.S. and Canada in 1918 saved this bird from extinction and prevents unrestricted killing now.

Helping the success of the wood duck population is the fact that many former farms in the East have been allowed to revert to woodland. An increase in the beaver population also aided because these creatures build dams which create impoundments to compensate for loss of marsh and swamp land being drained elsewhere for growing of agricultural crops such as soybeans.

A question of some concern to wood duck admirers is how much harm will be done to their habitat by the increasing cutting of trees for fuel for wood stoves. While no one is sure, it is certain that the future of the wood duck, like that of all living things, will, to a greater or lesser degree, be shaped by its environment.

The wood duck normally nests in tree cavities, such as those drilled by the crow-sized pileated woodpecker. Many people have built houses for wood ducks that they erect on poles in ponds to provide additional safety. Large inverted metal cones are placed beneath the houses to keep snakes, raccoons, and other predators away from the wood duck nest.



Wood ducks pair off while at their winter grounds and the female then leads the male to a nesting site, often where she nested the year before.

The female gives a wild cry of alarm when disturbed that has given this duck the nickname of "the squealer." If you walk along the C&O Canal south of Shepherdstown, W.Va., at this time of year, you will often hear a strident "wh-e-e-ek, wh-e-e-k" cry as the hen flies off her nest and plunges behind a screen of wood and shrubbery downstream.

Although the female has the loud voice, she is, despite her white eye rings, relatively drab compared to the resplendent male who has a gaudy head crest and shows many hues of green and purple and whose burgundy chest is flecked with white.

After the breeding season the wood ducks, both male and female, gather together, some times by the thousands, in swamps or farm ponds each night until they are ready to migrate.

Then usually after the first hard frost in October or November in this area they will suddenly explode into flight. The thunder of their wings gradually fades to a whisper as they disappear into the southern sky headed for their wintering grounds in the deep South States. —C.D.P.

Around the Nation

REGION 1

Artificial Reef

Region 1 officials recently informed developers of a proposed artificial reef that will use some 100,000 old tires, located off the coast of Marblehead, Mass., that they must apply for an ocean dumping permit.

The developers, Fisheries Enhancement Corporation, had sought an exclusion, arguing that the reef would enhance the production of fish and therefore should be exempt from the permit process.

EPA, after reviewing material provided by the National Marine Fisheries Service, did not concur with the developers' belief, and in fact said the reef could have negative impacts to the highly productive ecosystem in that area of Massachusetts Bay. The Agency is concerned about the possibility that the reef could break up and litter the ocean floor and interfere with fish life.

Settlement

Region 1 recently reached a settlement with Recycling Industries of Braintree, Mass., for that company's violations of the PCB marking regulation. Recycling Industries is a licensed PCB storage facility.

The settlement involves, in addition to a $3,000 penalty and installation of sampling and testing equipment, an agreement to transport, store, and ultimately dispose of 4,000 gallons of PCB-contaminated wastes that were removed from an uncontrolled hazardous waste disposal site in Coventry, R.I.

REGION 2

Company Cited

Region 2 has cited the National Gypsum Company for violations under air pollution regulations which makes payment of penalties mandatory if the source were still out of compliance with emission control requirements after January 1, 1981.

The company operates a manufacturing facility in Burlington Township, N.J., which makes gypsum products for the building industry. Recent stack tests demonstrated that the kiln at the plant is emitting particulate matter at more than twenty times the allowable limit.

Acting Regional Administrator Richard T. Dewling said that similar notices have already been issued to three other firms in the region and that a number of air pollution sources have been asked to test emissions from their plants. If these sources show violations, they too will receive notices of noncompliance.

REGION 3

State Authority

Delaware now has primary authority to administer and enforce a Statewide hazardous waste program, following approval of its program by EPA.

Specifically, the State has responsibility for: identification and listing of hazardous wastes; regulation of waste treatment, storage, and disposal facilities; development of a cradle-to-grave manifest system; regulation of hazardous waste generators and transporters; and inspection and sampling of all waste management facilities.

Following development of additional regulations by EPA, Delaware can also be authorized to issue permits to companies that treat, store, or dispose of toxic wastes.

Penalty Assessed

Region 3 recently assessed a $25,000 penalty against Culpeper Wood Preservers for the firm's improper operation of a chemical holding pond. The firm was ordered to cease operation of the pond immediately.

EPA became aware of the pond in February when more than 200,000 gallons of copper chromium arsenate solution spilled into a tributary of the Rappahannock River due to a break in the dike surrounding the pond.

The EPA order also directed the company to submit a revised application for interim status as a hazardous waste storage facility. The company had previously applied but did not mention the pond. Failure to resubmit an application will mean the firm will have to go through a lengthy permit procedure as a new hazardous waste facility or dispose of its waste at an authorized facility.

The company must bring the pond into compliance with existing standards for hazardous waste facilities before it can be used again for chemical storage.

REGION 4

Offshore Dumping

EPA plans to decide by June 1 whether to grant Mobil Oil's request for a research permit to dump drilling wastes into the Gulf of Mexico 16 miles from the company's exploratory wells under development in Mobile Bay.

Under the proposed permit, Mobil would transport and deposit some 20,000 cubic yards of waste plus 30,000 cubic yards of service water and rainwater runoff.

At a public hearing in March, Alabama officials did not oppose issuance of the permit, but asked that the site be moved five miles to the southeast. The State argued that the original site can best be used for fishing. However, some others testifying at the hearing claimed the wastes would contaminate fish and shell fish, threaten human health, and ruin the tourist business.

The permit would require Mobil to conduct an extensive environmental sampling program in the disposal area over an 18-month period.

Swamp Cleanup

The Region 4 Environmental Emergency Branch is directing the cleanup of a swampy area in Greenville, Ala., contaminated with polychlorinated biphenyl or PCB wastes.

The site, about 30 miles south of Montgomery, is on land adjacent to a company which repairs electrical transformers and capacitors. Initial emergency actions taken earlier this year include construction of a containment dike to keep contaminated material away from a nearby stream.

REGION 5

Toxics Grants

Three States in Region 5 received three EPA grants totaling $1.2 million made recently by the Agency to study the effects on human health and the environment of toxic chemicals, and to set up information systems to monitor these effects. The grants to Illinois, Michigan, and Ohio were made under provisions of the Toxic Substances Control Act to develop such State research programs.

The Illinois Department of Public Health was awarded $475,626 to develop a Statewide communications and information network to detect sickness and death caused by human exposure to toxic substances.

Ohio EPA will use its $180,512 to inspect plants using acrylonitrile, a chemical used in making plastics, for a possible link between cancer and exposure to this substance.

And a $532,250 grant to the Michigan Department of Natural Resources will be used to develop an interdepartmental risk assessment program and to increase occupational and products monitoring.

Poster Contest

The Region's second annual poster contest has been expanded this year to include all third grade students in Dallas county schools. Doubling in size, this year's contest included 12 school districts with almost 20,000 students participating in the contest.

The winning poster from each school was judged in mid-April and a special awards ceremony, naming the first, second, and third place winners, was held on Earth Day—April 22. A leading environmentalist, investigative reporter, and art critic selected the winning posters.

Last year's contest had the theme, "Environment Has An I—How Can I Help," and this year, the students let their imaginations lead them in creating environmental theme posters. The winning poster from last year was featured in a special Dallas Morning News story, selected for a tenth anniversary poster, and featured on the back cover of the tenth anniversary issue of the EPA Journal.

Hazardous Waste

Four Kansas City area firms and an individual have been charged with endangering public health and the environment by maintaining a hazardous waste storage area in Kansas City, Mo.

Named as defendants are Kansas City Coatings, Inc., which operates a plant in Lenexa, Kan.; James C. Reed, an independent hauler from Kansas City, Mo.; the Kansas City Terminal Railway, Inc., Kansas City, Mo.; Jasper Land and Improvement Co., a subsidiary of the railroad; and the Black Economic Union of Kansas City, Mo.

In a complaint filed in U.S. District Court, Kansas City, Mo., the Federal government asked for an injunction to compel the defendants to secure the site immediately, recontainerize deteriorating drums and pails of waste, remove them from the property, post a bond to pay for the entire cleanup effort, and reimburse EPA for its investigation and other expenses.

Smelter

Preliminary findings and conclusions of an investigation released recently by EPA Region 8 indicate that the closure of Anaconda Copper Company's Montana Smelter was not due solely to the cost of meeting Federal air pollution control and occupational health requirements.

Regional Administrator Roger Williams said, "Anaconda's estimated cost of $400 million for complying with Federal environmental and health standards is misleading and cannot be substantiated."

Continuing, he said, "The smelter was a marginal operation. Its historically low profitability can be traced to high operating costs associated with an energy-intensive smelting process, the processing of low grade mineral concentrates, cost of needed process modernization, cost of environmental and health controls, high mining costs, under-utilization of smelter capacity, lack of profitable markets for by-product sulfuric acid, and competition from foreign producers."

Water Reuse

In Orange and Los Angeles Counties a water reuse study by major water and wastewater agencies serving the area has found that it would be feasible to reuse up to 148,000 acre-feet of water per year by the year 2000. An acre-foot is enough water to meet the needs of a family of five for one year. The reused water would not be used for domestic water supplies, but could be used for landscape irrigation, industrial use, and ground water recharge.

The study was begun in 1978 to investigate reuse potentials for the highly treated wastewater now being produced and that expected by the year 2,000. The study covered health effects, preliminary engineering, market and project feasibility, and the economic, financial and institutional basis for large scale water reuse.

The staff conducting the study also developed five financing options ranging from complete regional financing to State financing as part of the State Water Project.

Toxics Sampling

Within a week after receiving laboratory confirmation that heavy metals and a variety of organic chemicals had been found at an inactive disposal site in the rural suburbs of Seattle, Region 10 dispatched a sampling team to the vicinity to collect samples from five drinking water wells used by nearby residents.

Even though most of the materials in the disposal ponds appear on one or more of EPA's lists of toxic or other hazardous chemicals, they may not pose any other danger as long as they have not migrated into surface waters or groundwater. Region 10's first step to check on the migration of the chemicals was to check for contaminants in the five drinking water wells, the nearest of which was about a quarter mile from the ponds.

So far, the only immediately known danger appears to have been to any person who came in direct contact with the sludges and liquids in the ponds. For that reason, EPA took the precaution of instructing the property owner to keep trespassers from the immediate area, refuse to accept any additional wastes, and—until further notice—not to disturb the wastes already there. □

States Served by EPA Regions

Region 1 (Boston)
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
617-223-7210

Region 2 (New York City)
New Jersey, New York, Puerto Rico, Virgin Islands
212-264-2525

Region 3 (Philadelphia)
Delaware, Maryland, Pennsylvania, Virginia, West Virginia, District of Columbia
215-597-9814

Region 4 (Atlanta)
Alabama, Georgia Florida, Mississippi, North Carolina, South Carolina, Tennessee, Kentucky
404-881-4727

Region 5 (Chicago)
Illinois, Indiana, Ohio, Michigan, Wisconsin, Minnesota
312-353-2000

Region 6 (Dallas)
Arkansas, Louisiana, Oklahoma, Texas, New Mexico
214-767-2600

Region 7 (Kansas City)
Iowa, Kansas, Missouri, Nebraska
816-374-5493

Region 8 (Denver)
Colorado, Utah, Wyoming, Montana, North Dakota, South Dakota
303-837-3895

Region 9 (San Francisco)
Arizona, California, Nevada, Hawaii
415-556-2320

Region 10 (Seattle)
Alaska, Idaho, Oregon, Washington
206-442-1220

Rivers Wild and Pure: A Priceless Legacy

Adapted from an article by Robert E. Doyle, Vice Chairman of the Board, National Geographic Society, in the July 1977, issue of National Geographic.

"The river called. The call is the thundering rumble of distant rapids, the intimate roar of white water . . . a primeval summons to primordial values."

John J. Craighead, "Naturalist" magazine, Autumn 1965

Big South Fork National River and Recreation Area, Kentucky and Tennessee

Clear and pure they ran, out of the hills and mountains of a new world toward the sea. And men driven by vision, by lust for wealth, or by religious conviction followed the shining pathways—the St. Lawrence, the Penobscot, the Connecticut, the Hudson, the Potomac, the James, the Savannah, the Mississippi.

Always it was the river that beckoned onward through the deep and shadowed forest, toward the mountain pass, and later across the plains—the Missouri, the Platte, the Arkansas, the Snake, the Columbia, the Colorado.

These were living streams, sometimes raging with destructive floods, sometimes blocked by treacherous rapids, sometimes so shallowed that Meriwether Lewis's party in 1803 "walked almost as much . . . on the Ohio's bed as they had floated on its bosom."

If they represented difficulty and danger, the grand, clean rivers of what would become the United States were also highways to a destiny considered manifest. Flatboats carried settlers from old Fort Duquesne, later Pittsburgh, to Cairo on the Mississippi in twenty days. Of the Missouri—Old Misery—it was said that it "follows you around like a pet dog with a dynamite cracker tied to his tail." But it also opened the way to the great northern plains and beyond.

The rivers also offered the priceless gifts of economical power and water. The first dam for a water-powered grinding mill was built in Milton, Massachusetts, in 1634. By the 19th century the old millstream had become a part of every New England town.

Since that time there has been a continuous development of our rivers as a matter of public policy—to aid navigation, generate power, control floods, provide fishing and recreation, irrigate fields, and provide water for growing cities and industries.

Old Misery now is contained by seven major dams, and we would pay a terrible price in some years if it were not. And we would expect a great working river like the Ohio to feel the constraints of 21 navigational locks. Most of our other major rivers have also been altered and manipulated to various degrees. In short, there are probably few of them left across the entire country that flow pure and free from head to mouth.

Today, writes John M. Kauffmann, an author who knows and loves rivers, "Much of the damming and industrialization of riverine beauty in the East is already an accomplished fact." And ecologist Kenneth W. Cummins adds, "due to the activities of engineers in concert with power companies and agronomists, most of the large . . . American rivers are now only a series of impoundments. . . ."

As with so many other resources, we have taken our rivers for granted. No one, no Federal agency, has made an overall assessment of the free-flowing rivers that are left. Statistics are seldom comprehensive, and river conservation is usually a defensive campaign.

The U.S. Army Corps of Engineers, which has been in the dam-building business for more than half a century, says that about 63,000 dams restrain U.S. rivers. But they also estimate that as many as 4,500 sites have the physical potential to be dammed for hydroelectric power generation, although economic and other factors may eliminate some of these.

The U.S. Geological Survey has other figures—on the discharge of rivers and on their water quality. But much information on the Nation's rivers is widely spread among agencies.

In 1968, in the spirit of a new awareness that some of our beautiful rivers should be preserved, Congress passed the Wild and Scenic Rivers Act. The legislation finally provided the incentive and the money to begin.

Eight rivers were immediately selected. They all seemed to qualify under the Act's terms as rivers that "with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. . . ." The Act named 27 other rivers as candidates and set a ten-year limit to determine if they qualified. With subsequent amendments and additions the National System now has 61 river segments (50 Federal and 11 State) and 88 rivers designated to be studied for possible inclusion.

Under the Act, rivers or sections of rivers are classified as either (1) Wild—unpolluted, undammed, with primitive surroundings, accessible only by trails; (2) Scenic—undammed, with shoreline largely undeveloped, accessible by road; or (3) Recreational—readily accessible, with some development and preexisting dams allowed.

There seems to be general public acceptance of the need to keep some of our rivers undeveloped, but compromise often seems impossible. After a disastrous flood, the cry for dams goes up—and conservation takes the rumble seat. In the middle of a drought, we often hear earnest entreaties for impoundment.

And although conservationists point out that the majority of economic hydroelectric power sites are already dammed, today's energy crunch provides incentives to develop more. Hydroelectricity now provides only 12.9 percent of the Nation's electric power generation.

"Rivers have what man most respects and longs for in his own life and thought—a capacity for renewal and replenishment, continual energy, creativity, cleansing."

John M. Kauffmann, "Flow East"

Though spiritual, recreational and economic needs continue to conflict, there seems little question that most people in the United States still regard their rivers as an ever flowing resource.

Yet even the picture of water use in 1970 is quite enough to give us pause. Our streams provide 67 percent of all the water used by the population. In 1970 the number of gallons funneled through the Nation's water pipes, turbines, and irrigation systems was 3.17 trillion gallons a day, or eight times the average daily flow of the Mississippi River. That huge volume included 1,800 gallons daily for every person in the country. The average home used a hundred gallons a day per person. Total water consumption in the country is expected to increase 220 percent by the year 2000.

As water use rises and our rivers are pressured by an energy-hungry Nation, the inevitable decisions will have to be made, case by case. At what price do we exploit our rivers? What will be left for others?

The National Wild and Scenic Rivers System can make a difference. Dams and dredging will be prohibited on protected rivers, development curtailed, water quality assured.

In time this river system will preserve portions of our geography and our history, and, in a way, indicate our character as a people. From Maine's Allagash to North Carolina's New, from Wisconsin's Wolf to California's Feather, from Idaho's Salmon to the upper Rio Grande in New Mexico, the Nation is assembling living portraits of the beauty of our streams.

The needs of our people have been great indeed, and the rate of river use for navigation, irrigation, and industry has paralleled the remarkable growth of our economy. Yet one remembers the lament of Washington Irving more than a century ago: "The march of mechanical invention is driving every thing poetical before it."

There are rivers running clean and free, as of old, and others that offer a respite to the modern soul. In places, that purest poetry of nature, the chiming of a mountain stream, may still be heard. There are dark-shadowed rivers that evoke our past. Surely this is a legacy we will have the wisdom to preserve for generations to come. □

Obed Wild and Scenic River in Tennessee.

Update

A review of recent major EPA activities and developments in the pollution control program areas.

AIR

Rules Change
The EPA recently proposed an important change in its national air pollution regulations that will do much to ease the regulatory burden on industries. This change, dealing with how EPA defines a pollution source, will sharply cut the red tape binding new industrial development while continuing to protect public health against air pollution, said EPA Acting Administrator Walter C. Barber.

Though the change applies to all types of industry nationwide, California offers one example of the benefits this change could bring.

In much of California, substantial modifications of petroleum refinery facilities are prohibited under the current EPA rule defining pollution sources—with serious consequences for the State and the country. A study conducted last year by the Governor's office concluded that California could probably achieve energy self-sufficiency in the 1980's provided that over a billion dollars in modifications of California refineries could be made in the next few years.

In addition, this proposed change will allow two General Motors assembly plants, in Van Nuys and Southgate, Calif., to retool. This, in turn, will allow them to build smaller cars and also reduce emission rates at both plants.

Bubble
EPA has approved an air pollution control program in New Jersey that will eliminate time-consuming and duplicative Federal review of many industrial "bubble" projects. The bubble policy is an important regulatory reform initiative which allows pollution sources the flexibility to meet Clean Air Act requirements in more cost-effective ways.

Specifically, final hydrocarbon bubble approval has been put into State hands, and the requirement for explicit Federal approval of each bubble of this nature eliminated. Hydrocarbon emissions are a prime ingredient in the formation of smog. Major sources of this pollutant include petroleum refineries and chemical plants.

More than 20 bubble applications have already been submitted to New Jersey for early review under these streamlined procedures, and officials there are predicting that this change will result in over 100 bubbles this year in that State alone.

ENFORCEMENT

Suit Filed
The EPA recently filed an administrative complaint seeking $422,000 from the Ethyl Corporation for violations of the Agency's unleaded fuel regulations. The complaint was issued under provisions of the Clean Air Act.

The Agency alleges that 15 company-owned vehicles which require unleaded fuel were serviced with leaded gasoline from company pumps at the firm's Baton Rouge, La., facility on at least 60 occasions prior to May 1980. The Agency also alleged that the company-owned pumps were not properly labeled and did not have the proper warning signs.

Ethyl is a manufacturer of tetraethyl lead which is used in leaded gasoline. The corporation may request a formal hearing to protest Agency charges.

HAZARDOUS WASTE

States
EPA recently announced that 16 States have been authorized to manage Federally-approved hazardous waste programs in their jurisdictions.

The States are Alabama, Arkansas, Delaware, Georgia, Iowa, Louisiana, Massachusetts, Mississippi, Montana, North Carolina, North Dakota, Oklahoma, South Carolina, Texas, Utah, and Vermont.

To qualify to manage its own hazardous waste program, each State must develop a program substantially equivalent to Federal requirements.

EPA will operate the Federal hazardous waste control program in those States that do not apply for authorization or are not authorized to operate their own programs.

Agreement
EPA announced recently that a settlement agreement had been reached between Occidental Chemical Company, the Federal Government and the State of California requiring Occidental to clean up any contamination of the soils or groundwater due to the operation of its Lathrop, Calif., pesticide and fertilizer production plant. Under the agreement, Occidental Chemical is also required to eliminate future threats to the Lathrop County drinking water supply.

The agreement was reached after more than a year of negotiations between the parties. The company is a wholly owned subsidiary of Hooker Chemical Corporation and Occidental Petroleum Corporation.

Under the agreement, which has been submitted for court approval, Occidental will undertake a comprehensive monitoring and remedial program at its Lathrop facility to contain and clean-up the wastes. So far, the company has spent more than $4 million responding to the problem.

PESTICIDES

Voluntary Ban
A voluntary ban on all uses of the soil fumigant dibromochloropropane or DBCP, except for treatment of Hawaiian pineapple fields, has been approved by the EPA.

EPA said the manufacturers of the pesticide, which is used against ground worms called nematodes, have voluntarily agreed to the permanent ban, thus avoiding lengthy and costly hearings on the subject. The agreement was signed by the EPA, Amvac Chemical Corp. of California, the Gowan Co. of Arizona, and the Pineapple Growers Association of Hawaii.

Government action against DBCP began more than three years ago after it was discovered to cause adverse health effects among male workers producing it in California and elsewhere. There have been a limited number of incidents of DBCP groundwater contamination in Hawaii but they do not, in the Agency's view, represent a significant health risk.

The new agreement extends and tightens restrictions now in effect to require pineapple workers to take such precautions as wearing protective clothing while handling DBCP and to assure that pineapple worker exposure is not greater than that permitted for manufacturing workers.

WATER

Highway Permit
EPA recently informed the Army Corps of Engineers that the Agency will not request another review by the Assistant Secretary of the Army on the Corps' permit for the Westway highway project located in New York City.

The pending Corps of Engineers decision is whether a dredge or fill material permit should be issued under Section 404 and Section 10 of the Rivers and Harbors Act of 1899.

EPA continues to have reservations about the Westway project, specifically regarding air pollution, transportation policy and possible community impacts. However, these controversial issues lie outside the domain of Section 404 guidelines. Those guidelines limit EPA reviews to water supply, water quality, recreation and fish and wildlife concerns.

The State of New York has been studying the replacement of the old West Side Highway since 1956. The currently proposed project calls for constructing an interstate route connection between the Brooklyn Battery and Lincoln Tunnels, and utilizing about 10 million cubic yards of fill material to create 234 acres of new land from existing shallow water to be used for the highway, new commercial development and a waterfront park. □

Shad fisherman in the Connecticut River.

Recreational Fishing

By Jack Lorenz

Anglers are happy people. They are also the heart and soul of the American conservation movement and have been for more than a half century. They have immense impact on the U.S. economy. And they are slightly wacko.

It is in springtime that fishing best demonstrates its magical power to transform the human spirit. As the days get longer and the weather warms, nearly 60,000,000 Americans begin to emerge from steel mills, fast food kitchens, 18-wheeler cabs, government cubicles, parish rectories and corporate board rooms. All have shared the same winter-long dream of tangling with the largest, wiliest and most uncatchable fish that swims.

When men and women and their sons and daughters head for their favorite fishing hot spots, the socio-economic and cultural baggage that separates them in the bleak days of winter falls by the wayside. The road to the hidden lake with the potential world record size largemouth bass is the same for the penthouse-ensconced executive as it is for the coal miner who spends his days 100 feet underground. Three piece suits and dingy levis are exchanged for the same brands of funny-looking hats, multi-pocketed fly fishing vests and chest high waders. Since the thrill of catching a spirited game fish is so easily shared by all, angling produces a bond that is both strong and lasting. That same welding influence first powered the American conservation movement, creating a rich history of achievement and much hope for the future.

It was on a cold January day in Chicago in 1922 that fishermen first showed their collective power as a force for environmental quality in America.

Fed up with the rampant exploitation of America's natural resources and the growing pollution of the Nation's waters, 54 anglers from all walks of life gathered together to build a better outdoor America through citizen action. Called together by noted outdoorsman Will H. Dilg, this small group of evangelistic anglers called themselves the Izaak Walton League of America in honor of the memory of the man they regarded to be the true patron saint of fishermen. Soon traveling far and wide to spread the conservation gospel, they rallied a Nation to their cause. The spirit of this new breed of conservationist is embodied in the front page editorial in the first edition of the Izaak Walton League's magazine in 1922. In that statement of purpose, Emerson Hough, one of the organization's founders, said:

"Spirit of the Great Angler: all spirits of patriots and gentle men, look down upon us and have pity upon us! We are weak. Give us of your calm and serene strength, your eternal youth, your cleanliness of soul, your lofty aristocracy of thought. Help us set aside material motives. Help us work out the great miracle, in a land now almost beyond the aid even of miracle.
When one unclean hand touches the management of this experiment, then it fails. When one commercialized motive comes into its thoughts, then it fails. When it becomes the organ of any man's vanity, the tool of any man's selfishness, then it fails. At the suspicion of any one of those things, at least one name will never again appear on any of its pages. I willingly lend it here after fifty years of love and labor in and for outdoor America—fruitless labor, myself no better than the next—none the less with an undiminished love for this America of ours, and a hope not yet wholly faltering that the needed miracle EVEN YET MAY COME."

In the very next issue, famed outdoor writer Zane Grey, who was soon to join the League's staff, showed that he had been baptized and he added his own fire-breathing challenge in another front page editorial statement he titled "Vanishing America":

"My one hope for conservation of American forests and waters is to plant into every American father these queries. Do you want to preserve something of America for your son? Do you want him to inherit something of the love of outdoors that made our pioneers such great men? Do you want him to be manly, strong, truthful, and brave?

Do you want him to be healthy? Do you want him, when he grows to manhood, to *scorn his father and his Nation for permitting the wanton destruction of our forests and the depletion of our waters?*

In this materialistic day it is almost impossible to get the ear of any man. With all men it is the selfish zest of the battle of life. But men do love their sons, and through them perhaps can be reached before it is too late. *The mighty and unquenchable spirit of a million fathers could accomplish much."*

Those two statements brought thousands of converts to the League and within a year the exploding young organization had blitzed Capitol Hill and established the 400-mile-long Upper Mississippi Wildlife and Fish Refuge as its first project to preserve the best of the country's fishing waters. It was only a sample of the angler's power to bring about positive change.

By 1927, the Izaak Walton League was a truly awesome force with nearly 300,000 members across the country in 2,750 local chapters. Grass roots conservation action was in its heyday. In that same year the League drove a bill through Congress to take the black bass—America's most popular game fish—out of interstate commerce; was selected by President Calvin Coolidge to conduct the Nation's first water pollution survey, and spawned the Outdoor Writers Association of America, another formidable force for resource conservation.

Anglers of the 1920's were joined in succeeding decades by other fishermen who banded together to protect water quality and aggressively pursued a course of wise use of America's natural resources. In the intervening years, groups like the Federation of Fly Fishermen, Trout Unlimited, Bass Anglers Sportsmen Society, the American League of Anglers and myriad other groups have come on stream to protect the quality of the total environment as well as the Nation's wild living aquatic resources. Angler power continues to grow and today dozens of fishing groups have united to expand the Federal Aid to Fish Restoration Act, better known as the Dingell-Johnson Fund. This non-inflationary program provides vitally needed funds to the States for sport fishery enhancement. It was the fishermen themselves who insisted on the Dingell-Johnson Fund in 1949 that established a 10 percent excise tax on fishing rods, reels and lures. Anglers said "Tax me now" to assure a quality sport fishing resource and in 1981, as much more money is needed to do the job, fishermen are working closer together than ever to tax themselves again —an effort that many Americans find surprising in these difficult economic times.

On March 4, 1981, the sponsors of the Dingell-Johnson expansion effort held a Capitol Hill rally to garner support for their "We Want to Be Taxed" effort. A Congressional reception held as part of that event attracted more than 400 anglers, fisheries scientists, Congressmen, Senators and Administration officials, including Vice President George Bush, who voiced his support of the expansion thrust.

Given the fact that nearly 60,000,000 Americans enjoy sport fishing, the economic importance of recreational angling is awesome. As a part of the Capitol Hill rally, Richard H. Stroud, Executive Vice President of the highly-respected Sport Fishing Institute, stated that the market value of recreational angling activity is substantial in terms of the dollar value of business generated through retail purchase of related goods and services.

Stroud, a noted fisheries scientist, also made the point that "the therapeutical or psychosomatic health value of recreational fishing is evidently enormous if not readily quantifiable."

The economic importance of recreational angling can be best appreciated when it is looked at from the aspects of food value, retail business generated, angler valuations of their sport and total capital value. Using the 1978 figures of the National Marine Fisheries Service, Stroud has found that recreationally-caught marine and fresh water fishes have at least the same value as commercially harvested fishes, or $3.40 per pound of edible weight. Recreationally-caught fish are generally the best table fare so they have at least equal, if not a higher, value as food fish. Thus, the $3.40 per pound estimate may actually be low.

The dollar volume of retail business generated by purchase of goods and services used by recreational anglers in 1970 was $7.02 per day (U.S. Fish and Wildlife Service, 1972). Taking inflation into account that figure jumped to $13.71 per angler-day in 1978. It has continued to rise rapidly since that time.

More than 20 percent of the edible weight of fish consumed in the U.S. is caught by recreational anglers, or about 821,000,000 pounds of edible meat in 1978, according to government figures. In studying the 1978 data, the Sport Fishing Institute projects that the combined value of angler-caught fish may be 4.4 times the economic value of the same fish in commercial fisheries.

To truly understand the value of recreational fisheries, one must at least take into account the condition of the aquatic resource base that allows them to exist at all. As Mr. Stroud so thoughtfully pointed out March 4, "Vitally necessary in this respect is an abundance of fertile clean water of favorable temperature, well supplied with free oxygen in solution, amply endowed with requisite spawning facilities and cover." While hard to measure, those aspects cannot be ignored. The Sport Fishing Institute executive estimates that one acre of salmon spawning habitat had a capital value of nearly $400,000 in 1978. That figure continues to rise. The loss of such habitat through pollution, stream channelization, improper forest management practices, or inundation of spawning areas under waters backed up by high dams is of great economic significance. It is no wonder that anglers have joined forces to protect fish-producing waters. Through a stream adoption year 'round care project called Save Our Streams, the Izaak Walton League now helps preserve segments of more than 200 streams in the U.S. and three foreign countries. (The program was co-sponsored by EPA for two years).

Speaking on the value fishermen put on their sport, the Institute has found that recreational fishermen in 1978 would have required payments averaging $80.82 to give up a day of fishing. That individual fishermen care that much about a day of angling is significant, but when such "damages" are projected across the board for all anglers, the annual payments would have totalled $71.5 billion, according to Stroud.

In order to yield such revenues annually, a long-term capital investment amounting to about $845 billion would be needed (at 8½ percent interest rate), said Stroud in his presentation.

"It may be suggested, therefore, that the collective recreational fisheries (given current levels of exploitation) have a corresponding capital value (1978 dollars) amounting to at least $845 billion—an order of magnitude comparable to the national debt," he added.

Recreational angling is fun, immensely popular, the cornerstone of conservation action and a vital part of the U.S. economy. The huge National Wildlife Federation has taken all this into account in selecting its "conservation organization of the year." In 1980 the awardee was the Izaak Walton League of America and in March of this year the recipient was the American Fisheries Society, which represents the oft unheralded but absolutely vital community of U.S. fisheries scientists.

Fishing will only diminish if the quality of the experience diminishes. That is very unlikely to happen.

* * *

For more information on the Izaak Walton League of America, Save Our Streams, or the Dingell-Johnson Expansion effort write directly to Jack Lorenz, Executive Director, Izaak Walton League of America, 1800 N. Kent Street, Suite 806, Arlington, Va. 22209. □

Mr. Lorenz is Executive Director of the Izaak Walton League of America.

News Briefs

EPA, U.S. Steel Reach Agreement

The EPA and U.S. Steel have reached agreement on cleaning up air pollution at the company's plant in Fairless Hills, Pa., outside Philadelphia, EPA Acting Administrator Walter C. Barber announced recently. As a result, U.S. Steel will install over $40 million in pollution control equipment that will enable it to meet air quality standards while still providing sizable cost savings for the company over the estimated cost at the start of negotiations. A major part of the settlement involves the application of EPA's nationwide bubble policy, which permits companies to specify control for individual sources of pollution as long as the overall facility emissions meet State air quality emission standards. The bubble proposals are awaiting final approval as revisions to the Pennsylvania air quality plan. Over $17 million in capital cost savings could result from applying the bubble policy at the Fairless Hills coke plant. The agreement has been lodged with the U.S. District Court in Philadelphia.

EPA and Phelps Dodge Reach Accord

The EPA and Phelps Dodge Corporation recently announced an agreement affecting two of the company's copper smelters in Arizona. Under a "consent decree" signed by EPA and the company, innovative techniques will be used to modify the existing process equipment and control emissions of sulfur dioxide gas and particulate matter into the air from copper smelters in Morenci and Ajo, Ariz. The agreement, filed in the U.S. District Court in Tucson, Ariz., caps 14 months of discussions by resolving such issues as the extent of emission reductions to be achieved and the timing of cleanup. Under the decree, Phelps Dodge will bring the Morenci smelter into compliance with air pollution standards by January 1, 1985; the Ajo smelter will be brought into compliance by December 31 of that year.

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National Forest Trails— New Frontiers

By R. Max Peterson
Chief, U.S. Forest Service

When Daniel Boone explored Indian footpaths in the Kentucky woods during the 1760's, he kept his long rifle handy. Deer and turkey were plentiful. The Shawnee Indians captured Boone several times but once adopted him into the tribe as "Sheltowee"—Big Turtle. Today in that territory, you can hike the Sheltowee Trace, a trail running through the Daniel Boone National Forest, much more safely than Boone did. This 254-mile-long trail winds its way past lakes, waterfalls, wild and scenic rivers, the spectacular cliffs of the Red River Gorge, a Pioneer Weapons Hunting Area, an historic iron-making site, and a Civil War battlefield. Designated as a national recreation trail, the Sheltowee Trace forms just a small part of a 98,000-mile system of various kinds of trails in the national forests. About 7,500 miles of them are part of the National Trails System.

The Forest Service is proud of the extensive trail system it maintains—a system that represents 85 percent of the trails on all public lands and 30 percent of the trails in the entire Nation.

The history of many of these trails and the history of America are inseparable. The explorers and the frontiersmen like Boone who followed Indian paths through the forests, the voyageurs guiding their canoes through the network of northern lakes on the fur trade route, the streams of pioneers following wagon ruts over endless miles of prairie and mountain to the "Promised Land," the cowboys on cattle-drives, and many others in our history all have depended on trails.

Evolving from foot trails in the wilderness, some trails eventually became major routes for transporting goods and services necessary to the growth and development of the nation. Today trails have changed in character and purpose. The evolution in the need for trails is evident in the history of national forests, where trails were developed from the early days as part of the primary transportation network. The first trails were designed to move people, equipment, and pack animals quickly for fire-fighting and administrative activities.

Throughout the seventy-five-year history of the Forest Service, trails have continued to play an important management role. But in recent years, as more and more Americans have turned to outdoor activities, trails have become increasingly important as a recreation resource.

In fact, each year people spend more days visiting the National Forest System than any other Federal lands. With good reason. Within the 187-million-acre National Forest System are opportunities for every imaginable kind of outdoor recreation

—from swimming to skiing, from rock climbing to rock hounding, and the gamut of activities in between. Where these opportunities occur away from developed sites and highways, access is provided by trails.

There are bike trails and horse trails, trails for snowmobiles, and trails for cross-country skiiers. There are interpretive nature trails, including those that can be enjoyed by the blind and other handicapped. Some foot trails can be hiked for the simple pleasure of a day's outing, others for the challenge and solitude of a wilderness vacation.

The importance of trails to the recreational needs of millions of Americans was affirmed in the "1980 Report to Congress on the Nation's Renewable Resources." The program for Forest Service activities in this document sets a goal of 120,000 miles of trails in the forest system by 2020.

Three years ago, then-Chief of the Forest Service John R. McGuire initiated a program to emphasize our commitment to provide recreation trail opportunities. This initiative provided for trail development, land acquisition along trail corridors, and planning in cooperation with other agencies and organizations.

One of these goals was the designation of two national recreation trails in each national forest unit by January 1, 1980—for a total of 244 trails. The Forest Service enthusiastically met this goal and, in fact, exceeded it. Now we are continuing to add more recreation trails to that total—at this writing there are 300 with more to come. These trails are part of the National Trails Systems.

Like other national recreation trails, those in national forests provide a variety of outdoor recreation uses within urban areas or in places reasonably accessible to them.

Besides the Trace, other recreation trails that follow historic paths include the Flume Trail in South Dakota, which traverses the original route of a mining flume constructed in 1880 on what is now the Black Hills National Forest. Traces of the goldminers' original structures still remain along the trail. In the Southwest, the Fort Bayard Sawmill Wagon Road follows an early transportation route to Fort Bayard, New Mexico, constructed in 1864 on what is now the Gila National Forest. Other national recreation trails, such as the Camp Creek Trail on the San Bernardino National Forest in California, provide users with a sense of independence and closeness to their natural heritage even though the trails may be situated only a few miles from an urban area.

In addition to these passages, the trails through the national forests also include national scenic and historic trails—other components of the National Trail System. In fact, all four scenic trails and all four historic trails designated to date pass through national forest lands.

The Forest Service has management responsibility for two national scenic trails—which provide for the enjoyment of nationally significant scenic, historic, natural, or cultural qualities. These are the Pacific Crest Trail in the West and the Continental Divide Trail through the heart of the country. We cooperate with the National Park Service in management of the other two scenic trails—the new North Country Trail and the Appalachian Trail.

An advisory council was created in 1969 to guide the Forest Service in mangaging and developing the Pacific Crest Trail, which runs from the Mexico-California border northward through the mountain ranges of California, Oregon, and Washington. About 75 percent of the 2,572-mile trail has been brought up to standard. Rights-of-way are now being negotiated for about 372 miles of the portion that is still in private ownership. Moreover, a comprehensive management plan for the trail has been started. A similar advisory council has been formed for the Continental Divide Trail, which will enable Americans to better enjoy the spectacular scenery in proximity to the Divide beginning at the Canadian border in Glacier National Park, Montana, and extending 3,100 miles to Mexico. We have begun to determine the exact location of the trail and to develop a comprehensive management plan.

Although the Forest Service does not manage the entire Appalachian Trail, about 840 of the trail's 2,000 miles pass through national forests. When the trail was designated as a national scenic trail in 1968, about 220 miles were on private land within national forest boundaries. Since that time, rights-of-way on all but 22 of these miles have been secured and all but 83 miles of the entire Forest Service mileage has been constructed or reconstructed to standard. We are cooperating with the Park Service to develop a comprehensive management plan.

We are also working with the Park Service, Bureau of Land Management, and State and local governments to begin to develop management plans for the four national historic trails—the Lewis and Clark, Mormon, Oregon, and Iditarod.

As the Forest Service and other land managing agencies endeavor to improve our National Trails System, citizen groups such as the National Parks and Conservation Association can provide an invaluable source of assistance and encouragement to us.

I recently had the pleasure of signing a cooperative agreement between the Forest Service and the Appalachian Trail Conference. This document formalizes our working relationship with this volunteer group for planning, operating, and maintaining the Appalachian Trail within national forests, and I hope it will serve to encourage other volunteer groups to seek active roles in trail development and maintenance. Such groups provide a voice for the backpacker, hiker, equestrian, trail-biker, Nordic skier, and members of other trail constituencies at the same time that they help us.

I believe that volunteer efforts will continue to expand as trail users realize that the channels are open and as land managers recognize the substantial benefits of active public participation.

This participation will be a key factor in the future direction of our recreation policies. In fact, public involvement already plays a strong role in current national forest planning processes that guide each forest's future programs in recreation, timber, range, wildlife, and all other activities.

In order to meet the demands of today's and tomorrow's trail users, land managers and users must increase their cooperation to ensure development of programs that preserve the integrity of the environment and that recognize the constraints placed upon an energy-conscious society. For example, we will be looking for trail development opportunities where access to the trails can be provided by public transportation. I look forward to working with all trail users in meeting these challenges and I hope our combined efforts will provide even better service to the public.

The same pathways that link us to our Nation's history promise to be new frontiers of adventure for millions of Americans. □

Wilderness

Wilderness is the raw material out of which man has hammered the artifact called civilization.

Wilderness was never a homogeneous raw material. It was very diverse, and the resulting artifacts are very diverse. These differences in the end-product are known as cultures. The rich diversity of the world's cultures reflects a corresponding diversity in the wilds that gave them birth.

For the first time in the history of the human species, two changes are now impending. One is the exhaustion of wilderness in the more habitable portions of the globe. The other is the worldwide hybridization of cultures through modern transport and industrialization. Neither can be prevented and perhaps should not be, but the question arises whether by some slight amelioration of the impending changes, certain values can be preserved that would otherwise be lost.

To the laborer in the sweat of his labor, the raw stuff on his anvil is an adversary to be conquered. So was wilderness an adversary to the pioneer.

But to the laborer in repose, able for the moment to cast a philosophical eye on his world, that same raw stuff is something to be loved and cherished, because it gives definition and meaning to his life. This is a plea for the preservation of some tag-ends of wilderness, as museum pieces, for the edification of those who may one day wish to see, feel, or study the origins of their cultural inheritance.

The Remnants

Many of the diverse wildernesses out of which we have hammered America are already gone; hence in any practical program the unit areas to be preserved must vary greatly in size and in degree of wildness.

No living man will see again the long-grass prairie, where a sea of prairie flowers lapped at the stirrups of the pioneer. We shall do well to find a forty here and there on which the prairie plants can be kept alive as species. There were a hundred such plants, many of exceptional beauty. Most of them are quite unknown to those who have inherited their domain.

But the short-grass prairie, where Cabeza de Vaca saw the horizon under the bellies of the buffalo, is still extant in a few spots of 10,000-acre size, albeit severely chewed up by sheep, cattle, and dry-farmers. If the Forty-Niners are worth commemorating on the walls of State capitols, is not the scene of their mighty hegira worth commemorating in several national prairie reservations?

Sawtooth National Primitive Area in Idaho.

Of the coastal prairie there is one block in Florida, and one in Texas, but oil wells, onion fields, and citrus groves are closing in, armed to the teeth with drills and bulldozers. It is last call.

No living man will see again the virgin pineries of the Lake States, or the flatwoods of the coastal plain, or the giant hardwoods; of these, samples of a few acres each will have to suffice. But there are still several blocks of maple-hemlock of thousand-acre size; there are similar blocks of Appalachian hardwoods, of southern hardwood swamp, of cypress swamp, and of Adirondack spruce. Few of these tag-ends are secure from prospective cuttings, and fewer still from prospective tourist roads.

One of the fastest-shrinking categories of wilderness is coastlines. Cottages and tourist roads have all but annihilated wild coasts on both oceans, and Lake Superior is now losing the last large remnant of wild shoreline on the Great Lakes. No single kind of wilderness is more intimately interwoven with history, and none nearer the point of complete disappearance.

In all of North America east of the Rockies, there is only one large area formally reserved as a wilderness: the Quetico-Superior International Park in Minnesota and Ontario. This magnificent block of canoe-country, a mosaic of lakes and rivers, lies mostly in Canada, and can be about as large as Canada chooses to make it, but its integrity is threatened by two recent developments: the growth of fishing resorts served by pontoon-equipped airplanes, and a jurisdictional dispute whether the Minnesota end of the area shall be all National Forest, or partly State Forest. The whole region is in danger of power impoundments, and this regrettable cleavage among proponents of wilderness may end in giving power the whip-hand.

In the Rocky Mountain states, a score of areas in the National Forests, varying in size from a hundred thousand to half a million acres, are withdrawn as wilderness, and closed to roads, hotels, and other inimical uses. In the National Parks the same principle is recognized, but no specific boundaries are delimited. Collectively, these Federal areas are the backbone of the wilderness program, but they are not so secure as the paper record might lead one to believe. Local pressures for new tourist roads knock off a chip here and a slab there. There is perennial pressure for extension of roads for forest-fire control, and these, by slow degrees, become public highways. Idle CCC camps presented a widespread temptation to build new and often needless roads. Lumber shortages during World War II gave the impetus of military necessity to many road extensions, legitimate and otherwise. At the present moment, ski-tows and ski-hotels are being promoted in many mountain areas, often without regard to their prior designation as wilderness.

One of the most insidious invasions of wilderness is via predator control. It works thus: wolves and lions are cleaned out of a wilderness area in the interest of big-game management. The big-game herds (usually deer or elk) then increase to the point of overbrowsing the range. Hunters must then be encouraged to harvest the surplus, but modern hunters refuse to operate far from a car; hence a road must be built to provide access to the surplus game. Again and again, wilderness areas have been split by this process, but it still continues.

The Rocky Mountain system of wilderness area covers a wide gamut of forest types, from the juniper breaks of the Southwest to the 'illimitable woods where rolls the Oregon.' It is lacking, however, in desert areas, probably because of that under-aged brand of esthetics which limits the definition of 'scenery' to lakes and pine trees.

In Canada and Alaska there are still large expanses of virgin country

Where nameless men by nameless
rivers wander
and in strange valleys die strange
deaths alone.

A representative series of these areas can, and should, be kept. Many are of negligible or negative value for economic use. It will be contended, of course, that no deliberate planning to this end is necessary; that adequate areas will survive anyhow. All recent history belies so comforting an assumption. Even if wild spots do survive, what of their fauna? The woodland caribou, the several races of mountain sheep, the pure form of woods buffalo, the barren ground grizzly, the freshwater seals, and the whales are even now threatened. Of what use are wild areas destitute of their distinctive faunas? The recently organized Arctic Institute has embarked on the industrialization of the Arctic wastes, with excellent chances of enough success to ruin them as wilderness. It is last call, even in the Far North.

To what extent Canada and Alaska will be able to see and grasp their opportunities is anybody's guess. Pioneers usually scoff at any effort to perpetuate pioneering.

Wilderness for Recreation

Physical combat for the means of subsistence was, for unnumbered centuries, an economic fact. When it disappeared as such, a sound instinct led us to preserve it in the form of athletic sports and games.

Physical combat between men and beasts was, in like manner, an economic fact, now preserved as hunting and fishing for sport.

Public wilderness areas are, first of all, a means of perpetuating, in sport form, the more virile and primitive skills in pioneering travel and subsistence.

Some of these skills are of generalized distribution; the details have been adapted to the American scene, but the skill is worldwide. Hunting, fishing, and foot travel by pack are examples.

Two of them, however, are as American as a hickory tree; they have been copied elsewhere, but they were developed to their full perfection only on this continent. One of these is canoe travel, and the other is travel by pack-train. Both are shrinking rapidly. Your Hudson Bay Indian now has a put-put, and your mountaineer a Ford. If I had to make a living by canoe or packhorse, I should likely do likewise, for both are grueling labor. But we who seek wilderness travel for sport are foiled when we are forced to compete with mechanized substitutes. It is footless to execute a portage to the tune of motor launches, or to turn out your bell mare in the pasture of a summer hotel. It is better to stay home.

Wilderness areas are first of all a series of sanctuaries for the primitive arts of wilderness travel, especially canoeing and packing.

I suppose some will wish to debate whether it is important to keep these primitive arts alive. I shall not debate it. Either you know it in your bones, or you are very, very old.

European hunting and fishing are largely devoid of the thing that wilderness areas might be the means of preserving in this country. Europeans do not camp, cook, or do their own work in the woods if they can avoid doing so. Work chores are delegated to beaters and servants, and a hunt carries the atmosphere of a picnic, rather than of pioneering. The test of skill is confined largely to the actual taking of game or fish.

There are those who decry wilderness sports as 'undemocratic' because the recreational carrying capacity of a wilderness is small, as compared with a golf links or a tourist camp. The basic error in such argument is that it applies the philosophy of mass-production to what is intended to counteract mass-production. The value of recreation is not a matter of ciphers. Recreation is valuable in proportion to the intensity of its experiences, and to the degree to which it *differs from* and *contrasts with* workaday life. By these criteria, mechanized outings are at best a milk-and-water affair.

Mechanized recreation already has seized nine-tenths of the woods and mountains; a decent respect for minorities should dedicate the other tenth to wilderness.

Wilderness for Science

The most important characteristic of an organism is that capacity for internal self-renewal known as health.

There are two organisms whose processes of self-renewal have been subjected to human interference and control. One of these is man himself (medicine and public health). The other is land (agriculture and conservation).

The effort to control the health of land has not been very successful. It is now generally understood that when soil loses fertility, or washes away faster than it forms, and when water systems exhibit abnormal floods and shortages, the land is sick.

Other derangements are known as facts, but are not yet thought of as symptoms of land sickness. The disappearance of plants and animal species without visible cause, despite efforts to protect them, and the irruption of others as pests despite efforts to control them, must, in the absence of simpler explanations, be regarded as symptoms of sickness in the land organism. Both are occurring too frequently to be dismissed as normal evolutionary events.

The status of thought on these ailments of the land is reflected in the fact that our treatments for them are still prevailingly local. Thus when a soil loses fertility we pour on fertilizer, or at best alter its tame flora and fauna, without considering the fact that its wild flora and fauna, which built the soil to begin with, may likewise be important to its maintenance. It was recently discovered, for example, that good

Castle Peak in the White Cloud Mountains in Idaho

tobacco crops depend, for some unknown reason, on the preconditioning of the soil by wild ragweed. It does not occur to us that such unexpected chains of dependency may have wide prevalence in nature.

When prairie dogs, ground squirrels, or mice increase to pest levels we poison them, but we do not look beyond the animal to find the cause of the irruption. We assume that animal troubles must have animal causes. The latest scientific evidence points to derangements of the *plant* community as the real seat of rodent irruptions, but few explorations of this clue are being made.

Many forest plantations are producing one-log or two-log trees on soil which originally grew three-log and four-log trees. Why? Thinking foresters know that the cause probably lies not in the tree, but in the micro-flora of the soil, and that it may take more years to restore the soil flora than it took to destroy it.

Many conservation treatments are obviously superficial. Flood-control dams have no relation to the cause of floods. Check dams and terraces do not touch the cause of erosion. Refuges and hatcheries to maintain the supply of game and fish do not explain why the supply fails to maintain itself.

In general, the trend of the evidence indicates that in land, just as in the human body, the symptoms may lie in one organ and the cause in another. The practices we now call conservation are, to a large extent, local alleviations of biotic pain. They are necessary, but they must not be confused with cures. The art of land doctoring is being practiced with vigor, but the science of land health is yet to be born.

A science of land health needs, first of all, a base datum of normality, a picture of how healthy land maintains itself as an organism.

We have two available norms. One is found where land physiology remains

largely normal despite centuries of human occupation. I know of only one such place: northeastern Europe. It is not likely that we shall fail to study it.

The other and most perfect norm is wilderness. Paleontology offers abundant evidence that wilderness maintained itself for immensely long periods; that its component species were rarely lost, neither did they get out of hand; that weather and water build soil as fast or faster than it was carried away. Wilderness, then, assumes unexpected importance as a laboratory for the study of land-health.

One cannot study the physiology of Montana in the Amazon; each biotic province needs its own wilderness for comparative studies of used and unused land. It is of course too late to salvage more than a lopsided system of wilderness study areas, and most of these remnants are far too small to retain their normality in all respects. Even the National Parks, which run up to a million acres each in size, have not been large enough to retain their natural predators, or to exclude animal diseases carried by livestock. Thus the Yellowstone has lost its wolves and cougars, with the result that elk are ruining the flora, particularly on the winter range. At the same time the grizzly bear and the mountain sheep are shrinking, the latter by reason of disease.

While even the largest wilderness areas become partially deranged, it required only a few acres for J. E. Weaver to discover why the prairie flora is more drought-resistant than the agronomic flora which has supplanted it. Weaver found that the prairie species practice 'team work' underground by distributing their root-systems to cover all levels, whereas the species comprising the agronomic rotation overdraw one level and neglect another, thus building up cumulative deficits. An important agronomic principle emerged from Weaver's researches.

Again, it required only a few wild acres for Togrediak to discover why pines on old fields never achieve the size or wind-firmness of pines on uncleared forest soils. In the latter case, the roots follow old root channels, and thus strike deeper.

In many cases we literally do not know how good a performance to expect of healthy land unless we have a wild area for comparison with sick ones. Thus most of the early travelers in the Southwest describe the mountain rivers as originally clear, but a doubt remains, for they may, by accident, have seen them at favorable seasons. Erosion engineers had no base datum until it was discovered that exactly similar rivers in the Sierra Madre of Chihuahua, never grazed or used for fear of Indians, show at their worst a milky hue, not too cloudy for a trout fly. Moss grows to the water's edge on their banks. Most of the corresponding rivers in Arizona and New Mexico are ribbons of boulders, moss-less, soil-less, and all but treeless. The preservation and study of the Sierra Madre wilderness, by an international experiment station, as a norm for the cure of sick land on both sides of the border, would be a good-neighbor enterprise well worthy of consideration.

In short all available wild areas, large or small, are likely to have value as norms for land science. Recreation is not their only, or even their principal, utility.

Wilderness for Wildlife

The National Parks do not suffice as a means of perpetuating the larger carnivores; witness the precarious status of the grizzly bear, and the fact that the park system is already wolfless. Neither do they suffice for mountain sheep; most sheep herds are shrinking.

The reasons for this are clear in some cases and obscure in others. The parks are certainly too small for such a far-ranging species as the wolf. Many animal species, for reasons unknown, do not seem to thrive as detached islands of population.

The most feasible way to enlarge the area available for wilderness fauna is for the wilder parts of the National Forests, which usually surround the Parks, to function as parks in respect of threatened species. That they have not so functioned is tragically illustrated in the case of the grizzly bear.

In 1909, when I first saw the West, there were grizzlies in every major mountain mass, but you could travel for months without meeting a conservation officer. Today there is some kind of conservation officer 'behind every bush,' yet as wildlife bureaus grow, our most magnificent mammal retreats steadily toward the Canadian border. Of the 6000 grizzlies officially reported as remaining in areas owned by the United States, 5000 are in Alaska. Only five States have any at all. There seems to be a tacit assumption that if grizzlies survive in Canada and Alaska, that is good enough. It is not good enough for me. The Alaskan bears are a distinct species. Relegating grizzlies to Alaska is about like relegating happiness to heaven; one may never get there.

Saving the grizzly requires a series of large areas from which roads and livestock are excluded, or in which livestock damage is compensated. Buying out scattered livestock ranches is the only way to create such areas, but despite large authority to buy and exchange lands, the conservation bureaus have accomplished virtually nothing toward this end. The Forest Service has, I am told, established one grizzly range in Montana, but I know of a mountain range in Utah in which the Forest Service actually promoted a sheep industry, despite the fact that it harbored the sole remnant of grizzlies in that State.

Permanent grizzly ranges and permanent wilderness areas are, of course, two names for one problem. Enthusiasm about either requires a long view of conservation, and a historical perspective. Only those able to see the pageant of evolution can be expected to value its theater, the wilderness, or its outstanding achievement, the grizzly. But if education really educates, there will, in time, be more and more citizens who understand that relics of the old West add meaning and value to the new. Youth yet unborn will pole up the Missouri with Lewis and Clark, or climb the Sierras with James Capen Adams, and each generation in turn will ask: Where is the big white bear? It will be a sorry answer to say he went under while conservationists weren't looking.

Defenders of Wilderness

Wilderness is a resource which can shrink but not grow. Invasions can be arrested or modified in a manner to keep an area usable either for recreation, or for science, or for wildlife, but the creation of new wilderness in the full sense of the word is impossible.

It follows, then, that any wilderness program is a rearguard action, through which retreats are reduced to a minimum. The Wilderness Society was organized in 1935 'for the one purpose of saving the wilderness remnants in America.'

It does not suffice, however, to have such a society. Unless there be wilderness-minded men scattered through all the conservation bureaus, the Society may never learn of new invasions until the time for action has passed. Furthermore a militant minority of wilderness-minded citizens must be on watch throughout the Nation, and available for action in a pinch.

In Europe, where wilderness has now retreated to the Carpathians and Siberia, every thinking conservationist bemoans its loss. Even in Britain, which has less room for land-luxuries than almost any other civilized country, there is a vigorous if belated movement for saving a few small spots of semi-wild land.

Ability to see the cultural value of wilderness boils down, in the last analysis, to a question of intellectual humility. The shallow-minded modern who has lost his rootage in the land assumes that he has already discovered what is important; it is such who prate of empires, political or economic, that will last a thousand years. It is only the scholar who appreciates that all history consists of successive excursions from a single starting-point, to which man returns again and again to organize yet another search for a durable scale of values. It is only the scholar who understands why the raw wilderness gives definition and meaning to the human enterprise. □

Dr. John W. Hernandez

Excerpts from Hernandez Testimony:

At his confirmation hearing, Dr. Hernandez, a former college dean, told the committee that "I come to the Agency with a single personal goal: that the Agency attain a national and international reputation for quality and excellence in its development and use of science technology in its decision-making process."

Emphasizing the importance of quality work in science, Dr. Hernandez said that in general, EPA's internal scientific and technical competence is well above average when compared to other State and Federal agencies and that "in some areas, EPA scientists are among the best in the country."

Noting that the need to act under severe time constraints has some times been detrimental to high quality research at EPA, Dr. Hernandez emphasized that "it is true that good science makes good economics."

Dr. Hernandez, who was born and raised in New Mexico where the town of Hernandez is named after his ancestors, said that "I started my public health career 25 years ago when New Mexico had only three or four regulations to cover the vast realm of environmental management. . . ."

Noting that there has been a great deal of progress made at the State level during the 1970's, Dr. Hernandez said that "returning primary responsibility for environmental regulation to the States will result in more responsive and efficient government."

Dr. Hernandez, 51, was appointed a Professor of Civil Engineering, New Mexico State University in 1968.

He was Dean of the College of Engineering at New Mexico State University from 1975 to 1980. He was also Co-Director of the Southwest Resource Center for Science and Engineering—1979 to 1980. He was a Visiting Professor of Civil Engineering, Bogazici University, Istanbul, Turkey, 1973-74.

His other educational positions included Research Professor, Facultad de Ciencias y Matematica, Universidad de Chile, Santiago, March-December, 1970; Teaching Fellow, Harvard University, 1964-65; Associate Professor at New Mexico State University, 1965-68, and instructor, evening and Saturday course in Surveying, College of Santa Fe, 1959-61.

His administrative experience includes service in the U.S. Navy as a staff engineering and materiel officer for a transport division, Commanding Officer for a construction battalion unit, and Captain in the Navy Civil Engineering Corps Reserves. In positions with the State of New Mexico he was the engineer responsible for the State water pollution control program, 1957-62; an assistant engineer in the New Mexico Department of Game and Fish, and an associate engineer in the Office of State Engineer of New Mexico. At New Mexico State University he was Director of the Environmental-Health Engineering Program, 1966-70, and Acting Co-Director, New Mexico Environmental Institute, 1971-73. He has served as a consultant for the United Nations, Resources for the Future, and EPA.

Gorsuch Testimony

continued

people to judge my performance accordingly.

"My implementation of these objectives will include emphasis in the following initiatives.

"We must recognize that EPA is affected today by economic, energy and environmental considerations largely unknown when many of the laws were passed. The public is no less committed to environmental protection, but increasingly aware of the need to balance all of these interests. EPA's programs must reflect this public awareness.

"We can and we must improve the scientific and technical basis for the standards and regulations developed. A policy change to require peer review earlier and more frequently in the process could make a tremendous difference. I feel fortunate to have an individual like Dr. John Hernandez designated to be Deputy Administrator. He has the scientific and technical expertise to identify other improvements that can be made.

"We shall restore the States to their rightful place as partners with the Federal government in policymaking as well as policy implementation. Rather than asking States to effectively enforce programs in which they have had little meaningful input, we will open clear lines of communication to the Governors, Legislatures and State environmental agencies, so that their concerns can be considered early in the regulatory process. My experience has given me great faith in the ability of the States to function as true partners, and I believe that far better environmental protection can be achieved if we will allow the level of government closest to the point of control enough flexibility to implement the protection program best suited to the area and the people who must live in it.

"In developing and implementing our national environmental program, we must understand that its success requires the commitment and investment of the private sector, and that ultimately the cost is paid by each individual citizen. Companies do not pay for these costs. You and I, as consumers, do.

"We can and must simplify and streamline the regulatory process. Rules too complex to be understood serve only to alienate the public from the mission of EPA, and that mission is too important to be left solely to the regulated and the regulators.

"We have made considerable progress in improving the quality of our environment. Before leaving office, my predecessor reported that, at this point in time, large industrial facilities have a very high compliance rate with water pollution standards. Factories, power plants, and other major industries affected have a very high compliance rate with Clean Air Act requirements. 1981 model cars emit greatly reduced levels of hydrocarbons, carbon monoxide and nitrogen oxides as compared with the uncontrolled cars of the 1960s. We have made good progress in controlling drinking water contaminants, regulating toxic and solid waste disposal, preserving natural ecosystems, and controlling pests while protecting the environment.

"Much remains to be done and can be done. The public is fully committed to environmental protection, while simultaneously aware of the need to improve our economy and develop affordable domestic energy resources. A delicate balance must emerge.

"I believe EPA must take the lead in developing that balance, cognizant of its opportunities and constraints, its potential and limitations, its historic mission and our changing times. EPA must be non confrontational in its approach, leading by action and encouragement. I assure you that, if confirmed, this will be my guiding credo."

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