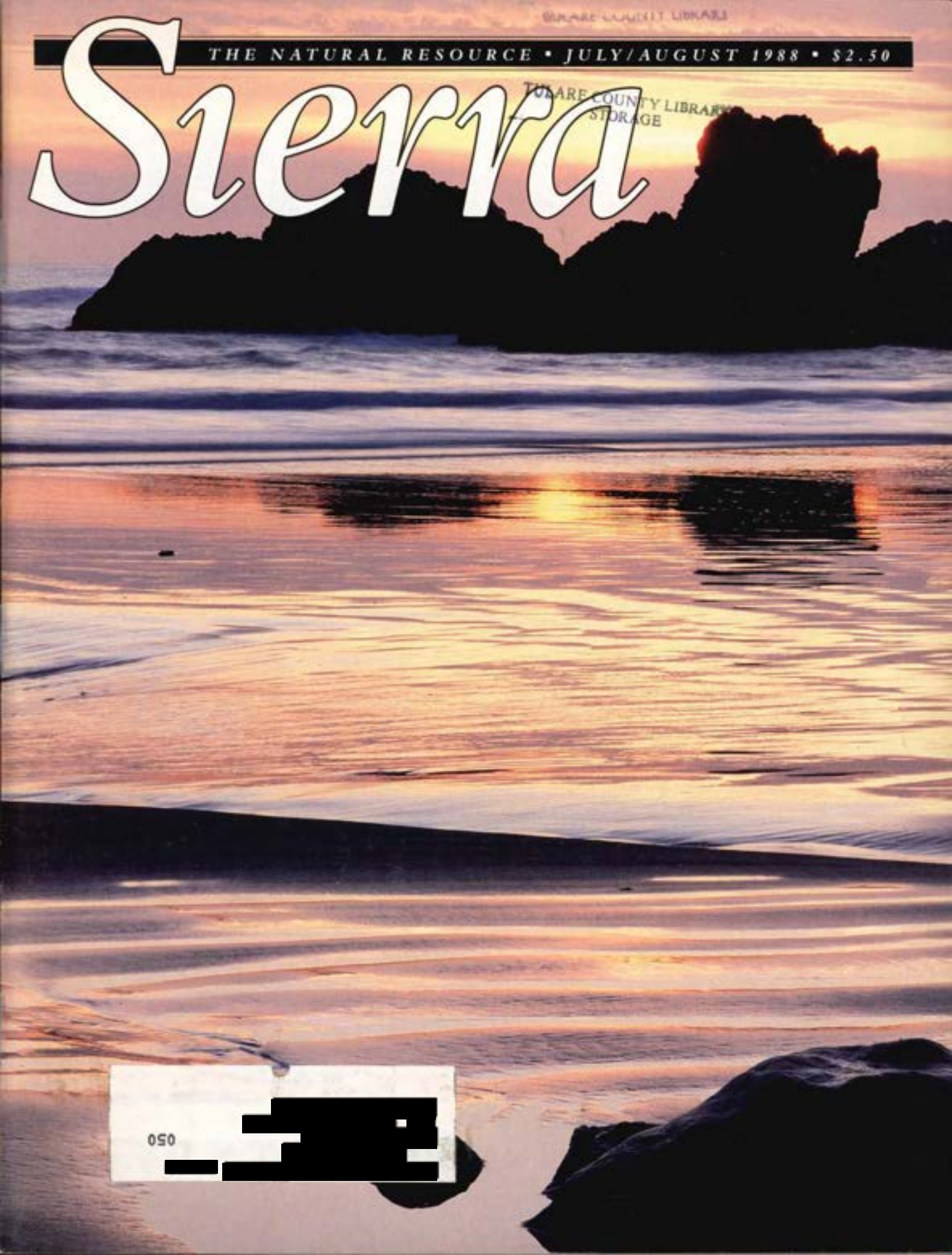


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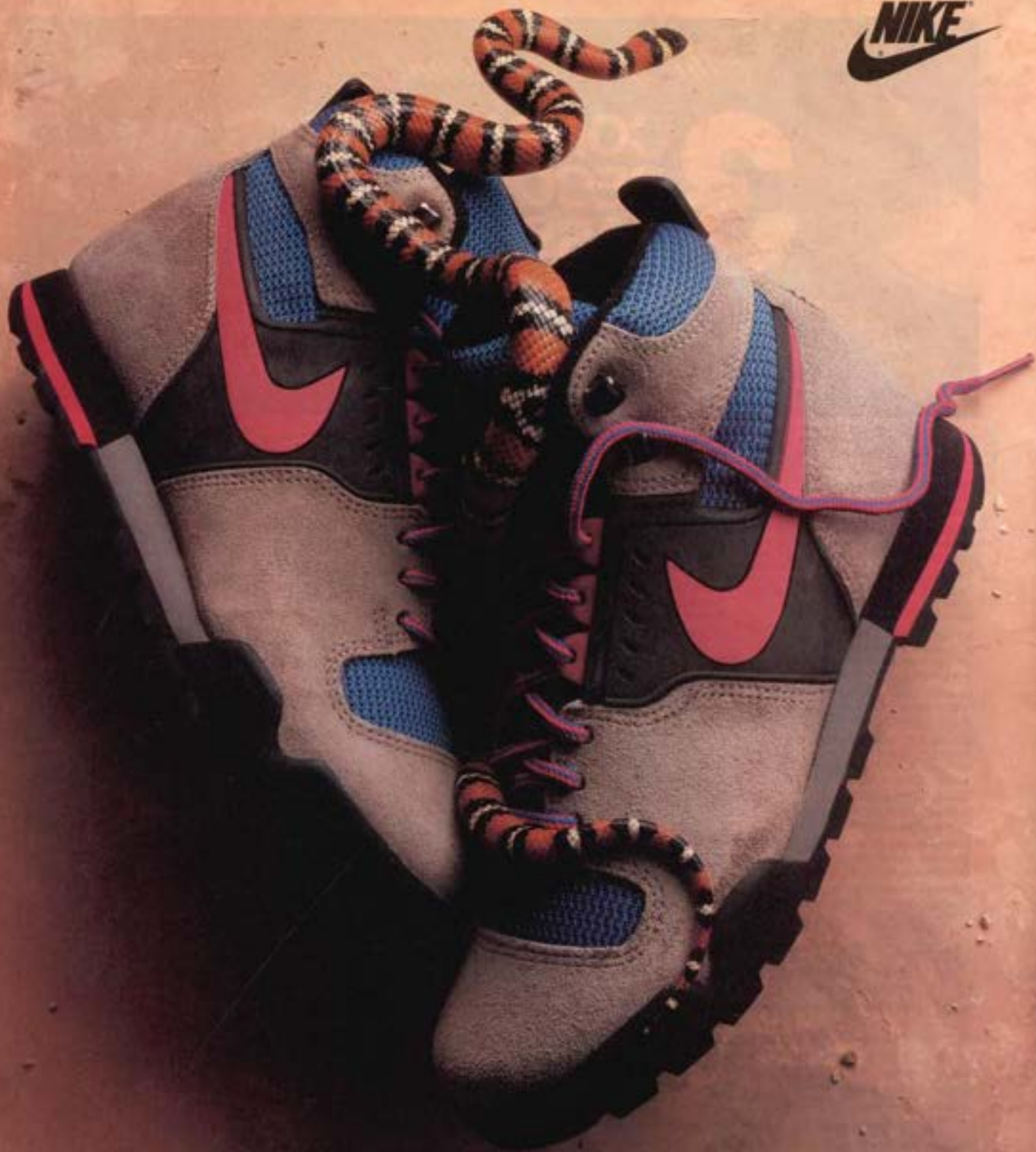
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LETTERS

THE PLAIN FACTS

In a public-service announcement in the May/June issue of *Sierra*, the Sierra Club states that "our most spectacular Arctic wilderness" would be destroyed by approval to drill for oil within the Arctic National Wildlife Refuge.

Are you kidding? The Coastal Plain is certainly one of the least spectacular Arctic wilderness areas. Have you ever seen it? It's a plain. It's flat. And why would a hundred acres of drilling destroy 1.5 million acres of quasi marsh? Such fabrications have no place in our magazine.

Give us facts, please, on which to base our actions and arguments.

R.W. Smith
Danville, California

Sierra Club Executive Director Michael L. Fischer responds: *Yes, we have seen the Coastal Plain, and we believe "spectacular" is far too tame a word. Standing on the northernmost ridge of the Brooks Range, above Sadlerochit Springs, you can see Arctic Ocean ice pack, coastal lagoons and wetlands, the tundra of the plain itself, foothills, and then the heights of Mts. Michelson and Hubley with their hanging glaciers. The plain is part of this immense, grand fabric and*



the cornerstone of a unique ecosystem from ocean to glacier. A huge land, inhabited by large creatures: moose, musk oxen, caribou, grizzlies, polar bears, wolves, Dall sheep, and snow geese; a huge, fragile, and vulnerable land.

A visit to Prudhoe Bay, with its airfields, toxic-waste pits, roads, industrial dumps, and unattractive buildings scattered over miles

of tundra—utterly changing the place forever—would answer your questions about the impact of drilling in the Arctic Refuge. Those who can't make the trip may refer to a recent report from the Fish and Wildlife Service that shows environmental damage at Prudhoe to be much greater than the oil companies and the Interior Department have been willing to admit.

Interior's drilling plans would rip the sensitive fabric of the Arctic Refuge, part of only 10 percent of the Arctic Ocean coastline that remains protected from such unnecessary destruction. We stand by our ad, therefore, and by our commitment to fight to protect the Coastal Plain.

HOW LITTLE WE KNOW

After reading *Sierra's* March/April article on the transportation of nuclear waste from Three Mile Island ("Scarcely Watched Trains"), I realize how little the public really knows about nuclear energy and the generation of electrical power, and how ads by groups like "The U.S. Council for Energy Awareness," which are proliferating in a number of large-circulation magazines, pass for "information." I wonder how many people know how much it's costing to clean up Three Mile Island, or what was actually entailed in the cleanup of Chernobyl. What really galls me about all of this is that, by my understanding, using nuclear energy as a source of electricity saves very little oil. According to the Union of Concerned Scientists, most oil used in the generation of electricity is consumed in small quantities and is a by-product of refining crude oil for use as gasoline.

My point? Has the Sierra Club thought of placing its own ads in *Newsweek*, *Time*, etc. to counter the outright misinformation this so-called "Energy Awareness" group is spreading? Such ads would help keep the public from being swayed so readily by the tripe in these pro-nuclear messages.

Michael Spaniola
Royal Oak, Michigan

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publicly refuting the Council for Energy Awareness advertisements.

WOMEN'S WILD WORDS, TOO

"Wild Words" (May/June) was delicious. Poems belong in every issue of *Sierra*. What better location for examples of the "wilderness of language" than within our activist publication, devoted to the preservation of the wild?

It will be easy to correct your one oversight by giving us a collection of works by female poets in a future issue.

*Ellen M. Frank
San Francisco, California*

Many thanks for your poetry feature, "Wild Words." Steve Silberman's introductory statement is so fine that I can almost forgive him for selecting only male poets.

Women are the poets of nature, the "makers," the "wise stewards of the wilderness of language." Women poets find the wild words *within* the world of culture, and around and through it; they don't just "mediate," though they, as all good poets, do that, too. But women poets don't deal much these days with "garden world culture"; rather, rock bone blood care protection survival wisdom of all things of this earth, in whatever state we find them, we blessed and cursed by the experience of their meaning, and the knowledge of incredible danger.

Yes, poetry is a "storehouse of essential knowledge forgotten by the culture at large." Forgotten? In our experience, buried, discounted, ignored, denied, destroyed—in weapons budgets, "defense," fear, laws, institutions, political expedience. The Forest Service and our presidents are both victims and perpetrators. Women hang on.

Poets, indeed, are the "unacknowledged legislators of the world," and also the prophets, connectors, preservers, meaning-finders, makers.

*Norma Sullivan
San Diego, California*

Steve Silberman included several women's works in the package of poems he originally submitted to Sierra. It's a comment on design and space constraints, not on gender or quality, that these were the ones left on the editing-room floor when the issue was put together.

DON'T TRASH RECYCLERS

A very important point missed by your article on recycling and the homeless ("And Many Happy Returns," March/April) was that people who know that someone will come along to pick through their garbage don't worry about it. They forget why we really should be recycling—to save our resources and be good stewards of this planet. I've heard people say that they don't have to save because the trash will be gone through. I think that's a bad habit. Let's all recycle!

*Matthew Buckley (I'm homeless)
Santa Barbara, California*

GENETIC SCARRING

Your March/April "Afield" article about formerly endangered species ("The Return of the Natives") featured comeback stories about species once on the brink of extinction. These success stories are not to be understated, for they are the result of determined efforts and the perseverance of many.

However, it would be naive to overlook the scars these species will carry forever. In particular, their gene pools have been irreversibly changed. Genetic diversity, shaped over millions of years, reflects the changing nature of Earth itself. When a species approaches extinction, it loses its genetic diversity. In a natural setting, regardless of numbers, a species as a whole may no longer have the natural capacity to endure the changes of our evolving planet.

*Scott DeMuth
Knoxville, Tennessee*

C.F.C.s, DART & DU PONT

Dart Container Corporation, the country's leading manufacturer of disposable polystyrene molded-foam cups, shares the concern of the Sierra Club's membership for a safe environment. Recently, we read Cass Peterson's article, "High Anxiety" (January/February), which states: "Chlorofluorocarbons will come from the air-conditioning system in the junked automobile, from the refrigerator smashed in the landfill, from the crushed foam cup, the discarded furniture, the ripped-out foam insulation" (emphasis added). Please be advised that this statement is inaccurate to the extent that it implies that all foam cups contain

CFCs. In fact, Dart's molded-foam cups or containers are not now and never have been manufactured with CFCs. Molded-foam cups and containers (which are "seamless") account for more than 90 percent of the foam cup and container market. No molded-style foam cups or containers are manufactured with CFCs. Further, the leading manufacturer of "seamed" foam cups recently announced its commitment to switch to a non-fully halogenated expansion agent. By year-end, at the latest, no CFCs will be used to manufacture foam cups.

James D. Lammers
Assistant to the President
Dart Container Corporation
Mason, Michigan

Thank you for Cass Peterson's informative article on the effects of chlorofluorocarbons on the ozone layer. The immediacy of the ozone-depletion problem and the need for political action to significantly reduce CFC emissions were made resoundingly clear.

As consumers we can show our concern for Earth and future generations by

limiting our own use of products containing CFCs, as well as by supporting near-total bans on CFCs.

I was surprised to read on and find a full-page advertisement for Du Pont—producer of nearly one fourth of the world's CFCs—in the same issue. Given the urgency of this matter, can we afford to simply look in the other direction and accept advertising dollars from major producers of CFCs? Or would Sierra's refusal to endorse such companies provide some of the economic and political incentives they need to develop safer alternatives?

Carol Smathers
Salem, Oregon

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INTERIOR DIALOGUE: CALIFORNIANS GIVE FEDS AN EARFUL

More than 3,000 people crowded into the old Eagles Hall in Fort Bragg, California, last February to vent their feelings about Interior Secretary Donald Hodel's plan to open 1.1 million acres along the northern Pacific coast to offshore oil development. For 26 hours the opponents of Lease Sale 91 reasoned, pleaded, yelled, cried, sang, threatened, and recited poetry. At hearing's end the crowd was exhausted but elated; as one speaker told officials of the Minerals Management Service (the Interior Department agency that handles federal oil lease sales), the Seaweed Rebellion had begun. Though the battle continues, in June Hodel postponed the sale until at least mid-1989—perhaps to give his colleague George Bush a fighting chance in California this November.

For more on oil development on the outer continental shelf, see page 16.



The hypocrisy of allowing our fisheries and environmental resources to be sacrificed only to be blown out the tailpipe of a born-again, Reagan-approved gas guzzler is an outrage, and it constitutes an insult to those who care about the future and who depend on the sea for their livelihood.

• WESLEY CHESBRO, RESIDENT



I challenge you to develop a plan that you can present to all Americans. Something we can understand and wholeheartedly support. If we can be assured everything possible is being done to conserve energy and develop alternative sources, to reduce world tensions and safeguard the environment, then—if you find that we still need more oil—then and only then come back and talk to us about the California coast.

• GREG HOLLAND, PHYSICIAN

I will be alive when you are dead, and I don't want to deal with your messy mistakes.

• SARAH MCGREENLY, ELEMENTARY SCHOOL STUDENT



If, God forbid, you start moving steel in here, I'm going to get on my boat with my crew and join thousands of friends in a boat-to-boat, person-to-person, starfish-to-starfish barricade of 300 miles of the Northern California coastline.

• ROBERT SCHMEIDER, PHYSICIST AND MARINE SCIENTIST



• PHOTOS BY KENT RENO



THE IMPORTANCE OF THINGS TRASHED

Dirty diapers and fast-food containers don't take up the most space in contemporary landfills—paper does. William L. Rathje will tell you. A professor of anthropology who has studied garbage for 15 years, Rathje should know; as director of the Garbage Project at the University of Arizona, he led a 1987 excavation of landfills in Tucson and the Chicago and San Francisco Bay areas to examine what people in those regions threw away between 1977 and 1985 (see chart on next page).

"We have a garbage information crisis," says Rathje, who feels that common misconceptions about municipal refuse are misleading policy-makers. Fast-food containers, for example, have gained notoriety as major contributors to garbage dumps; most estimates put their share of an average landfill's contents at 20 to 30 percent. But according to the 1987 study, the containers make up less than a third of one percent of dump deposits. Street litter and garish advertising make people think about fast-food packaging, "and it just bloats in their minds," Rathje says. "In fact, the big contributors to landfills are the things we don't think about at all."

Like other paper products. Although generally accepted as biodegradable, paper constituted the highest percentage of garbage in each of the three 1987 study areas. Archaeologists have uncovered nondegraded paper at sites hundreds of

I for one do not hold out much hope for the future of any civilization that measures its wealth in barrels of oil while destroying the places that provide nourishment for the human spirit. We must not allow this coastline to be defiled. I can only hope that you will learn what those of us who live here already know. This coastline does not belong to us. We are merely caretakers of something far greater than those of us who gather here to debate its future.

• INA KARISH, RESIDENT



I used to work in the oil fields. I worked in the fields of New Mexico and Texas and Louisiana, and I worked on platforms there in the Gulf. And I know firsthand there's no way you can do it clean. There's no way.

• JOHN MALONEY, RESIDENT

DON'T BE CRUDE



When I stand on the coast and look out toward the ocean and experience the absolute perfection of this scene exactly as it is today, I think anyone who would want to spoil it is insane. . . . If the plans of Lease Sale 91 are carried out, there is a serious danger to many of us who are dependent on the unspoiled serenity of the coastline to refresh our spirits, to help us drop the stress of city life and to add meaning to our daily existence.

• BARBARA GRESHOLD, PSYCHOLOGIST

THE GARBAGE LOWDOWN

MATERIAL MEAN % (volume)

Plastic	16.28
*Packaging Paper	16.22
*Newsprint	14.11
*Non-Packaging Paper	11.00
Organic (Yard)	5.07
*Corrugated Cardboard	4.55
*Glossy Magazines	1.63
Disposable Diapers	1.01
Glass	0.85
Fast-Food Packaging	0.27

*Total Paper 47.51
(A number of items are not listed here.)

**A GUIDE TO GOOD-KARMA FURNITURE**

You'd love a new dinner table, but not if it means sitting down at a slice of vanishing rainforest every night. So where do you shop?

If you're in Britain, one of the world's largest consumers of tropical timber, you could consult the London-based Friends of the Earth's new *Good Wood Guide* to

find out which companies share your concern.

The directory ranks British businesses according to where they get their wood. Those listed in the green pages use only timber from nonendangered forests. Companies listed in yellow are helping the campaign to save rainforests but still use some tropical timber that may not be replaceable.

You'd want to avoid those businesses in the pink pages—they are selling hardwood products from threatened forests and show no inclination to do otherwise.

For information contact Friends of the Earth Ltd., 26-28 Underwood St., London N1 7JQ, England; phone 01-490-1555.

—B.F.



years old, but, according to Rathje, they always attribute the phenomenon to some exceptional circumstance: "It was too wet, it was too dry..." Actually, paper may not degrade as easily as commonly believed when buried in environments deprived of air, Rathje says. "Maybe we should look for the circumstances under which it *does* degrade."

What's next for Rathje and his team of garbologists? They will study three new landfill sites this summer, and more after that. Says Rathje of his return to the pits: "It's not a pleasant task, but someone has to do it."

—Barbara Fuller

SCORECARD

■ On May 3 the EPA released a list of 107 communities, with a total of 135 million residents, that violate *health standards for ozone and carbon monoxide*. Los Angeles was at the top of the list, with 144 days of unhealthy air in 1987.

■ *Chlordane*, a termite-killing pesticide banned for residential use earlier this year (see "EPA Wavers Again on Chlordane," January/February), will be sprayed on U.S. homes once again in a manufacturer's EPA-approved test of new application methods.

■ The House of Representatives has approved legislation that will provide for an independent board to oversee the *Department of Energy's weapons facilities*. (See "Bomb-Business Blues," May/June.)

FRUIT TAKES ROOT IN ETHIOPIA

When the rains came in early 1986, the people of drought-stricken Ethiopia began to plant food crops once more. But last summer the drought returned, and the country, which has been ravaged by famine off and on for decades, found itself dependent on international aid yet again.

The seemingly endless cycle of drought and famine and the frustration of shipping sacks of grain for 11th-hour rescues have prompted an organization based in Los Angeles to come up with a new brand of relief: trees.

In 1986, TreePeople, with the help of the Christian Relief and Development Association, airlifted 2,300 fruit trees to five Ethiopian villages. The apple, almond, and plum trees were donated by five growers in California's Central Valley on the condition that the trees be given to low-income people who could not otherwise buy them. "We felt Ethiopians plagued by drought and starvation certainly fell into that category," says Andy Lipkis, TreePeople's executive director.

Eighty-five percent of the three-year-old apple trees bore fruit within 18 months of planting; within three years each tree should bear 25 to 40 pounds of fruit annually. Ethiopian farmers asked for more trees, and in 1987 Oxfam U.K., an independent relief organization based in Britain, paid the cost of airlifting 400 apricot trees supplied by TreePeople. Oxfam plans to ship an-



other 400 trees this year.

In August, horticulturists with TreePeople will train Ethiopian project managers in tree propagation, nursery development and maintenance,



and fruit storage, processing, and marketing. Though outside assistance is necessary at this stage, TreePeople hopes Ethiopian fruit farmers will eventually be-



come self-sufficient.

For more information contact TreePeople, 12601 Mulholland Dr., Beverly Hills, CA 90210; phone (818) 769-2663. —Marisa Gaines

FIELD NOTES



Hiroshima, August 6, 1945. These photographs by Yoshito Matsushige are three of only five known to have been taken from within the city the day the atomic bomb was dropped.

Before I became a professional cameraman I had been just an ordinary person. So when I was faced with a terrible scene like this, I found it difficult to push the shutter. I was standing on the Miyuki-bashi Bridge for about 20 minutes before I could do it. Finally I thought, I am a professional cameraman, so I have to. . . . You know, if the situation today were different, if the world were not so full of nuclear weapons, these photographs would have been forgotten, or remembered only as relics from the past. But the situation today makes these pictures very important. . . . There should never be war in which nuclear weapons are used. So I hope that you listen to as many people as possible in Hiroshima, and that you make as many people as possible know how terrible the A-bomb is. That is my wish."



Yoshito Matsushige, September 5, 1944. From *At Risk in the Fields of the Bomb* by Robert Del Tredici. Copyright © 1987 by Robert Del Tredici. Reprinted with permission of Harper & Row, Publishers, Inc.

Love It or Lease It

The Interior Department hopes to lease much of the nation's coastline to oil developers. But in many states the plan faces oceans of opposition.

cases are those more than three miles offshore. Watt's proposal encompassed twice the total acreage that had been leased since 1954, when the federal program began, and 30 times the total acreage proposed for development by the Carter administration.

Watt's plan met with the same response as many of his other proposals: public dismay, congressional delays, and lawsuits. The two Interior secretaries who followed, William Clark and Hodel, have been less bellicose than Watt, but both have shared his conviction that U.S. "security" depends on boosting domestic oil production.

The Reagan administration's overall energy strategy—or lack thereof—makes conservationists skeptical of Hodel's appeals to the national interest. "The 'security' argument falls apart when you look at it in context," says Richard Charter, a lobbyist for California coastal cities and counties. "This administration has fought tooth and nail against renewable-energy research and efficiency standards for automobiles, buildings, and appliances."

The Interior Department sees no contradictions in its policies. In late April 1987, Hodel announced an ambitious five-year leasing plan. Affecting 750 million acres, 46 percent fewer than Watt originally proposed, the plan still took in most of the U.S. coastline, including areas in Alaska's Bering and Beaufort seas, off the Florida Keys, and along the New England, California, Oregon, and Washington coasts. Hodel called the drilling plan the "cornerstone of a rational energy plan for the future," one that he claimed would increase the coun-



LARRY LEE / APERTURE PHOTOGRAPHY

While the government sees oil platforms on the horizon, others look to conservation and renewable energy.

Reed McManus

THE MESSAGE WAS CLEAR: Oil and water don't mix on California's rugged north coast. Speaker after speaker at a hearing in Fort Bragg made that case (see page 12), and after 26 hours of testimony, the Interior Department's plan to lease 1.1 million acres of Northern California's outer continental shelf to oil and gas developers lay figuratively ripped to shreds.

But the representatives of the Minerals Management Service, the Interior agency that manages offshore drilling,

are more literal folk. Thank you for your input, they said, and headed for the airport—little suspecting that four months later Interior Secretary Donald Hodel, bowing to intense election-year pressure, would shelve the plan and turn its fate over to the next administration.

Oil production on the outer continental shelf, the sloping underwater strip of land at the continent's edge, has always been high on the Reagan administration's agenda. In 1981, then-Interior Secretary James Watt announced a five-year plan to lease nearly all such lands under federal control, which in most

try's petroleum reserves by 50 percent.

Within three days, 70 members of Congress from ten coastal states had signed a letter to the Interior Department objecting to the plan. They claimed that all that had been deleted from Watt's scheme were areas of little interest to oil companies anyway, and that the new plan failed to include environmental safeguards for sensitive marine environments. Five coastal states, along with several environmental organizations including the Sierra Club and the Natural Resources Defense Council, took the plan to court. (Florida later dropped out of the suit when Interior cancelled a scheduled lease sale off the Florida Keys, although activists in that state are still fighting to protect other parts of their coastline.)

Without a court order or federal legislation to invalidate the five-year plan, opponents of the drilling have had to give chase to Interior on a state-by-state, lease-by-lease basis. The most intense battle has taken place in California, where geologists estimate they have one of the best chances of finding oil. California also has among the strictest coastal regulations in the country.

Starting in 1981, Congress, at the request of California's delegation, prevented the Interior Department from conducting its offshore oil business in Northern California for four consecutive years by attaching lease-sale moratoriums to Interior appropriations bills. The impasse exasperated both Congress and the administration; in 1985 a congressional team was established to bargain with Interior. A tentative agreement collapsed, and in July 1986, Congress postponed sales in Northern California until February 1989, when Reagan—and presumably Hodel—will be out of office.

During the 1988 primary season, every leading presidential candidate criticized or condemned Hodel's plan, forcing the Interior Department to delay all lease sales along the California coast. Meanwhile, Congress is considering another ban on northern sales, which would last through September 1989.

In early 1987, Sen. Alan Cranston and Reps. Barbara Boxer and Mel Levine (all D-Calif.) introduced legislation that would create an "ocean sanctuary" and

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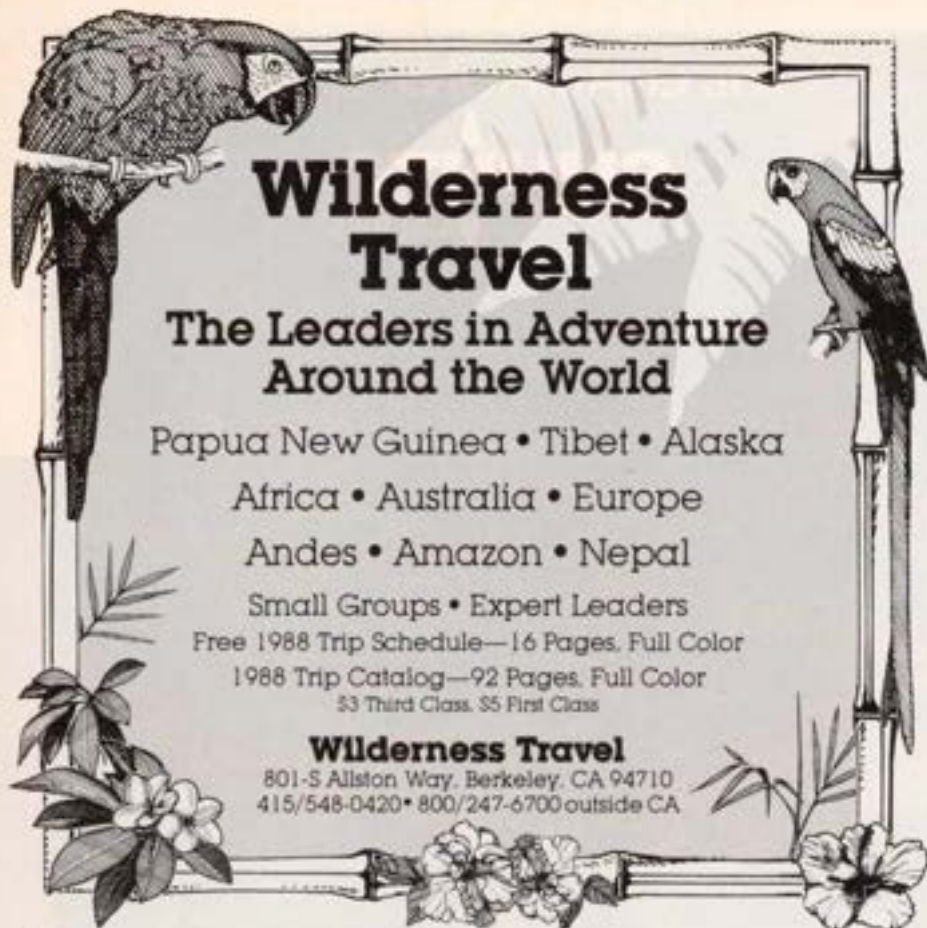


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prohibit oil development along the state's entire central and northern coast and in environmentally sensitive coastal areas of Southern California. In effect, the law would make the annual moratoriums permanent.

Massachusetts and Florida have also initiated congressional bans to halt upcoming lease sales along their respective coastlines. The Minerals Management Service is preparing to lease 5.5 million acres off the Northeast coast from Maine to New Jersey, including tracts in the rich fishery of Georges Bank (along the New England coast) in February 1989. The planning proceeds despite slim prospects of finding oil and despite the fate of two earlier lease sales that were halted in court because the Interior Department violated environmental laws when preparing the sales. Three oil companies expressed "tentative" interest in the upcoming sale after the Minerals Management Service dropped bid fees from \$150 to \$25 per acre, a reduction that will apply to all further lease sales.

"The sale makes no environmental or economic sense," says Emily Bateson, science and policy director of the Conservation Law Foundation, which was involved in the Georges Bank litigation. "Everyone knows that. But Interior can't admit it made a mistake. It would set a bad precedent."

Congressional moratoriums have kept the oil rigs out of Georges Bank for the last five years. After Canada imposed a ban on oil leasing in its portion of Georges Bank until the year 2000, the Massachusetts congressional delegation expanded its proposal for a sixth moratorium to include formerly unprotected lands in the area.

Florida has also appealed for congressional protection of its Gulf coast areas, which will come on the block in November. The Interior Department has already dropped a scheduled lease sale around the Florida Keys and in Florida Bay near Everglades National Park, but few coastal activists ever expected Interior to press hard for development there.

"The oil industry has always only been interested in looking for oil north of the Keys," says Ann Whitfield, legislative director of the Florida Public Interest Research Group. "By announcing

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that he'd give up the Keys. Hodel was hoping to deflect public concern from the Gulf coast."

Unlike the western Gulf, Florida's Gulf coast has never been drilled. Activists hope to exclude 10 million acres from the sale, including lands just 25 miles north of the Everglades.

Leasing has made more headway in Alaska, where local opposition is sparse and oil potential promising. Seventy percent of the Interior Department's leasable tracts are in that state, whose economy and treasury depend heavily on the oil industry. Opposition to offshore drilling in Alaska is strongest not in urban Anchorage, home to half the state's population, but in far-flung coastal fishing communities, where residents have the most to lose from oil spills and pollution. Many federal and state lease sales have already been held over the years; most recently, territory in the Beaufort Sea near the Arctic National Wildlife Refuge and in the nearby Chukchi Sea was leased this year.

Because Alaska's elected representatives support oil development, there is little chance of stopping lease sales legislatively, according to Sue Libenson of the Alaska Conservation Foundation. She adds, however, that the state government has convinced the Interior Department to withhold several environmentally sensitive areas from leasing. Although lawsuits brought by the state, Native-rights groups, and environmental organizations to halt leasing in the rich fishing grounds off Bristol Bay in southwest Alaska were unsuccessful, drilling opponents scored a minor victory in April when the court suspended further leasing there pending appeal.

Oregon and Washington, whose coasts aren't scheduled for sale until early 1992, have already begun to marshal their forces. An interstate task force has asked Interior to provide more funding for studies and to delay the sale until those studies are complete.

No one is happy with the unending, slow-motion battle for America's coast. "Ideally, we would like to negotiate a solution with a reasonable Interior Department," says Rep. Leon Panetta (D-Calif.), one of the leaders of California's congressional delegation. "But because the agency has refused to negotiate in

good faith, we've been forced to resort to the appropriations process."

Bateson of the Conservation Law Foundation shares that frustration. "The solution isn't the one-shot lawsuit or the one-year moratorium," she says. "It's long-term legislation." Recently proposed amendments to the federal Coastal Zone Management Act that would strengthen the role of states are a move toward a more lasting solution.

While plugging away in the courts and hearing rooms, many opponents of offshore drilling are crossing their fingers and hoping for a post-Reagan administration that is more interested in energy conservation and renewables than in exposing the nation's pristine coasts to the perils of oil development.

REED MCMANUS is an associate editor of *Sierra*.

RIVERS

Letting the Rivers Flow

The Pacific Northwest is up to its headwaters in dams, but a daring new program could reduce further damage.

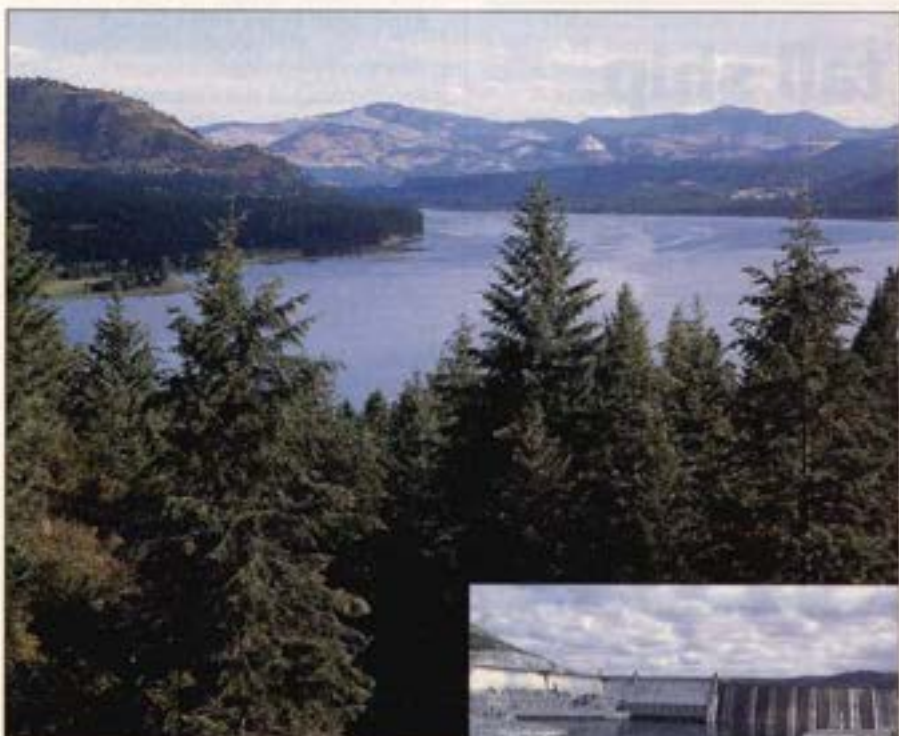
James Baker

ALITTLE MORE THAN 50 years ago, before the dam-building era began in the Pacific Northwest, the reddish salmon sometimes ran so thick that streams seemed to flow with wine.

Then came the Bonneville and Grand Coulee dams in the 1930s, followed by a dozen other dams on the Columbia and

Snake rivers and a host of smaller hydroelectric projects on tributaries. Each new impoundment hindered or blocked the passage of adults upstream and smolts downstream. By 1980, 35 percent of the anadromous-fish habitat in the Columbia River basin was gone, and the salmon run had been reduced to a million.

Then Congress stepped in. In 1980 it



Salmon no longer swim up the Columbia near Marcus, Washington (above). Downstream the Grand Coulee Dam (inset) bars the fish from some 1,100 miles of the river.

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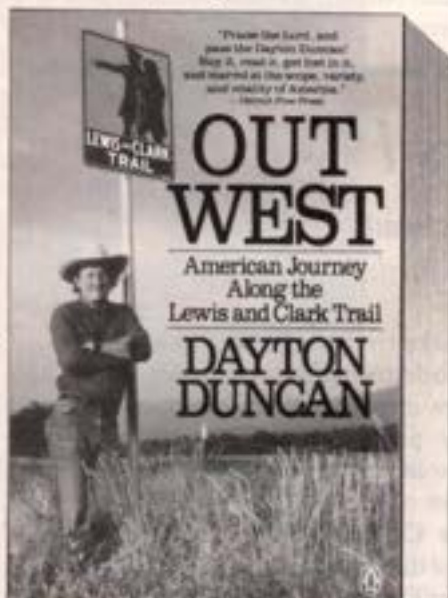
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passed the Pacific Northwest Electric Power Planning and Conservation Act, which included a provision to stop and reverse fisheries depletion.

This year the Northwest Power Planning Council, the regional entity set up to formulate policies to carry out Congress' mandate, may take a dramatic step toward meeting that goal. The council has proposed a "protected areas" program that would ban new hydroelectric dams on more than 40,000 miles of streams in the Pacific Northwest. As a result, at least 200 potential hydro projects could be scrapped.

By systematically examining some 350,000 miles of year-round streams in the region, the council determined which stretches contain habitat crucial to the health of fish and wildlife populations. That study concluded that at least 11 percent of all watercourses in the Pacific Northwest are vital for anadromous and other wild fish species and must be preserved. The council's protected areas program is specifically designed to meet that objective.

"We can't afford to lose any more habitat," says Marc Sullivan, executive director of the Northwest Conservation Act Coalition, which includes both citizens' groups and public utilities.

Since 1980 a "fish mitigation" program has helped the Columbia's annual spawning run grow from 1 million to 2.5 million. The council has set a near-term goal of doubling the current number. But these efforts carry a high price—annual expenditures since 1982 have run up to \$150 million, with \$1 billion to \$3 billion to be invested during the next two decades. The Northwest Power Planning Act requires the Bonneville Power Administration to pay the bills; the BPA, which wholesales the electricity generated at federally owned dams in the region, passes the costs along to its customers. "One goal of our proposal," says Rick Applegate, director of the council's Fish and Wildlife Division, "is to protect the substantial investment that Northwest ratepayers have already made."

Understandably, the program designating protected areas has won enthusiastic support from conservationists, anglers, hunters, and fish and wildlife managers. The Northwest's numerous

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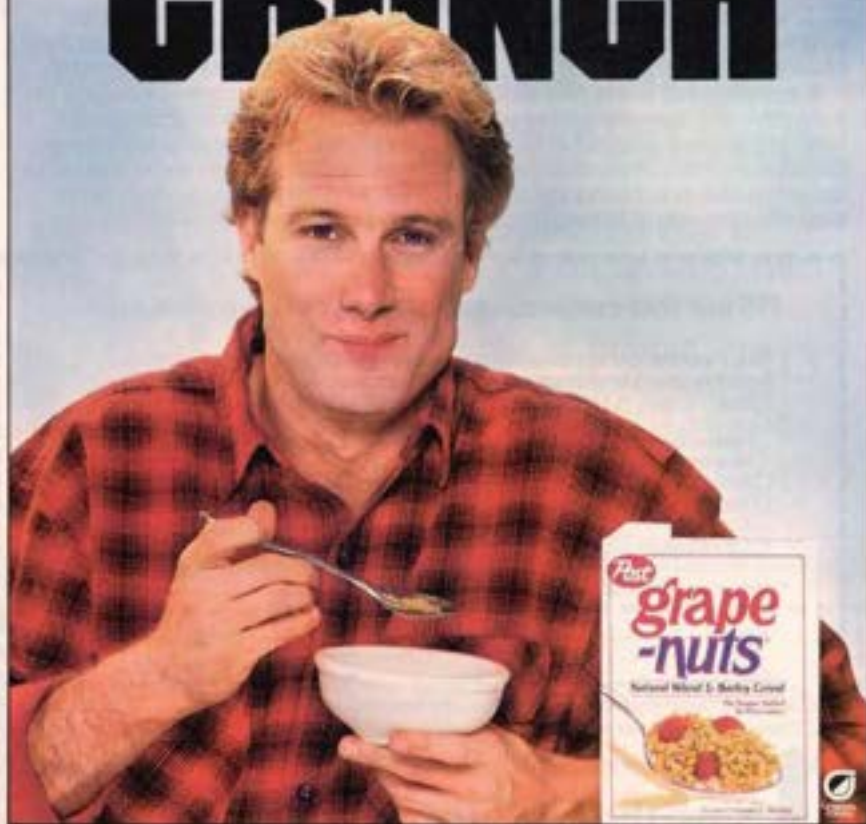
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Indian nations are also backing the proposal. "Treaties signed in 1855 guarantee our people important traditional fishing rights," explains Tim Wapato, executive director of the Columbia River Inter-Tribal Fish Commission, which represents the Yakima, Nez Percé, Umatilla, and Warm Springs tribes. "But if there are no fish in the streams, what good are our rights?"

"The protected areas program is simple, and it's fair," says Sullivan. "Developers would keep roughly half of all the currently identified potential hydroelectric sites."

Sullivan doubts, however, that all the projects developers want to build are necessary. Construction of new power facilities is not cost-effective, he says, because the Northwest has a large and expensive electricity surplus. The only market for new Northwest power lies outside the region, particularly in energy-hungry California.

But the BPA, which supports the council's proposal, recently acted to block California-bound electricity that might be generated at new hydro projects within protected areas of the Columbia River basin. Bonneville can do so because the agency controls the Intertie, a system of transmission lines that connect the Northwest power grid to California utilities.

Proponents of protected areas also argue that the program would eliminate many uncertainties and conflicts in the siting of hydro projects. Michael Rossotto, Northwest Rivers Project Coordinator for Friends of the Earth, says the program would benefit developers "by steering them away from controversial projects like the proposed Salt Caves Dam on the Klamath River in southern Oregon."

To no one's surprise, hydro developers and utilities are mounting stiff opposition to the protected areas concept. Al Wright, executive director of the Pacific Northwest Utilities Conference Committee, criticizes what he and others describe as the plan's "blanket prohibitions" against hydro development, saying, "We believe that the only way you can make a fair assessment of a hydro project is with a site-by-site analysis." Wright also observes that the council's proposal applies to all streams

within the BPA service region—which includes Idaho, Oregon, Washington, and Montana west of the Continental Divide. He disputes the council's authority to protect the 16,000 miles of streams that lie in the BPA's domain but outside the Columbia River drainage.

Furthermore, according to Wright, the council is trying to preempt the decision-making process of the Federal Energy Regulatory Commission (FERC), which licenses all nonfederal hydroelectric facilities in the nation. The program's supporters, however, say that establishing protected areas will merely enable the council to carry out its legal mandate to halt years of environmental degradation.

"In the last 20 years, FERC has denied exactly one hydro application on environmental grounds," says Ralph Cav-

anagh, a senior attorney with the Natural Resources Defense Council in San Francisco. The commission's approval record led one member of the Northwest Power Planning Council, Tom Trulove, to dub it "Licenses-R-Us."

A more immediate concern for supporters is whether the council itself will approve the program following a public comment period ending July 8. If it does, conservationists will be celebrating. Passage of the protected areas program will mark a new regionwide commitment to fish and wildlife protection. It will also give the salmon its best hope of restoration to its traditional throne as king of the Northwest's waters.

JAMES BAKER serves on the staff of the Northwest Conservation Act Coalition in Seattle, Washington.

WILDLIFE

Fur Flies in Pelt Dispute

Trapping is a way of life for many Native Canadians—a way, some animal-rights groups argue, that must end.

Michael Kantor

JOHAN TURNER takes pride in his work. "I'm a trapper," he says. "I could have lived in a city, but I chose to live the Indian way." Every October he and his wife—Cree Indians from remote Moose Factory, Ontario—pack up their two young sons, charter a plane, and fly 65 miles to registered trapping area number 167. Here they live for four months in a big frame tent in the bush. "It's not just a business," Turner says. "It's a way of life for us, something we really want to do."

Not everyone shares Turner's enthusiasm for trapping. Animal-rights groups say inflicting suffering and death on animals to supply the fashion industry is unethical. These activists are waging a determined campaign against the Canadian fur industry, coming into increasing conflict with indigenous peoples in the process.

Like thousands of Native people across northern Canada, Turner makes a living from wildlife. In 1987 he trapped 70 beavers, 30 marten, 12 mink, 12 muskrat, and 6 otters worth a total of

\$8,500 (U.S.)—about half the cash his family will see in a year. Animals he has hunted or trapped also provide most of his family's food. He is one of about 55,000 of Canada's 100,000 trappers who are aboriginal people dependent on the fur trade for all or part of their family incomes, according to Indigenous Survival International (ISI), a lobby of Indians, Inuit (Eskimo), and Metis (mixed races).

The conflict between Native trappers and animal-rights groups heated up in 1984 after an anti-sealing campaign moved the European Economic Community (EEC) to ban importation of certain seal pelts. Although the ban applied only to pelts of young harp and hooded seals, the market for all seal skins disintegrated. The result: Annual sealing income in the Northwest Territories dropped from about \$1,100,000 to \$60,000 between 1981 and 1985.

Some aboriginal leaders blame the EEC ban for the desolate conditions in many Inuit communities today. "I wish the animal-rights people would come up here to see what has happened," says

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Rhoda Innuksuk, president of the Inuit Tapirisat of Canada, the national Inuit organization. "Unemployment, drug and alcohol abuse, and teen suicides all shot way up in the wake of the ban. We can't grow corn up here. Seals are our life."

Animal-rights activists say the seal ban was only the beginning; they are now targeting the market for all furs. "We realize our campaigns have and will hurt a component of the Native economy," says Steven Best, vice-chair of the 70,000-member International Wildlife Coalition (IWC). "But to deprive animals of their lives for the fashion industry is wrong."

Native trappers' vociferous opposition to the anti-fur campaign surprised Greenpeace International, an environmental group that was instrumental in securing the EEC ban. After meeting with representatives of ISI in the fall of 1985, Greenpeace agreed to drop its anti-fur campaign in Britain, which imports a large quantity of the Canadian furs.

Animal-rights groups have taken a more aggressive stance, however. "Whether they are white or Native

doesn't matter," says the IWC's Best. "We need to discard this myth of the Natives' special relationship to nature. That type of culture has long since disappeared, if indeed it ever existed."

Anne Doncaster, president of the National Animal Rights Association of Canada and the IWC project coordinator for the seal and fur issue, observes: "The social and economic status of Canadian Natives is appalling. The answer is education. Give them the choice to leave the bush and be assimilated into the economy."

The indigenous trappers consider such attitudes an attack on their culture, a culture that they say now mixes ancient ways with snowmobiles and televisions. "We have a word for assimilation: It's genocide," says Bob Stevenson,

executive director of the Aboriginal Trappers Federation of Canada. "We have always trapped and traded. When Europeans introduced a commercial venture and new technology, we integrated these things into our traditional life-style. Harvesting is an integral part



A Cree Indian hauls up a beaver killed by an underwater trap.

PETER CHRISTOPHER - MASTERFILE

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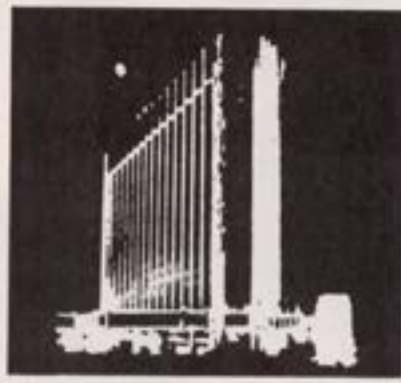
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of our economic, cultural, and spiritual well-being." He concedes that the fur industry sometimes exploited Native peoples in the past, but says that today cooperatives offer trappers fair value for their furs.

Wildlife specialists say the modern fur harvest in Canada is no threat to the survival of animal species. They assert that management techniques refined over the past 40 years safeguard wildlife. "We have a system of quotas, controlled seasons, and registered trapping areas that seems to be working well," says Stephen Hazell, general counsel for the Canadian Wildlife Federation, a 300,000-member conservation organization. Some furbearers, like beavers and muskrat, are abundant, and most biologists do not consider present trapping levels a threat to others, such as lynx and red foxes. According to the Convention on International Trade in Endangered Species, none of the species trapped in Canada is officially listed as endangered or threatened.

But according to the IWC's Best, protecting species is not enough: "Our interest is not only in avoiding extinction. That's the lowest common denominator. We need an ethic that says hunting and trapping are wrong."

Some conservationists, however, fear that undermining what is left of northern hunting and gathering societies may pose a greater threat to Arctic wildlife than the fur industry does. "The irony is that through the anti-harvest campaign we could lose the very people who are at the forefront of efforts to protect the land," says Alan Herscovici, author of *Second Nature: The Animal-Rights Controversy* (CBC Enterprises, 1985), a book that analyzes the animal-rights movement from an ecological perspective. "Across vast stretches of Canada, indigenous peoples still live on the land. They act as a buffer against pipelines and other mega-projects."

The debate over trapping promises to continue. Recently, Indigenous Survival International brought its campaign to Europe, a major market for Canadian fur but also a stronghold of animal-rights sentiment. A \$1-million Native cultural exhibit sponsored by ISI and the British Museum opened an 18-month run in London last December.

Across town, Alan Clark, the British minister of trade, in February announced his intention to introduce legislation that would require fur products such as fox and lynx to be labeled "May have been taken with the steel-jaw leg-hold trap." Despite strong protests from Canadian government officials, ISI, and other proponents of the fur trade, Clark plans to push for the law later this year.

Meanwhile, John Turner, who works summers as assistant superintendent at Ontario's Tidewater Provincial Park, is

preparing for the upcoming trapping season. In October he and his wife will take their sons back to the family's 200-square-mile registered trapping area.

"It's our traditional way of life," he says. "We respect the animals, we depend on them, and we don't waste anything. I'm not going to push my boys to live this way, but I'd sure like them to have the option." ■

MICHAEL KANTOR, a freelance writer in Missoula, Montana, is a frequent contributor to *Sierra*.

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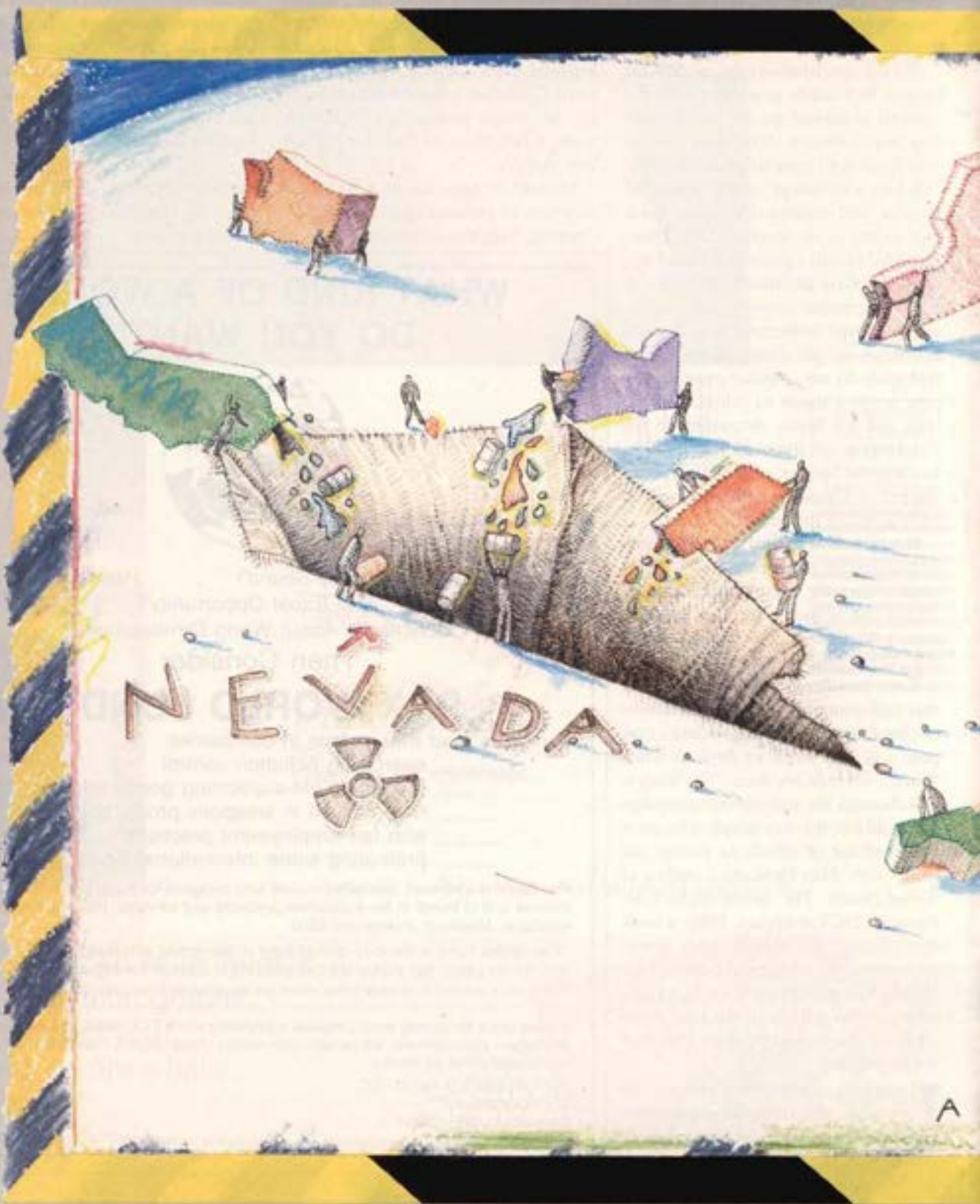
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BY JOSEPH A. DAVIS

THE WASTING OF NEVADA

AUSTIN, McDERMITT, GOLDFIELD, VERDI, FERNLEY, BEATTY. Small towns, scarcely heard of outside Nevada, most certainly never mentioned in Washington, D.C., power circles. Towns that probably never crossed the minds of our senators and representatives when they passed a law last December—a law that could forever change how people live their lives in Austin, McDermitt, *et al.*

Beginning around the turn of the century and continuing for three decades, several trucks and trains will likely pass through these communities every day on their way to Yucca Mountain, the site Congress has chosen as the nation's one and only permanent repository for high-level nuclear waste. The trucks and trains will be loaded with 40-ton casks containing materials laden with strontium 90, cesium 137, and plutonium 239, the latter an isotope that remains lethally radioactive for tens of thousands of years.

As his colleagues were zeroing in on Nevada, Sen. J. Bennett Johnston (D-La.) assured the media that burying nuclear waste was "not a dangerous undertaking." Although many members of Congress would disagree with Johnston, few could imagine a place more isolated, geographically and politically, than the high desert adjacent to the nation's atomic-weapons testing grounds.

The process by which Nevada was chosen was described by the state's Democratic senator, Harry Reid, as "repulsive and mendacious political backstabbing." Brooks Yeager, a Sierra Club lobbyist in Washington, D.C., deplors the decision somewhat more objectively. "It's unfortunate," he says, "because it establishes a terrible precedent for making a complex environmental siting decision."

"There's no question that we have to do something with the waste that's building up at every nuclear reactor in the country," says Rich Ferguson, the Club's regional vice-

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ACCEPT SOMETHING

IT DOES NOT WANT.

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A CONSTITUTIONAL

GOVERNMENT

SHOULD OPERATE."

president for Southern California and Nevada. "At the same time, we're not ready to just stick it to Nevada."

Most members of Congress, however, apparently feel otherwise.

The Nuclear Waste Policy Act of 1982 established the process for siting a high-level waste repository. The choice would be based on objective assessment of the relevant data, uncontaminated by politics.

Politics, not surprisingly, enabled the 1982 act to pass in the first place. The legislation was built around a key compromise: that one deep geologic repository be built in the East (where most of the nation's nuclear waste is produced) and one in the West.

In addition to that regional truce, the law specified certain things the Department of Energy (DOE) was to consider when selecting a site. Some were purely technical: hydrology, geophysics, seismic activity. Others related to land use: proximity to population, water supplies, defense activities, parks, refuges, and wilderness areas.

Anticipating that the selection process could never be purely objective, Congress wrote into the act that "state and public participation in the planning and development of repositories is essential in order to promote public confidence in the safety of disposal."

The law set forth an elaborate procedure for site nominations, environmental assessments, and court review. The DOE would then recommend three sites in the East and three in the West to be approved by the president. Next would come "site characterization." In this step, a large shaft would be sunk deep underground to see if the site were geologically suitable. Characterization at all six sites would show which two were best.

Three years after the law was passed, nary a shaft had been sunk, and the program was in chaos. The 17 states with potential sites had protested each step of the way. From East and West alike came complaints that the DOE had failed to consult and inform; from the Nuclear Regulatory Commission

(NRC) and the U.S. Geological Survey came challenges to the DOE's technical work. Scores of lawsuits ensnared the program.

Nevertheless, in May 1986, President Reagan chose three western sites for characterization: Hanford, Washington; Deaf Smith County, Texas; and Yucca Mountain, Nevada. At the same time, Energy Secretary John S. Herrington postponed indefinitely the effort to site a repository in the East—a move that infuriated westerners.

The DOE's decision prompted investigations by two House subcommittees, one chaired by Edward J. Markey (D-Mass.), an outspoken nuclear critic, and the other by then-Rep. James Weaver (D-Ore.), whose state lies downriver from the Hanford site. When they asked the DOE for the documents that led to dropping an eastern repository, the agency said the papers had been destroyed. Further investigation uncovered some of the documents. One was a DOE consultant's list of the benefits of scrubbing the second repository; included on that list was "immediate political relief."

"We've found the smoking gun," Markey announced. Several members of Congress joined him in charging that the DOE had cancelled the eastern repository to help the region's Republican senatorial candidates in the 1986 elections.

Western senators struck back before November. They attached to the 1987 appropriations bill a one-year moratorium on any DOE site-selection work, and made sure it passed.

By early 1987 the program was almost at a standstill. "So far, the only thing the department has managed to bury is its credibility," said Markey.

Indeed, the site-selection process was developing a half-life equal to that of plutonium 239. It was clear that something had to give. Representative Morris K. Udall (D-Ariz.), one of the architects of the 1982 law, introduced legislation that would delay site selection by an additional 18 months while a

special commission studied ways to get the program back on track. In the meantime, Udall proposed, a special White House negotiator would seek a state to host the repository *voluntarily* in return for whatever inducements the federal government might offer. This approach was strongly supported by the Sierra Club and the environmental community.

But Sen. Johnston, chair of both the Energy Committee and the powerful Appropriations Subcommittee on Energy and Water, had a different idea. He introduced legislation proposing that instead of exploring three sites, the DOE limit its research to one; if that site proved suitable, it would be chosen. The eastern site would be permanently foregone. Johnston proposed offering the host state \$100 million a year once shipments began. (The figure was later dropped to \$20 million.) State resistance would vanish, the government would save money, and the nuclear utilities, desperate for a waste dump, would be relieved. While Johnston named no names, everyone knew that when the music stopped, the state without a chair would be Nevada.

Johnston attached his proposal to that year's deficit-reduction package; as long as members voted with him, their own cherished programs would not be axed. One by one, Johnston cut deals with individual senators. He told eastern senators that failure to pass a bill would lead the DOE to search for a second repository site, a search that could include their states. He accepted an amendment that indirectly ruled out Washington and Texas by stipulating that the repository could not be under an aquifer. In the halls of Congress, Johnston's proposal was called the "Bribe Nevada Bill."

Nevadans called it the "Screw Nevada Bill." Senators Brock Adams (D-Wash.) and Harry Reid mounted a filibuster to stop the legislation on the Senate floor, but only a handful of colleagues joined them. Johnston broke the filibuster, and Nevada went down by a vote of 61-34.

Nevada's other senator, Chic Hecht



(R), put up only token resistance, focusing instead on securing numerous small benefits for the state when it was chosen. Within two weeks of the Johnston bill's passage, Hecht was honored at a fundraising breakfast hosted by the American Nuclear Energy Council, the industry's lobbying arm.

No one yet understands enough about the rocks under Yucca Mountain to be sure it is a safe place to store nuclear waste for tens of thousands of years. Still, some things are known.

The layer that would hold the repository is made up of a thick bed of compacted volcanic ash called welded tuff. The tuff at Yucca Mountain has some properties that repository plan-

ners find attractive. It is a large and relatively uniform block of fine-grained material rich in minerals, called zeolites, that absorb some of the radioactive materials in nuclear waste. Furthermore, Yucca Mountain is above the water table. The highest local aquifer is about 1,900 feet down, and the DOE plans to build the repository at about 1,100 feet.

There are also known negatives. Volcanoes were active in the Yucca Mountain area less than a million years ago—and possibly even within the last 10,000 to 50,000 years, according to Steve Frishman of Nevada's Nuclear Waste Policy Office. Earthquake faults vein the area, even at the proposed repository site itself. Geologists, who say new faults are still forming, have found evi-

THE GEOLOGICAL
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dence of fault movement in the vicinity within the last 10,000 years.

Water is one of the chief hazards for any waste repository. Not only could it corrode the containers in which the waste is buried, but it could carry contaminants to aquifers or even to the surface. While the DOE says it is highly unlikely that radionuclides could ever contaminate the groundwater at Yucca Mountain, an agency scientist, Jerry S. Szymanski, completed a draft report in November 1987 that suggested the DOE's thinking about the site's hydrology was too simple. The agency had not considered the possibility that the effects of underground heat, earthquakes, and pressures in Earth's crust could combine to raise the water table significantly. He pointed to veins of minerals such as calcite that suggest this may have happened in recent geologic time. Szymanski wrote that "serious consideration should be given to abandoning the Yucca Mountain site and declaring it as unsuitable for the purposes of permanent disposal of the high-level nuclear wastes."

That report was released in January of this year—not by the DOE, but by Nevada Gov. Richard H. Bryan (D), who said the DOE had suppressed the report "in what appears to be an intentional (and successful) attempt to mislead Congress." Carl Gertz, who heads the DOE's Las Vegas nuclear waste office, counters that it had been held up only for routine review by Szymanski's fellow scientists.

Wolf pack, "lynch mob," and "gang rape" are just a few of the terms Nevadans have used to describe Congress and what it did to them. "Political hardball is one thing, but it is political rape when a weak state is forced by the other states to accept something it does not want," says Bryan. "This is not the way a constitutional government should operate."

After he struck the final deal on the waste site, Johnston predicted that Nevada would come to value the repository for the jobs it provided. Indeed, many cynics believed that economic in-

centives would appeal to Nevadans more strongly than safety considerations would repel them.

If some people in Nevada feel that way, more do not. In an opinion poll conducted by the University of Nevada among 1,200 residents in December, 74 percent said the state should do everything in its power to stop the dump.

"We're not going to back down, and we're not going to be bought," says Bob Fulkerson, executive director of a statewide organization called Citizen Alert. Its membership has doubled, to some 1,100, over the past year. He says the group intends to make sure the nuclear opposition in Nevada stays loud and visible—and grows.

"People who live here, who were born here, see what a colonial position we're in and are getting outraged," Fulkerson says.

Under Gov. Bryan (who is challenging Chic Hecht for his Senate seat in November), Nevada's Nuclear Waste Project Office has led the state's efforts to defend itself against the dump. The 1982 waste act gives states the right to evaluate the siting process independently, and authorizes federal grants to help them do so. The state of Nevada received an \$11-million grant last year, which it will use to marshal the expertise it will need to evaluate and respond to the voluminous flow of studies the DOE will conduct.

In February the Waste Project Office awarded a contract of nearly \$400,000 to the Nevada Nuclear Waste Task Force, a citizens' group, for a 16-month effort to support public participation in the siting decision. The task force will hold public forums, publish pamphlets, and distribute information to help prepare people for the coming debate.

Although some in Washington think the repository battle is finished, Nevadans like Bryan and Fulkerson consider it just begun. "The bottom line is that the fight is not over," says Bryan. "A lot of things can happen before it ends."

In legal terms, all Congress really did

in December was told the DOE to go ahead with exploration of Yucca Mountain to the exclusion of any other site. It left much of the 1982 act—including the parts saying the site had to be geologically suitable—on the books. Still intact is a long series of procedural checkpoints where the process could be stopped.

Before the DOE sinks the exploratory shaft, it has to draw up a plan for site characterization, which must undergo state review and public hearings. Currently the agency does not intend to finalize that plan until January 1989—a date that state officials say allows the White House to avoid any heat until after the election.

The much bigger obstacles to the Yucca Mountain site will present themselves over the next few years. Once the shaft is finally sunk, the volume of evidence available will jump dramatically, and the scientific—and political—debates will escalate.

If the DOE finds Yucca Mountain unsuitable, the entire waste-disposal program is back to square one. But a decision to recommend the site as the repository would also be subject to public and court review. It would have to be accompanied by a full-scale environmental impact statement (although, because of the provisions of Johnston's bill, the document would not have to consider alternative sites or alternatives to deep burial). Then the president would consider the DOE's recommendation before approving it or proposing an alternative to Congress.

If the state objects to being chosen, it can submit a notice of disapproval to Congress. In that case the repository project will not go ahead unless both the House and the Senate override the state's protest. (Nevada lost votes during its last stand in the Senate by margins of about 2 to 1.) Even after that, the site would have to undergo NRC licensing, a process entailing another formidable set of hurdles.

The program is vulnerable to court challenge at almost every step. Shifts in the prevailing philosophy or political party in the White House, the DOE,

Congress or its committees, or the NRC could alter the odds drastically. These changes could begin as soon as November.

Nevada's Sen. Reid says it could be 15 years before a repository is licensed. And Ben Cooper, an aide to Sen. Johnston, told a meeting of nuclear-waste experts in Tucson that the waste program would have "serious trouble" meeting the 1998 goal for opening the repository.

It is difficult to conceive of the time involved in the disposal of nuclear waste. The DOE expects the waste burial casks to last 300 to 1,000 years. The Environmental Protection Agency proposes that the geologic formation in which the repository is built be able to


contain the waste for 10,000 years. After 24,400 years, the waste will still contain half the original amount of plutonium 239. The National Academy of Sciences reports that it will take 3 million years for spent fuel to decay to the point at which it poses the same level of risk as the uranium ore from which it came.

We are not used to thinking in terms of hundreds, thousands, or millions of years. The concept is especially elusive to those who operate on political time. As the people of Nevada have become painfully aware, some lawmakers cannot seem to imagine a time beyond the next election. ■

JOSEPH A. DAVIS covers environmental issues for Congressional Quarterly.



LESLIE CONNER



SPLENDOR I N T H E TALLGRASS

Oklahoma's rocky hills hold a classic American landscape that could soon become our newest national preserve.

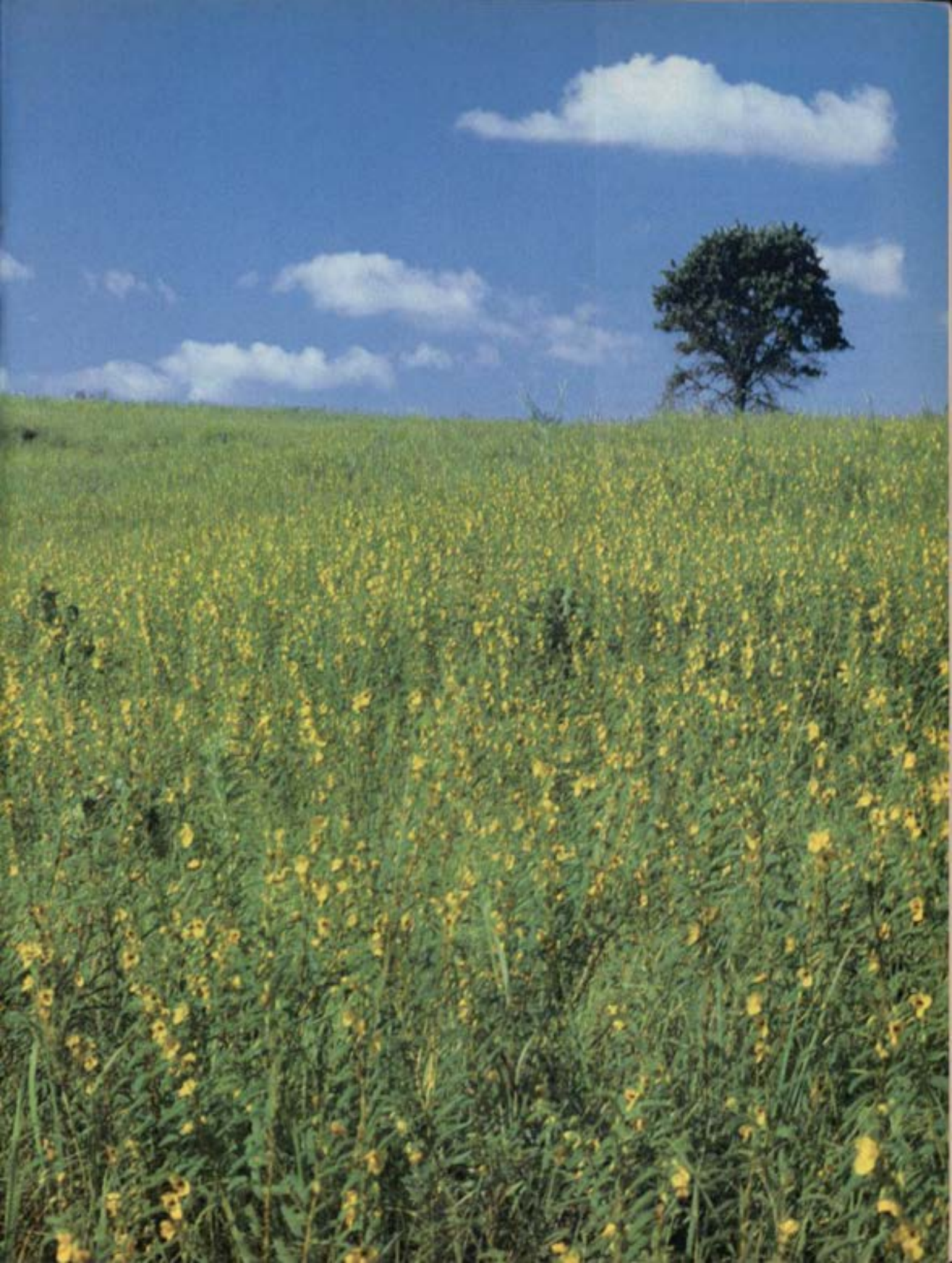
The Osage Hills of northern Oklahoma are steep and rocky, the limestone soil too thin for the plow. But rainfall is ample, and broad expanses of lush, nutritious, native tallgrasses—big and little bluestem, switchgrass, and Indian grass—grow here alongside colorful broad-leaved plants.

The first white immigrants to the plains had known only the eastern forests. When they finally reached the prairie, the sod, the thick, rich soil, and the extensive open areas were new to them. Soon the United States became famous for these wide-open spaces.

Today broad expanses of native tallgrasses are rare. Less than 3 percent remains of an ecosystem that once covered 250 million acres from Texas to Canada. When the first white settlers arrived, tallgrass predominated in what is now Illinois, Iowa, Kansas, and large portions of Missouri. But those regions had deep soils perfect for growing wheat and corn. Today only Oklahoma's Osage Hills and the rocky Flint Hills of Kansas still retain significant samples of the nation's original tallgrass seas.

For more than 50 years scientists and conservationists have been

BY BRETT HULSEY



urging preservation of that rich biological heritage. National Park Service officials have supported that position, pointing out that the ecosystem is not represented elsewhere in the National Park System. Because sites in Kansas had strong support from local conservationists, the agency focused there first. But Kansas ranchers fought the agency's proposed condemnation of their land bitterly—and successfully.

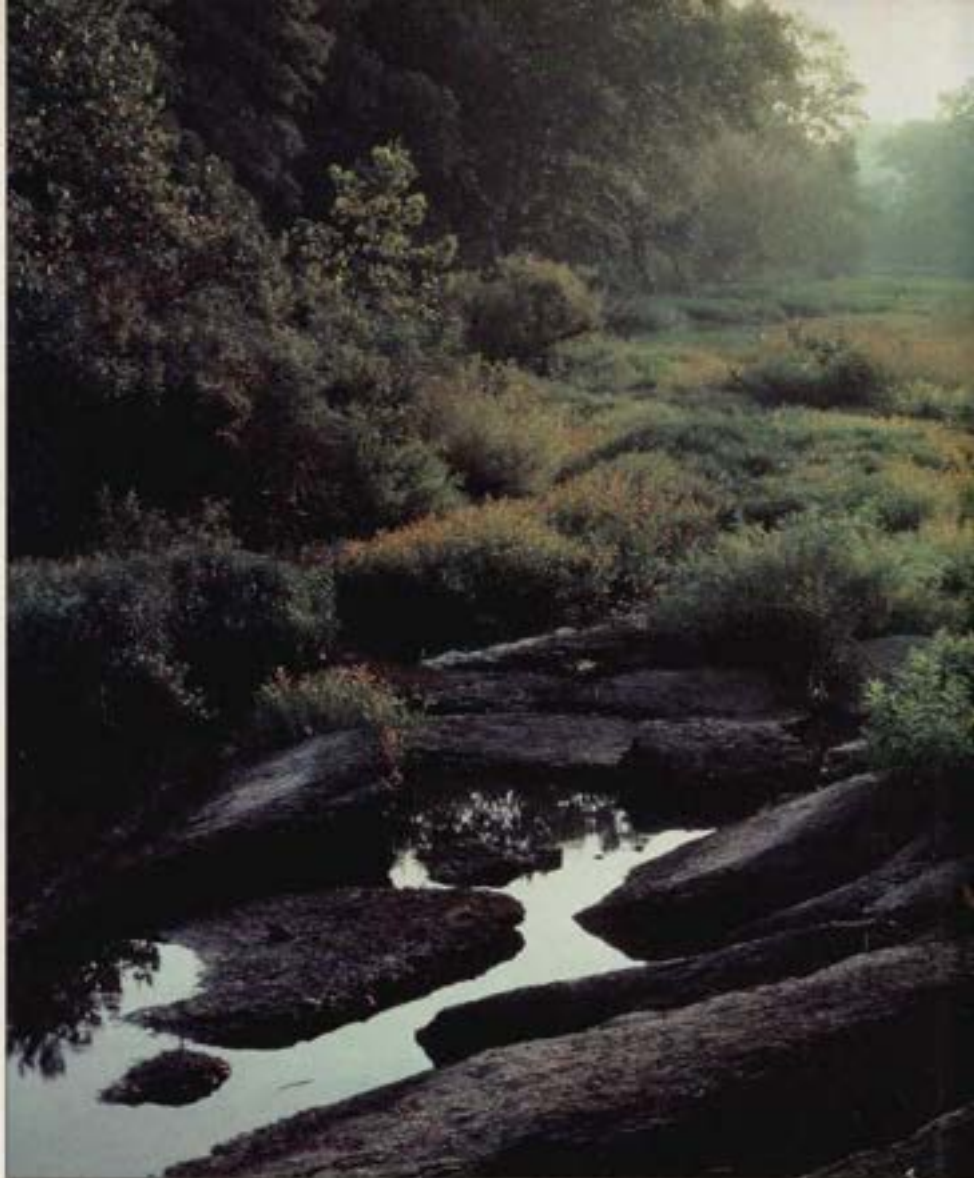
Park supporters' attention moved to Oklahoma in 1983, when a rancher offered to sell a key parcel of tallgrass land in Osage County. More sale offers followed, and in December 1987 the Oklahoma congressional delegation introduced a bill to establish a 50,000-acre Tallgrass Prairie National Preserve in the Osage Hills. Once an ecosystem virtually no one knew, the prairie is now the subject of a national debate, drawing attention from congressional representatives and the public.

But because it is private land, few people have visited the Osage. Even fewer know it well.

Unlike the mid- and shortgrass prairies of the nation's high plains, which rise to the west and sweep up to the foothills of the Rocky Mountains, tallgrass country is a subtle mosaic of meadows, sculpted buttes, and gently rounded hills. Numerous seeps, springs, and streams carve abrupt canyons. Stands of oak grow near sandstone outcroppings and blend into cherty terraces where the big bluestem grows tall enough in autumn to hide foraging white-tailed deer. More than a hundred years ago, herds of buffalo and elk also roamed these hills.

Some people think of the prairie as a biotic monotone—as just a field of grass. But that's like seeing the mountains as a pile of rocks. The essence of this landscape is the interaction of ecotypes, of eastern woodlands and western grasslands connected by a lattice-work of small streams.

Wildlife is often abundant near ecological "edges"—transition zones where two distinct vegetative types merge. The numerous streams snaking through the Osage country provide excellent edge habitat. You can experience the contrasts by walking from a prairie



Osage prairie sightings (clockwise, starting above): A mid-summer stream at sunrise; tickseed sunflowers brighten an autumn stand of big bluestem; a red-orange butterfly milkweed lures a tiger swallowtail, one of many butterfly species that flock to this abundant plant; relict of the nation's original tallgrass lands, a greater prairie chicken dances for his mate at dawn; redbud trees herald the onset of spring; the season also brings a surge of migratory birds from the south, including the yellow-crowned night heron; lavender Ohio spiderworts bloom from May to August in Oklahoma, growing at the tips of graceful stems up to three feet tall.



Previous page: The tallgrass prairie's colorful and lush summer bloom.



DARYL LARNTZ



DARYL LARNTZ



DARYL LARNTZ



DARYL LARNTZ



JOHN ELK III

knoll down to a nearby Osage stream. Short- and midgrasses give way to tallgrasses, then to scattered thickets of sumac and plum. Hardwood timber along the streambanks eventually replaces the grasses and shrubs.

In May you can walk down out of hot prairie winds to discover flowering Dutchman's-breeches, jack-in-the-pulpits, and columbines dangling from damp, streamside boulders festooned with walking ferns. All of these plants would seem more at home a hundred miles east in the Ozark Mountains of Arkansas and Missouri.

Birds of eastern and western North America mingle here as well. One October afternoon I flushed some flickers from an oak thicket and counted equal numbers of red-shafted and yellow-shafted birds. The former are more common in the West, the latter in the East. Pileated woodpeckers—cackling, brightly crested birds usually found in woodlands—are common along the streams.

Vivid contrasts also come with the seasons. In spring, cloud shadows drift across the landscape like ships over a green ocean, creating a deceptively gentle scene. At this time of year the Osage can be ripe and lush, but it is also treacherous, for the winds are apt to swirl around suddenly from the north, and the clouds grow a dreaded lead-gray. Huge hailstones scythe the limbs from blackjack oaks, and screaming tornadic winds rip buildings from their moorings. Within minutes the sky clears, and meadowlarks sing again from sun-splashed fence posts.

Fires scour the land in early spring as the ranchers continue the age-old tradition of burning dead vegetation to encourage the next grass crop. Once

TO PRESERVE A PRAIRIE

The U.S. National Park System is not some random assemblage of parks and open spaces. In theory—and to a remarkable degree in practice—it represents the best of our country's natural wonders, landscape types, and ecosystems.

The system is still incomplete, however. The Sierra Club and several other groups are now at work to fulfill the dream of a park unit that would preserve a sampling of native tallgrass prairie—one of the system's missing pieces. A milestone in this long campaign is the Tallgrass Prairie National Preserve bill introduced by the Oklahoma congressional delegation last December. The Sierra Club is enthusiastic about this important step, but is working with the delegation to improve the bill in a couple of respects.

First, the proposed preserve is too small. The National Park Service has indicated that anything less than 83,000 acres may not be large enough to allow the agency to re-establish true prairie conditions and protect the core unit from weed invasions and other outside threats. Landowners have put 70,000 to 100,000 acres up for sale, primarily in four large ranches. Yet the delegation's bill has a ceiling of 50,000 acres (and some additional acreage protected by inadequately defined easements). Several outstanding areas are excluded from park protection, including the mixed woods and prairielands along Pond and Wild Hog creeks and the classic prairie in Antelope Creek and Salt Creek basins. The Sierra Club is asking the delegation to designate some of this land as wilderness.

Second, the delegation's bill goes too far in curtailing the National Park Service's management authority. It would not give the Park Ser-

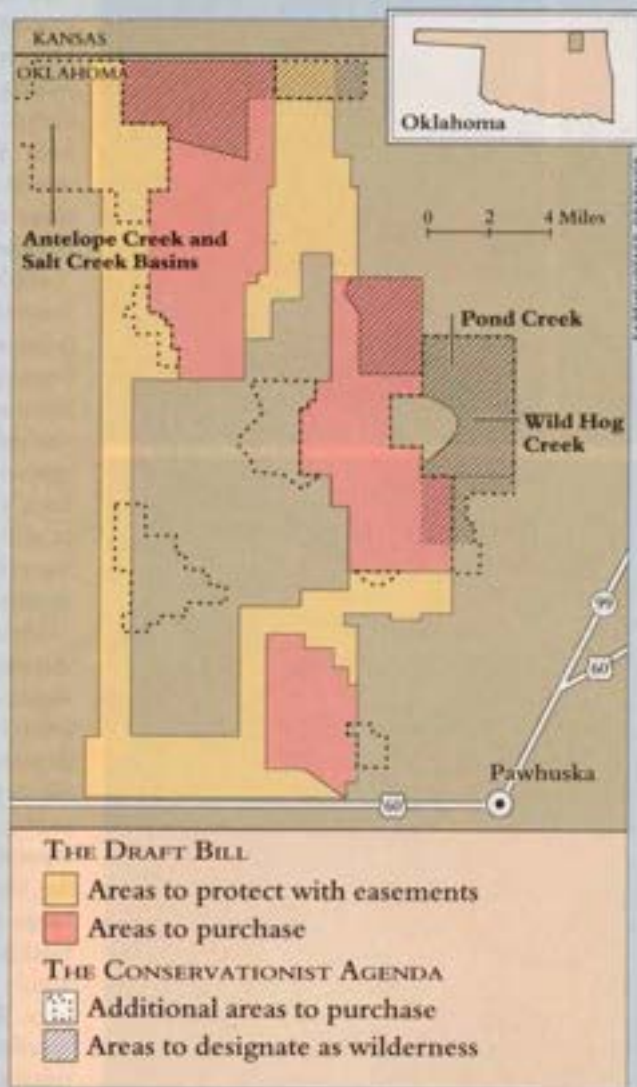
vice the clout needed to minimize impacts of oil development—even though such authority is provided in the laws governing oil operations in other national preserves. It would force the agency to obtain "concurrence" from a committee of ranchers and other local interests before approving a preserve management plan. Oklahoma conservationists fear that this committee would have virtual veto power over Park Service decisions. These management problems would not only threaten the protection of the tallgrass prairie preserve, they would set dangerous precedents for the National Park System as a whole.

Readers interested in helping should write to Rep. Bruce Vento (D-Minn.), Chair, Subcommittee on National Parks and Public Lands, House of Representatives, Washington, DC 20515; and Sen. Dale Bumpers (D-Ark.), Chair, Public Lands, National Parks, and Forests Subcommittee, Senate, Washington, DC 20510. Urge them to work toward an expanded and better-protected preserve as their subcommittees shape the legislation (H.R.3803 and S.1967) this summer and fall.

Oklahoma is on the verge of having a world-class preserve that would display and protect the landscapes and ecosystems of the tallgrass prairie. The area could be a major tourist attraction, bringing much benefit to the state. But we owe it to future generations—of Oklahomans and all Americans—to assure that the new preserve will protect an adequate sampling of prairie, and protect it well.

—Edgar Wayburn and Douglas Scott

TALLGRASS PRAIRIE NATIONAL PRESERVE



The preserve as the Oklahoma congressional delegation sees it—and as conservationists would like it to be, with increased acreage and officially designated wilderness areas.

EDGAR WAYBURN is the Sierra Club's vice-president for national parks and protected areas. DOUGLAS SCOTT is the Club's conservation director.

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Indians set fires to lure the buffalo with the new growth that followed.

By late spring the native grasses are rich shades of green, luxuriant and knee high, interspersed with dozens of varieties of wildflowers. Even gruff local ranchers have soft spots in their hearts for the ripeness of June—for the swirls of color and the life-renewing rain. As one third-generation rancher said, "The January winds can cut right through you, and the August heat may burn a man to a crisp. But there's no place in the world more beautiful than the Osage in June."

That month the Osage Indians stage their traditional dances in former Indian villages near the proposed prairie preserve. Members of the tribe from all over the country gather to feast and renew family ties and old friendships. The dances are held on three successive weekends at village sites dating back to the early 1870s.

No longer can you drive past the dance grounds at Greyhorse, one of the sites, and see long strips of meat dangling from clotheslines, drying in the sun. Now food for the gatherings is apt to be catered. But the same slow, dignified drumbeat still pulses through the long summer evenings, just as it has on North American prairies for hundreds, probably thousands of years.

The singers start each song with a trembling falsetto wail that can bring a slight tingling to the back of the neck. The Osage prairie has struck up its anthem. Sometimes coyotes chime in, yapping in the distance. The original people of the prairie have, in spirit at least, come home to drum.

With the autumn rains, streams that have been sulking in pools begin to cool and cascade again. Mornings are crisp, and the tallgrass turns tawny-brown and gold. Autumn is long in the Osage; the sun seems to resist giving up its hold on the land. Eventually winter creeps in by way of darkness.



The tallgrass prairie in winter. Conservationists dream of a sizable preserve—one that would permit visitors to appreciate the panoramas the pioneers saw, while providing enough space for native wildlife species, which once included elk, bison, and probably pronghorn antelope.

In a report issued in April 1987 the National Park Service concluded that this land—with its many moods, its colorful pioneer, ranching, and Indian history, and its increasingly rare assemblage of tallgrass species—was a prime candidate for the National Park System. The report called the Osage "an outstanding example of the few remaining unaltered segments of the once-vast North American Prairie."

"Enchanting" is Sierra Club lobbyist Jim Blomquist's word for the place. While he and the Club have qualms about the specifics of the Oklahoma delegation's bill, establishing a tallgrass park is one of their highest priorities. (See "To Preserve a Prairie," page 40.)

Not so keen on the prairie-park idea are the Osage Indians who own subsurface mineral rights to the ranches that have been offered for sale. As in other national preserves, subsurface interests here would be allowed to own and develop their oil resources. The tribe op-

poses the bill anyway, fearing that the Park Service might renege and jeopardize their economic future.

The local chamber of commerce supports the preserve. But some ranchers oppose the delegation's bill, even though it would prohibit condemnation of any land, and some business owners are also suspicious. "I'd rather keep the federal government as far away as possible," one shopkeeper explains. In fact, having Uncle Sam as a neighbor couldn't possibly cost the community any money. The preserve would create 200 to 700 new jobs and bring at least 500,000 visitors to Osage County each year, according to a regional planning agency's study.

The alternative to federal protection is the eventual disappearance of the prairie, argues Harvey Payne, a Pawhuska, Oklahoma, attorney and photographer who has worked tirelessly for the preserve. "Many of the people

who are ambivalent about the preserve haven't even seen the area under consideration," Payne says. "It's not just grass. There are 150 to 160 species of plants."

As an Oklahoma native, I know how all these factions feel. But my loyalty remains with the land. I can remember mornings when the fog hung over the green hills like a pale blue trader's blanket—when upland sandpipers circled overhead, trilling their long, wild, flutelike cries. I think of how few Americans have watched the shadows of bald eagles drift across unbroken miles of fall tallgrass. And I recall long, quiet, sun-filled days when I've hiked through grass tinted wine-red with late summer, grass so tall I couldn't touch the top.

The Osage prairie is a formerly vast land, now growing smaller—a still-wild land of grass and rock, water and wind. The area has a colorful past. Now it has the opportunity for a splendid future. ■

BRETT HULSEY runs the Sierra Club's tallgrass prairie office in Tulsa, Oklahoma.

COLLECTORS, SWAMPS, AND ISOPODS

When the editors of *Sierra* announced an essay competition last January, we thought of it as something of a gamble. Would anyone hear? Would anyone answer our call for "words on their natural world"?


Those fears were groundless: By the March deadline our box of entries was overflowing. We then faced the challenge of judging more than 300 essays—most of them straight from the heart. We grabbed our blue pencils and dived in.

The writers included published authors and tyros, junior-high-school students and Ph.Ds. Their stories took us from an abandoned playground in the Midwest to a fire lookout in the Rockies and on to a parched village in Africa's Sahel.

Some trips to the mountains resulted in true love, while at least one ended in Splitsville. Several people found nirvana in the wilderness; others were content merely to get back to the trailhead.

Many of the writers thanked us for sponsoring a contest like this, saying our invitation had provided them with the courage to express their thoughts and observations. In return we owe our thanks to the essayists for teaching us a great deal (we learned, among other things, that a bird fluttering close to the wintry earth can leave the outlines of its wings in the snow, and that skunks dance) and for reminding us of the importance of the natural world as counselor, conundrum, and companion.

THE MENHADEN'S NURSEMAID



BY JANET LEMBKE

Come here!" our neighbor Tom shouts as I leave the trailer, bucket in hand, to haul the crabpots. He stands at water's edge next door to extract fish from the gill nets he's just brought ashore from an overnight stay on the river. The sun is cresting the trees to the east.

Crabs can wait. I race across the shallow drainage ditch that separates our yard from his. What will it be this time? Tom helps to satisfy my quenchless curiosity about the river by saving the oddities that sometimes tangle themselves in his nets. He's shown me a lookdown, a silvery fish with a body as flat and narrow as a butter plate turned on its edge and with eyes set high above the long, precipitous slope to its mouth. Another catch produced a young filefish, mottled brown and beige and wearing a unicorn's spike in the middle of its forehead.

"Ever seen this?" Tom holds out a square, brown plastic

tub. It contains a dead menhaden, an all-too-familiar species that casts itself overabundantly into our summer nets. When the menhaden are schooling in our part of the river, we throw back ten or twenty for every edible fish we keep. This one measures about nine inches from stem to stern, on the large side for the river.

"Look here," Tom says, pointing to the menhaden's open mouth. Something plump and white as a grub wriggles itself into the light. It looks like a medieval drawing come to life: the pallid soul escaping from the corpse's mouth.

"Don't know rightly what it's called, but what it does is help the menhaden process food. There's a deficiency, you see, in the menhaden's digestive system. All of 'em have these helpers."

The inch-long creature escaping from the dead menhaden's mouth has a fat, bleached, slightly repulsive but undeniable reality. Tom's explanation for its presence, however, seems like a chip off the folklore block, a tale kin to that of cooked eel turning raw if left in the refrigerator overnight. My husband and I have tugged many dead and dying menhaden from our nets, and I've saved them for crabpot bait—but not once has either of us seen this ghostly grub.

The crabpots wait a little longer, until I've checked the guide to nearshore marine life. The book gives modest help, indicating generally that the grub is a cymothoid, one of a large family of parasitic isopods. I'm not satisfied. I start asking questions.

"Sure," says another neighbor, "the menhaden's nursemaid, that's what you're talking about." But he doesn't know how the nursemaid goes about its duties, nor how it got hired in the first place. He does, however, show me how to spot the menhaden when they're schooling inshore.

On summer evenings they announce themselves by their noise. It's not the crisp *pop-pop-pop* of shrimp, nor the ripple-making splash of an airborne mullet or shad as it returns to the water. It's a gentle but incessant murmur, a rustling whisper, made by myriad mouths breaking the surface for an instant, then retreating. The sound brings bad news and good: In the morning we'll be cussing as we extricate one menhaden after another from the net and pitch them back, and we'll be blessing the larger fish—blues, maybe—that snared themselves in pursuit of a menhaden dinner. Some people sell their menhaden as crabpot bait, but at two cents a pound, it takes a lot of menhaden to make a dollar.

Though people don't eat them (at least not yet), menhaden support fleets of commercial trawlers that pull their nets in river mouths and sounds for precisely this species. The catch is processed for oil or ground into fertilizer and chicken feed. It may be that menhaden will soon make the leap from chicken troughs to china plates; researchers now experiment with mashing parts of menhaden to make *surimi*, the fish-paste developed by the Japanese and currently manu-

factured from other species to mold "crab legs" and "shrimp" that sell for half the price of the real thing.

The menhaden trap themselves in our nets because of their feeding habits. They swim with mouths wide open, letting a hearty broth of plankton flow through their buccal cavities and out through their gills, which are equipped with rakers—fine, feathery sieves—that strain all the goodies out of the soup. It's the gaping mouths that land menhaden in trouble with nylon filament. River people say that "menhaden swallow the net." Or they try to, closing their mouths on the mesh and catching it in the hinges of their jaws. River people also call them "back-out fish." Instead of pulling them head-first through the net like croakers or small blues, we must grasp them behind the gills and give a backward tug.

I keep asking questions about the nursemaid. Do all menhaden give lodging to these isopods? At what cost?

Who pays and who profits? "Nursemaid" does not seem to designate a parasite; it sounds benign, implying a caretaking function, perhaps like that of an adult animal regurgitating pre-digested food for its young. Is there some substance to the talk about a defect in the menhaden's digestive system? And how does the nursemaid arrive on the scene? I put the questions to fishermen on and off the river and to the owners of seafood markets. They're familiar with the nursemaid, but they have no satisfying answers.

The person who can lead me to the facts appears on an August afternoon at a seafood exhibition. I've been asking all the exhibitors about the nursemaid, and one of them finally says, "You might check over there with Joe." Joe's name tag identifies him more fully as Joseph W. Smith,

National Marine Fisheries Service. And, hallelujah, all I need to say is "menhaden" and "isopod."

"*Oleocira praegustator*, that's your critter," he says.

Praegustator—an appropriate name for something that lives in the mouth of something else. It means "fore-taster," the one who takes the first sampling of the food put on the table.

Joe adds that he doesn't know all that much about the creature—his work as a fisheries biologist centers elsewhere—but, come to think of it, he's read about this very isopod in a specialized journal. Would I like a copy of the article?

Praise be to those whose memories are like gill rakers, collecting nourishing tidbits of information and letting the dross go. Six days later the article, published more than 15 years ago, arrives in my mailbox. It tells a strange story.

When *O. praegustator* leaves the incubation of its mother's brood-pouch, it begins life as a free-swimming male. After it finds a female and mates, it looks for lodging in a juvenile menhaden that has no other tenant. The fish's open, indiscriminate mouth sweeps in the isopod along with food, and both travel to the gills, where the isopod fastens itself and enters a transitional phase. No one knows if the isopod feeds directly on the gills or simply ingests the food trapped there. The host can sustain damage, sometimes massive but rarely fatal, to all parts of its gills, from rakers to coverings. While the isopod occupies the gills it undergoes a sex change; roving male is transformed to sedentary female.

When the change is complete, the isopod moves to the



host's mouth and, facing forward, attaches itself to the roof of the buccal cavity. Snuggled in, it apparently ceases to bite the host that feeds it and takes on its role as taster. Like a cook testing an entrée, the isopod gets first crack at plankton soup. The menhaden's gills heal. Fish and isopod assume a kind of commensal relationship. The isopod, no longer truly parasitic, has found armor for its soft body and issued itself another ticket for free meals. The fish, relieved of further injury, can easily support this uninvited mouthful of a guest. Though only one party gains, neither is hurt.

No, nothing is wrong with the menhaden's digestive tract. Nor does the fish need the isopod to perform any other everyday task. And no, not every juvenile menhaden is so occupied. *O. praegustator* shuns cooler waters; menhaden off the Massachusetts coast don't encounter these hitchhikers. Only in Chesapeake Bay and waters farther south do these isopods appear regularly in numbers ranging from slight to moderate.

A commensal relationship. What a homey word commensalism is. It means "tabled together," sharing the same heaping board; it suggests comfort, courtesy, and enough food to fill every belly. I think of noonday farm dinners—three meats with gravy, five kinds of vegetable, homemade biscuits, and sweet-potato pie. Those dining together may be strangers without mutual customs, language, or interests, but they gather at the common board in a common

cause, the need to fuel themselves so they can go about the main business. To make the picture truly commensal, place a few other species at the table—a chicken, a horse, a beetle, all minding their manners in a domestic version of the Peaceable Kingdom. The main business of this motley crew may appear in different guises—harvesting the corn, cleaning the barn—but underneath, it's always the same: ensuring the future of each species at the table.

Menhaden and isopod tabled together look to me like a model of uneasy but workable companionship. As for my kind, here we are, stuck in the world's craw. And if we do not still cradle the notion that we are divinely appointed landlords exercising dominion over the planet, we may well think of ourselves as caretakers for all that shelters, feeds, and clothes us and lets us get on with perpetuating ourselves in ever greater numbers.

Does the planet need us? The menhaden doesn't need its isopod and would do just as well without it. The nursemaid that is not a nursemaid depends on the menhaden for its very life, and it knows enough to back off before it kills its host. But it operates on instinct; we must use our wits.

JANET LEMKE, the poet in a poet-scholar team, has translated four Greek tragedies for a series published by Oxford University Press. She spends winters in Staunton, Virginia, and the rest of the year on the lower Meuse River in North Carolina.

AMONG MY SOUVENIRS



BY BRUCE BERGER

Have you hiked across the island yet?" inquired the friendly middle-aged woman next to me at the campfire.

"This afternoon. I heard there was a dead whale to the north, so when I hit the Pacific I headed south."

"Not me," the woman replied. "Dead whales are my thing."

I pressed for details. She had gotten ten fellow campers to help haul the carcass above the tide line. She was excited: It was her first personal sei whale. She measured the skull, a whale's largest part, and worked out a plan. She could come back next month, get a boat to take it across Magdalena Bay, then hire a truck to haul it back up the Baja peninsula to the border.

"You collect dead whales?" I murmured.

"If only my house were big enough! I do have a permit to take them across national borders, but the bulk of the whale goes to the county museum. The museum either keeps it or divvies it up among various specialists for study. I manage to keep some teeth, vertebrae, and baleen, and I did have a wonderful vial of ambergris. I put a bit on my hands every morning, until the day my daughter-in-law told me she just threw out that little jar of stuff on my sink—whatever it was had gone real bad."

"Doesn't the whole whale smell real bad?"

"Not to me," the woman laughed. "My nose turns off after the first five minutes."

"Don't let her kid you," her husband interjected. "She doesn't even like a whale until the sun has turned it to Camembert."

Souvenirs are among the hazards of travel, even wilderness travel. As a child with frustrated wanderlust, when objects of nature and culture all ran together, I filled Chinese boxes with foreign stamps and coins, the odder the better. Sliding those panels reeking of cedar until they gave way to oval coins with square holes made my heart beat faster; postcards of undersea grottos, glaciers, or palmettos were portents of entire continents to be explored. But when I was old enough to collect those objects in person, I found them pale tokens of the lands they were supposed to represent. Postcards and trick boxes, it turned out, were sold to

tourists like myself for our drab dollars, while coins and stamps were the local dimes and common postage. What reduced to commerce lost its appeal. Travel increasingly became a way to gather intangibles—sensations, experiences, knowledge of new creatures—and the only objects worth retrieving were the spoils of nature. Stones, feathers, sea horses, gourds, crystals, whales . . .

But even those purists who find, rather than buy, their mementos must face the question: What is so exquisite about proprietorship that we will haul home, on beachwalks or in backpacks, what might be photographed, celebrated in a journal, shared with friends on the spot, and left for the next arrival? Why must nature's accretions be wrenched from their sockets? Why do we risk spinal dislocation for what looks on the windowsill like detritus?

First it must be noted that no one who harvests lavender rocks, hawk feathers, or fox skulls is concerned with the representative, or with merely proving he has been somewhere. Collectors' eyes have a narrowed, predatory focus, and from miles of flung sand they pry out the chambered nautilus. The French poet and philosopher Paul Valéry imagines a man without previous knowledge of seashells discovering a calcareous tube coiling inward in regularly diminishing partitions. Would he really guess it was secreted by blind instinct, or would he assume a conscious artisan? Whatever he concludes, if he is a collector, he will pick it up.

And here we reach an irony, which is that the natural objects we favor have a human, even superhuman, degree of articulation, hue, and expressiveness. From all our globe engenders, we select the most complex, the most structured, the most highly colored: the most similar to creations of our dominant kind. It is as if matter had been deliberately organized to evoke a journey in one's life, an episode that is itself a crystal amid the slag of routine. Collecting is most unnatural selection.

The fusion of the civilized and the wild infects all of nature's pickpockets, even the scientist on duty. Objects taken for their design touch whatever sensibility responds to painting and sculpture, while those that play on household objects become paperweights, soap dishes, doorstops, and hat racks. Sticks and odd rocks that mimic other objects of nature, manufactured goods, or one's fellow human beings

often turn into private jokes, a kind of found caricature. A friend of mine takes baths with a pet rock shaped like a water bug, while another makes mobiles from pieces of driftwood that resemble bits of human anatomy. Objects are conscripted for works of art to be assembled at home by the collector, or to fill gaps in a series and satisfy the collector's urge for completeness.

A case worth examining, since it brings into play the natural, the manufactured, and the raid on our heritage, is the rage for arrowheads. Otherwise amusing desert rats will wander heads-down in circles for long dusty hours while companions make cracks about the agate and the ecstasy. Why? In the well-turned arrow, they explain, craftsman and stone reach idyllic fusion. One imagines the mental state of the shaper: Was he considering beauty as well as utility? Calmly looking forward to the hunt? Staring starvation in the face? The artifact is a bridge between our own physical comfort and a time not far behind us when existence was won from day to day. Opulent geology beaten into weapons, then turned by time into jewels, has been further transformed by collectors into fetishes.

A man from Genoa once told me he collected hyena dung that had been struck by lightning. While never invited to contemplate *that* collection, I have often wondered since whether chemistry and chance have come up with such a substance, and have brooded at length over a piece of coprolite I paid a quarter for at a park-and-swap in a small town in Arizona. Coprolite, I have learned, is mineralized feces, and this example was executed by a turtle that once lived in an inland sea where the park-and-swap now stood. How big was the turtle? What did it eat? Is this relic of one meal the single piece of him that remains undispersed? How long before the invention of money, for which I exchanged his keepsake, did he produce it? By what evolutionary process do we, a later species, offer it for barter? Is money our own excreta? Exactly what kind of universe is this?

Acquisition as a branch of philosophy? I glance at my own shelf, with its river rocks from Glen Canyon. From the miniature tugboat to the acne specimen they flash with color, sometimes parody objects they are not, and principally memorialize for me a spot now silting up under the wastes of Lake Powell. Like Ming vases to an orientalist,



they recall a high and vanished civilization. For others it is the Anasazi culture evoked by a chalcedony bird point, or the high civilization of whales, loved enough that an entire creature is hauled home as a token of itself. Geodes, seed pods, pelican beaks, cholla skeletons, limestone accretions, shed snakeskins, even fossil dung, arrayed on our sills, allow the imagination to keep traveling while the rest of us stays still.

Collectors are more than usually sensitive to the world's sheer abundance, but to enjoy it they must narrow it down. The crosscurrents of our biosphere are too complex to take in, and we are as naive as the beachwalker who happens upon a shell with its precisely enfolded scroll and finds it emblematic of a universe working itself out in an unknown direction, with staggering precision. For many of us the

traditional answers are too simple, or even insulting, and the scientific ones are incomprehensible.

The world we live in, meanwhile, is increasingly artificial and oppressive. In such a Babel we pick up the shell, perhaps, because for those of us obsessed with our surroundings it comes closer than the saint or the formula to an image we can care for. Set up in homes as icons once were, our natural souvenirs testify to a continuing belief in order, significance, and beauty: what was once called awe. Whatever we finally conclude about the world, we still admire it enough to try, vainly and in bits, to keep it.

BRUCE BERGER, a poet, pianist, and nonfiction writer living in Aspen, Colorado, has published three books on the American Southwest.

ERASED EDGES



BY BARBARA H. WILSON

*The highest good is like water
Water gives life to the ten thousand things and does not strive
It flows in places men reject and so is like the Tao.* —Lao-tzu

Lao-tzu must have been a swamp-sitter too. He must have sloshed around places most people avoid, felt the cold black muck seeping into the edge of his robes, heard the solitary cry of a red-tailed hawk arcing its way across geologic eras like some prehistoric bird, blurring the edges of every definition of time and place we know.

The muck I slosh in is technically bog water, though locally these bogs are known as swamps. They have undeserved reputations as places to avoid—so hard is it to shake those images of Mesozoic dinosaurs, neolithic humans, flickering UFO lights.

I go there to look at the ten thousand things, the anomalies, the misfits of arctic flora and fauna. I know how bogs are formed. I know that at the end of the Ice Age when huge glaciers and their northern climates receded, curious little pockets of boreal forest remained, caught in the shallow depressions between high altitudes. Finzel Swamp, for example, oozes in a shallow depression between Big and Little Savage mountains, chilled by heavy cool air that seeps in from the surrounding higher areas. Drainage is poor in this high bowl, so water collects and pools, maintaining a cool, wet relict colony, a miniature ecosystem that missed the trek back north and thrives today, some 10,000 years later, in western Maryland. I know all that. But what strikes me

most, when I'm standing in the midst of trembling sphagnum beds, is that these are the forgotten holes, places where the crust just got too thin to mask the sense that underneath this slow wet lung something old is breathing.

Like so many westerners, I have an unfortunate penchant for wanting things defined, the boundaries established. My first trips to the swamps were attempts to mark the actual line between land and water, to say okay, here it is. On this side of my foot is land and on that side is water. I'd go with ten-foot poles to poke through the sphagnum, bang on the surface with my boots, watch the wobble of nearby alders. No sooner would I declare my aha's than water would seep around my boots. It was always cold and still. Water here seems to have no source, no destination. You don't watch it thundering over rocks or carving sea caves or canyons. You watch it being there. I would retrace my steps, looking for where I had stepped off the land and into the water. And inevitably I would fail to find the place.

You don't move quickly in a swamp: It's more than wanting to keep your feet dry; it's as if this whole place were of a different era, with different time zones. High acid and low oxygen slow the decaying process, so you get a frame-by-frame look at what's been happening here for the last 10,000 years. If you lift a chunk of bog, what you notice first is the mess—the tangled webs of fungal threads, the roots of huckleberry and swamp rose, the chunks of decaying alder leaves, the dark, rich peat, the water you can almost wring out of the mass. On one particular afternoon I take my shoes off and press my feet onto the top of one of the many hummocks that bump up out of the ooze. It reminds me of a cyst just under the surface of the skin. The flesh moves across the top, slips a bit one way or the other, but underneath is something that doesn't belong. Where in the usual order of this universe do we expect these tight mounds of matted grasses falling into each other, clinging, hardening, climbing to avoid drowning in the very muck that sustains them? I slide one foot down the side, push, watch the grass

darken, the water rise slowly between my toes, up over my ankle. Such nakedness. Such distance between the time some foot with elongated toes might have moved quite easily among ancient ferns.

Swamps are places of mystery, of erased edges, smudged lines of definition. Get a good look in. And back. This is where you go to lose sight of yourself as the two-legged maker of corn cheddar soup. This is where you go looking, with averted eyes, for something familiar in the slime, for a glimpse of your half-formed face rooting its snout through the muck of Devonian wetlands.

Brooding on the hummock, my foot still in the water, I think about all this climbing in and out, about catfish cavorting around on the land, about whales, their tetrapods disappearing into their now-aquatic bodies, and about plants that eat insects. Botanists speculate that it's in such boglands that carnivorous plants emerged. They're still at it—the pitcher plant and the sundew oozing enzymes that dissolve the likes of grasshoppers and caterpillars.

Later, walking homeward up the slope of Savage Mountain, I hoist myself over the tilted layers of impervious silt beds and layers of ancient limestone. Every size-nine thud of my boots sinks through decaying maple leaves, past 5,000 horned mites at work on last century's trees, down through rock from prehistoric seas, through a mile-long core of natural history. Several hundred yards above the swamp I turn a rock over, looking for worms. Like toothless tubes of wet wrinkled cardboard, they mouth the dirt. Gardeners love them for the way they aerate the soil. I love them because they spend their whole lives hauling the earth in and out of their bodies.

One March I try to pin the swamp down, catch it following the seasons like everything else. It has been winter for months, and when the morning radio reports the seventh straight day of subzero temperatures, I quit my bed to go sit on the hummock in the middle of Finzel Swamp to look for unqualified winter: white upon white upon white, broken only by knee-high hills of whitened hummocks. This is tundra, I think; this is how it looks a thousand miles to the north where this little valley really belongs. This is total winter. I catch it. I skate in my boots across stretches I've been too cautious to wade in. And underneath a river birch,

a small circle of open water sports a clump of still-green watercress, heart-shaped leaves, the size of buttercup blossoms, a Georgia O'Keeffe floating in this white, frozen world. I am crazed. I am a lunatic in cahoots with these holy shenanigans, and suddenly I know what the Zen master means when he asks, "What is the sound of one hand clapping?" "Bright green salad in a frozen white swamp!" I howl, the water already seeping into my boots.

But the best times in the swamps are the times I've gone for nothing. Wandered in, watched the colors layer up—deep darkness of the water, sandy sedges at my waist, reddish brown brush of the river birch, gray skeletons of trees, their thick branches like inverted icicles, a lone pointed tamarack here and there—felt the water squishing under-

foot and the silence, the ancient silence that comes from thousands of years of stillness. You give up wanting to hear something in a swamp. What you hear is all there is—an occasional solitary bird cry, perhaps the plopping and croaking of frogs, the cotton grass sweeping against itself. And you settle for this. No peaks bagged, no bird list upped, no record number of pounds backpacked—just the sense of how life moves, pulling the past into our faces like the flat side of a broad-leaved cattail, reminding us as we gallop into our futures, sinking quietly underfoot, how insane we get trying to inscribe our lives too soon.

I am afraid I will lose it, this sense of the past, of pond scum on my face, the way the world floats. I scribble feverishly in my notebook, like Mozart on his deathbed howling to Salieri. "Do you have it? Do you have it?" I am afraid that I do not have it and will spend my lifetime being surprised by these lurchings into the swamps, needing to see again and again those blurred lines between past and present, land and water, me and everything else. Lao-tzu was right: The highest good flows in places men reject because they remind us too much of our deepest selves. Standing in the midst of trembling sphagnum beds, I listen to leaves loosening quietly on the trees, algae slipping slowly off my legs, land and water silently trading places. ■

BARBARA H. WILSON is a poet and nonfiction writer in Frostburg, Maryland. She teaches English at Frostburg State University and is the director of the Western Maryland Writers' Workshop.



Whirlwind on Wheels Wants Access for All

Martha E. Ture

MANY OF US take our ability to hike for granted. We may worry about the shrinking great outdoors, but we still get out there and enjoy it whenever we can.

People with disabilities, however, don't always share that privilege. For much of the population—from those who depend on wheelchairs or canes to those who are slowed down by age or children—the natural world can be as remote and difficult to reach as the top of Mt. Everest or the bottom of the sea.

Phyllis Cangemi devotes her life to opening outdoor recreation areas to people of various abilities. Through her efforts, parks around the San Francisco Bay Area are becoming increasingly accessible. A nature trail through the redwoods, a fishing pier and promenade at San Francisco Bay and a ramp for swimmers using wheelchairs to get into the water, a path at a shoreline park: All are accessible now as a result of Cangemi's work.

Soon it will also be easier for disabled nature-lovers to tour the John Muir National Historic Site in Martinez and to travel over miles of trails at Point Reyes National Seashore. And recently Cangemi broadened her reach by serving as a contributing editor to *Access America: An Atlas and Guide to the National Parks for Visitors With Disabilities*.

"Everything she does is geared toward making the outdoors accessible to as many people as possible," says longtime friend Debbie Wright. "Nature is something she has a lot of reverence for, and she's doing work to help people have contact with nature."

"It's exhausting trying to keep up with her," says Peter Brand of the Cal-

ifornia State Coastal Conservancy, who has worked with Cangemi for several years. "She's enormously energetic."

Indeed, though a small and physically frail woman, Cangemi radiates energy: An afternoon in her company can feel like time with a whirlwind. But Cangemi's seemingly tireless dedication to her mission is compounded by the urgency of her own illness. Because she

has Hodgkin's disease, a degenerative cancer of the lymphatic system, she does most of her consulting from a three-wheeled scooter and much of her paperwork in bed.

Sometimes her exhaustion shows and her body slumps like a wind-up doll run down. She rests—and then takes on larger projects. "I just keep going as long as I can," says Cangemi, who em-

"I'd like to see disabled people able to do more things independently. . . . I'd like to ride a horse up into the Yosemite backcountry, but I'm too busy." —Phyllis Cangemi



Phyllis Cangemi emerges from a swim in San Francisco Bay. The ramp, completed in 1986, was one of her early access projects.

phasizes the different abilities each of us has rather than the disabilities. "We're all only temporarily able-bodied. At some point in our lives, everybody in this society is likely to be mobility impaired, whether from injury, illness, pregnancy, or just plain aging."

Cangemi never set out to be a trailblazer for people with disabilities. To hear her tell it, she just happened into the role. It might be fair to say that her work evolved from her character: She's been dealt a difficult hand in life, but she's playing her cards for all they're worth.

Cangemi's odyssey began in Levittown, New York, where she grew up near the outer edge of a vast inland sea of Long Island suburbia. She was no more than three years old when she began to explore. "On the other side of the road was another world," she says. "There were a few acres of land left to farming, an old farmhouse—and an old man." The old man set up a swing in a tree, Cangemi says, and she used to visit and talk with him.

It was from such wild seeds that dreams grew. Cangemi, whose mother was sick during much of that time, deliberately sought pleasures on the outskirts of Levittown, in the woods and fields around the farm. She learned to love the outdoors and its creatures and befriended a boy who liked insects. When her father took the family camping in the Adirondacks, she reveled in the mountains, forests, and lakes.

In college, Cangemi had what might be considered an ideal life. She was a pre-med student at Columbia University, happily married to a man who shared her enthusiasm for nature; the two would camp in the Catskill Mountains, hiking the Appalachian Trail and swimming in lakes. The future looked fine and welcoming.

But then things began to change. Her husband, Tom, was diagnosed as having Hodgkin's disease in 1976 and nearly died of the illness two years later. Within a year of that near-fatal crisis, Cangemi, too, was diagnosed with Hodgkin's—a "statistical coincidence," doctors have told her. The couple spent increasing amounts of time in hospitals, undergoing treatment that included intensive chemotherapy and radiation.

Cangemi was exhausted; try as she



"There is nothing sinister in so arranging one's affairs as to keep taxes as low as possible . . ."

—Judge Learned Hand

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might, she couldn't keep up the pace at the university and had to drop out. The couple moved west, and Tom went to Los Angeles to be near his parents, while Cangemi received treatment at Stanford Medical Center in Palo Alto, the nation's premier Hodgkin's treatment center. Less than a year later the doctors at Stanford released her, saying they had done all they could. The disease was not in remission, though its pace had slowed somewhat.

One day in 1982, a friend took Cangemi to the hospital; she was delirious from a fever. Believing he was acting in conformance with her wishes, the friend refused to tell Tom where she was when he called from Los Angeles. Nobody knows exactly what happened, but apparently Tom drove to the Bay Area, failed to find his wife, and, in despair, turned back south. His car was found parked at the edge of the Pacific Ocean near San Luis Obispo, his body washed up not far away. Cangemi awoke from her fever to find herself a widow at 35.

"So there I was, lying in bed in my house waiting to die," says Cangemi.

But such passivity hardly suited Cangemi, who had always "reached out in life and wanted to do a lot of things," according to Wright. If she could no longer direct her energy toward her medical studies, she would direct it somewhere else.

From her bedroom window in Menlo Park, south of San Francisco, Cangemi could see one bit of open space: The Hill. At the time, Wright was involved in a local land-use battle to save The Hill from development. She was circulating petitions in an effort to collect as many signatures as possible—but time was running out, and she would come home tired and depressed because of the campaign.

Cangemi, who hated to see her friend so blue, wanted to help. "I was too sick to carry petitions," she recalls, "but I could make phone calls." So she phoned people to try to elicit public support and encourage the surrounding communities to work together. The campaign failed—condominiums went up on the property—but meanwhile Cangemi had entered the public arena and become involved in helping other people.



Cangemi shows ranger Steve Burke ways to improve access at the Muir homesite.

She had also met Linda Wagner, then a graduate student in environmental biology at San Jose State University. Wagner had written a trail guide for people with visual or mobility impairments as her master's thesis, and Bill Lawrence, head ranger at San Mateo County Memorial Park, had agreed to adapt a trail to meet the needs of that group. Lawrence had organized volunteers and brought in the California Conservation Corps to build blacktop surfaces, put up ropes, and post signs and trail markers in braille.

When Wright and Cangemi attended the trail dedication, Wright volunteered to help with maintenance. Lawrence asked her instead to find trail interpreters and act as a liaison between the users and the interpretive personnel. Although Wright agreed, when it came to calling total strangers and telling them what to do, she froze.

Not Cangemi. "I saw her dithering over the phone lists, night after night, not being able to bring herself to make those calls," Cangemi says. "So I did it. I've never been shy about calling people and asking for something." As a result she became docent coordinator, helping to train interpreters who could work with people of different abilities.

"I never intended to become the central figure in this," Cangemi says. "It just happened."

"Phyllis is being too self-effacing," Lawrence says. "This project could never have happened without her energy and commitment. Lots of people talk about good ideas, but Phyllis gets people to do things."

The next thing that "just happened"

grew out of Cangemi's sense of responsibility to the disabled trail users. If she were going to act as liaison between park staff and park users, she had to know what kinds of problems people had and what they needed. So she began to make more phone calls.

"I found that there was a lot of frustration among disabled people," Cangemi says. "They didn't know which parks were accessible. So I started calling other parks to find out." She found that not even park staff were certain which parks were accessible or to what degree.

To bring park and recreation personnel and disabled users together, Lawrence suggested a workshop to discuss what was needed. Cangemi organized the program, contacted participants, and set the format.

"That 1983 workshop led to a series of training programs," she recalls. "We found so much that needed to be done. Park personnel really were not aware of a lot of 'little' things, like gravel surfaces, which are impossible for wheelchairs. Then there were the questions of restrooms, drinking fountains, curb cuts, slopes, trail width for chairs, access from parking lots. . . . There was a lot of confusion."

There were also federal laws that required all facilities and programs supported by federal funds be made accessible to disabled users, and state laws requiring that all facilities serving the public be accessible. But the vagaries of regulation did not always match the actual needs of people; while the laws were specific regarding public buildings, for instance, they gave little detail about parks. Park managers, who were just becoming aware of the laws, went eagerly to the training sessions to hear what Cangemi had to say. Cangemi found herself, of necessity, becoming an expert in a field where there was little expertise.

Since the original workshops, Cangemi has organized a nonprofit group, Whole Access, that works with park personnel to increase accessibility. The group helps evaluate accessibility within the parks and consults with staff to design facilities and nature programs that will accommodate people with different physical, cognitive, and emotional abilities. As a design consultant, Cangemi

visits parks and explores miles of trails on her electric scooter. She is the unpaid executive director of the organization, which is run almost entirely by volunteers and supported largely by grants. Even after park staff decide on a program to implement, they can find support in the next step—soliciting funds—from Whole Access [517 Lincoln Ave., Redwood City, CA 94061; phone (415) 363-2647/2648].

While Cangemi's clients may intend primarily to comply with the law, she wants to open as much of the outdoors to as many people as possible. Since 1983 her workshops and training sessions have reached park personnel from all over the West, including some from the National Park Service, Bay Area park districts, and the city of San Francisco.

Cangemi is also a member of the State Department of Parks and Recreation's Accessibility Task Force. She has worked with the California State Coastal Conservancy, which funded five accessibility projects supported by Whole Access in parks around San Francisco Bay, and she just finished working with the National Park Service on a master plan for increased access to trails, buildings, and interpretive programs at Point Reyes National Seashore. Now she is excited about *Access America*, which she sees as a first step toward promoting accessibility nationwide. Published in June by the Northern Cartographic Company in Burlington, Vermont, the guide covers 37 national parks.

Recently, Cangemi helped the staff at the John Muir National Historic Site put together an access plan. She first became interested in the Muir house and its gardens soon after coming to California. Site Superintendent Phyllis Shaw showed her around the house and took her through the orchards, where park staff give away fruit when it's ripe, explaining that John Muir would have done so.

"The whole time you're there, you feel like you're with John Muir," Cangemi says. "Every time I've been there it's been the same way. You feel like you want to run off to the Sierra."

Cangemi herself is "a modern-day John Muir," says Steve Burke, a ranger at the Muir house. "They share the be-

lief that contact with nature is a necessity for everyone. Phyllis came here and pointed out all the troubles that people with mobility problems have in experiencing this monument to the man who means nature."

Staff at the site hope to increase accessibility at the house and the visitors' center by smoothing the grade in a trail from the parking lot to the house and by making thresholds easier for wheelchairs to cross, among other things. The work cannot be completed, however, until funding is found, a difficulty that

troubles Cangemi. Whole Access is currently working to help find the necessary money.

What's next for this indomitable spirit? "I'll just keep working," Cangemi says. "I'd like to see disabled people able to do more things independently, not just in organized groups. I'd like to ride a horse up into the Yosemite backcountry sometime. But I don't have time to recreate, really. I'm too busy." ■

MARTHA E. TURE, an outdoor and environmental writer, lives in Berkeley, California.

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High Water, Hot Dispute

LETCWORTH STATE PARK, N.Y.

RISING 200 FEET above the Genesee River, the Mt. Morris Dam is capable of turning a New York gorge known as "the Grand Canyon of the East" into a muddy lake.

But the dam seldom holds much water. Its sole purpose is to restrain yearly floodwaters—or so conservationists thought until recently. Angered to learn that the federal government considers the dam site a good place to generate hydropower, a local group called the Letchworth Preservation Alliance has mobilized to protect the gorge from further incursions.



"The gorge is an enormously scenic area," says George Stephens of the Sierra Club's Atlantic Chapter, which belongs to the alliance. "It ought to be left as it is."

Many hikers, rafters, and others who enjoy the Genesee had thought it was protected for the 17 miles that it tumbles through forested Letchworth State Park. Part of the river gorge, which winds beneath 300- to 600-foot-high sandstone walls, was donated to New York in 1907 by a conservation-minded businessman who opposed hydropower development there. The state has since expanded the park to 14,000 acres.

People accepted the Mt. Morris Dam



MARK DOBEL, MALETZVILLE

An Army Corps proposal could swamp Letchworth Gorge, one of the East's deepest canyons.



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when it was built in 1952 because metropolitan Rochester, 40 miles to the north, needed flood protection. The dam restrains a fluctuating pool of floodwaters, mainly between November and April, when few people visit. According to park officials, the short-term inundation isn't enough to destroy vegetation or cause much bank erosion.

Public tolerance reached its limit last fall, however, when the U.S. Army Corps of Engineers announced that hydroelectric generation might be feasible at Mt. Morris. The Corps revealed that a private company already holds a Federal Energy Regulatory Commission (FERC) permit to study the dam's hydro potential. Corps officials also expressed interest in keeping a reservoir behind the dam during part of the summer, flooding the gorge for up to 11 miles.

Corps engineers insist that the summertime reservoir would be used strictly for better flood control and would have nothing to do with hydropower. Moreover, they maintain that the Genesee's natural flow alone is strong enough to generate electricity at Mt. Morris, though they concede that a reservoir would increase output.

Conservationists are suspicious of the

Corps, especially since learning that the flood-control dam was equipped with hydropower penstocks when it was constructed. If hydropower is produced at the dam, they reason, sooner or later the gorge is likely to be permanently flooded.

The Letchworth Preservation Alliance has vowed to continue its fight even if the Corps drops its summer-reservoir proposal. Alliance members plan to present the New York congressional delegation with 3,500 signatures on a petition supporting national Wild and Scenic River status for the Letchworth section of the Genesee. The group also wants FERC to remove the dam from consideration for power production.

New York legislators recently gave state protection to the park stretch of the Genesee in a bill that was awaiting Gov. Mario Cuomo's signature at *Sierra's* press time. State protection doesn't close the river to further development, but it does demonstrate political support for leaving the river alone. "Letchworth Gorge is one of the great wonders of New York," says state Assemblyman William Hoyt (D). "It's the last place we want engineers and hydro-developers mucking around." — *Andrew Danzo*

Peruvian Park Faces Radical Surgery

PARACAS NATIONAL RESERVE

For as long as anyone can remember, Independence Bay on the Peruvian coast has supported a small fishing village. No one there had to move when

the bay became part of Paracas National Reserve in 1975.

In 1983, when the unusually warm offshore ocean current called El Niño displaced the colder Humboldt current, scallops suddenly surged into the rela-



The sea pounds the edge of the desert in Peru's wildlife-rich Paracas National Reserve.

tively cooler bay waters, affording a bountiful harvest and enticing many new people to fish there.

Almost overnight a shantytown appeared on the rock-littered, red-gray sand dunes of the reserve. Still, human residents were an established part of the area, and no one suggested that the newcomers should not share the 830,000-acre marine and desert-coast reserve with the newly protected fur seals, sea lions, sea otters, cormorants, pelicans, flamingos, Humboldt penguins, Andean condors, and other inhabitants.

Then the mayor of the nearby town of Ica had an idea: build a new road through the reserve to bring the catch in from the coast. Not incidentally, a road would mean that developers could open a tourist resort in the southern part of the reserve, while miners, allowed to work in the reserve for decades, would have wider access.

The mayor, the miners, and the developers found unlikely support for their ambitions from Felipe Benavides, a prominent conservationist from one of Peru's oldest aristocratic families. While deploring the increased commerce in Paracas, Benavides says the disruption of Independence Bay is an accomplished fact. He calls the area an infected appendage, a leg "suffering from gangrene" that needs to be "amputated."

Rather than try to restrict development in the area, Benavides convinced the Peruvian Senate to approve a bill that would strip protected status from the southern two thirds of the reserve. "You can't have a reserve with trucks crossing through it," he says. The bill was passed in the Senate last December and now awaits action by a committee of the Chamber of Deputies (the Peruvian house of representatives); if approved there, it is likely to proceed to a conference committee for debate among members of the two congressional houses.

Many Peruvian conservationists feel betrayed by Benavides. Cutting the reserve's size, they say, would endanger its wildlife and set a dangerous precedent for other Peruvian reserves. Peruvian organizations such as the Association of Ecology and Conservation (ECCO) and the Foundation for the Conservation of

Nature (FCN) have united behind a competing bill. They want the Peruvian Congress to restrict new housing and industry on the bay's shore and allow the villagers to use Independence Bay as a scallop nursery to supply processing centers set up outside the reserve. Ica could still have a road to the coast, but it would have to be rerouted: No roads, resorts, or new mining operations would be allowed within Paracas Reserve's boundaries.

Ironically, the issue may be moot as far as the fishing folk at Independence

Bay are concerned. While the politicians and conservationists argued among themselves, natural events took a different tack: El Niño slowly retreated, the Humboldt current re-emerged, the scallop population in the bay diminished, and the migrant fishing people quietly moved on. Meanwhile, Benavides has stepped up his lobby for the "amputation" of Paracas' southern leg, while ECCO and the FCN are working equally hard to see that the reserve remains intact. Local conservationists say the last word may not be uttered for some time.

—Mark Mardon



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1988 Foreign Outings

[89807] **Sea of Cortez Kayaking, Baja California, Mexico—October 24-30, 1988.** Leader, Tony Strano, Berth D-3, Wildo Point Harbor, Sausalito, CA 94966. Price: \$895, Dep: \$100.

[89812] **Sea of Cortez Kayaking, Baja California, Mexico—November 19-25, 1988.** Leader, Bob Hansen, 30 Chester Ave., Fairfax, CA 94930. Price: \$895, Dep: \$100.

[89835] **Sea of Cortez Kayaking, Baja California, Mexico—December 26, 1988-January 1, 1989.** Leader, Sallee Manning, 997 Lakeshire Ct., San Jose, CA 95126. Price: \$895, Dep: \$100. Espirito Santo and Partida islands lie in the Gulf of California north of La Paz. Explore sandy coves and inlets where you will find excellent fishing, hidden canyons, fascinating geology, and spectacular desert vegetation. Spend a day snorkeling at Los Islotes, a sea lion rook-

ery. These trips are designed for inexperienced to expert paddlers and will include instruction and a support boat to carry duffel, food, and fresh water. Plan to come to La Paz at least one day before the trip begins and leave one day after it ends.

[89815] **Mountains to Jungle, Gorkha-Chitwan Photo Trek, Nepal—November 21-December 10, 1988.** Leader, Dolph Amster, P.O. Box 1106, Ridgecrest, CA 93555. Photographer, Martha Murphy. Price: \$1,480, Dep: \$100. Following two days in the Kathmandu Valley, this culturally and photographically oriented trek leaves historic Gorkha for Gurung and Tamang villages that westerners seldom visit. En route for 12 days, we will view the Manaslu, Annapurna Himal, and many other high peaks, and we'll pass the *gumba* at Serandanda. Then we'll proceed to Royal Chitwan National Park, where we'll stay in comparative luxury at a lodge for two nights. At the park we will view many

species of jungle animals and enjoy evening entertainment. This is a moderate trek with a maximum elevation of 11,500 feet. Leader approval required.

[89817] **Thailand, A Journey to Its Temples, Hills, and Beaches—November 22-December 8, 1988.** Leader, David Horsley, 4285 Gilbert St., Oakland, CA 94611. Price: \$1,415, Dep: \$100. Come share an opportunity to visit the beauty of this exotic land. Friendly people, ancient and modern Buddhist temples, palaces, historic ruins, sun-warmed beaches, and clear waters will provide an unforgettable trip for even the most experienced traveler. Starting in Bangkok, we will visit the ornately fanciful King's Palace and numerous *wats* (Buddhist temples). Then we will tour the ancient capital of Ayutthaya before flying north to the city of Chiang-Mai and the hills of the "Golden Triangle." Chiang-Mai will provide opportunities for us to purchase traditional Thai arts and crafts

OUTINGS

before we start our trek into the jungle to visit the tribal hill people. Following the trek we will fly to the southern island of Phuket. There we will enjoy swimming and snorkeling in the warm ocean water and relaxing on the sandy beaches. Before returning to Bangkok we will also visit the scenic islands of Phangnga Bay.

[89820] Christmas Camping and Wildlife Safari, Kenya—December 17–30, 1988. *Leader, John DeCock, 53 Landers St., Apt. 2, San Francisco, CA 94114. Price: \$3,285, Dep: \$100.* Treat yourself to an African holiday safari. This gem of a trip offers a fine overview of Kenya's premier wildlife and birding areas. Among the places we will visit are Meru National Park, where we can expect to see gazelles, monkeys, zebras, and possibly lions and cheetahs; Lake Nakuru with its huge concentration of pink flamingos; and the Masai Mara, famous for its large herds of wild animals. We will also camp and hike on the slopes of Mt. Kenya, whose snow-covered peaks dominate the landscape. A hot-air balloon ride over the Masai Mara is optional. Travel will be by Land Rover. Accommodations will be in lodges and tented camps. Leader approval required.

[89830] South China Sea Hike and Leisure Backpack—December 18, 1988–January 2, 1989. *Leader, Phil Gowing, 2730 Mabury Sq., San Jose, CA 95133. Price: \$1,650, Dep: \$100.* There is another Hong Kong, rarely seen by westerners. We will hike rural and remote Lantau Island, the MacLehose Trail in the New Territories, and the scenic and rugged countryside surrounding the Shenzhen Special Economic Zone in the People's Republic of China. The dramatic and spectacular beaches of the South China Sea will be constantly in sight. Evenings we will camp out and stay in youth hostels, guest houses, and monasteries. We will have ample time to visit remote fishing villages and take an in-depth tour of newly modernized Shenzhen City. We will conclude our visit by celebrating and participating in the Second Annual Mt. Wutong Friendship Summit Meeting with a hiking group from the British Crown Colony of Hong Kong and another from Shenzhen.

[89834] Sunny Holiday in Belize, Central America—December 21–30, 1988. *Leader, c/o John Garcia, 124 Romero Circle, Alamo, CA 94507. Price: \$1,360, Dep: \$100.* The second-longest barrier reef in Central America, an amazing variety of birds and wildlife, and mysterious Mayan ruins—we will explore these and more on our holiday in sunny Belize. Using a rustic ranch as our base, we'll spend several days in Belize's lush interior exploring limestone caves, a jungle river, and local ruins. A highlight will be an overnight visit to the magnificent Mayan ruins of Tikal in neighboring

Guatemala. Then we'll move to the Caribbean coast and a palm-studded island adjacent to the barrier reef. We'll stay at a hotel near the beach, snorkel in crystal-clear water, and feast on fresh seafood.

1989 Foreign Outings

[89840] A West African Adventure, Togo, Benin, and Ghana—January 18–February 2, 1989. *Leader, Ruth Dyche, 2747 Kring Dr., San Jose, CA 95125. Price: \$3,200, Dep: \$100.* Join us for the Sierra Club's first trip to West Africa. We will visit the countries of Togo, Benin, and Ghana, each of which has a long and colorful history. As early as the 13th century powerful kingdoms in the region vied for control of trade caravans from Timbuktu and beyond. We will visit cities as well as villages where tribal peoples await us in this land of symbols and religious rituals, music and dance, and distinct cultures and environments. We will ride in a pirogue on the River Volta, attend a voodoo dance, visit marketplaces and mosques, meet a king, and visit a part of Africa where life has seen little change in centuries. We will also visit Keran National Park for an introduction to the wildlife of the region. We will stay in hotels and tented camps; travel will be by Land Rover and minibus.

[89843] Mexico: Butterflies, Conquistadores, and More—January 29–February 10, 1989. *Leader, Carolyn Downey, 1931 E. Duke Dr., Tempe, AZ 85283. Price: \$1,710, Dep: \$100.* Imagine an adventure with a beautiful blending of monarch butterflies, majestic mountains, colonial history covering three centuries, and ancient Indian pyramids on a grandiose scale. Beginning in Mexico City with a visit to the Pyramids of the Moon and the Sun, our travels will continue across the Sierra Madre to the winter home of the migrating monarch butterfly to view the world-famous "butterfly trees." Next we will step back in time to the days of the conquistadores as we relive the history of Cortez and visit the charming and romantic colonial cities of Guanajuato, San Miguel de Allende, and Guadalajara. This is a trip full of history, anthropology, and natural beauty—combined with the vibrant color and charm of Mexico.

[89845] Cross-Country Skiing in the Austrian Alps, Salzburg, and the Austrian Tyrol—January 29–February 12, 1989. *Leader, Lynne McClellan Loots, 147 Spring Cove Dr., Cary, NC 27511. Price: \$2,700, Dep: \$100.* Cross-country skiing is the best way to see Austria in winter. Our tour of the countryside will include daily trips from a chalet and ski lessons for beginners and intermediates the first week, and ski adventures from town to town the

second week. Comfortable, first-class hotels complement the daily skiing.

[89848] Crossing Baja California by Mountain Bike, Mexico—February 12–17, 1989. *Leader, Harry Neal, 25015 Mt. Charlie Rd., Los Gatos, CA 95030. Price: \$925, Dep: \$100.* Ride a mountain bike on back roads crossing the 50-mile-wide southern tip of Baja California from the Pacific Coast to San José del Cabo. We will have several easy days of riding on beaches, over low rolling desert, and through clusters of cacti, averaging 25 miles a day over dirt roads. Then, after we cross the Sierra Laguna, we will bike near the Sea of Cortez. A truck will carry our gear, and we will camp in the desert each night except the last, when we'll stay in a hotel. Some bicycling experience is required for this moderate trip. Bikes will be available to rent or you may bring your own.

[89849] Mayan Archeology—Eastern Guatemala and Southern Mexico, February 14–23, 1989. *Leader, J. Victor Mouke, M.D., 9033 Wilshire Blvd. #403, Beverly Hills, CA 90211-1837. Price: \$2,390, Dep: \$100.* Come for a jungle and archaeological adventure among Mayan ruins in remote rainforests of Guatemala's Petén and Mexico's Chiapas Province. Along the basins of Rio de la Pasión, Rio Usamacinta, and Rio San Pedro lie ruins of fabulous Mayan city states: Sayaxché, Sebol, Altar de Sacrificios, Yaxchilán, Piedras Negras, and Tikal—some accessible only by river. Surrounded by lush growth in the rainforests, we'll see many species of exotic birds, hear bands of howler monkeys, and listen in the evening to a chorus of frogs along the riverbanks. This trip requires no strenuous physical effort, but participants need to be adaptable and feel at home in the outdoors.

[89851] Belize: Reef and Ruins, Central America—February 18–27, 1989. *Leader, Wilbur Mills, 3020 NW 60th St., Seattle, WA 98107. Price: \$1,360, Dep: \$100.* The second-longest barrier reef in America's tropical jungle, an amazing variety of birds and wildlife, mysterious Mayan ruins—we'll explore these and more in Belize. South of Mexico's Yucatán Peninsula, Belize is politically stable, safe, and seldom visited. English is the official language. Using a rustic ranch as our base, we'll spend several days in Belize's lush interior exploring limestone caves, a jungle river, and local ruins. A highlight will be an overnight visit to the magnificent Mayan ruins of Tikal in neighboring Guatemala. Then we'll move to the Caribbean coast and a palm-studded island adjacent to the barrier reef. We'll stay at a guest house on the beach, snorkel in crystal-clear 80-degree water, and feast on fresh seafood.

[89867] Brazilian Jungle and Wildlife Adventure—March 16–29, 1989. *Leader,*

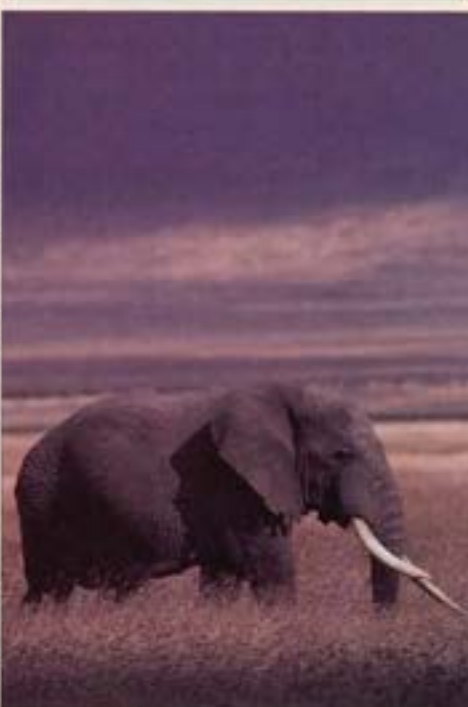
OUTINGS

Dolph Amster, P.O. Box 1106, Ridgecrest, CA 93555. Price: \$2,580, Dep: \$100. We will focus on the vast, spectacular natural attractions of Brazil, but we'll also experience the fabled pleasures of Rio de Janeiro for four days. The abundant flora of the Amazon Basin will surround us for three days as our riverboat navigates the Rio Negro. Next on our itinerary is the Pantanal, one of the world's great wildlife preserves, which boasts more than 600 species of exotic birds and thousands of rare animals. We'll relax in an isolated camp and explore this breathtaking natural habitat on foot, by jeep, and by boat. In the high jungle we'll marvel at the mighty power of Iguazú Falls. We'll stay in comfortable, tented camps, sleep in hammocks on the deck of our riverboat, and enjoy first class hotels in the cities.

[89868] Family Paradise in Belize, Central America—March 18–26, 1989. *Leaders, Karen Short and Stephen Pozsgai, 826 14th St., San Francisco, CA 94114. Price: adult, \$1,280/child, \$855, Dep: \$100.* Swim, snorkel, fish, and relax on virtually uninhabited beaches in the Caribbean. Walking to the nearby Creole fishing village of Placencia, exploring the jungle interior by boat, examining Mayan ruins, visiting the second-longest barrier reef in Central America: All of these opportunities and more await you in the charming country of Belize. Formerly British Honduras, Belize is an exciting new democracy with a peaceful, gentle populace. We will stay in cottages on the beach and eat family-style meals of such seafood delicacies as lobster, conch, and snapper.

[89872] Jungle and Beaches—Sea Kayak in Costa Rica—April 8–15, 1989. *Leader, Carol Dienger, 3145 Bandera Dr., Palo Alto, CA 94304. Price: \$1,325, Dep: \$100.* An island of stability in Central America, the small, peaceful nation of Costa Rica is unsurpassed in its rich diversity of wildlife and plant species. Costa Rica is a world center of tropical research and is a leader among Third World countries in its effort to conserve natural resources. Our itinerary will include spectacular birdwatching in Palo Verde National Park. A two-day float down the jungle-lined Rio Canas allows us close up wildlife observation. For five days we will paddle and snorkel along untouched palm-lined beaches on the Pacific Coast. Some basic kayak experience is required, but we will always be accompanied by a support boat to carry our food, water, and gear. You must schedule your arrival in San José one day before the trip begins and your departure the day after the trip ends. The price includes hotel accommodations for these nights in San José.

[89877] River Rafting, Jungle, and Beach Adventure, Costa Rica—April



African elephant, Kenya.

29–May 6, 1989. *Leader, Mary O'Connor, 2504 Webster St., Palo Alto, CA 94301. Price: \$1,325, Dep: \$100.* We'll pack a variety of activities in diverse environments into this one-week trip, beginning with three days of paddle-rafting with professional river guides on the Rio Pacuare. We'll experience the thrills of whitewater and the serene beauty of deep river canyons, jungle beaches, clear pools, and spectacular waterfalls. A short flight will take us to Manuel Antonio National Park, one of Costa Rica's most beautiful areas, where jungle and beach intersect. A variety of birds and wildlife can be seen on jungle hikes. The beach offers swimming, bodysurfing, and snorkeling. Marine life abounds. We will spend two days in the historic city of San José and have the option of further exploration on side tours.

[89895] Turkey: A Classic Overview—June 12–July 6, 1989. *Leader, Ray Des Camp, 510 Tyndall St., Los Altos, CA 94022. Price: \$3,875, Dep: \$100.* Ancient Turkey has hosted a long procession of peoples: Hittites, Urartians, Assyrians, Phrygians, Greeks, Romans, Armenians, and—lastly—Turks. Here was found one of the earliest known "cities," Çatal Hüyük (6,000 B.C.). And in Hatushas, the Hittite capital, thousands of intact clay tablets with cuneiform writing dating from the 13th century B.C. were found. The country abounds in significant archaeological sites, and we will visit many of them. Starting at Istanbul we'll tour Turkey from the Black Sea in the north to the Mediterranean and from the Aegean to

Cappadocia and the Anatolian Plateau. By air-conditioned bus on a comfortable itinerary we'll visit the most interesting sites, including Hatushas, Troy (made famous by Homer's *Iliad*), and Ephesus (perhaps the best-preserved Roman city). We'll visit fantastic museums in Istanbul and Ankara, see the fairy chimneys and underground cities of Cappadocia, spend days along the Turquoise Coast from Bodrum and Marmaris to Antalya and Alanya, and have time to meet the Turkish people.

[89900] A Natural History Exploration: Ecuador and the Galápagos Islands—June 16–29, 1989. *Leader, David Horley, 4285 Gilbert St., Oakland, CA 94611. Price: \$3,080, Dep: \$100.* Ecuador's astonishing variety of natural habitats makes this exploration a marvel of flora and fauna. After touring the capital city, Quito, we will hike through the Andean rainforest to observe rare species of birds, butterflies, and plants; then we'll move up to the highlands and view the world's highest active volcano, Cotopaxi. Before returning to Quito, we will take in the famous Indian market at Ambato, the weaving village of Salasaca, and the hot springs at Baños. Next we will fly to the world's premier wildlife preserve, the Galápagos Islands. We will board luxurious chartered yachts, then sail in style for a full week from island to island observing the fascinating birds and other animals that inhabit this "showcase of evolution." These creatures can be approached to within a few feet; snorkeling is excellent; and photographic opportunities are fantastic. From the famous giant tortoises to the outrageously colored iguanas, boobies, and tropical fish, we will witness a rare display of wildlife found nowhere else on Earth.

[89905] Hut-Hopping in the Rondane Mountains, Norway—June 27–July 8, 1989. *Leader, Serge Puchert, 11025 Bondshire Dr., Reno, NV 89511. Price: \$1,100, Dep: \$100.* Situated northeast of Oslo, the Rondane Mountains are dotted with lodges and tourist huts. After a bus ride from Oslo, our hike will start from Hjerkin. Carrying only day packs, we will hike over moderate terrain from three to six hours every day at about 5,000 feet in elevation, enjoy marvelous mountain scenery, and interact with and sample the famous hospitality of the Norwegian people. We will stay overnight at staffed tourist huts where meals and bedding will be provided. Our trip will start and end in Oslo with hotel accommodations the first and last nights.

[89910] Indonesia—Land Below the Wind—July 1–21, 1989. *Leader, Ray Simpson, 4275 North River Way, Sacramento, CA 95864. Price: \$2,755, Dep: \$100.* Indonesia is a land rich in history, a varied tapestry of cultures, scenery, dances, music, and food. We have visits to four islands planned:

OUTINGS

Sumatra, central Java, Sulawesi, and Bali. Each location has been selected to highlight a specific cultural heritage or area of particular beauty. In addition to examining conservation issues, we will look at Buddhist, Moslem, Hindu, and European contributions to these islands.

[89915] A Walking Tour of Southwest France—July 3–14, 1989. *Leader, Nancy Anker, 120 Sheridan Rd., Oakland, CA 94618. Price: \$2,110, Dep: \$100.* This is "La Belle France" at its best! Beginning at the seaport of Bordeaux, we will focus on the less-visited Gascogne and Dordogne regions of France. Walks in the regional park of Landes de Gascogne, one of the country's most scenic areas, will take us through preserves of pine forests and lowland coastal areas. Moving east, we will leisurely explore a medieval walled city, a château, truffle country, the prehistoric Lascaux II cave, and gastronomical delights. Accommodations will be in hospitable rural inns.

[89920] Kulu-Kashmir Himalayan Traverse, India—July 4–August 5, 1989. *Leader, Peter Owens, c/o David Horsley, 4285 Gilbert St., Oakland, CA 94611. Price: \$2,285, Dep: \$100.* High in the Indian Himalaya on the Tibetan Plateau lie Zaskar and Ladakh—remote, mysterious, and fascinating. We will cross five major passes in 21 days of moderate trekking, visiting three culturally distinct areas of northern India. Our route will take us from the verdant Hindu Kulu Valley into the arid Buddhist Zaskar Region and the glaciers and wildflowers of Moslem Kashmir. The route is never less than 10,000 feet in elevation and reaches 16,700 feet at Shingo La. Ponies will carry our gear. The trip will end at Srinagar with two days at Dal Lake. Leader approval required.

[89925] Classic Highland Ridges of Scotland—July 5–19, 1989. *Leader, Ian Walton, 430 Hampstead Way, Santa Cruz, CA 95062. Price: \$2,720, Dep: \$100.* Join me on an exploration of the country of my childhood: mountainous, mystical, western Scotland. We'll hike spectacular ridges and peaks from the dark history of Glen Coe to the romantic mists of the Isle of Skye. Traveling by minibus, we'll stay in hearty Highland hotels and relax in the evenings at old village pubs. Weather permitting, expect some long days of hiking and scrambling on the hills—eight hours and 3,000 to 4,000 feet of ascent. We'll also have rest days to visit the golf courses of St. Andrews and historic National Trust for Scotland properties like Culloden Moor. Leader approval required.

[89930] The Austrian Alps and Italian Dolomites—July 15–29, 1989. *Leader, Modesto Piazza, 614 Bayview Ave., Millbrae, CA 94030. Price: \$2,360, Dep: \$100.*



Tibetan Buddhist dancer in Nepal.

We will spend the first week of our two-country trip in the Stubai-Tyrol region of Austria. From Neustift we will hike on trails and take cable cars to mountains over 7,000 feet high (including Eisgrad at 9,470 feet) and to the Stubai Glacier at 10,320 feet. We will stay in a very good hotel in the Stubai Valley. The second week we will transfer to Selva in Italy's Dolomites, the most striking mountains in Europe. Geologically distinct from the rest of the Alps, the Dolomites consist of coral reefs uplifted from the sea millions of years ago. Their fairy-tale spires and rounded domes are unique. Carrying only day packs, we will reach several passes on foot and by cable car, including Sasso Lungo, Ciampinoi, and Gardena. A photographer's dream, this trek offers views of scenic glaciers and majestic peaks. Leader approval required.

[89935] Hunza—Nanga Parbat, Pakistan—July 15–August 15, 1989. *Leader, Jerry Clegg, 9910 Mills College, Oakland, CA 94613. Price: \$3,875, Dep: \$100.* Hunza Valley was the inspiration for the fictional Shangri La in *Lost Horizon*. Those who have walked about its apricot orchards and barley fields say that the valley represents the epitome of mountain grandeur. We will reach it by a spectacular flight through the Indus Gorge, a spectacular road (the Karakoram Highway), and a spectacular trail skirting en route Earth's longest glacier outside polar latitudes. Once made fit by our trek, we will hike to a mountaineers' aerie on the westernmost wall of the Himalaya, the Nanga

Parbat Base Camp, for views of the gigantic volcano Rakaposhi and the ice peaks of the Hindu Kush and the Karakoram.

[89940] Western Australia Outback—Perth to Darwin—July 31–August 19, 1989. *Leader, Don McIver, 7028 West Behrend Dr., Glendale, AZ 85308. Price: \$3,330, Dep: \$100.* Perth, capital city of Western Australia, is the starting point for this four-wheel-drive outback tour of Australia's remote northwest coast. Highlights will include Nambung National Park, the Hamersley Range with its dramatic gorges, the western fringe of the Great Sandy Desert, and Broome, an unusual city with a history of pearling and its own unique Chinatown. Continuing northward, we'll visit the spectacular Kimberly Ranges, the former gold center of Hall's Creek, Katherine Gorge National Park, and Kakadu National Park near Darwin. This trip will emphasize exploration of the more remote sections of Western Australia for special opportunities to observe unusual geography and wildlife. Tents, sleeping bags, outdoor meals, and dayhikes will be our life-style.

1989 Domestic Winter Outings

[89370] Adirondack Hut to Hut Ski Tour, New York—January 28–February 3, 1989. *Leader, Tom Kligerman, RD 1, P.O. Box 242, East Chatham, NY 12060. Price: \$505, Dep: \$70.* Join our adventure in the Siamese Ponds Wilderness Area. Each day we will ski a new leg of our journey. Each night we will come to a different hut. Jeeps and snowmobiles will transport our gear for us. The huts, spaced about eight miles apart, are heated by woodstoves and offer comfortable lodging; some are not accessible by road, making them feel genuinely remote. The first day will be instructional and will include some telemark lessons. A certified cross-country instructor will accompany us on the entire trip.

[89371] High Peaks Ski Tours, New York—February 20–24, 1989. *Leader, Larry White, D #2, Tracy Creek Rd., Vestal, NY 13850. Price: \$420, Dep: \$35.* We will spend five days cross-country skiing through the Adirondack High Peaks region. Our trip will include climbs and descents of two major mountain passes, tours of remote glacial lakes, a lap around the Olympic ski area at Mount Van Hovenberg, and treks down abandoned Adirondack roads. With our luggage transported for us each day, we will ski from hut to hut. The huts are heated; hot meals are provided every day; and we'll be able to take hot showers every night except the first. This trip is designed for the intermediate to expert skier interested in touring the most majestic mountain terrain in the East.

[89372] Yellowstone Winter Wildlife

OUTINGS

and Geology, Wyoming—February 26–March 5, 1989. *Leader, Bert Fingerhut, 225 West 83rd St., New York, NY 10024. Price: \$1,225, Dep: \$70.* Some people consider Yellowstone in winter to be the most beautiful place on Earth. Join us and see for yourself. During the day we will ski with geologist Charles Woodward and biologist Jim Halfpenny to remote spots in the park. This will give everyone an opportunity to improve skiing techniques and to learn about winter animal behavior and tracking, geology of the park, snow and avalanche conditions, and regional ecology and history. While it will be cold during the

days, our nights at three different Yellowstone lodges will be warm as well as entertaining and educational. Being comfortable on cross-country skis is the major prerequisite for this trip. More strenuous ski excursions for those interested will also be available. Costs include all meals, Yellowstone lodging, and transportation from the airport.

[89373] Zealand Valley Cross-Country Ski Tour, White Mountains Forest, New Hampshire—February 27–March

3, 1989. *Leader, Craig Caldwell, 12028 Gaylord Dr., Cincinnati, OH 45240. Price: \$405, Dep: \$35.* Zealand Valley, north of Franconia and Crawford Notches, provides outstanding backcountry skiing. We can visit the ice-covered Thoreau Falls and Pemigewasset River, climb Zeacliffs for distant winter views, and ski across beaver ponds and through groves of birch and hemlock. We'll plan the next day each evening in the Appalachian Mountain Club's snug Zealand Hut. Day trips will be moderate with strenuous options. Skiers should be intermediate level with experience off groomed tracks.

Foreign ♦ Open-Trip List 1988–89

In addition to the foreign trips described in the previous pages, the 1988–89 Foreign Outings listed below have openings available. To order supplemental information on any of these outings, send in the coupon below.

Trip Number	* = Leader approval required	Date	Trip Fee (including Deposit)	Per Person Deposit	Leader
FOREIGN TRIPS (Prices do not include airfare.)					
Africa					
89847	*Mt. Kenya to Malindi, Kenya	Jan. 31–Feb. 16, 1989	3645	100	Kern Hildebrand
89890	Madagascar—Mysterious Island at the End of the Earth	June 10–28, 1989	2945	100	Patrick Colgan
Asia					
89800	*Yangtze Valley—Grand Canal, China by Bicycle	Sept. 25–Oct. 15, 1988	2750	100	Phil Gowing
89810	*Helambu, Majesty and Mountains of Nepal	Oct. 30–Nov. 17, 1988	1295	100	Carolyn Downey
89855	*Annapurna—Chitwan Trek, Nepal	Feb. 20–March 11, 1989	1195	100	Peter Owens
89875	The China Kaleidoscope	April 7–26, 1989	2980	100	Bud Bollock
89880	*Manaslu Circle Trek, Nepal	April 30–May 27, 1989	1525	100	Peter Owens
Europe					
88710	*Hiking Tour of the Austrian Alps	Sept. 21–29, 1988	1155	100	Jeanne Blauner
89885	Southern Spain and the Balearics	May 5–20, 1989	1890	100	Joe Lee Braun
Latin America					
89833	Brazil: Yuletide Odyssey to a Samba Beat	Dec. 20, 1988–Jan. 2, 1989	2580	100	Mary O'Connor
89846	*The Southern Hemisphere: Patagonia and Iguazú Falls, Argentina and Chile	Jan. 30–Feb. 21, 1989	2625	100	Bob Madsen
89850	Magdalena Bay Sea Kayaking, Baja California, Mexico	Feb. 20–26, 1989	895	100	Karen Short
89860	Magdalena Bay Sea Kayaking, Baja California, Mexico	Feb. 27–March 5, 1989	895	100	J. Victor Monke
89870	*Sea of Cortez Kayaking, Baja California, Mexico	April 8–14, 1989	895	100	Bill Bricca
Pacific Basin					
88685	*Australia's Northern Territory Wilderness	Aug. 29–Sept. 18, 1988	2160	100	Pete Nelson
89865	*Backpack New Zealand	March 5–26, 1989	2440	100	Jim W. Watters

For More Details on Outings

Outings are described more fully in trip supplements, which are available from the Outing Department. Trips vary in size, cost, and physical stamina and experience required. New members may have difficulty judging which trip is best suited to their own abilities and interests. Don't sign up for the wrong one! Ask for the trip supplement before you make your reservations to save yourself the cost and inconvenience of changing or cancelling a reservation. The first three supplements are free. Please enclose 50 cents apiece for extras. Write or phone the trip leader if any further questions remain.

Send supplements (order by trip number):

_____ # _____ # _____

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ADDRESS _____

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Enclosed is \$ _____ for extra supplements at 50 cents each.

Enclosed is \$2 for a 1988 Outing Catalog.

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Other credit references _____

INFORMATION FOR JOINT ACCOUNT

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Street Address _____ City _____

State _____ Zip _____ Years there _____

Social Security Number _____ Date of birth _____

Employer _____ Years there _____

Position _____ Business phone _____ Gross annual salary _____

*You need not disclose alimony, child support, separate maintenance income, or its source, unless you want it considered in connection with this application.

Other income * \$ _____ Source of other income _____

Credit references _____

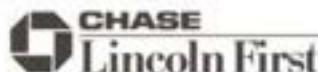
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Sierra Club members re-elected incumbents Denny Shaffer and Susan Merrow to the Board of Directors in April. Michele Perrault, a former Club president, Richard Fiddler, a former vice-president, and Freeman Allen, chair of Sierra Club California, were also elected. Each will serve a three-year term.

The ballot included a membership advisory poll to assist the directors in determining the Club's national conservation priorities. The voters' top five choices in order of preference were clean air, water issues, national forests, wildlife, and coastal protection.

At its May 7 meeting the Board elected Richard Cellarius to a one-year term as Sierra Club president, succeeding Lawrence Downing. Cellarius, of Olympia, Washington, assumes the organization's top voluntary position after serving most recently as Club secretary.

Also elected to executive Board positions were: Robert E. Howard of Stratford, Connecticut, vice-president; Ruth Frear of Salt Lake City, Utah, secretary; Denny Shaffer of Fayetteville, North Carolina, treasurer; and Susan Merrow of Colchester, Connecticut, fifth officer.

Nominations are now being solicited for candidates to serve on the Sierra Club Board of Directors from 1989 to 1991. Qualified candidates must be Sierra Club members and have knowledge of and experience in several aspects of Club activity. They must also have demonstrated exceptional commitment to the Club's objectives and be willing to devote substantial time to the Board's work.

Sierra Club members may send candidate recommendations no later than August 1 to Nominating Committee Chair Elden Hughes, 14045 Honey-suckle Lane, Whittier, CA 90604.

The Sierra Club Annual Dinner, held May 7 at San Francisco's Hotel Nikko, featured Tom McMillan, Canada's minister of the environment, speaking on North America's role in planetary survival.

Sierra Club volunteers, chapters, and

friends received 1988 awards in 12 categories, as follows:

- The John Muir Award (for leadership in national conservation causes) to John Seiberling, retired congressional representative from Ohio, for his unflinching commitment to preserving, protecting, and enjoying our Earth.

- The William E. Colby Award (for leadership, dedication, and service to the organization) to Ronald K. Mayhew, chair of the Sierra Club Council, for ensuring the continuing grassroots strength of the Club.

- The Edgar Wayburn Award (for service to the environmental cause by a person in government) to The Honorable Tom McMillan for his contributions to protecting Canada's land, water, natural resources, and wildlife.

- The Walter A. Starr Award (for continuing support of the Club by a former director) to Marlene J. Fluharty for her service as chair of the Club's committee on political education.

- The Ansel Adams Award for Conservation Photography (for superlative use of still photography to further the conservation cause) to Tom Algire for his use of photography to promote awareness of the environment.

- The William O. Douglas Award (for contributions in the field of environmental law) to James S. Chandler, Jr., for his legal work in South Carolina.

- The Oliver Kehrlein Award (for outstanding service to the Club's outing program) to Suzanne Ortiz for her commitment to developing leadership for Inner City Outings.

- The Francis P. Farquhar Award (for contributions to mountaineering) to Dr. Gordon Benner for his work in mountain medicine and for keeping alive the spirit pioneered by early Sierra Club leaders.

- The Susan E. Miller Awards (for exceptional contributions to chapters by individual Sierra Club members) to John Olson, Los Padres Chapter; Nancy Stone-Collum, South Carolina Chapter; and Bill Terry, Tennessee Chapter.

- The Denny and Ida Wilcher Award (for outstanding work in membership development or fundraising) to the John

Muir Chapter for refining its fundraising programs.

■ **Special Achievement Awards** (for efforts of singular importance to conservation or the Club) to Barbara Fegan for conceiving of and promoting the national Coastweek observance, and Kenny Karem for working to establish the Ohio Wildlife Conservation Area.

■ **Special Service Awards** (for strong and consistent commitment to conservation over an extended period of time) to Sam Clausen for leadership in preserving wilderness in the Black Hills of South Dakota; Albert Ettinger for leadership in the Great Lakes Chapter; Jim Fish for efforts to protect New Mexico's wilderness; Walter Schrader for 60 years of work in South Carolina; and Frances Van Kirk for work in the Club's Redwood Chapter.

LeConte Memorial Lodge in Yosemite National Park is hosting free evening lectures this summer focusing on natural history, outdoor adventure, and conservation. A 20-minute slide show and talk about the Sierra Club precedes each program. Schedules and topics are posted at the lodge, the visitor center, and campgrounds and overnight facilities.

LeConte Memorial Lodge, built by Sierra Club volunteers in 1903 to honor geologist Joseph LeConte, is a single-room, stone-and-wood cottage that houses a library on the natural and human history of Yosemite and the Sierra Nevada. Sierra Club volunteers maintain the facility, which is open during the summer Wednesday through Sunday, 10 a.m. to 4 p.m.

A hike to celebrate John Muir's 150th birthday will begin September 10 at the John Muir National Historic Site in Martinez, California, and proceed for 27 days along the rugged, 180-mile Golden State Trail, concluding in Squaw Valley some seven miles north of Lake Tahoe. Hikers are welcome to join the trek at any point along the trail. Sponsored by the American Hiking Society, the Sierra Club, and the John Muir Historical Association, this "Hike-a-State Odyssey" is scheduled to coincide with the tenth annual American Hiking Society conference at Squaw Valley

Lodge, October 7-9. For further information contact the American Hiking Society, 1015 31st St., N.W., Washington, DC 20007; phone (202) 385-3252. Include a stamped, self-addressed envelope.

To help complete the transcontinental North Country Trail, the Huron Valley Group of the Sierra Club's Mackinac Chapter is organizing a trail-building outing. The work, combined with recreation activities, will take place near the Sturgeon River Gorge Wilderness in Michigan's Upper Peninsula from August 21 to September 3.

The North Country Trail, scheduled for completion in 1990, will join the Lewis and Clark Water Trail in North Dakota to form a 3,200-mile transcontinental pathway. For further information contact Vince Smith, Huron Valley Group, Box 76, Whitmore Lake, MI 48189; phone (313) 231-1257.

If you've trekked the Pacific Crest Trail from one end to the other, the Pacific Crest Trail National Advisory Council wants to record your accomplishment. To commemorate the 20th anniversary of the National Trails Act of 1968, which designated the PCT a National Scenic Trail, the council will present certificates to individuals who have hiked the entire length.

Ceremonies for this occasion are tentatively planned for the week of July 25-31. Hikers and horseback riders who have completed the trail, whether section by section or in one long haul, should provide their names, addresses, and telephone numbers, and the approximate start and finish dates of their treks to Larry Cash, Pacific Crest Trail Conference, 365 West 29th Ave., Eugene, OR 97405.

Olympic National Park's 50th anniversary will be celebrated with a special rededication ceremony hosted by the National Park Service at the park's Port Angeles, Washington, visitor center at 11 a.m. on July 23. Olympic National Park, a World Heritage Site and an International Biosphere Reserve, was established in 1938 to protect the Olympic Mountains, stands of old-growth rainforest, and herds of Roosevelt elk. ■

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BACKPACKING, hiking, skiing, and climbing provide a wealth of photographic opportunities, but carrying a bulky camera while enjoying these activities can be difficult, if not impossible. To eliminate the extra weight, you may choose to leave your camera at home—and miss some great shots. Or you may turn to a snapshot camera and return home with a passel of mediocre photos.

Fortunately, a new generation of compact and sophisticated 35-millimeter cameras is changing all that. These palm-size powerhouses can turn out professional-quality photos even though they're only a third (or even a quarter) the size of standard 35mm cameras and weigh one to three pounds less. The major difference, in fact, between a full-feature compact and a professional rig is that the latter will probably hold up better after years of constant use.

Good compacts use 35mm film; film in smaller formats can't produce as sharp an image. Small 35mm cameras are available in two designs: single-lens reflex (SLR) and rangefinder. An SLR uses a mirror-and-prism system: You see your subject through the lens exactly as the camera sees it. The moment you press the shutter, the mirror flips up and the image is recorded on film. A rangefinder has a separate viewing lens; it is simpler, lighter, quieter,

and less bulky than an SLR because it doesn't require mirrors and prisms.

Both the compact and the full-size varieties of SLR cameras offer more flexibility than most rangefinders because they allow you to use several interchangeable lenses, such as wide-angle and telephoto. Most rangefinders come with a fixed lens (usually a medium-wide-angle), but some offer built-in telephoto and close-up options as well. Equipped with precision lenses, both compact camera types can produce photographs equal in quality to those of a full-size 35mm outfit.

While rangefinders often yield perfectly suitable photos, photographers intent on mastering their art prefer using the interchangeable lenses of SLRs. They quickly tire of a lens with a single focal length and turn to the combination of a wide-angle (24mm or 28mm) and a zoom (80mm to 200mm) lens to cover a wide range of photo situations.

When wading through the overwhelming number of compact cameras on the market, you must decide what features you're willing to give up to cut down on size and weight. Can you get by with one lens, or do you want the flexibility of a selection? If you want a camera that focuses and sets exposure adjustments automatically, do you want manual overrides as well? Rangefinder compacts, such as the cameras in the Olympus XA series, fit in a shirt pocket, while the extra features of small SLRs, like the Nikon N2000, make them larger and heavier even before you add lenses.

You must also decide how much you care about cost. As with any precision instrument, price increases with the number of features and the quality of the camera's design. A basic rangefinder can be had for \$100, while a one-lens SLR may cost four times that amount. Complement your compact SLR with a few lenses, filters, and other accessories, and you've made a sizable investment.

Keep in mind, though, that a good camera is more than the sum of its fea-



Plain or full of features, the cameras are slim but the selection is huge.

tures. How easy is the camera to operate? Are you comfortable working the controls, loading the film, setting the exposure, and adjusting the focus? While cameras have become smaller, fingers have not. (If you've opted for an automatic model, of course, most of these tasks will be performed for you.) Does the camera accept accessories such as filters, a flash, or a motor drive to advance film automatically?

What about lens quality? This is something you can test only by shooting a roll of film. A good lens creates an image that is in focus from one edge of the picture to the other, with consistent brightness throughout. Colors are reproduced accurately, and straight lines remain straight.

For outdoor activities, you'll want a camera that will stand up to abuse. Ask a salesperson for recommendations; you won't be able to assess this quality by peering into a display case. You need not buy an expensive professional rig, however. These cameras are designed to survive daily use for many years.

Choosing *where* to buy a camera can be as complex as choosing the camera itself. If you need basic information about photography, a camera shop is usually best. There most salespeople can spell out the advantages and disadvantages of each compact camera. However, you're likely to find better prices at discount houses and in mail-order catalogs. In any case, be sure to get a name brand with a valid North American warranty.

If you opt for an SLR, be aware that prices often include the "body only" (without a lens) or the camera and one "normal" (50mm) lens. Because the 50mm focal length is limited in its usefulness, you'll want to select lenses individually from the wide variety that is available.

It's always disappointing to arrive in a remote, stunning area only to hear yourself groan, "I wish I had a camera!" A compact 35mm SLR or rangefinder will give you the equipment necessary to take quality outdoor photographs even in those out-of-the-way places where a larger camera would be a burden. ■

DAVID WEINTRAUB is a freelance writer and photographer in San Francisco.



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BOOKS

Literary Field Notes

Words From the Land: Encounters With Natural History Writing

Edited and with an introduction by
Stephen Trimble
Peregrine Smith Books
\$17.95, cloth

Don Scheese

WALK INTO most bookstores these days and you're likely to encounter a section of titles related to the natural world. This section goes by various names—"Ecology," "Environment," "Natural History," or simply "Nature"—but typically it includes field guides, coffee-table collections of nature photography, histories of important figures and events in environmental politics, and something commonly labeled today as "nature writing." This popular but nebulous genre originated in the 19th century as natural history. In its ideal form, achieved in the works of Henry David Thoreau, John Muir, and Aldo Leopold, the genre artfully combines autobiography, scientific field observation, landscape history, and land ethics. Since the dawning about 30 years ago of what historians have begun to call the Environmental Era, the amount of nature writing has increased dramatically, so that armchair nature-lovers now confront the pleasant prospect of getting lost in a wilderness of books. A good anthology of contemporary nature writing such as *Words From the Land* serves as a necessary guide to this wilderness.

Stephen Trimble, a park ranger, photographer, ecologist, and nature writer in his own right, drove around the country in the autumn of 1986 to interview nine of the fifteen writers he includes in this anthology. In his introduction, Trimble skillfully weaves the authors' observations about their own writing techniques and philosophies into a discussion about the key elements of nature writing. The result is a fascinating dis-

closure of how sensory impressions and raw field notes become coherent, eloquent, and passionate essays about the natural world.

John Madson, for example, simply "loafs," scribbling notes while sprawled under a juniper in the backcountry of South Dakota's Badlands. Robert Finch takes no notes in the field, preferring to saunter from his home on Cape Cod and allow the experience to "settle out." Gary Nabhan jots down his observations of Arizona's Sonoran Desert, but loses most of his notebooks on the way home. Focusing on nature writers as *writers* rather than as naturalists or environmentalists—labels the authors eschew—Trimble reveals the creative process behind the genre, an aspect not treated in most conventional studies.

Not that he emphasizes process at the expense of content and purpose. Trimble makes clear that nature writers intend to teach themselves and their readers "how to see more clearly and feel more truly." Because they are "tutored by the land," in the words of Barry Lopez, they are able to effect a fundamental change in modern culture by persuading people to find "a moral, dignified, decent way of living in the world with regard to other peoples, and with regard to the landscape." Edward Abbey goes so far as to state that writers "have a moral obligation to be the conscience of their society," a belief confirmed by David Quammen, a columnist for *Outside* magazine who considers himself "a moral philosopher" and occasionally writes as one (though on the sly, to be sure, to avoid pontificating in what he calls "a yuppie magazine"). John Hay and Robert Finch on Cape Cod, Wendell Berry on the Red River Gorge in Kentucky, and Ann Zwinger on the Cabeza Prieta Mountains in Arizona all share a common theme: the need for people to *live*—not merely read about—a land ethic.

The essays Trimble has selected represent a variety of geographies, habitats,

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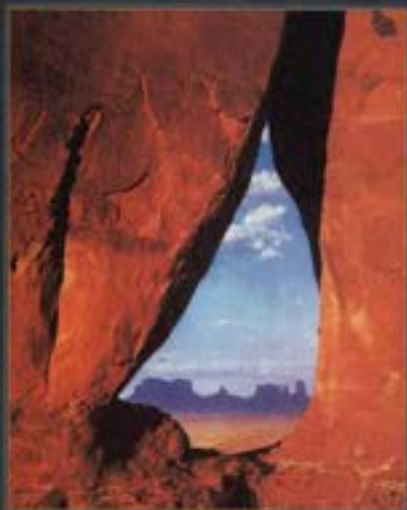
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*The Tongass:
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When they went to southeast Alaska to document the beauty and the destruction of the Tongass National Forest, Robert and Carey Ketchum expected to encounter hostility: The region is known for its "Sierra Club Go Home" bumper stickers. The people turned out to be hospitable enough, but the Ketchums also found evidence confirming that the Forest Service's timber-harvest policies are causing serious damage. Finger River Estuary in Hoonah Sound (above) is the proposed site of a logging facility.

and subjects. They range from Lopez' reflections on the Arctic landscape to Annie Dillard's study of the unique fauna of the Galápagos Islands to Peter Matthiessen's quest for the snow leopard and self-identity in the Himalaya. The writers roam from the spectacular subalpine environment of the Alberta Rockies, where Edward Hoagland tracks the elusive mountain lion, to the more modest—but equally interesting—humid, undulating forests of the Ozarks, where Sue Hubbell re-collects herself through bee-keeping and nature study. She and Gretel Ehrlich of Wyoming write as *inhabitants* of the land, as do Berry, Finch, and Hay; they have discovered and settled in their Waldens of

the wild, while the rest—at least as this collection represents them—write as *travelers* through various landscapes. (John McPhee is perhaps the quintessential traveler, documenting here a geological tour of Interstate 80.) But whether inhabitants or travelers, all nature writers make the study of place—the symbiotic relationship between the land and its plant, animal, and human residents—their *vocation*, their spiritual calling. The resulting prose exhorts the reader to experience landscapes in a similarly intimate way.

Trimble's contemporary collection is not as comprehensive as a larger, more general anthology might be. Some of his omissions—such highly acclaimed

literary naturalists as Colin Fletcher, Bill Gilbert, John Graves, and David Rains Wallace—are regrettable. Also, because the collection contains only essays, poets are not represented. (Mary Oliver and Gary Snyder are two who might have been considered.) Finally, Trimble devotes little attention to the history of nature writing, an unfortunate exclusion because knowledge of when and how the genre originated is important to understanding current practices.

Some other recent collections do provide the required historical perspective: *Words for the Wild* (Sierra Club Books, 1987), *On Nature* (North Point Press, 1986), and *The Wilderness Reader* (New American Library, 1980). Read in

conjunction with these works, *Words From the Land* provides nature-writing novitiates with a good introduction to the genre. On its own, the book should easily fulfill one of its purposes: "leading readers to the whole shelf of books by literary naturalists."

DON SCHEESE, a University of Iowa doctoral candidate, is completing a thesis entitled "Inhabitants of the Wild."

equivalent of television shoot-'em-ups. River runners themselves often seem to be the bug-eyed sort, addicted to their own adrenaline, eager to seize a paddle and row off suicidally toward a beckoning whitewater haystack.

As to thrills, this collection of essays on floating western rivers from Alaska to Mexico offers its share of lip-biting moments. On the Salmon, the Kobuk, and the Rio Grande, the authors recount their tumbles into various churning caldrons. Yet *River Days* takes in far more than watery pyrotechnics to draw even non-river runners into its pages. In addition to the white-knuckled plunges, we have an often quiet, even contemplative text presenting river running as a physical gateway to the aesthetic and spiritual depths of ourselves.

Editor Jeff Rennie meditates: "What strikes you first about the Gunnison is the water. There is an intrinsic beauty and fascination in the flow of pure water, the easy slide of river over moss-slickened rocks. Its movement is the movement of flames in a campfire, hypnotizing. It is never the same, curling cat-like against the shore, tossing in

a rapid, going deep and still in deep pools. We sometimes round a bend to startle a fisherman staring silently at the water."

That's not only fine writing; it shows how even brief visits to those oases twisting across the arid West can bring us back again and again to sustaining relationships with nature.

Other writers pause in their accounts to spin yarns and fill us in on the history of the passing landscape. While floating down the Rogue River in Oregon, David Bolling points out Zane Grey's cabin at Winkle Bar, where the former dentist wrote many of his frontier novels. In Idaho, Verne Huser rests at the oars to tell us about "Buckskin Bill." Fifty years ago, Bill called it quits with civilization and, making "his own knives, rifles, pots and pans," lived like an old-fashioned mountain man in the wilds along the banks of the Salmon.

Our passage becomes oneiric. We see desperado Butch Cassidy, we find Indian artifacts, and we blink in wonder as—can it be true?—a monastery slips by.

A romantic vision, to be sure. But, then, all is not well in Riverine Paradise,

Current Affairs

River Days: Travels on Western Rivers

Edited by Jeff Rennie

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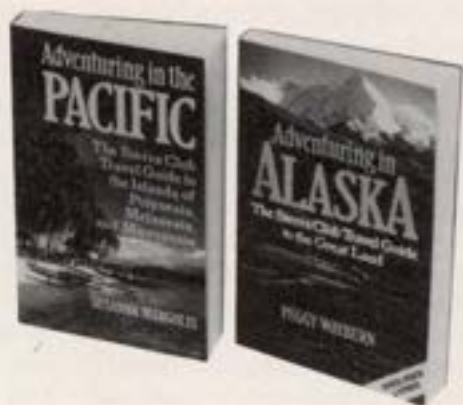
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as Rennie makes clear at the book's outset. Last year 120,000 people rode gleefully down Colorado's Arkansas River. And each season the tens of thousands in floppy hats become more clichéd in their enthusiastic crush to shoot through the Grand Canyon.

In contrast, Huser points out that one can spend decades applying for a permit to run the Selway, every river addict's dream of a continuous flume through the piney Bitterroot Mountains, without winning the lottery. To its credit, the Forest Service restricts launches there to one party a day. That makes floating the Selway both one of the wildest and one of the most serene of life's experiences.

There's an irony in so many thousands panting at the gates of wilderness. David Bolling shows us a garish reality on the South Fork of the American, "the K-Mart of California rivers." Plunging out of the Sierra, the South Fork is only 19 miles long, easily accessible by road, and within weekend range of 5 million people. Some sunny Saturdays all 5 million seem to be there. One congested bend requires "a whistle-blowing boater playing traffic cop."

But talking of ironies, Bolling—recently named executive director of Friends of the River—notes that such heavy use has its positive side; the American River is blessed with a mighty constituency against the schemes of dam builders. Because of public concern, management agencies have worked out regulations for long-term protection of this living, moving treasure. Although the population crunch may not be desirable, many less popular rivers sorely need such careful attention. Readers of *River Days* are likely to be just the people to see they get it.

PETER WILD teaches literature at the University of Arizona in Tucson.

BRIEFLY NOTED

It was a Saturday morning in the summer of 1972. Dennis Gagnon, then a salesman at the Kelty Mountaineering store in Glendale, California, was dismayed by all the backpackers equipping themselves to hike the John Muir Trail. "I think they're loving the high country to death," he told his manager. "But," he wondered, "what if someone could

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come up with some type of alternate trail to take the pressure off?" And that's what Gagnon did, surveying existing trails and then plotting a continuous 271-mile pathway from Yosemite to the Mt. Whitney region. Gagnon's new *Guide to the Theodore Solomons Trail* (Western Tanager Press, 1111 Pacific Ave., Santa Cruz, CA 95060; \$9.95, paper) expands on his original pamphlet about the route. The Solomons Trail takes its name from the man who scouted the John Muir Trail in the late 1800s. . . . "Absolutely the middle of nowhere" is how Jeffrey P. Schaffer describes the southern tip of the Ventana Wilderness in *Hiking the Big Sur Country: The Ventana Wilderness* (Wilderness Press; \$12.95, paper). Some 260 miles of trail in this chaparral-dominated landscape offer hikers relatively easy access to an otherwise formidable section of California's central coast. Spectacular views, bathing holes, and solitude are among the rewards to be gained from a visit. . . . Rich Landers, Ida Rowe Dolphin, and the Spokane Mountaineers recently spent three years preparing *100 Hikes in the Inland*

Northwest (The Mountaineers; \$9.95, paper). The resulting guide covers 15,000 miles of trail in a region bounded on the west by the North Cascades and on the east by the Continental Divide. Unfortunately, several trails had to be dropped from the guidebook because they are in areas that the Forest Service has singled out for timber sales. But "there's plenty of breathing room" left, say the authors. . . . Vermont's Backcountry Publications is producing 11 intricately detailed trail guides to regions in the Northeast's Adirondack Mountains. Barbara McMartin, principal author and coordinator of the series and an avid hiker, specializes in uncovering little-used routes and forgotten places. Eight of the paperback *Discover the Adirondacks* guides (\$8.95 to \$10.95 each) are available now, with the rest due by 1990. . . . Pennsylvania has been equated with Pittsburgh and Philadelphia and its natural beauty ignored for too long, contends Marcia Bonta in *Outbound Journeys in Pennsylvania* (The Pennsylvania State University Press; \$22.50, cloth; \$12.75, paper). Overlooked are such spectacular scenic

areas as Pine Creek Gorge, called "the Grand Canyon of Pennsylvania"; Bear Meadows Natural Area, a 520-acre boreal sphagnum bog; and the Delaware Water Gap, where the Delaware River plunges through an opening of erosion-resistant quartzite. . . . Nine of ten U.S. National Seashores are located on the Atlantic or Gulf coasts—among them Texas' Padre Island, North Carolina's Cape Hatteras, New York's Fire Island, and Massachusetts' Cape Cod. (The exception is California's Point Reyes.) Maryland residents Ruthe and Walt Wolverton provide broad sketches of all ten areas in *The National Seashores: The Complete Guide to America's Scenic Coastal Parks* (Woodbine House; \$9.95, paper). . . . "I've tried only to point you down the quietest, most gentle paths possible," writes Gary Ferguson in *Walks of the Rockies* (Prentice Hall; \$12.95, paper). Few of the 75 day-hikes are longer than four miles—but they encompass diverse ecosystems in Wyoming, Montana, Colorado, and New Mexico. Ferguson wants to get his readers to the wilds, he says, and then leave the rest to nature. ■

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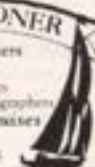


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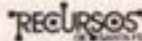
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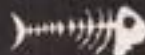


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But doesn't the USDA prevent tainted veal from being sold? Absolutely not. The USDA itself admits that most veal is never checked for toxic residue.

Antibiotics in veal and other factory farm products create virulent strains of bacteria that wreak havoc on human health. *Salmonella* poisoning is reaching epidemic proportions.

Veal factories maximize profits for agribusiness drug companies because they are a breeding ground for disease. To keep calves alive under such torturous conditions, they are *continually* given drugs which are passed on to consumers.

It doesn't have to be this way. And with your help, it won't be. Please, don't buy veal!

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QUESTIONS & ANSWERS

I've heard that microwave ovens can emit radiation. Is this true, and if so, is it harmful? (Tom Gehrels, Tucson, Arizona)

Microwave ovens do emit a certain amount of non-ionizing radiation, which heats matter. This is different from ionizing radiation, which changes the structure of matter.

The Food and Drug Administration requires that at the time of purchase microwave ovens release no more than five milliwatts of energy per square centimeter at a distance of five centimeters from any surface of the oven. When the agency set that standard in the late 1960s, according to Joanne Barron of the FDA, evidence showed deleterious effects (such as cataracts and heating of tissue) at 100 times that level. More recent studies indicate problems can also occur at lower levels, but Barron says the new figures are still "well above" the FDA standard.

The FDA requires microwave oven manufacturers to equip every unit with two locks on the door to prevent it from being opened while operating, and a monitoring system that will blow a fuse if the locks fail. According to the FDA, microwave ovens tested after ten years still met the safety requirements, unless they were damaged or misused—placed so high, for example, that you pull down on the door when you open it.

While no one has yet documented any danger to microwave oven users, the effects of long-term exposure to even small amounts



DEBBIE DRECHSLER

of non-ionizing radiation are unknown. It's probably wise to step back from the oven while it is in operation; when you double your distance, you receive one fourth the usual dose of radiation.

What's the difference between ozone in the stratosphere and ozone at ground level? (Betsy Hubert, Toledo, Ohio)

High and low, ozone is the same molecule: O_3 . In the stratosphere it occurs naturally, a product of the action of ultraviolet sunlight on oxygen molecules. In the lower atmosphere, it's the result of complex chemical reactions among nitrogen oxides, hydrocarbons, and other volatile organic compounds in the presence of sunlight. Motor vehicles, some industrial plants, and non-industrial facilities such

as gas stations, sewage treatment plants, and dry cleaners all emit these ingredients.

Ozone is toxic, but in the stratosphere it's too far away from us to cause any harm. In fact, stratospheric ozone shields us from the sun's harmful rays. The recently documented dissipation of the ozone layer over both the North and South poles bodes ill for life on Earth. Governments and industries have responded by limiting the use and production of chlorofluorocarbons, the main culprits in ozone depletion.

When ozone is closer to home, its toxicity becomes more of a threat. Researchers have documented its damaging effects on human health, forests, and farmland.

Unfortunately, there's no way to use surplus ground-level ozone to patch the

stratospheric hole; the solution lies in reducing the emissions that make it down here and deplete it up there.

As the November elections approach, how can I find out which candidates will do the most for the environment? (Paul M. Czarnecki, Aspen, Colorado)

Sierra will provide information on the environmental records and agendas of the presidential candidates in our November/December issue. In the meantime, environmental profiles of the candidates are available from the League of Conservation Voters, 2000 L Street, N.W., Suite 804, Washington, D.C. 20036; phone (202) 785-VOTE.

All seats in the House of Representatives and one third of those in the Senate will be open in November, and the Sierra Club has voting charts from which you can glean valuable information about your delegation's performance last year. These records let you know where your senators and representative stood on clean air, nuclear liability, endangered species, and other environmental issues that came before the 100th Congress. For a copy of the charts write to Sierra Club Public Information, 730 Polk St., San Francisco, CA 94109.

For the environmental perspective on local campaigns, contact your Sierra Club chapter office. Staff will let you know which candidates the Club is endorsing and how you can get involved. ■

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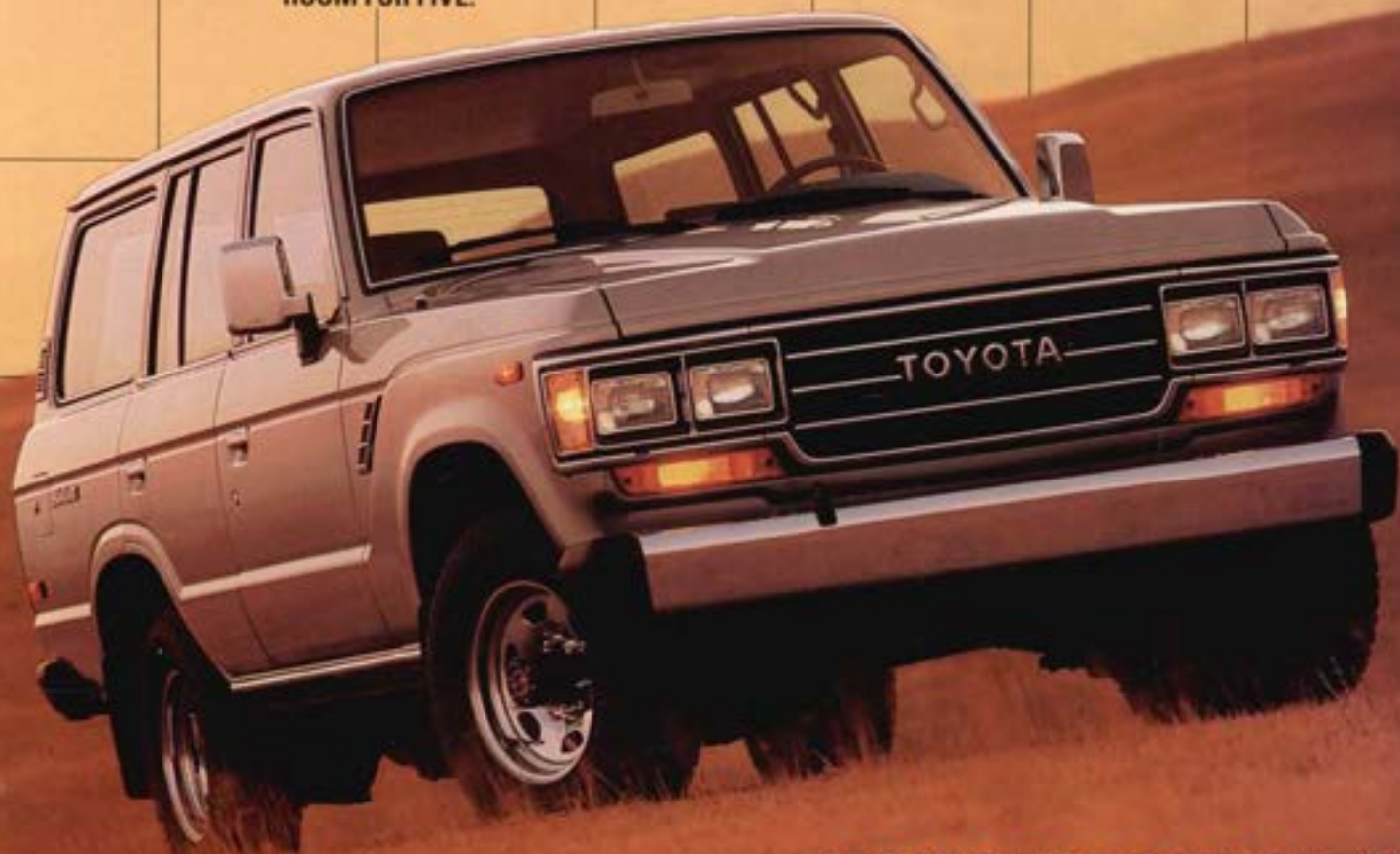


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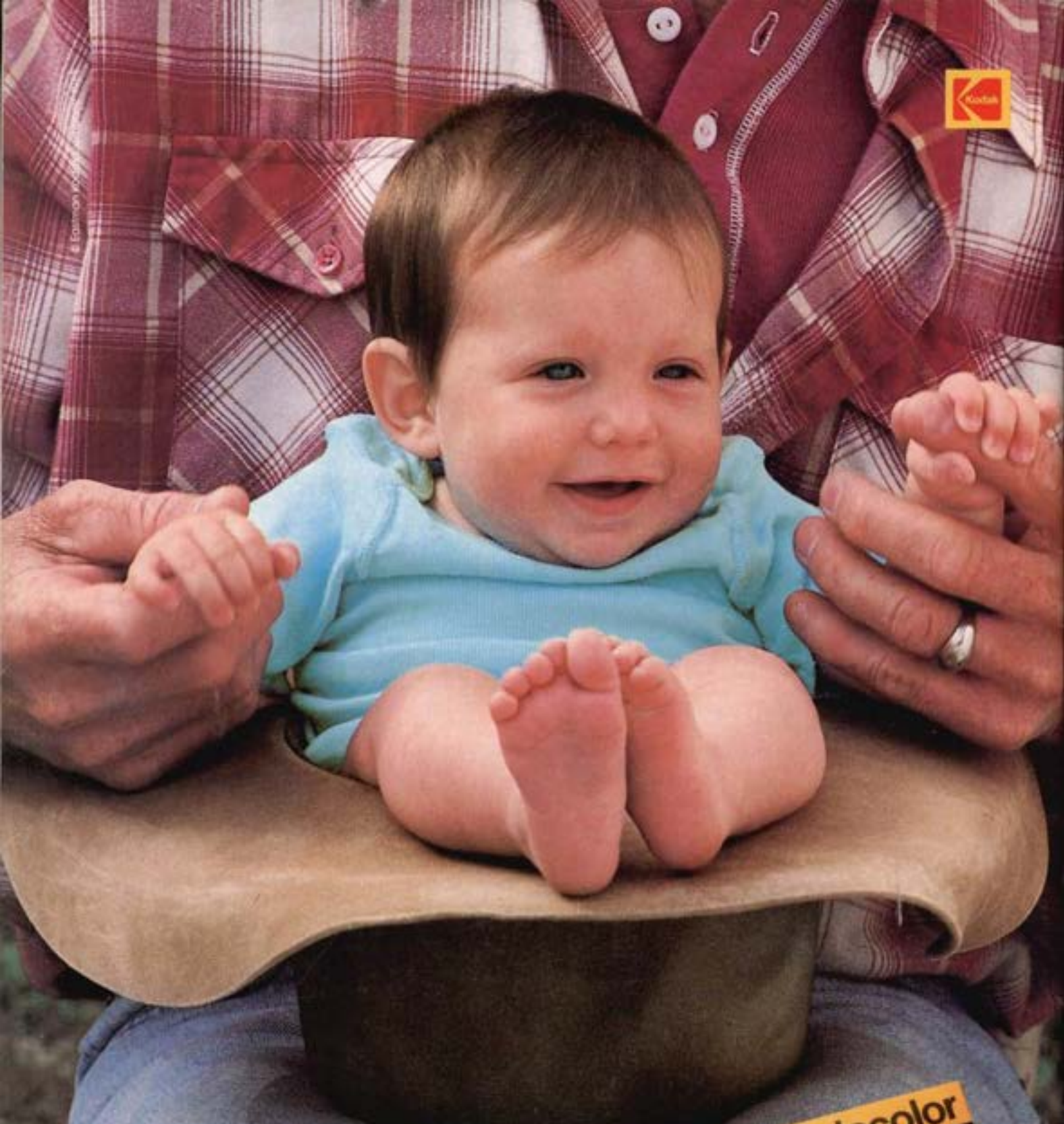
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