ENDANGERED SPECIES / OIL & GAS IN WILDERNESS

SIERRA

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MAY/JUNE 1982 $1.50

"You couldn't pay me to wear

"I'm not going to risk my life for any endorsement.

"I mean, it's one thing to romp around in the wilderness. But to climb the Great Couloir of the North Face of Mt. Everest—a route that's never been taken before—I've had to choose every ounce of my equipment as if my life depends on it."

Lou's is the first American expedition to approach Everest from the China side.

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A few years back, at the Mt. Rainier guide service Lou operates, he noticed his guides were climbing in running shoes. "Why?" Lou asked. "Because they're a helluva lot lighter and more comfortable than those 8-pound leather leg killers."

Through mutual friends, Lou hooked up with New Balance. "You guys make such incredible running shoes," he said. "Why don't you put that same innovation into a boot for serious climbers?"

And that's exactly what we did.

this boot up Mt. Everest."

—Lou Whittaker

WHAT MAKES LOU SO SURE OF OUR SHOES.

On the China-Everest '82 Expedition, Lou and his 14-man, 1-woman team will have to travel rock, moraine, snow, even glacial ice, en route to high base camp at 21,000 feet. Traction will be crucial. The kind of traction guaranteed by the Rainier's exclusive flat-head pyramid outersole, made from Vibram's® best yellow label carbon rubber.

Just as important as traction is weight. Or, more specifically, the lack of it.

In the past, Everest climbers have reported suffering premature muscular exhaustion long before their assault on the summit. One of the main reasons, according to Lou, was "the lead-weight, vice-like performance of their boots."

Lou doesn't anticipate that problem. "The Rainier is so light and comfortable," he says, "it's really going to help us save our strength for the final assault."

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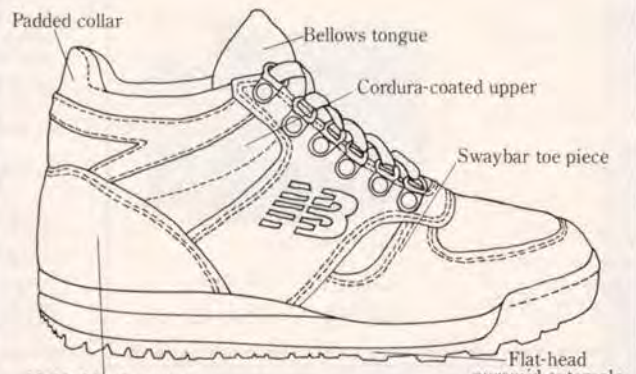
It incorporates a polyurethane footbed insert for superb cushioning. A collapsible padded collar with action strap that all but eliminates restriction in the Achilles. A bellows tongue to prevent leakage. And a soft, comfortable pigskin lining.

The New Balance Rainier



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new balance

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Founded in 1892, the Sierra Club works to restore the quality of the natural environment and to maintain the integrity of ecosystems. Educating the public to understand and support these objectives is basic to the Club's program. All are invited to participate in its activities, to ". . . study, explore, and enjoy wildlands."

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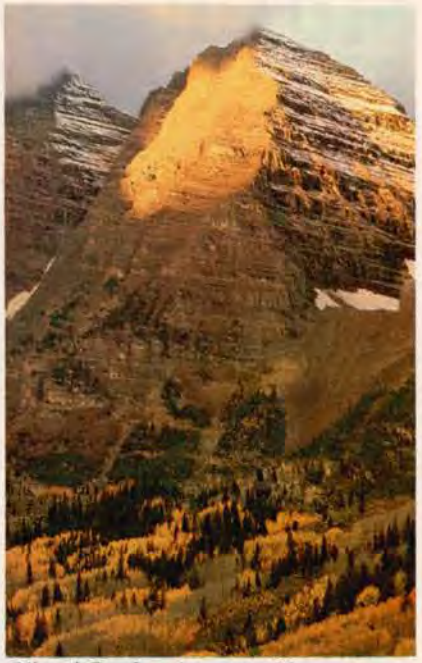
SIERRA

THE SIERRA CLUB BULLETIN MAY/JUNE 1982 VOLUME 67/NUMBER 3

DEPARTMENTS

COVER The endangered Antioch Dunes evening primrose. Recent research shows evening primroses contain high levels of a gamma linolenic acid, a nutrient that may help in treating heart disease. Other endangered plant species may also be useful to humanity, in addition to their other values to the ecosystem, but their potential will be lost forever if they become extinct. Portrait by Dugald Stermer.



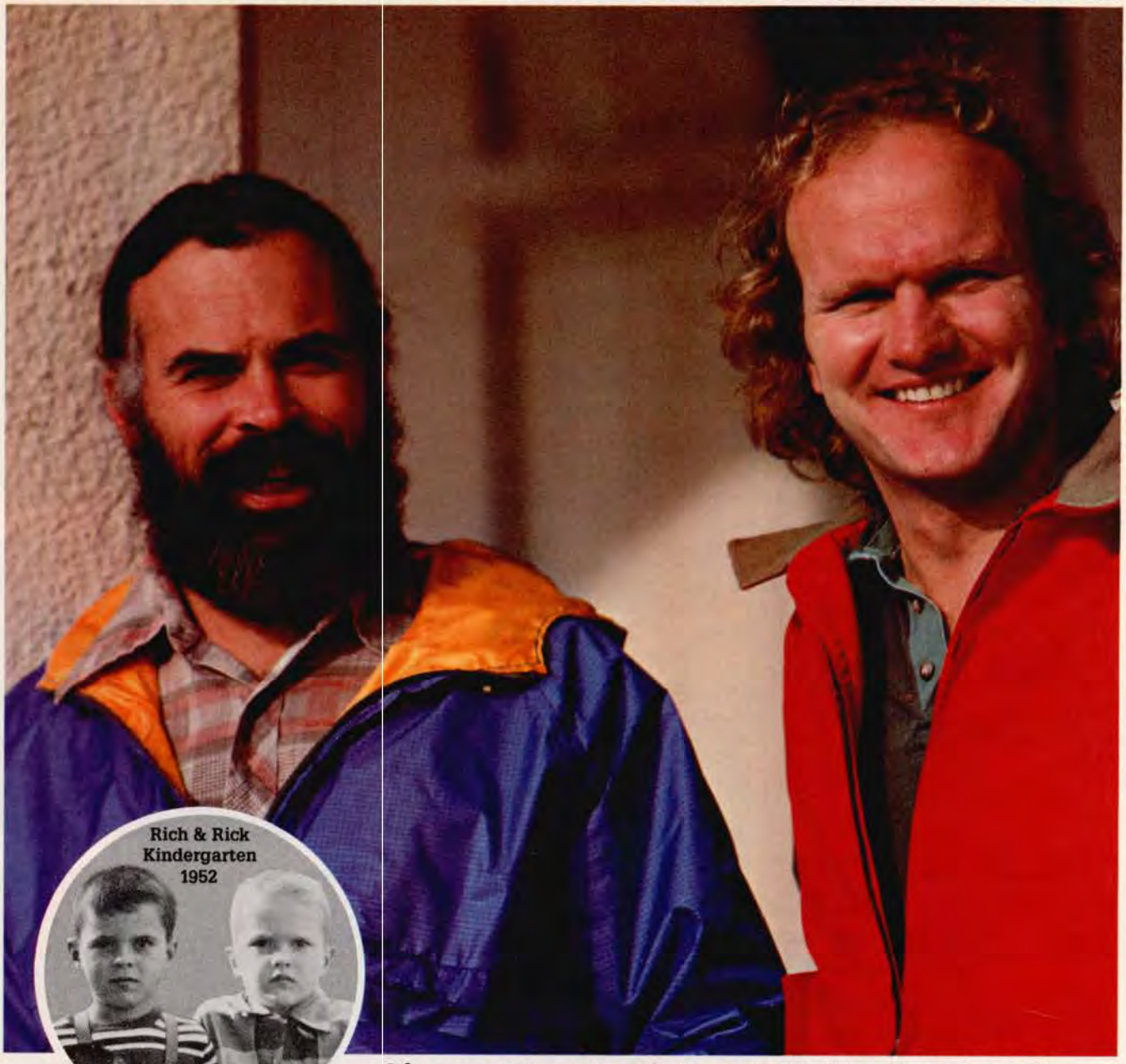
Oil and Gas Leasing, page 28.

Endangered Species, page 35.

Bicycle Touring, page 43.

Athabaskan Indians, page 60.

STILL TOGETHER AFTER ALL THESE YEARS



Sierra West's Richard Kelty & Rick Scott

They met in kindergarten and 30 years later they are still together—friends, business partners, individuals. Inspired by a very active Boy Scout Troop and a love of the outdoors, Richard and Rick bought a sewing machine in December of 1970 to make improved outdoor equipment. In 1971 they sold foam pads, stuff sacks, straps and other accessories, sewing each piece themselves. By 1973 the company had grown to five machines and Rick and Richard, seeking refuge from L.A. hustle and bustle, moved to Santa Barbara. Ponchos, windbreakers and ground covers followed, along with a reputation for quality rainwear.

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Transportation

I am delighted that the Sierra Club is working for a more balanced transportation system in the United States. "Transportation" (March/April 1982) provides a framework within which the Club as well as the general public can begin to work to correct major deficiencies in our overall transportation networks.

My particular interests lie with the rail passengers and light rail and trolley car systems. I have watched the destruction of a once-remarkable national network because of the auto, the truck, the jet and the interstate highways. At present we have a few trunk lines on AMTRAK, some of which are so much in demand that reservations have to be made months in advance. We do not have enough feeder routes, the roots and branches that nourish the trunks.

As for the light rail and trolley developments in both this country and Canada, it would not have been thought possible even three or four years ago that the dependable trolley would once again come into popular use. The remarkable success of the San Diego-Tijuana Trolley is but one example of the popularity of the old trolley.

Also, in Florida, construction has begun on a high-speed rail passenger network of 1000 miles that will connect all major cities in the state. Work will take 20 years to complete. A similar service will connect major cities in Ohio.

There is so much taking place, and I am delighted that the Sierra Club has taken a leadership role in this most important aspect of the problems we will face in the future.

Alex Duris
National Transportation Committee
Hendersonville, North Carolina

Although I generally agree with the article on transportation, I contest the implication in one caption that the loss of farmland due to highway construction contributes to the world food shortage. The causes of this problem are basically inefficient distribution and improper or underdeveloped local agricultural techniques, not low productivity in this country. U.S. policy often exacerbates the problem; for example, supplying free food can disrupt the agricultural economy of developing nations, and promoting beef encourages wasteful use of grain.

In addition, interstate rights of way can have some value as wildlife habitat, especially by providing nesting cover. We have encouraged the state department of transportation to adopt better planting and management techniques in this regard and have had some limited success.

Kevin Woods
Gibson City, Illinois

New Design

You are doing a simply great job with the magazine's design. January/February is terrific. I am one member who thinks the type, new heads and layout have done wonders! Dugald Stermer and all in-house staff should take a bow.

Jill Perrott
Arlington, Virginia

No-Impact Camping

Though the article on low-impact camping by Wallace and DeBell offered sound advice to many beginning backpackers who would have thought nothing of trampling inconspicuous meadow-bound flowers, still-lower impact is possible.

Being a proponent of the John "Walking Softly in the Wilderness" Hart school of extremely low-impact camping, I suggest that a campfire is never a "must," as the article implies. Camp stoves are just as affable as campfires and leave no trace on the landscape, a topic elaborated on by Bruce Berger (July/August 1979 *Sierra*, "Should Campfires Come in a Can?"). This eliminates the question of ash disposal and removal and focuses attention on the landscape rather than the fire. Also, why should only *standing* trees be "an important part of the forest?" Hasn't evolution seen to it that everything in the forest is important?

To the remark, "You'll want to be near fresh water [at a camp]," I ask: what about beautiful mountaintops and ridges that make scenic and almost impact-free campsites (as long as bathroom functions are carried out in more biologically suitable areas) with the aid of a couple of water bags? An extra plus: bark-destroying bear-bagging is, by personal experience in bear-laden Yosemite, often unnecessary on mountaintops inaccessible to bears. Also, if you find a good slab of granite to camp on, moving "a few small rocks and twigs" wouldn't be necessary.

If folks start in the wilderness knowing what no-impact camping is, they'll be more likely to practice lower-impact camping.

Oh, yes, one further amendment: how about if, instead of saying "take only photographs, leave only footprints," we say, "take only photographs"?

Marc Landgraf
Campbell Alpine Club

The Most Ominous Crisis

The most ominous conservation crisis of this century is the imminent extinction of thousands of species of animals and plants in the tropics. Some scientists now estimate that up to one million species may become extinct by the end of the century as the rate of tropical forest destruction continues to accelerate. Professor E. O. Wilson of Harvard makes the point that the worst thing that could happen is not energy depletion, economic collapse, limited nuclear war or conquest by a totalitarian government. Such catastrophes could be repaired within a few generations. The one process going on now that will take millions of years to correct is the loss of genetic and species diversity as the result of the destruction of natural habitat.

Most of the species to be lost occur in the biologically rich tropics, particularly in tropical rain forests. Time is critically short. The once-extensive tropical forests of Central America, West Africa and the East Indies may be almost totally logged over by the end of the century, and with them will go a staggering number of species of both plants and animals. Soon to follow will be the vast Amazon Basin.

There are several actions Sierra Club members can take immediately to work on these problems: lobby the government for more funding for international environmental organizations; work to reduce world population; lobby for restrictions on beef imports (to stem the conversion of tropical forests to fast-food meat farms); apply pressure on U.S. timber corporations to improve forestry practices and prepare environmental assessments for tropical operations; support international organizations yourself; and broaden your knowledge of the urgency of global extinctions by reading books such as *The Sinking Ark* by Norman Myers (Pergamon Press, 1979).

Dennis Coules
Davis, California

Slovenian Errors

In "Hiking in Slovenia" (January/February), Bee Longley gave an interesting account of her hikes in the Kamnik and Julian Alps (Kamniske in Julijske Alpe), which form the easternmost extension of the European Alps.

Unfortunately, there was a little misin-

Continued on page 80

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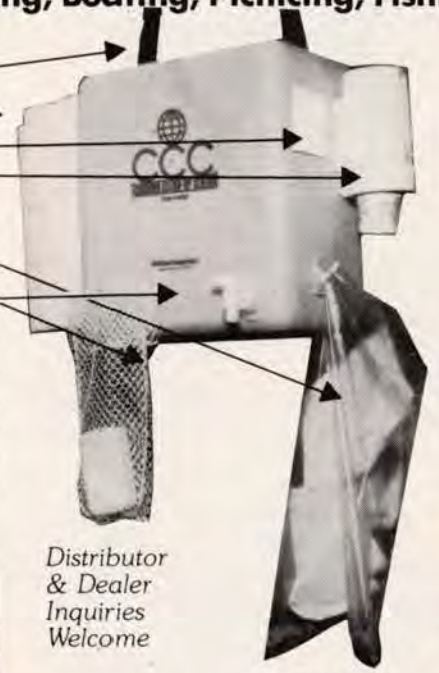

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ENVIRONMENTAL GROUPS "INDICT" ADMINISTRATION

Ten of the nation's largest and most active environmental groups have jointly issued an "Indictment" of the Reagan administration, accusing it of systematically destroying laws and programs designed to protect public health and preserve publicly owned resources.

"The Indictment," a 35-page analysis of more than 220 of the administration's actions and policies, reveals a disturbing pattern. The groups say, "We have watched for a year as the administration took or proposed scores of actions that veered radically away from the broad bipartisan consensus in support of environmental protection that has existed for many years. We thought it time to examine the entire record. We began with apprehension; we end appalled."

The groups said they found consistent attitudes and approaches throughout the agencies responsible for environmental programs, including: a major retreat in controlling all forms of pollution; turnover of public resources to private interests; sacrifice of non-commercial values of the public lands to commercial exploitation; huge subsidies for some energy programs, particularly nuclear power, but curtailment of federal aid for solar energy and energy conservation; sharp cutbacks in enforcement of virtually every kind of environmental regulation; and severe restrictions on public participation in land-use and pollution-control decisions.

In issuing "The Indictment," environmental groups for the first time laid the blame squarely on the White House steps. "President Reagan has broken faith with the American people on environmental protection," said Michael McCloskey, the Sierra Club's Executive Director.

The nine other groups involved are the Audubon Society, Defenders of Wildlife, Environmental Action, Environmental Defense Fund, Environmental Policy Center, Friends of the Earth, Natural Resources Defense Council, Solar Lobby and The Wilderness Society.

Readers who would like a copy of "The Indictment" may purchase it from Friends of the Earth, which has reprinted this document along with environmentalists' alternative budget proposals, FOE's "The Reagan Energy Plan: A Major Power Failure," and "A Citizen's Guide to Action." The book, called *Ronald Reagan and the American Environment,* is available for $7.65 postpaid from Friends of the Earth Books, 1045 Sansome, San Francisco, CA 94111.

Executive Director McCloskey "indicts" Reagan.

PAUL SAKUMA, AP

CONGRESS POISED FOR SHOWDOWN ON CLEAN AIR

The attack on the Clean Air Act from industry and the administration continued as committees in both the House and Senate debated this important law and marked up legislation to reauthorize it. Showdowns will probably occur in floor debates on the bills this summer. At press time, the House Energy and Commerce Committee is poised to report out a bill that would severely weaken the act. The bill from the Senate Environment and Public Works Committee is expected to be somewhat better.

Sierra readers who have not yet written their representatives and senators are urged to do so. Senators are particularly important on this issue; ask them to support the efforts of Senator Robert Stafford (R-VT), who is working to keep the nation on a straight course toward breathable air. Ask representatives to support Henry Waxman (D-CA) to keep the Clean Air Act strong.

Action on this legislation may be fast and

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furious. For up-to-the-minute details, call the Club's Clean Air Hotline at (202) 547-5551.

LEGISLATORS BACK INCREASED EPA FUNDS

Senator Patrick Leahy (D-VT) and Representative Albert Gore (D-TN) have introduced identical resolutions in the Senate and the House calling for increased funding for the Environmental Protection Agency (see related budget story on page 15). President Reagan's fiscal 1983 budget request for EPA is 29% below the 1981 level (39% below in inflation-adjusted dollars), at a time when the agency's workload is doubling.

The resolutions, S. Res. 359 and H. Con. Res. 303, express the sense of Congress that EPA should receive adequate funds for it to carry out its responsibilities to protect public health and the environment, and they call upon the administration to submit a new budget for the agency. Representative Gore said "we will not stand by and let the Environmental Protection Agency be decimated. . . . It is time for us to express our strong intention to prevent the abrogation of our environmental legislation through misuse of the budget process."

Senator Leahy said, "Without effective federal environmental law enforcement, in the next decade the average citizen's exposure to toxic chemicals will double. The amount of sulfur in the air, which causes acid rain, will increase by 50%. . . . I am committed to rebuilding EPA's budget because I believe we must keep the promise that we made to the American people when we passed . . . [environmental protection] laws."

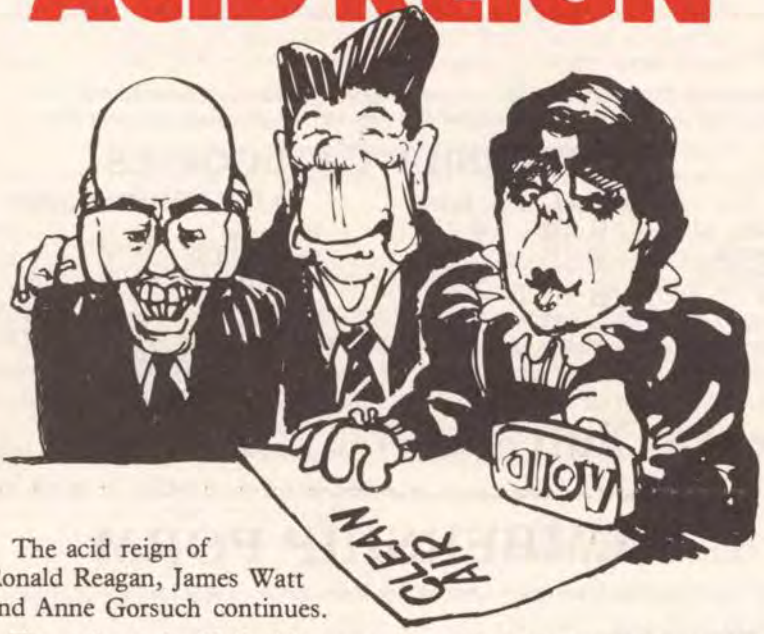
Concerned readers should ask their senators and representative to cosponsor the resolutions. A maximum number of cosponsors will help put pressure on the appropriations process to increase EPA's funding.

REAGAN PRIVATIZING PUBLIC LANDS

The Reagan administration is moving on plans to raise some $17 billion over the next five years by selling federal property to offset the national debt. Reagan began implementing the "privatization" by establishing a Real Property Review Board, which will direct federal agencies to identify as surplus a certain number of acres each year.

"Setting a quota of how much land will be determined to be surplus is putting the cart before the horse," said Debbie Sease, a Sierra Club representative in the Washington office. "The inventory will be merely an exercise of finding enough acreage to meet the quota."

ACID REIGN



The acid reign of
Ronald Reagan, James Watt
and Anne Gorsuch continues.

Throughout the United States and Canada, hundreds of rivers and lakes are dead. Plant and animal life is being destroyed or altered. . . victims of acid rain.

The response from the administration has been to suggest 3 to 5 years of study. . . and no action.

The Sierra Club is supporting efforts of House Representative Henry Waxman and Senator Robert Stafford to strengthen the Clean Air Act with provisions to address the acid rain problem.

If you are not a member, won't you join the Sierra Club? We need your help in the battle with the "Acid Reign" in our country. If you are a member, ask a friend to join us today.

A member enrollment form is on the reverse side.

Sierra Club

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Sometime in the next few weeks, the administration is expected to issue a detailed "privatization" plan, including legislative initiatives. Legislation would be required to sell national forest lands, and if the Bureau of Land Management significantly increased or accelerated the sale of lands under its jurisdiction, the Federal Land Policy and Management Act would have to be amended. Even if the administration limits its program to selling surplus General Services Administration properties, it would need new legislation to redirect the revenues toward the national debt.

Senator Charles Percy (R-IL) has already introduced legislation, S. Res. 231, that calls for the sale of federal properties to offset the national debt. At hearings on this resolution, Debbie Sease said the Sierra Club would oppose any significant acceleration in the sale of public lands. "The underlying premise of privatization is one with which we strongly disagree and which runs counter to most of the public land legislation of the last few decades."

Readers should urge their senators and representatives to oppose S. Res. 231, H. Res. 265 (the House equivalent) and the administration's "privatization" proposals.

RESOLVED: TO SAVE THE WILDERNESS

Interior Committee Chair Morris Udall has introduced a House resolution that sets guidelines for congressional consideration of wilderness legislation. H.Res. 427 does the following things: urges the Secretary of the Interior to refrain from granting leases for oil and gas development in wilderness areas and in areas under consideration for wilderness designation; argues against legislation that would set arbitrary deadlines for congressional consideration of wilderness; asks that roadless lands be managed to protect their wilderness values while they are under consideration; and suggests that federal land managers continue to consider wilderness values as part of their planning processes.

The resolution counters various bills proposed in the last year that would make it difficult or impossible to add areas to the national wilderness preservation system. They include S. 842, sponsored by Senator Hayakawa (R-CA); its House equivalent, H.R. 4047, sponsored by Representative Huckaby (D-LA); and H.R. 5603, initiated by Secretary of the Interior Watt and recently introduced by Representative Lujan (R-NM), which would not only make future additions to the wilderness system virtually impossible, but would also open all wilderness areas to oil and gas leasing and hardrock mining after the year 2000.

Sierra readers are urged to ask their representatives to cosponsor H.Res. 427. Although resolutions by Congress do not have the full force of law, they provide a concrete way for members of Congress to express concern about the administration's environmental policies.

OKLAHOMA NUCLEAR PLANT CANCELLED

The Black Fox Nuclear Facility near Tulsa, Oklahoma, has been cancelled, marking a major victory for both environmentalists and consumers. The eight-year drama involved elections to the state public utilities commission (PUC), hearings before the Nuclear Regulatory Commission, meetings of the water board, sessions of the Oklahoma legislature and rulings of the courts.

Recently, in the final scene, the PUC refused to authorize the utility's request to charge today's consumers for tomorrow's plant by financing construction work in progress (CWIP) with charges to ratepayers. The plant's cost was originally projected at $2.4 billion but rose to more than $8 billion over time. Construction had not begun when the plant was cancelled after nine years of planning. Without CWIP charges, the utility could not finance the plant.

The Club's Oklahoma Chapter played an important part in the struggle, working with a local coalition, Citizens Action for Safe Energy. At a press conference marking the plant's cancellation, Club activist Kelly Jenkins announced the Club's intention to launch a community campaign to promote energy conservation.

EPA MUST MOVE ON RADIONUCLIDES

Federal District Judge William T. Sweigert, in San Francisco, has ordered the Environmental Protection Agency (EPA) to develop a timetable for issuing proposed emission standards and controls for radionuclides. The judgment was issued in one of two suits the Club brought to protect the public and the environment from the dangers of abandoned uranium mining and milling sites. The judgment will also affect emission limits on nuclear power plants, coal-fired power plants, phosphate mining and uranium mining and milling.

The suit contended that the Clean Air Act imposes a deadline on the EPA to issue proposed standards within 180 days of finding substances to be hazardous air pollutants. EPA made that finding for radionuclides on November 8, 1979, and standards have not yet been issued. Consequently, the judge found EPA in default of its statutory obligations. □

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'83 BUDGET Environmental Groups Have A Better Idea

LARRY WILLIAMS

PRESIDENT REAGAN'S proposed federal budget for fiscal year 1983 (beginning October 1 of this year) would devastate popular and well-proven programs for environmental protection, energy conservation and multiple-use federal land management. At the same time, his budget would reward favored industries with huge subsidies for environmentally malignant projects. All of this will be the subject of intense controversy in Congress this summer, as committees of the House and Senate work out the appropriations bills for 1983.

As Congress grapples with these issues, they do have before them an environmentally rational alternative to the Reagan budget. Moreover, this alternative would result in *cutting* $8.5 billion out of Reagan's ballooning 1983 budget deficit.

For the second year, an informal coalition of eleven national environmental groups, coordinated by the Sierra Club, has produced and distributed to all members of Congress an "Alternative Budget" for environmental programs. For 1983, an alternative has been charted to restore essential environmental programs Reagan would wreck, and also contribute a series of environmentally desirable cuts and new revenue sources.

In summary, the Alternative Budget would restore $1.7 billion of Reagan's proposed cuts affecting energy conservation, solar and renewable energy programs; the park-buying Land and Water Conservation Fund; Amtrak intercity rail service; and urban mass transit. It would add another $1.1 billion for the beleagured Environmental Protection Agency, which Reagan so clearly intends to decimate.

On the other side of the ledger, the environmental Alternative Budget proposes cutting Reagan's provisions for subsidizing nuclear power, for the Synthetic Fuels Corporation, for boondoggle water projects, and for highway construction (primarily expensive, socially and environmentally damaging new urban freeway links)—for a total savings of $2.8 million.

To provide additional revenues, the environmentalists' Alternative Budget proposes additional royalities and user fees and corrects tax deals enjoyed by certain industries, coming up with $9.1 billion.

Thus, adoption of the entire package would reduce the 1983 Reagan deficit by a net $8.5 billion.

Far from a budget devised by ideologically committed conservatives determined to reduce the intervention of government in a free-market economy, the Reagan budget combines an industrial shopping list of cuts in programs that protect people and the environment, with even greater subsidies for projects that could never stand the free market test. Here are just a few illustrative examples—

ENERGY: As Reagan came to office in 1981, government analyses reported that over the years the federal government expended almost $40 *billion* in subsidies for the nuclear power industry. Even with the subsidy, the industry is failing fast; by March this year more nuclear plants had been cancelled than in all of 1981. Nonetheless, Reagan's budget for fiscal 1983 provides another $1 billion for nuclear programs.

Without a blush at the monumental inconsistency, Reagan has chosen to attack federal programs that encourage energy conservation and the commercialization of solar and renewable energy technologies. The Reagan budget would slash funds for solar and renewable energy research and development to less than 15% of last year's level (which, in turn, was cut to half of fiscal 1981 spending). Reagan's budget would cut energy conservation programs 94% below the amount appropriated last year—a cut of 97% since Reagan took office.

Among programs wiped out would be the Low-Income Weatherization Program, the Schools and Hospitals Program, funding for state energy conservation programs and the Energy Extension Service. The Reagan budget also obliterates the Solar and Energy Conservation Bank, a program that enables local lenders to offer below-market interest rates on investments in projects to increase energy efficiency and to develop renewable energy. The Alternative Budget would allow some 85,000 homes to be improved next year, reducing the energy use in each by

25%—a savings equivalent to 9 million barrels of oil over the life of the investments.

THE FOREST SERVICE: The Reagan budget proposes $2.1 billion to fund the Forest Service, about the same as last year. But these totals mask major changes for our national forests. Extractive programs are increased: more for timber cutting, more for mining. But funds for basic resource protection and management for true multiple-use are devastated: less for soil and water conservation, less for fish and wildlife, less for recreation. Timber cutting is funded at fully 75% of the "ideal" level proposed in the agency's 1980 long-range plan; trails get just 24% of the proposed level.

Again, subsidy for industry is the name of the game. Of some $665 million proposed for the timber sale program, about $150 million is a subsidy to the timber industry. The Forest Service acknowledges that more than a fifth of its timber sales fail to recover the costs of preparing and administering the sales and restoring the land. These are "deficit sales." A major part of the 1983 program focuses on federally funded road construction (subsidized by the timber sales) to open up roadless lands—including areas conservationists seek for addition to the National Wilderness Preservation System.

EPA: For the second year in a row, the President's budget proposes deep cuts for the Environmental Protection Agency. EPA's budget would be slashed 30% below the 1981 level, just after Congress has doubled EPA's workload with new and urgent programs to control toxic pollutants and hazardous wastes. Reagan's cut would cripple EPA's enforcement of key environmental laws, severely cut research work fundamental to setting scientifically based pollution control standards, and slash grants to help states effectively manage environmental quality programs mandated by law.

Reagan's assault on EPA—which also includes isolating competent career staff people from decision-making and demoralizing the staff of the entire agency—is perhaps the most stark example of serving the interests of industry while undercutting protection for the public.

Senator Patrick Leahy (D-VT) and Representative Albert Gore, Jr. (D-TN), have jointly sponsored a concurrent resolution in both the House and Senate expressing support for appropriating additional resources for EPA beyond the President's bread-and-water levels.

ACTION LINE: A note to your representative and your two senators favoring the "Alternative Budget for the Environment" would be very helpful; all the more so if you will protest the big cuts for energy conservation, the continued commitment to such boondoggles as the Clinch River Breeder Reactor and the Tennessee-Tombigbee Waterway and support for the Leahy-Gore concurrent resolution calling for major increases in the budget for EPA.

BOONDOGGLES: There are always some federal pork-barrel projects that gain notoriety as symbols of outrageous spending. Two of the biggest are the Tennessee-Tombigbee Waterway and the Clinch River Breeder Reactor. Together, they would receive more than $450 million under the Reagan budget.

"Tenn-Tom" is a ditch across Tennessee and Alabama, paralleling the Mississippi River, intended to carry barge traffic in a region already adequately served by railroads. Construction on this granddaddy of pork-barrel projects has been halted for more than a year now by a federal injunction, based on the inadequacy of environmental impact studies. Less than half of the

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$3 billion ultimately needed to complete the project has been spent. Now is the perfect time to stop throwing good money after bad.

The Clinch River reactor is a pet of the nuclear industry, a project designed to demonstrate breeder reactor technology, even though the technology involved will long since be out of date. Construction on the reactor has not yet begun, but Reagan proposes spending $253 million in 1983 to get it going.

Opposition to these two projects has been growing in Congress. In 1981, the Sierra Club, the National Taxpayers Union and other groups came within a handful of votes of stopping both projects. Both will again be before the full House of Representatives when the 1983 Energy and Water Appropriations Bill is debated, probably in early June. □

Larry Williams, a Club representative in the Washington office, specializes in issues pertaining to the federal budget.

CALIFORNIA WILDERNESS

A Clear-Cut Choice

MARK PALMER

THE PROPOSED Siskiyou Wilderness is in a northern California coastal region of botanic diversity unequaled in North America. But the future of the Siskiyou is clouded because the politics of wilderness preservation in California is as rugged as the backcountry. California's lame-duck Senator S. I. Hayakawa has placed the remaining wild forests of his home state in jeopardy, and those in the rest of the nation as well, by advocating S. 842, the RARE II Review Act of 1981. Timber people love the bill. Basically, S. 842 would open all potential Forest Service wilderness lands to logging, road-building, off-road vehicles and other forms of industrial development. Some lands would receive a few years of reprieve, just long enough for some consideration (but not much) of permanent protection.

The legislation would designate no wilderness. Senator James McClure of Idaho, a cosponsor of the Hayakawa bill, bluntly described the purpose of S. 842: "Such legislation would constitute a final 'No' to those who persist in their efforts to convert these lands to wilderness. . . ."

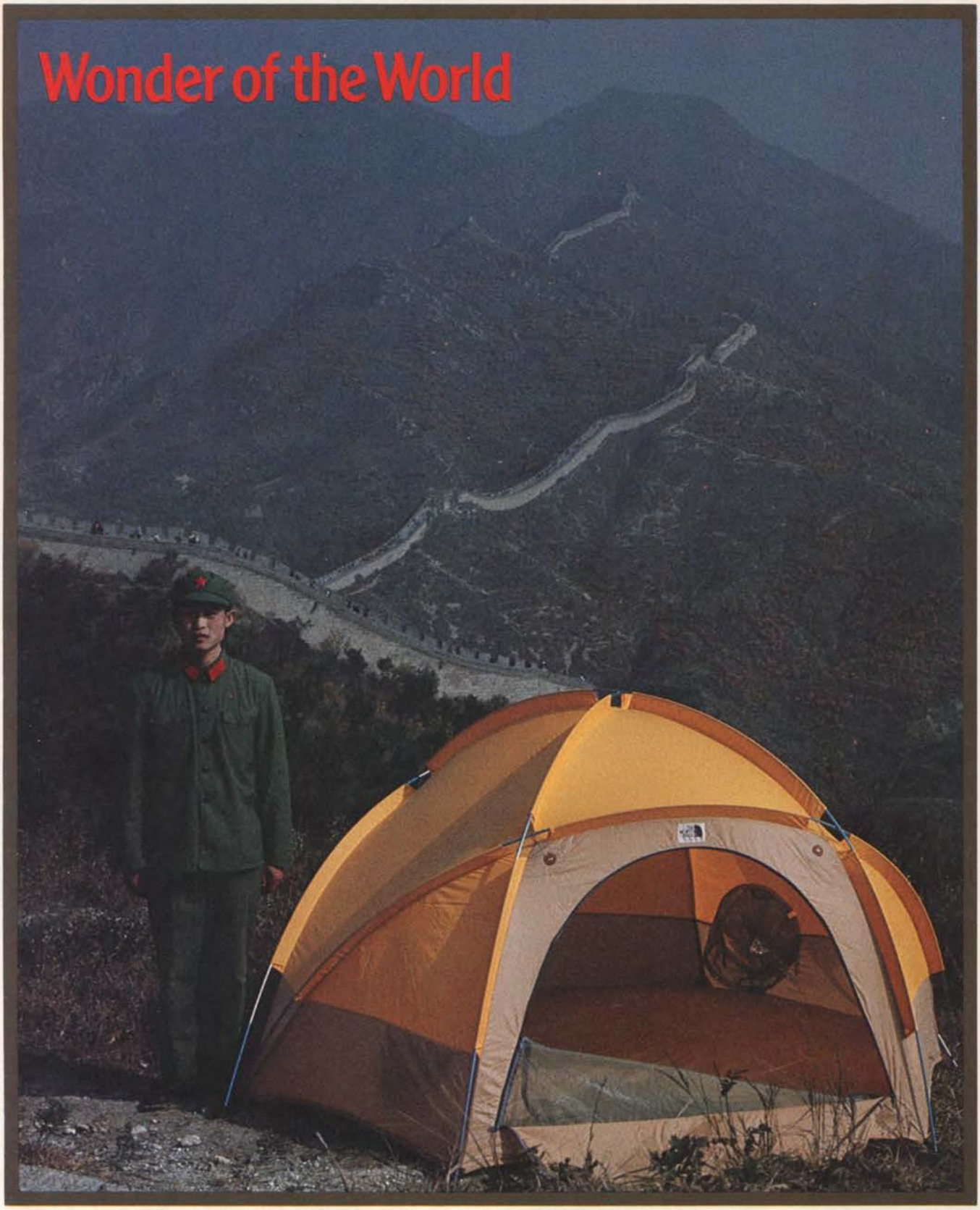
By contrast, Representative Phillip Burton and Senator Alan Cranston have introduced the California Wilderness Act (respectively H.R. 4083 and S. 1584). The act would designate 2.1 million acres of wilderness on Forest Service lands and an additional 1.6 million acres of wilderness in Yosemite, Kings Canyon and Sequoia national parks.

The steep slopes of the Siskiyou Mountains could be logged and opened to off-road vehicles if Senator Hayakawa's bill passes.

So the battlelines have been drawn between opponents of wilderness, backed by exploitation interests, and those who seek to preserve some examples of pristine California landscapes. Nowhere is the contrast of values between wilderness and antiwilderness advocates more acute than in the northwest part of the state.

"For me and for a lot of people, the thing that makes the Siskiyous special is how this area epitomizes the wilderness struggle," notes Tim McKay of the Northcoast Environmental Center. "Every element of sensitivity one would seek to preserve in a wilderness area is found here."

The Siskiyous lie in the heart of logging country. Lumber companies eye the wooded slopes longingly; most of the surrounding private lands have been denuded of timber. Local resentment grows as perceived federal "takeovers"—such as the expansion of nearby Redwood National Park—are held responsible for chronic high unemployment. To permit extensive logging on the few previously untouched national forest "roadless" areas, so the reasoning goes, would create more jobs and allow business to thrive. Senator Hayakawa, after first threatening to introduce legislation to sell



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Redwood National Park back to the logging companies, still rides the antiwilderness bandwagon, promising to end the uncertainty of forest planning and conservation by making clearcuts and logging roads the only certainties.

But as John Amodio, executive director of the Trinity Alps Coalition, pointed out in testimony on the California Wilderness Act, "How can the industry honestly predict massive negative impacts due to a wilderness resolution that still leaves them over 98% of the commercial forest land in northwest California? Clearly, if the timber industry can't survive on the 98% of the commercial land-base, the wilderness 2% can never save them, and we will be needlessly sacrificing a whole range of natural values in a vain attempt to bail out a mismanaged industry."

"The wilderness issue, in terms of the logging industry decline, is largely a false issue," Tim McKay adds. "Preservation of trees is the least problem the industry has. The companies have used the wilderness issue to obscure the real causes for unemployment—high interest rates, automation, shrinkage of the log market. They are hard put to cut the timber they've already leased."

And the Siskiyous are a fragile land. At least twelve rare, endangered, threatened or sensitive plant species survive here. The rare wolverine, protected by state law, makes these deep forests its home. I've been divebombed on the Siskiyou ridges by the endangered peregrine falcon—only 42 breeding pairs exist in all the state. The precipitous slopes, unstable soils and heavy rainstorms spell disaster when the protective vegetation is removed during logging operations. Eroded scars several acres in size surround the points of road access to the Siskiyous. Many existing California wilderness areas are being overused as demand soars for outdoor recreation. Backpacking, nature study and fishing bring in more long-term job opportunities than the boom-and-bust business of extracting resources. Downstream, water quality and commercial and sports fisheries benefit from clean runoff. (The Siskiyous provide water to the Klamath and Smith Rivers.)

To provide access to the timber in the Siskiyous and other nearby forests, the Forest Service has begun building a massive, paved superhighway from the small inland town of Orleans to the lumber mills of coastal Gasquet. Only an eight-mile section of the Gasquet-Orleans (GO) Road remains unpaved—eight miles of bumpy dirt road that cuts the proposed Siskiyou Wilderness in two. Conservationists oppose the road plan, citing problems of erosion and the threat to the integrity of the wilderness proposal. The local Indian people, some of whom still use sacred sites close to the GO Road path, are also vehemently opposed. One Forest Service proposal would solve the conflict by placing a chain-link fence around the Indian religious sites and proceeding with the logging road—diesel trucks, chain saws and all.

The Forest Service under the Carter administration set the stage for the current controversy by conducting a national "Roadless Area Review and Evaluation II" study, termed RARE II for short. Although more than 62 million acres of forested wildlands qualified for wilderness area status, the Forest Service recommended only 15.1 million acres, much of it in Alaska.

The balance was left to be "released" for exploitation or to be considered further in the context of local forest planning. In California, out of 6.3 million acres of roadless lands, only 930,000 acres were recommended for wilderness; 2.7 million acres were assigned to "further planning"; 2.6 million acres released from further protection as potential wilderness.

The 240,000-acre Siskiyou proposal is a case in point—only 41%, a core area of relatively timber-free high mountains, was recommended as wilderness; the forested 59% was relegated to chain-saw fodder. The drainage of Blue Creek, south of the infamous GO Road and overflowing with old-growth Douglas fir, was not even considered by the Forest Service for study. Conservationists protested strongly against the conclusions of RARE II. The state of California, led by Secretary for Resources Huey Johnson, sued the Forest Service, complaining of the inadequate treatment the RARE II study gave to its important task. A federal judge agreed, backing up his decision with a court injunction against further destruction of some of the disputed forest land. The Hayakawa/McClure bill and the Burton/Cranston California Wilderness Act both seek to resolve the impasse, but in vastly different ways.

Representative Phillip Burton skillfully constructed the California Wilderness Act as a compromise package between conflicting claims. Many important areas would receive wilderness status (see box). In the Siskiyous, for example, 101,000 acres would receive wilderness protection, while three "planning areas" (Eightmile, Blue Creek, and Dillon Creek) totalling 90,000 acres would be established and declared off-limits to logging until Congress can consider them in greater detail.

Many areas throughout California would come under the Forest Service planning process. Some would certainly be roaded and logged, but the process provides for continuing consideration of the wilderness option as well. The timber industry initially agreed to this compromise, and the Califor-

nia Wilderness Act passed the House of Representatives without a dissenting vote in the 96th Congress, only to die without Senate consideration.

The coming to power of the Reagan administration, hostile to the concept of wilderness, and the Republican takeover of the Senate placed Senator Hayakawa in a strong position to control environmental legislation. The timber industry was elated. John Crowell, Reagan's head of the Forest Service, testified in 1981 hearings on the California Wilderness Act that several of the agency's previous recommendations by the service for protected status would be rescinded. Hayakawa's antiwilderness S. 842 would, if passed, immediately "release" 59% of the proposed Siskiyou Wilderness to logging following the service's recommendations, never again to be considered for possible wilderness status. The core area of the Siskiyous would receive the same sentence after 1984 unless Congress acted to provide wilderness status. Thus, under this scheme, all the timber companies need do is delay wilderness consideration by Congress for a few years and logging would be assured. The companies' lobbyists quickly forgot their agreement with the previous Congress and lined up behind Hayakawa's bill.

But the superficial anti-environmental "mandate" of the Reagan administration quickly dissipated, if it ever existed in fact. Thousands of letters poured into Congress from concerned citizens protesting the Hayakawa/McClure antiwilderness bill. To date, Hayakawa's S. 842 has failed to gain enough support from his fellow senators even to clear the initial hurdles of the legislative process. Republicans and Democrats alike are dubious about cutting off debate on the fate of our nation's last remaining wildlands. Phillip Burton's California Wilderness Act, on the other hand, easily passed the House unopposed for a second time. Senator Alan Cranston quickly introduced the act in the Senate.

"It's the difference between night and day. Phil Burton worked with all the interested parties to achieve a compromise wilderness bill with bipartisan support. Senator Hayakawa has missed the boat entirely," explains Tim Mahoney of the Sierra Club's Washington staff.

Secretary of the Interior James Watt recently entered the fray by proposing, on the nationwide television program "Meet the Press," legislation that would defer leasing for minerals and oil and gas reserves in wilderness areas until the year 2000. The Sierra Club quickly urged caution: "We don't know exactly what's in the proposal, but it could be a Trojan horse for releasing proposed wilderness areas," John McComb, Washington director of the Sierra

Club, told reporters. Indeed, when the fine print of Watt's bill saw the light of day, conservationists immediately assailed it as yet another antiwilderness effort by the administration. Watt's "Wilderness Destruction Act," H.R. 5603, contains the worst of Hayakawa's antiwilderness bill and further opens the existing wilderness system to exploitation by mining and oil companies in the year 2000. By contrast, the 1964 Wilderness Act closes wilderness to leasing permanently in 1984.

WHAT YOU CAN DO

Write your senators at the Senate Office Building, Washington, D.C. 20510.

Ask them to *oppose* antiwilderness bills with unacceptable "release" language such as that contained in Senator Hayakawa's S. 842.

Ask them to *support* state-by-state wilderness bills, such as the California Wilderness Act, H.R. 4083 and S. 1584.

For further information on California wilderness, contact: John Moore, 10 Gardenside #2, San Francisco, CA 94131; Sally Reid, Pine Mt. Club, Frazier Park, CA 93225; Russ Shay, 6014 College Ave., Oakland, CA 94618; The California Wilderness Coalition, P.O. Box 429, Davis, CA 95616. □

Mark Palmer is on the executive committee of the Sierra Club's Northern California Regional Conservation Committee. He has worked on wilderness and wildlife issues for the Club since 1975.

SIERRA CLUB'S FIRST ENDORSEMENT: Yates Wins Primary

JONATHAN ELA

THE SIERRA CLUB'S first venture into 1982's political season proved a great success. On March 16 Chicago Representative Sidney Yates, first congressional candidate ever to be endorsed by the Sierra Club, defeated his Democratic primary opponent John McCauley with a remarkable 84% of the vote.

In early February, however, the race had all the omens of a possible upset. First were the effects of redistricting. Yates had been reelected nearly by consensus in his Northshore Chicago district, but redistricting had added the northern suburbs of Evanston,

Skokie and a number of other towns. About 40% of the new Ninth Congressional District consisted of voters unfamiliar with Yates' record.

Then there was the opponent, John McCauley, who has been described in the press as "young and ruggedly handsome and glib and very Irish looking." Perhaps more important, he is a savvy pro from the world of city-hall politics, with strong connections in the Democratic organization. Shrewd, aggressive and with boundless energy, McCauley was clearly mounting the strongest effort to oust Yates that had come from either party in many years.

There was also the candidate himself, who seemed possibly vulnerable, in part because of the very qualities that have made him such an effective legislator over the years. Sidney Yates seems a most improbable politician, quiet and modest with a passion for issues and a strong distaste for self-promotion and media puffery. He is 72 years old, although in person his bearing makes him seem at least a decade younger. Moreover, for years Yates' reelection campaigns were perfunctory affairs with foregone conclusions, so there was no existing campaign organization, and his staff had little experience running a serious Yates campaign.

Finally there was the fluid state of Chicago politics. Mayor Jane Byrne and the son of the late Mayor Richard J. Daley are engaged in a savage struggle for power. The repercussions have pitted lord against lord and vassal against vassal. Would McCauley, a cagey insider, be able to catch Yates in this crossfire and strip him of the support he had always enjoyed from the Democratic organization?

Sierra Club political analysts watched this situation with growing unease in January, precisely when the Yates campaign staff con-

GINA UHLMANN

Sue Lannin (left), chair of the Chicago Group, with Representative Sidney Yates (center), former Secretary of the Interior Stewart Udall (right) and some of the campaign literature.

cluded that an extraordinary effort appeared to be necessary. Sidney Yates has been a key supporter of environmental issues over the years. In the early 1970s he was the leader in the successful fight to kill the expensive and environmentally ominous program to develop an American supersonic passenger airliner (SST.) His votes on environmental issues on the House floor have been excellent.

Most important, Yates currently serves as the chair of the Interior Appropriations Subcommittee, which approves budgets for such key environmental agencies as the National Park Service. Indeed, Yates has been a primary bulwark against the budget-ravagings of Interior Secretary James Watt, and he was successful in 1981 in forcing more than $100 million dollars on an unwilling Department of the Interior to use for national park acquisitions.

On February 16, exactly one month before the primary, Sierra Club President Joe Fontaine held a well-attended press conference in Chicago announcing that, for the first time in its 90-year history, the Club was endorsing a candidate for Congress. In addition to outlining our reasons for supporting Yates, Fontaine explained the importance of the Club's involvement in electoral politics: "We hope 1982 will produce an electoral mandate, a mandate that tells this administration and the Congress to stop a reckless course of destroying our environment."

The press conference kicked off an electoral partnership that can serve as a model for future efforts nationwide. Although the Club's Chicago Group had little experience with electoral politics, leaders and members responded with amazing effectiveness. For its part, the Yates campaign welcomed Sierra Club participation with enthusiasm and to a significant degree designed the campaign around both our participation and the influence of the Sierra Club name.

Our name was used in a Sierra Club handout headed, "Do you want to STOP JAMES WATT? Sidney Yates *already has*!" About 11,000 of the flyers were passed out on "Y Day," a week before the election. Volunteers were at nearly every bus stop, elevated train station and commuter train station in the district, passing out literature during the morning commuter rush. An additional 20,000 copies were prepared for election day. According to one Yates campaign staff person, the Sierra Club handout was more effective than the literature prepared by the staff itself.

Club volunteers composed as much as half of the entire campaign work force, with as many as 100 members involved to some degree. A number of the more active members formed an important core of the campaign, spending hours at the two campaign offices making phone calls, preparing literature or otherwise helping out: they proudly wore buttons that read, "I am a Sierra Club Volunteer."

Yates T-shirts were prepared, which Club members addicted to the sport of jogging wore during their morning runs through the district.

Volunteers phoned hundreds of Club members after each member had received a letter signed by Joe Fontaine and Chicago Group Chair Sue Lannin asking them to help. The response was almost universally positive in tone, with only a few members annoyed that the Club was engaging in this activity.

The result of all this quickly organized activity was profound. Starting with practically nothing, Representative Yates suddenly had a highly visible campaign with posters, sandwich boards, T-shirts and literature in good supply.

There were moments of real satisfaction and even amusement. Club leaders had opportunities to meet with Representative Yates and discuss both politics and substantive issues, and they came away from these meetings even more impressed with Yates than before. The representative has established a panel of advisors from his constit-

uency; about a third are environmentalists.

An added attraction was a meeting with former Interior Secretary Stewart Udall, who was in Chicago for the opening of an exhibit on the national parks.

Occasionally ninth-district residents were incredulous at seeing Sierra Club volunteers and machine precinct captains, both readily identified as such, handing out Yates literature together at bus stops.

At the end it was hard to judge who were the more enthusiastic. The Yates campaigners were effusive in the praise they gave Club volunteers, and Representative Yates gave special mention to the Club in his gracious victory speech, referring to the "material boost" we had given his campaign. For their part Club activists at the victory party exuded pride and satisfaction at their accomplishment, and—perhaps most important—were spilling over with ideas on how Club participation could be increased and made even more effective during the general election campaign. "We started pretty green," summarized Group Chair Lannin. "But we learned a lot, had fun and made a difference. It really has been exciting."

In retrospect, everything went right. McCauley ran a vocal campaign with high visibility, but he generated no significant issues in his challenge to Yates. His principal claim was that Yates had failed to bring more Department of Defense money into the district, a rather implausible platform considering that the district is largely urban, middle-class and residential. The final results show an unflagging support for Yates in the city and a quick shift of allegiance in the suburbs.

However, nobody takes the general election for granted. The Republican challenger, young and articulate Catherine Bertini, is rumored to have nearly unlimited funding from Republican campaign committees and business political-action committees. While the district is theoretically strongly Democratic in nature, a well-financed campaign with an attractive candidate could bring trouble.

In retrospect, the huge margin of the Yates victory calls into question whether the effort was necessary or worth it. The answer has to be "yes." The Club gained experience and high visibility in Chicago and forged strong bonds of mutual esteem with the representative and his staff; most important, events might have evolved differently—the strong Club presence was a critical factor. It is certainly more comfortable to speculate whether our participation made a major difference in a margin of victory than to brood over whether a little more effort might have avoided a defeat. □

Jonathan Ela is a Sierra Club Midwest representative.

LAST YEAR WE SENT A MESSAGE TO CONGRESS.

This year we want to do better— This year, let's send the messengers!

THIS YEAR, for the first time since its founding in 1892, the Sierra Club will make an all-out effort to influence the elections of candidates for public office at local, state and federal levels. In February, for the first time, the Club endorsed a candidate for Congress—Illinois Representative Sidney Yates. We'll be endorsing many others—challengers as well as incumbents. The Sierra Club has conducted campaign training workshops in every region of the country. More than 500 Club volunteer leaders have attended workshops to learn the techniques of political involvement, preparing to go out and work for the environment at the ballot box.

The Sierra Club invites you to get involved in this pioneering effort.

Below are two coupons. One tells your representative that you are personally committed this year to becoming more active politically, and to trying to stop the Reagan administration from continuing its policies that threaten the future.

The coupon also asks for a positive response; it asks your representative to tell you what he or she is doing to stop this threat.

The second coupon, addressed to the Sierra Club, lets volunteers and staff members know about your plan to become more active. It lets you order materials that will help you—including the Club's new *Green Vote Handbook*, a guide to political involvement, and the League of Conservation Voters' rating charts showing how incumbents voted on important issues.

The Sierra Club will forward your card to the local Club chapter.

If you want to be a player instead of a spectator in this year's crucial election showdown on the future of our environment, the simplest way to start playing is to send these two coupons.

REPRESENTATIVE_____
House Office Building, Washington, DC 20515

Dear Representative_____:

I'm very concerned about the Reagan administration's policies regarding the environment. Since attempts at cooperation and compromise appear to have failed, I've pledged my efforts to become active in the upcoming elections—and to recruit my friends and family, too. Here's where I'd like your help. I'd like to know what you have done and will do to stop the anti-environment policies and budgetary practices of the current administration. Specifically, I'd like to know what you are doing to:

—Protect clean air against the threat of the Dingell-Reagan anti-clean-air bill, H. R. 5252. I hope you'll help Henry Waxman and Robert Stafford defend this crucial legislation against an assault by industry.

—Ensure that the 40 million acres of federal forests and public lands we need to add to our wilderness system get fair consideration in Congress. I oppose efforts such as those recently launched by Secretary Watt to set premature, arbitrary deadlines for final decisions concerning these areas, and to give President Reagan power to open potential wilderness for development.

—Pass a fair federal budget, one that gives the EPA enough financial resources to carry out its vital air- and water-pollution control job and pursue its new task of protecting me and my family from toxic chemicals. A fair federal budget would also cut out boondoggles such as the Tennessee-Tombigbee Waterway and the Clinch River Breeder Reactor.

—Work out a safe and permanent solution to the problem of storing civilian and government nuclear wastes.

—Resist President Reagan's efforts to sell out our public lands—my children's heritage—or to despoil them through excessive development and exploitation.

As a member of Congress, if you want more information on these issues and how you can help preserve our future against "Wattism," the Sierra Club has prepared a *Platform for the Future*. Write the Club at 330 Pennsylvania Avenue, S.E., Washington, DC, or call (202) 547-1141.

Also, please put me on your environmental mailing list and keep me up to date about what you are doing to deal with these problems.

NAME_____

ADDRESS_____

CITY, STATE, ZIP CODE_____

☐ Yes, I am angry enough about what the Reagan administration and some people in Congress are doing to our resources and our future that I'm going to get more active in politics this year. I've told Representative_____ in the Congress, and I want my chapter to know, too. Please let them know.

☐ Please send me a complete "Green Voters Kit." It includes:

- *The Green Vote Handbook*, a guide to getting involved in election campaigns.
- The *1981 House and Senate Voting Charts*, which indicate what each member of your congressional delegation is doing to protect or destroy the environment.
- The new *Sierra Club Platform for the Future*, which outlines the specific things your congressional delegation (and candidates for office) can do to help.

All this for only $5. Make checks payable to the "Sierra Club." (Residents of California add 6% sales tax. Allow 4 weeks for delivery.) IMPORTANT: Please include your member number from your *Sierra* label in the space provided below. This helps us to fill your order quickly.

Please return this coupon to
SIERRA CLUB, P.O. Box 7959, Rincon Annex, San Francisco, CA 94120

_____ 8-digit membership # _____
NAME (From Sierra Label)

ADDRESS_____

CITY, STATE, ZIP CODE_____

Oil and Gas Leasing in Wilderness—

What the Conflict Is About

DAVID SUMNER

RICK GRAETZ

The Chinese Wall, a landmark in the Bob Marshall Wilderness, is part of the Overthrust Belt.

BROOKS MONTGOMERY owns Salmon River Mountain Sports on Main Street in downtown Salmon, Idaho. It's a shop selling equipment for backpacking, kayaking and cross-country skiing, sports Montgomery himself pursues. During an average year he gets out "as much as I can," his choice trips being the hike into the Bighorn Crags and the run down the Middle Fork of the Salmon. Both are now within the River of No Return Wilderness.

In early February 1982, on short notice, Montgomery made a much longer trip courtesy of Salmon business people, doctors, guides, outfitters and wilderness users, who raised more than $500 for his plane ticket and expenses to Washington, D.C. (it was the first time he'd been "back East"). His purpose was to speak before the House Public Lands Subcommittee (also the first time he'd ever testified at a government hearing). Montgomery's subject was the most visible, volatile and nationwide environmental issue raised by the Reagan administration: oil and gas development in national forest wilderness areas.

From 1977 to 1979 Montgomery worked, with some breaks, for Consolidated Georex Geophysics (widely known as CGG) on the company's "portable helicopter" seismic exploration crew #08. CGG is the French firm that, in 1979, sought oil exploration permits in Montana's Bob Marshall, Great Bear and Scapegoat wilderness areas, and crew #08 was the kind that would be used there.

Seismic exploration is a common first step in exploring for oil and gas. In this procedure, surface explosives send shockwaves into the ground to echo off deep strata. The interval between blast and echo is picked up by sensitive geophones, and when explosions are detonated along a line, one after the other, the sequence of readouts yields a profile of the underground strata. The point is to identify what might be oil- or gas-holding "traps" in the deep rock. The helicopter leapfrogs the crew from one blast site to the next down the line that has been surveyed. No roads are involved.

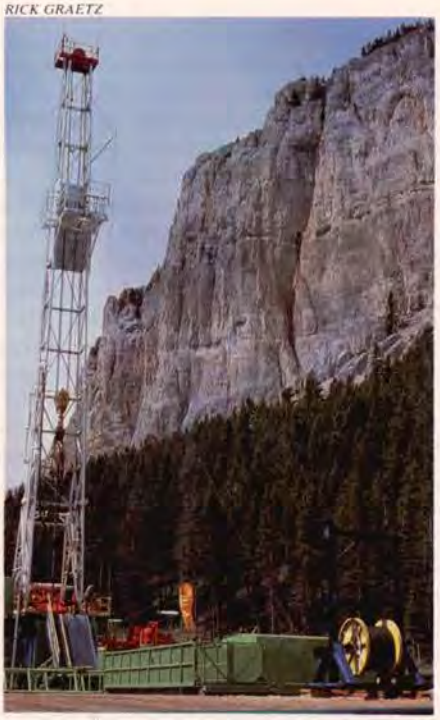
In his three years with CGG, Montgomery worked around a good bit in the Snake River Range (Wyoming, Idaho), in the Uinta Range (Utah), in the Absaroka Range (Wyoming), in the Coastal Range (Oregon) and in the Big Hole Mountains (Montana), among other places. Most of the time he was a "trash and cash man," a "glorified garbage man," as he puts it, cleaning up at a site after the blasting had been done. In Washington, he was terse and clear about the effects of this activity in a wildland.

"The most obvious impact," he stated, "is from the dynamite. The crew I was with worked on an incentive basis. The faster and more often we shot, the more money we made. The shots usually consisted of ten five-pound sticks of dynamite suspended above the ground by lath and linked by primacord. Every 220 feet we blew off 50 pounds of explosives. We averaged between 50 and 100 shots a day."

Montgomery went on to explain how, despite the use of flash-retardant explosives, his crew ignited numerous forest fires, "some of which were quite extensive," and was repeatedly shut down by the Forest Service. He noted that on "incessant helicopter flights" the crew buzzed elk herds, black bear, mule deer, bighorn sheep and antelope "to observe them first hand."

Finally Montgomery commented on the often repetitive nature of the seismic proce-

RICK GRAETZ



dure. "The oil and gas business is very competitive," he said. "The seismic data purchased by one company is not shared by another. So often we blasted a line for one client, and then came back later and did the same line, or a slight variation, for another."

Seismic exploration has the least impact of any of the processes in the development sequence of oil and gas. It is a quick-in and quick-out job that gives a profile of the subsurface structure of an area. It does not identify oil or gas, only formations that might hold them. In addition to the impacts Montgomery noted, some hacking of brush or trees may occur along the line. "After one cycle of seasons," stated a Forest Service official in Denver, "you can't even tell the crew went through."

Exploring the Loophole

In December 1981, records from the Forest Service's analytical management section in Vienna, Virginia, showed 891 pending oil and gas leases covering 3 million acres in 42 wilderness areas in thirteen states. For a sampling, start in the eastern United States and travel from north to south. One application is pending for the Bristol Cliffs Wilderness (Vermont) and nine for the Joyce Kilmer-Slickrock Wilderness (North Carolina/Tennessee). Skip to the Midwest and pick up the Upper Buffalo Wilderness (Arkansas) and the Nordhouse Dunes, an area recommended for wilderness (Michigan). Move west to the Rockies and find 22 leases in the Lizard Head Wilderness and 52 in the West Elk (both Colorado), 109 in the Washakie (Wyoming) and 99 in the Great Bear (Montana). Finally, in the far West, add the Ventana, Santa Lucia and San Rafael wildernesses (all California) and Alpine Lakes (Oregon).

In addition to the 43 existing wilderness areas with lease applications, some 130 other roadless areas from the Forest Service's RARE II process—some recom-

A drill rig at the Rocky Mountain Front (left) shows what could be in store for the Ventana Wilderness (below), where two lease applications are pending on a total of 10,764 acres.

FRANK S. BALTHIS

mended for wilderness, some for study, some for further planning—are targets. In the entire history of the American wilderness system, both before and since the 1964 Wilderness Act, no single activity has posed such a broad, nationwide threat.

Oil and gas development normally proceeds in five stages: 1) prospecting, 2) test drilling, 3) construction, 4) production and 5) abandonment. The first stage may involve remote sensing, surface mapping, seismic work, or other methods. On national forests, the seismic work is approved and monitored by the Forest Service through special use permits. CGG's portable helicopter crew #08, Montgomery aboard, operated under this procedure.

On most federal lands, the next four stages fall under the Mineral Lands Leasing Act of 1920. For anyone following the process, it will at first appear a bureaucratic and procedural maze involving a troika of agencies, a lease and two principal permits.

First, the Bureau of Land Management (BLM) processes applications and issues leases, usually between the first and second stages of development, but sometimes earlier. Thereafter, the Minerals Management Service (MMS)—a new agency split off from the U.S. Geological Survey in February 1982—issues permits, monitors the operations and collects royalties. Both are agencies in the Department of the Interior.

When a lease is filed on a national forest, administered by the Department of Agriculture, the matter becomes more complex. BLM (Interior Department) routes the application to the Forest Service (Agriculture Department) for review and recommendation. If the lease is in a sensitive area, such as a wilderness, the Forest Service may write either an environmental assessment or a full environmental impact statement as a basis for its recommendation. If the Forest Service decides on approval, it may recommend land-use stipulations the developer must follow—for example, no surface occupancy. Traditionally, BLM has followed the FS's lead, which is legally only advice; the actual decision to lease or not is BLM's.

If a lease is approved and the company decides to test-drill (stage two), then it submits an operating plan to the MMS, which again routes the plan to the Forest Service for review and concurrence, with special attention to protecting "the surface resource," minimizing and mitigating impacts and so on. The Forest Service and MMS proceed with a joint site-specific environmental assessment or an EIS. A permit, construction and test-drilling follow.

Finally, if the developing company strikes enough oil or gas for full production (stages three through five), it submits a second, long-term operating plan to the USGS. Production is normally a substantial step up from test-drilling: a pipeline is needed; usually more wells are drilled and more roads built. Now the MMS and the Forest Service do a third assessment or EIS. It is too late by this time for stopping development to be an option. But the agencies can write stipulations into the production permit as long as they follow the intent of the lease to curb impacts during construction and pro-

JEFF GNASS

duction (stages three and four), and to assure full cleanup and some degree of reclamation when the field plays out and the site is abandoned (stage five).

Though complex and potentially frustrating to the layperson, the three-agency arrangement is, at its best, a check-and-balance form of safeguard. The multiple-permit process (lease, test, production) functions similarly.

Oil and gas leases run ten years, are indefinitely renewable as long as wells are producing, and may cover up to 10,240 acres (sixteen square miles) each. The filing fee is $75, with an annual fee of a dollar an acre after the lease is granted. Anyone can apply for a lease, and this has become a brisk speculator's game. Some leases are awarded by lottery, some by competitive bid, most over the counter. In a May 1981 memo to the House Public Lands Subcommittee, Forest Service Chief Max Peterson estimated that, between 1976 and 1981, 90% of all oil and gas leases on national forests expired with no test-drilling. USGS estimated 75% for all federal lands. Neither agency could specify for what percent of these leases stage-one prospecting was carried out.

There are two leases pending in the Maroon Bells-Snowmass Wilderness (opposite) and twenty-two leases in the Jim Bridger (below) on a total of 76,777 acres.

FRANK S. BALTHIS

For wilderness areas, all this was of little consequence until the mid-1970s. Before the Wilderness Act of 1964, the Forest Service routinely rejected oil and gas leases on all its wilderness, wild or primitive areas. Applications for the Bob Marshall Wilderness were denied as early as 1956.

With the enactment of the Wilderness Act this situation became more delicate because of Section 4 (d) (3), the loophole that states, among other things, that "all laws pertaining to mineral leasing" shall apply in all wilderness areas until midnight, December 31, 1983. Allowing oil and gas work in wilderness at the discretion of the appropriate federal agencies (called a "nonconforming use") was a political concession to the mining industry, granted to get the act passed. The 20-year grace period (1964 through 1983) was judged to be sufficient for any needed exploration.

By 1979, the forces of history were converging. The Overthrust Belt looked ever more appealing to industry. The Forest Service's RARE II process cranked up, and policies of temporarily protecting lands that might later qualify as wilderness stalled the processing of lease applications. Industry was growing nervous over the minerals-loophole deadline of December 31, 1983; if it didn't get a handle on the oil and gas reserves in wilderness before the cutoff date, the curtain would drop.

From 1977 on, especially beginning in 1979, lease applications in wilderness areas —and in areas recommended for wilderness in RARE II, as well as those to be studied or scheduled for further planning—piled up quickly. In October 1980, the decision of *Mountain States Legal Foundation* versus *Andrus et al* pressed the Forest Service to process its backlog of leases. This was not a major legal case, but it did have political repercussions. The Forest Service expedited processing; the Sierra Club sued in some instances. Probably no more leases were issued than would have been otherwise, but the political heat had been turned up. Well before the Reagan administration and the appointment of Interior Secretary James Watt, a head-on collision was inevitable.

Report from Wyoming at 7800 Feet

If the stage-one seismic profile of an area turns up a promising pocket that might hold oil or gas, the subsequent stages of development will probably have a big impact on the entire area.

In winter 1980-81, a deep-drilling test rig —a stage-two operation jointly financed by Sun Oil, CONOCO and ARCO—probed for possible oil on the Bridger National Forest in mountainous west-central Wyoming. From the start, the project was designed to be industry's demonstration of just how little impact test-drilling could have. The Forest Service had insisted on stiff compliance standards to protect wildland values. Monitoring was close. The companies followed willingly.

The site at 7800 feet was in an Engelmann-spruce, subalpine-fir ecosystem that had been logged here and there in the past. Before the oil activity a 7½-mile primitive access road had been built to the spot, 28 miles from the nearest town. A steep ridge with dark rock buttresses rose behind the site, and the larger area was important moose range. Though surely not wilderness, it was an exemplary patch of mountain back-country—by Forest Service assessment a sensitive scenic, wildlife and watershed area.

First the companies upgraded the old access road, realigning, widening and building it up to handle the high-tonnage traffic that would follow. Next a six-acre drill site was cleared and terraced with eventual recontouring and revegetation in mind.

The site was larger than usual, but it included space for two features not found at most test rigs: a "man camp," with capacity for 28 workers, and a major storage area that would cut down on road traffic and transportation costs.

The site also included space for a "reserve pit" (for waste such as drill fluids and rock cuttings), a 4000-hp-capacity diesel generator (for the drill rig and general electric service), storage tanks (for the diesel fuel) and the drill rig itself.

When the operation was under way, impacts were limited to the road, the site and

the surrounding area. Noise was harsh and constant, a kind of ongoing industrial clangor, both from the diesel generator and from continually moving and lifting pipe and drill steel. Though road use was moderate, regular snow plowing raised activity there. A few workers skied cross-country or snowmobiled, but in all there was little time for recreation. Because it was winter, large mammals (moose, elk, deer) had already migrated to lower elevations and comparatively snow-free range.

Shortly after the act passed in 1964, Forest Service officials drafted regulations that would resolve the practical problems of nonconforming uses that rangers would have to cope with in the field. When it came to the conflict between the minerals loophole and the overriding preservationist intent of the Wilderness Act, the agency decided to go with the latter—and to continue its pre-1964 practice of rejecting wilderness leases because they were in wilderness.

For the next decade, no challenge came from the oil and gas industry. Looking back one could say the companies were shortsighted, but the illusion of plenty was still alive. Wilderness areas were remote and expensive to explore, let alone develop. Ample and more accessible deposits existed elsewhere. Besides, these years were the high tide of popular conservation; if industry were to go after wilderness, it could be a political blunder.

The Arab oil embargo of the early '70s and the concurrent national discovery of "the energy crisis" signalled the first change and brought the first tentative tests of the Wilderness Act's minerals loophole. In Colorado, for example, leases were sought in three areas in 1972 and 1973. Those for Eagles Nest and Flattops were rejected, while a group on 2441 acres of the old West Elk was quietly approved without prohibitions against surface use. No notice was taken because lease actions were local and unpublicized; in the case of the West Elk, some of the leases were granted before the area was designated a wilderness, and no on-site activity occurred to flag attention. In 1974 three leases slipped into Wyoming's Bridger Wilderness. Elsewhere in the Rockies, other applications appeared—for example, in the Washakie in Wyoming and the Great Bear in Montana.

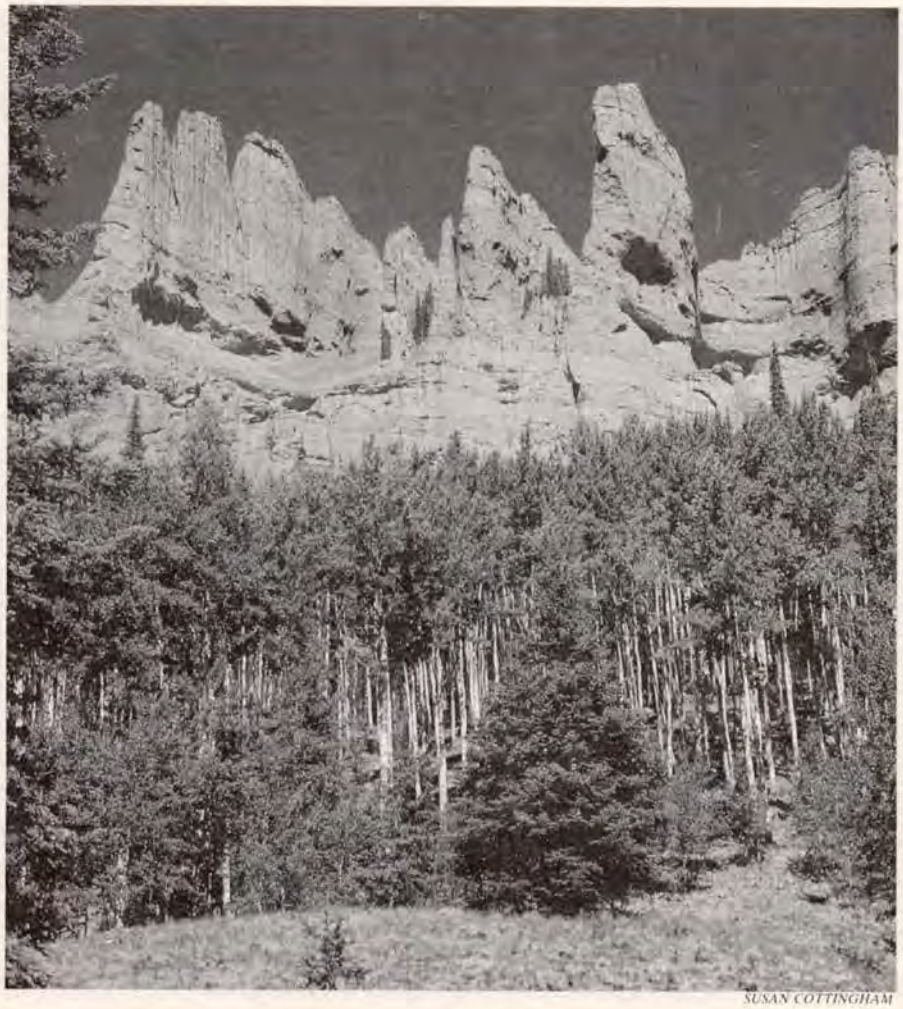
The discovery and publicity of the western Overthrust Belt stepped up industry's interest in some wilderness areas. Occasional questions about the Forest Service's policy on the mining loophole grew to heavy pressure against it and finally to a direct legal challenge that succeeded in 1976.

The western Overthrust Belt is not a single formation; it is a large, long and geologically fascinating series of pockets that weave an erratic, discontinuous, generally north-south course in the United States, from Montana to New Mexico. From Glacier National Park (where oil was drilled in 1905), the belt drops through the Great Bear, Bob Marshall and Scapegoat wilderness areas. A zone in western Wyoming and eastern Idaho is followed by a jog to western Utah and southern Nevada. The belt ends with a stretch crossing southern Arizona, southern New Mexico and a small nub of west Texas. This line just happens to take in some of the finest wild country of the Rockies, the intermountain West and the Southwest.

Along the Overthrust Belt, sometimes ten miles wide, sometimes 100, geologic forces have thrust older rock over more recent formations, and it is in the younger rock, buried deep now, that oil and gas are suspected to occur. Some pockets are unpromising; in other areas, the minerals have been found. No one knows how much is there in all. Until recently the cost of drilling so deep was so great that few gave it a thought. In addition, only elementary seismic technology had been developed. Those barriers are down, but even so, in the oil and gas business, only drilled holes bring in conclusions. To date dry holes vastly outnumber producers, but even a small field can be immensely profitable. Industry is optimistic about the western Overthrust Belt, sometimes cautiously, sometimes almost wildly.

This combination of oil embargo and promising yield in the Overthrust Belt was bound to create more pressure on the wilderness. It came in many ways. One of the more interesting was in 1974 when Stanley N. Edwards, working out of Casper, Wyoming, applied for leases in the Washakie Wilderness. The Washakie is a vast, ragged

The West Elk (below), Alpine Lakes (above right) and Lizard Head (below right) wildernesses are all threatened with exploration. In the West Elk, 52 leases are pending on a total of 104,937 acres.



SUSAN COTTINGHAM

PAT O'HARA

mountain area directly east of Yellowstone National Park. It is miles north of the nearest overthrust pocket, but it is just east of the Oregon Basin, which has been producing oil since the 1930s. The wilderness was too rugged to attract much investment before the embargo, but after it, oil prices made the exploration worthwhile.

The Forest Service recommended rejecting the lease application, and the BLM followed suit. Edwards went to the Interior Board of Land Appeals (IBLA) and argued, first, that the Forest Service could not reject a lease on the sole basis of wilderness classification, but must also show that special environmental and other resource values would be threatened. He also argued that in the case of a rejection from the BLM, the agency had to make its own independent determination and not simply follow the Forest Service lead. On February 24, 1976, the board ruled in his favor.

(In December 1981, the Sierra Club Legal Foundation won *Learned* versus *Watt*, in which a federal judge ruled that the federal agencies are not *required* to accept lease applications, but can reject them on the basis of recreational and scenic values if appropriate.)

A decision from the Interior Board of Land Appeals has the force of law, although the Interior secretary may overrule it, a federal court may overturn it and legislation can supersede it. But the Edwards decision went unchallenged, so the Forest Service and BLM—both under intensifying pressure from industry anyway—set about revamping both policy and procedures for lease applications in wilderness.

The stage-two operation ran eight months and pulled out: another dry hole. Often, test drilling runs for much less time, sometimes only two or three weeks, with less construction and fewer workers. Industry currently is short of rigs and wants to move them from site to site as fast as possible. Still, the western Wyoming job was a fair model of how it would be in a wilderness or roadless area and was about the best that can be done in remote country. The current plan is to re-

DAVID SUMNER

vegetate the site with grass and trees; the road is closed but can be opened for occasional small timber sales.

If the impacts from stage-two exploration are limited in space and duration, those of full production (stages three through five) are not. Examples exist in hundreds of producing fields in the United States; they are major industrial enterprises. The construction period, stage three, is the most intense—a boom. More pads are cleared, more wells are drilled, more roads are built. The project may cover hundreds or even thousands of acres. Hundreds of workers are involved.

There are other factors, too. Utility lines replace the generators; separators and larger storage tanks may be built. If the wellhead pressure is low, pumps go in. Pipelines must be laid and often compressors installed *en route* to maintain the flow. Heavy traffic peaks, mostly trucks.

Actual production (stage four) is quieter, nearly a bust, with most activity settling to a maintenance level. Often the field seems empty, almost abandoned except for the powerlines, roads, a few metal shacks, the pumps, and at night the lights. At various intervals workers do move in and out to clean waste pits or clogged pipe, to work over rigs, to scrub casing. But the operation runs as much as possible by itself.

How long does this continue? Most likely for many years; 50 is not extraordinary, and 100 is possible. An oil field is seldom depleted on the first go-round. Secondary, tertiary and later recovery stages may follow, and each will require an added burst of construction. They can involve intensified pumping and then the deep injection of hot water, steam, carbon dioxide or detergents to free the oil from its rocks and force it out.

Finally, at some point, the field is abandoned (stage five). An oil or gas field is far more readily restored and revegetated than mines for oil shale, coal or hardrock where there has been stripping, an open pit or valleys filled with waste. After all, a well is only a hole in the ground.

Still, there is only one good example of a well-restored oil field. It is in Pennsylvania, where the nation's first oil well appeared in 1859. On the Allegheny National Forest, where some 25,000 wells have been drilled since the 1860s, old production pads and some old roads have been closed and reseeded, mostly with grasses and legumes. The new growth is up, and the Forest Service, working with the state, manages these "openings" as wildlife habitat. Wild turkeys and white-tailed deer are reported to be doing well. The impact on wildlife, however, depends on the species and the animals' use of the area; where deer may recover, elk may not. In any event, the real wilderness is long gone.

One pending lease in the Wenaha-Tucannon Wilderness is for 10,240 acres.

PAT O'HARA

The Current Situation

Although there has been a lot of activity related to specific areas, two recent events most powerfully affect the broad picture of minerals leasing in wilderness areas. James Watt, Secretary of the Interior, first announced that he would delay any decisions on wilderness leases until after Congress adjourns for the 1982 mid-term election campaign. This decision extends a temporary moratorium he had previously agreed to. Some interpreters say Watt is trying to defuse the issue for the 1982 elections, when key Republicans in the West will be facing the voters.

Second, Watt announced that he will seek legislation to abandon the minerals-loophole deadline of December 31, 1983, for leases. He will propose that, instead, all energy development be banned in wilderness areas until the year 2000, that the government continue to study mining in those areas, and that the President would be able to open areas to development in case of "urgent national need." In the year 2000, Congress could reconsider the whole thing.

Such a bill, if enacted, would simply protect the wilderness areas for another eighteen years and then leave them entirely vulnerable to the political winds of the day. The intent of the Wilderness Act of 1964 was to close the areas to minerals leasing and development forever. In payment for his generosity in allowing the new, brief protection period, Secretary Watt says his plan will also provide for terminating the growth of the wilderness system.

Meanwhile, across the United States, oil and gas lease applications sit, pending. Copies for those for Colorado's West Elk Wilderness are in an expandable gray folder in a gray file cabinet at the local ranger-district office. Each one is clipped to a sheet of cardboard topped by a blue tab.

Also in the file is a forest map showing where the leases lie, each rectangle outlined in red, the rectangles lined up like standing dominoes running from east to west across the mountainous heart of the West Elk.

Similar files and maps exist nationwide. The chances of any of the leases producing strikes are small, but the cost of finding that out is great. In 1982, Congress will decide whether to face the issue or deal it off to the future. □

David Sumner is a freelance writer and photographer based in Denver, Colorado.

CAN WE SAVE THE LAW THAT SAVES ENDANGERED SPECIES?

ROSEMARY CAREY

THE ENDANGERED SPECIES ACT of 1973 is the most important statute the United States has to protect endangered and threatened plants and wildlife in this country, and to help protect those abroad as well. It has also been one of the most controversial statutes in the history of environmental protection and has been widely publicized—and misunderstood. It is due to be renewed this year, and congressional committees may make important recommendations about the issues shortly after this magazine reaches readers' hands.

Much of the media attention devoted to the act has been related to the Tellico Dam in Tennessee, controversial in the mid-1970s. Environmentalists had been complaining about the project for some time on grounds that included high cost, low benefit, destruction of whitewater river, drowning of archaeological sites—and destruction of the habitat of an endangered species, the snail darter, a small fish that needs a fast-flowing river to live. The campaign against the dam was being fought on all these fronts, but the media became interested in the snail darter when the U.S. Supreme Court prohibited the Tennessee Valley Authority from finishing the partially completed dam because the law protected the fish. The court said the action would have violated the Endangered Species Act, which prohibits federal agencies from taking any action that jeopardizes a threatened or endangered species or the habitat critical to its existence ("critical habitat").

The furor generated a 1978 amendment to the act that established a procedure to let federally funded activities proceed if the economic benefits of a project clearly outweigh those provided by preserving the species, or if the project has regional or national significance. In addition, at the behest of Senator Howard Baker, Congress exempted the Tellico Dam from the requirements of the act. Fortunately some snail darters were relocated to a nearby stream and are reproducing.

The flap over the snail darter did not, unfortunately, result in an enlightened public. For whatever reasons, many people acquired an oversimplified picture of the issues, including the profound problems

PHIL & LORETTA HERMANN/TOM STACK & ASSOCIATES

The California condor, endangered.

faced by any species classified as "endangered" and the importance of preserving these fragile species.

One apparently widespread misconception is that protecting endangered species and their habitats has caused great inconvenience. In fact, since the act was passed in 1973, there have been only three conflicts between federal development projects and endangered species. The snail darter case was one; the other two were resolved quietly in favor of the species. Other situations were negotiated, before resources and money were irretrievably committed, to preserve the species while letting the projects proceed as planned.

Nevertheless, many development interests have been unhappy with the act and would like it to be altered significantly. Appointees in the Department of the Interior—the agency responsible for the endangered species program—have also been looking for ways to amend it. The department has been actively reviewing the act since January 1981, when implementing regulations were criticized by development interests as being unnecessarily burdensome. Some anticonservation interests have provided administration officials with suggested amendments that would nullify every important provision contained in the act.

These suggestions are particularly important now because Congress is reviewing the act, which expires September 30 of this year. The House Merchant Marine and Fisheries Committee and the Senate Environment and Public Works Committee are holding hearings on the act. They will report their findings to both houses by May 15.

As this issue goes to press, the administration has not clarified its position, although several ideas have been running as strong themes through the Department of the Interior. Their tone and style, as well as their substance, are indicators of the administration's attitude; some will likely be included in whatever recommendation the administration finally settles on.

Most of the intensive political lobbying has jelled around one issue: period of reauthorization. Interior Secretary Watt sent a letter to Congress asking for a reauthorization of one year instead of the customary two or more years (usually four). The stated reason was to give the Department of the Interior more time to study the act and ascertain its true strengths and weaknesses. In addition, the one-year option would remove the act as a campaign issue in the 1982 congressional elections.

Watt's position, however, cannot be considered the administration's final stance because it differs from recommendations made by other departments, and no one has resolved the conflicts. Secretary Watt sent his letter on February 8 to the chairs of the Senate Committee on Environmental Pollution and the House Subcommittee on Fisheries and Wildlife. The action was very unusual procedurally because he did not clear his position with the Office of Management and Budget (OMB) and with the other federal agencies concerned with the legislation. Officials in the Executive Office of the President and in the Departments of Agriculture, Justice, Commerce and State expressed surprise and concern that Watt had acted independently. The Department of Commerce was particularly chagrined; its National Oceanic and Atmospheric Administration is responsible for marine species such as whales and sea turtles, and the agency had already submitted to OMB its proposal to reauthorize the act for two years

(Flower portraits by Dugald Stermer.)

Vanishing Flowers

DUGALD STERMER

We know of 840 species of mammals, birds and fishes that are in imminent danger of becoming extinct. But an estimated 20,000 varieties of plants face the same fate. Botanists think that between one and three plant species become extinct in the wild every day, most without ever having come to the attention of humans.

One of the plants shown in the accompanying drawings, the peacock morea, was discovered by accident only a decade ago, but by 1977 its habitat in South Africa had been turned into a stone quarry. Now it survives only in a handful of scientific arboretums.

We can only guess at the ultimate consequences of extinctions, but the best evidence suggests that *Homo sapiens* will in some way be one of the victims. One irony of today's debate over endangered species is that, while the Department of the Interior is considering protecting species by priorities—listing mammals, birds and fishes first through sixth and leaving vascular plants at eleventh and twelfth—at the same time, concerned scientists are looking to plants to solve many medicinal and nutritional problems worldwide. For example, evening primroses contain an oil rich in a chemical that may help control heart attacks, arthritis, high cholesterol levels, eczema and even hangovers. The Antioch Dunes evening primrose, shown on the cover, is in danger of extinction.

But more important than their immediate usefulness to humanity, the disappearance of these species will create voids in the ecological network. We know that the thoughtless manipulation of a single acre can wipe out an entire species of plant life, and with it an animal or insect dependent on that plant for its food supply.

The measures now provided in the Endangered Species Act that are necessary to protect most plants are relatively simple to apply; they disrupt little in the way of agriculture, development and other commercial endeavors; they also stand an excellent chance of success. The wonder is how incredibly difficult it is to have such protective efforts adopted, funded and enforced. □

Dugald Stermer's portraits of endangered plants are reprinted here with the permission of Flowers& *magazine.*

and had suggested no changes at all.

Whatever happens with the period covered, Watt and his department are likely to recommend substantive changes when it is time to reauthorize the act for several years. It is unclear what the department would advocate officially if Congress chooses a multiyear reauthorization this year, but several major ideas have floated around Interior often enough and strongly enough that they are considered by people in the department as serious candidates for suggested changes. They are all the product of political appointees, since staff biologists responsible for administering the program have been excluded from actively participating in the act's review.

The principal ideas are to limit the protection to vertebrate animals only; to make federal agencies' responsibilities under Section 7 optional; to eliminate the designation of "critical habitat;" to tighten listing regulations; to eliminate protection for subspecies and for specific populations of vertebrate animals; to analyze the economic impact of listing a species before it is listed; and to reduce protection of foreign species in trade regulations.

Protecting vertebrate species only is particularly problematical. The Endangered Species Act was written to protect all animals and plants that are a nuisance to humanity. But excluding invertebrates would give protection to mammals, reptiles, birds, fish and amphibians while excluding other forms such as crustaceans, arachnids, insects and plants. Such a change clearly would alter the fundamental nature of the act, which is to preserve all species and subspecies of animals and plants threatened with extinction both in the United States and worldwide. As it is now written, the act safeguards the biological integrity of the ecosystem, not just the survival of "higher" forms of life.

This amendment to the act would cripple the endangered species program because most of the organisms now in need of protection are plants and invertebrates. While 61 plants have been listed as endangered or threatened, another 2995 U.S. plants are considered prime candidates for listing; because of long procedures in the listing process, most have not yet even been proposed for listing. During the first year of the Reagan administration, only three plant species and one genus of Hawaiian tree snails were listed as endangered or threatened, and these taxa had been proposed during the Carter administration. In contrast, during

BRIAN PARKER/TOM STACK & ASSOCIATES

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JIM WHITCOMB/TOM STACK & ASSOCIATES

A. KERSTITCH/TOM STACK & ASSOCIATES

From top to bottom: American alligator (threatened, but it has been recovering numbers recently); Hawaiian nene goose (endangered); Houston toad (endangered); brown pelican (endangered).

the fiscal years 1979 and 1980, an average of 46 species were listed annually.

If the vertebrates-only amendment were adopted, some of the organisms that would lose their current protection are the Texas wild rice (*Zizania texana*), the San Clemente Island larkspur (*Delphinium kinkiense*), the Antioch Dunes evening primrose (*Oenothera deltoides* ssp. *howellii*), the Virginia round-leaf birch (*Betula uber*), 21 taxa of cacti, the Bahama swallowtail butterfly, the San Bruno elfin butterfly, the Socorro isopod, the Tampico pearly mussel, the tan riffle-shell clam, the Manus Island tree snail and the Iowa Pleistocene snail.

Eliminating the designation of critical habitat could also present major problems. The 1978 amendments to the Endangered Species Act require that listed species have their critical habitats designated—that is, that biologists determine the geographical areas necessary for the species' survival. In the case of one pupfish endemic to a single spring in the Southwest, this can be a simple matter. But the habitat requirements of other organisms, such as migratory birds or animals, may not be so easy to pinpoint. Still, maps showing the critical habitat of a species can be useful to federal agencies planning projects. Designation of an area as a critical habitat alerts federal agencies, landowners and others that the area is important to saving the species. Having those maps available in the first stages of a project's design greatly increases the chance that an endangered species' needs can be accom-

The Case of the Stolen Saguaro

HARVEY J. BERMAN

WHEN THE AFFLUENT Manhattan couple decided to redo their posh East Side duplex in "authentic Southwest-Mexican," their first stop was their neighborhood florist.

"We need some cactus plants," they told the shopkeeper. "What we're primarily interested in is several young giant saguaro, maybe about eight feet tall, and a number of pedio cacti. What can you do for us? Remember that price is no object."

The florist couldn't help right then, but he knew of a nursery in New Jersey that probably could. "Of course, you realize that the two cactus species you're talking about are both on the endangered list," he cautioned nervously. "The nursery probably obtained them illegally, possibly through a 'cactus rustling' syndicate."

The stockbroker and his advertising-executive wife couldn't have cared less. Consequently, within six weeks they had their plants. Within three months, the cacti—which require sophisticated treatment when removed from their native desert—had rotted and died.

Unfortunately, the fictitious people in this portrait of a fashionable New York couple and their florist are not unique or even unusual. Cactus rustling and marketing have become big business. Because of a burgeoning interest in rare species for interior decoration, some cacti sell for as much as $1000 each. The rarer the species, the brisker the market and the higher the price. As a result, environmental- and land-management officials in the southwestern United States worry that cactus thieves will deplete our stocks of already endangered and threatened species.

Richard Countryman, the assistant director of the Arizona Commission of Agriculture and Horticulture, reports, "We're really in a bind. My men and I cover 90,000 square miles of desert as best we can. And we no sooner check out one area than thieves sneak in and strip another."

According to Vernon Forbord, manager of native plant law for the commission, all a typical thief has to do is obtain a tag and a permit to dig a few cacti in one area, then dig more or drive to another area and load up with as many plants as desired. The only way to stop thieves from abusing the permits is to catch them taking the plants, Forbord said, unless they are many miles from the area the permit specifies. Once the thieves remove the cacti, they can sell them to homeowners, nurseries or florists who don't question the plants' origin.

Cactus rustling "is an easy business to get into, and you don't need a lot of capital," said Forbord. Most rustlers already have some kind of criminal record, perhaps for smuggling drugs or illegal aliens, according to Countryman.

It's not hard to understand the lure of stealing rare cacti—sales of legally collected plants from Arizona alone reportedly amount to more than $1,800,000 per year. Stolen cacti account for anywhere from one quarter to one third more, at Arizona prices. In eastern markets, where cacti are extremely popular, thieves can double or triple their money.

The professional rustlers' success has encouraged amateurs to try their hand. Countryman says that campers and vacationers "are now almost as serious a menace as criminals." Campers can more than pay for extended holidays in the state by uprooting enough saguaro.

To combat both professionals and amateurs, Nevada, New Mexico and California recently enacted legislation to protect cacti from further depredation. Arizona has had a native plant law since 1929 but did not begin stringently enforcing it until the 1960's, Forbord said.

On the federal level, the new Lacey Act amendments, signed by President Reagan in November 1981, make it illegal to transport or ship endangered plants or animals across state lines without state approval. The criminal penalties are strong: those who ship the plants will be fined up to $20,000, imprisoned for as much as five years, or both. Those who knowingly receive illegally obtained species will be fined as much as $10,000, imprisoned for up to one year, or both. Each violation can be treated separately.

"It may not stop professionals dead in their tracks," said one Arizona land management official. "But it sure will make amateurs think twice about snatching endangered plants to pay for their trip."

Still, the best solution to the rustling of endangered cacti may lie not in the courts but in the marketplace.

A spokesperson for the Interior Department, noting that America's national parks also are being systematically pillaged for their plants, said, "The market must dry up. If those basically honest and decent people who are paying exorbitant prices for plant species they're helping to make extinct would only say 'No,' cactus rustling would grind to a halt. Future generations could then be assured of enjoying the beauty of the fragile saguaro, pedio and other cacti in their native habitat." □

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Trollius laxus
ssp. laxus
2" W.
2' H.
SPREADING GLOBEFLOWER
Skinner


Echinacea tennesseensis
2~4 high
TENNESSEE PURPLE CONEFLOWER
Steiner

modated while still allowing development.

Another suggested change would make federal agencies' responsibilities under Section 7 optional. Section 7 now requires all federal agencies to consult with the Secretary of the Interior on the biological impact of proposed activities. If, for example, the Tennessee Valley Authority (TVA) plans a new waterway, then TVA must send a copy of its proposal to the Office of Endangered Species in the Department of the Interior. There, biologists determine whether the waterway would harm any endangered or threatened species. Identifying potential impacts during a project's early stages lets planners find alternative locations or devise other modifications of a project.

In fiscal years 1980 and 1981, the Fish and Wildlife Service conducted 9673 consultations with other federal agencies. In 2179 cases, or 22%, detailed biological opinions were required. In nearly every instance, the service eventually determined either that the action did not jeopardize a listed species or that some reasonable change in plans could accommodate the requirements of both the species and the project. As Kenneth Berlin, formerly chief of the Wildlife Section of the Land and Natural Resources Division of the Justice Department, told a Senate subcommittee: even by the most economically conservative standards, the Endangered Species Act has been "remarkably successful in finding a proper balance between economic growth and environmental protection."

Making consultation under this section optional would drastically reduce the efficacy of the act in preserving endangered species. As it is, the act does not apply to actions taken by private or state agencies unless federal money or permits are involved. Removing clearly defined responsibilities from federal agencies would be an invitation to ignore the act. The only benefit that could be derived is a short-term speedup in planning federal projects, although that effect may not obtain. The change is touted as regulatory relief for government agencies or "cutting through red tape," but in fact it would probably not accomplish much along those lines because of all the other environmental and public reviews required. What it would do is turn the Endangered Species Act into a paper tiger.

Another possible series of amendments, recommended by industry, would tighten regulations related to listing. Listing is the process by which a species is added to the federal *List of Endangered and Threatened Wildlife and Plants*. So far, 756 species have been listed; of them, 61 plants and 221 animals live in the United States.

One of the changes, already discussed, would limit protection to vertebrate animals only.

In addition, the American Mining Congress has proposed eliminating protection for subspecies and for some populations of vertebrate animals. If such an amendment

Club Supports Strong Act

IN MARCH, the Northern California Regional Conservation Committee, working with Friends of the Earth, held a press conference on the importance of reauthorizing a strong Endangered Species Act (ESA). Among the speakers were Mark Palmer of the Club's NCRCC; John McCosker, director of the Steinhart Aquarium at the California Academy of Sciences; and Raymond Dasmann, an ecologist at the University of California at Santa Cruz and former Senior Ecologist for the International Union for the Conservation of Nature.

Dr. McCosker, the principal speaker, talked particularly about protecting species using a priority system, as the Department of Interior has proposed. He said, "This reordering makes no sense scientifically and obviously is meant to appeal to the public's concern for furry, cuddly creatures and ignores everything small, slimy and coincidentally more poorly understood biologically. A certain irony exists, in that it is precisely those 'lower,' naked, cold-blooded creatures that hold the greatest potential benefit for humanity within their genes. Where would many of us be, for example, without penicillin, a bread-mold derivative? . . . It is profoundly important that Congress take a firm position in defending this endangered act and that the ESA recognize all species according to their degree of endangerment."

Other groups supporting the campaign to reauthorize the act essentially as it is now are the Audubon Society, the Natural Resources Defense Council, Defenders of Wildlife and the National Wildlife Federation. Club members who would like to help may write to the Endangered Species Act Campaign, Sierra Club, 530 Bush Street, San Francisco, CA 94108. □

DAVE BAIRD/TOM STACK & ASSOCIATES

ED ROBINSON/TOM STACK & ASSOCIATES

M. TIMOTHY O'KEEFE/TOM STACK & ASSOCIATES

TOM & PAT LEESON

From top to bottom: Santa Cruz long-toed salamander (endangered); green sea turtle (endangered); manatee (endangered); red wolf (endangered). One subspecies of the red wolf has been extinct since 1970.

TOM STACK/TOM STACK & ASSOCIATES

KEITH H. MURAKAMI/TOM STACK & ASSOCIATES

GARY MILBURN/TOM STACK & ASSOCIATES

were to be adopted, the bald eagle and the California sea otter, along with many other plants and animals, would lose their protection because they are not endangered in some parts of the continent.

To support this idea, the Monsanto Company and the American Fur Resources Institute have claimed that species have been listed without adequate supporting data. The problem here is that the organisms in question are not well understood compared to species with large ranges and direct links to humanity, such as black-tailed deer. Species are listed on the basis of the best available data, the results of studies by university biologists expert in a specific taxonomic group, a geographical area or a type of ecological community. The problems of doing such field studies can be serious; but even so, this contracting procedure of the Office of Endangered Species has yielded substantial new information on native flora and fauna.

Other related amendments, proposed by the National Forest Products Association and the American Mining Congress, would substantially complicate and lengthen the listing process. The mining industry's suggestion would require that the economic impact of listing a species be analyzed *before* the species is listed. The standard for listing would then become economic, not biological. Currently economic impacts are evaluated only when related to specific projects or activities the listing might affect. To attempt to divine future economic losses that might result from protecting the species would be a highly speculative venture with no real foundation in economic science. The listing process is already heavily burdened with nonbiological criteria.

The last proposed amendment that shows any potential of being advocated by the administration would reduce protection for foreign species. Section 8a of the act designates the Secretary of the Interior as the scientific and managerial authority in the U.S. to carry out the purposes of the Convention on International Trade in Endangered Species (CITES). CITES is a landmark international treaty with more than 70 signatory nations. Its purpose is to promote international cooperation in controlling trade in specimens and products of wild animals and plants. It provides some protection not only for species now endangered or threatened, but also for those that may become threatened unless trade is controlled. It is a vital means of keeping species from becoming endangered in the first place. Weakening CITES protection for U.S. species can be accomplished by amending the Endangered Species Act.

From top to bottom: American crocodile (endangered); California clapper rail (endangered); southern sea otter (threatened). The otter charms humans by floating on its back while eating abalone.

In addition, some state fish and game agencies, the commercial fur industry and exotic-pet interest groups have proposed some amendments that are technical but would effectively require the United States to oppose some decisions made by other nations to protect species. Such amendments would certainly remove the United States from any leadership role in the international effort to conserve endangered species.

Each of the proposed changes in the Endangered Species Act would seriously weaken the act; together, they would turn the act into an empty letter. The endangered species program and its budget have already been cut. The budget for the Office of Endangered Species was cut by 20% for fiscal 1982 and by another million for fiscal 1983, bringing the total suggested budget for 1983 to $26,550,000. In addition, in fiscal 1983 there will be no funding assistance for states. Over the five years that such money was available, nearly $24 million in matching funds were given to 38 states having cooperative agreements with the Fish and Wildlife Service.

Cutting the matching funds is particularly interesting because the Reagan administration has said recovery of listed species is the major objective of its endangered species effort, not listing new species. But state programs have in the past been the key to recovery efforts, as provided by the Endangered Species Act. Consequently, cutting funds to state programs casts doubt on the administration's ability and will to achieve its stated objectives.

The threats to the act are serious enough that 25 national and internationl organizations have formed a coalition to ensure the reauthorization of a strong statute. But national organizations supporting a strong act, while indispensible, are not enough. Grassroots support is also necessary, especially at this crucial time. As this issue reaches readers' hands, two congressional committees will be making recommendations to both houses of Congress. Readers interested in helping persuade Congress to keep the act strong are encouraged to write to the Endangered Species Act Campaign Desk, Sierra Club, 530 Bush Street, San Francisco, CA 94108. The Club will provide suggestions on the most effective action to take depending on the date and the progress in Congress. □

Rosemary Carey was a staff botanist with the National Office of Endangered Species until March 1981.

A Superior Bicycle Tour

MAGDA KRANCE

PHOTOGRAPHS BY STEVEN M. LEONARD

IT DOESN'T TAKE MUCH TIME to fall in love with the Canadian shore of Lake Superior, with its severe cliffs, wind-twisted trees and, of course, the moody, roiling lake itself. I was introduced to a particularly wild and magical stretch around Agaway Bay, halfway between Wawa and Sault Ste. Marie, during a week of spring skiing in March 1980; when I returned to my home and husband, I was glassy-eyed and euphoric from the encounter. My enthusiasm whetted Steve's appetite for Superior, on whose American shore he'd been raised. "Why don't we take a bike tour up there in May, before the bugs get bad, for our second anniversary?" he suggested, just hours after I came home.

Having no two-wheeled recreational vehicles was the least of our obstacles, easily overcome by buying a splendid pair of touring twelve-speeds. (We laughed about each bike costing twice as much as our decrepit car.) More troubling was our lack of touring experience; the only route along Superior's north shore is Highway 17, a.k.a. the southern route of the Trans-Canada Highway, an extremely steep, soft-shouldered, two-lane nightmare, particularly along the 275-mile stretch we planned to ride. One of only two transcontinental highways in the country, it is inhabited primarily by monstrous "transports," as Canadians call trucks, which attain fearsome speeds as they barrel down two-mile-long hills on 6½-percent grades. (In the U.S. Rockies, the steepest roads have grades of up to 5½ and 6 percent.) In summer the transports are joined by herds of camper-ensconced tourists who attempt to marvel at one splendid view after another while negotiating the hills and hairpin turns. Knowing how treacherous their presence would make our trip gave us good reason to hit the road before Memorial Day.

Now, Steve and I have always thought of ourselves as bikers, since we've commuted by bicycle for years and have taken occasional day spins through the flat farmland of east-central Wisconsin. We soon learned, however, that our previous experience on two wheels had about as much in common with long-distance touring as walking to the post office does with backpacking—not much, besides the vehicle.

We needed to do some serious training before tackling the Trans-Canada, but we lacked the proper terrain for the purpose. Chicago has great bike paths, but they are utterly flat. "Start climbing stairs—lots of stairs," one touring veteran told me darkly.

We were being headstrong and foolish, and we knew it, but that didn't stop us. On went the preparations: adjusting the bikes to accommodate our long limbs, putting foam padding on the handlebars to protect our hands from the ravages of bumpy roads, picking out wool bicycling jerseys, shorts, leg and arm warmers, leather-palmed riding gloves, helmets, raingear designed for biking, and panniers—and packing them.

Freeze-dried entrees, powdered drinks, plenty of gorp and a camp stove also were on our list. Along our designated route, restaurants and groceries are few and often farther than a day's ride between, and the few that exist are seldom open before the height of the tourist season. Although we were able to supplement our provisions along the way, we carried enough food to be as self-reliant as necessary.

Prevailing winds in Canada tend to be out of the northwest; so, commending ourselves for remarkable foresight, we decided to begin our tour at the "top" of Lake Superior in the town of Nipigon. To get there, we drove our old Saab from Chicago through Michigan's fielded and forested lower peninsula, across the mighty bridge over St. Mary's River, which connects Lakes Superior and Huron, through Sault Ste. Marie, and into the rolling, ridged countryside along Superior's shore. It was mid-May but the buds were just beginning to open. We ground to a stop at Montreal River Harbor, about 80 miles north of "the Soo," as Sault Ste. Marie is known, to catch our breaths and visit Michael and Carolyn O'Connor, managers of the ski touring center I'd visited in March, near the Soo.

In the morning we piled into the O'Connors' pickup and drove to Frater, a nearby whistle-stop, where we boarded the Algoma Central train.

It was surprisingly hot out—T-shirt weather, hazy and still. For a while we stood in the space between cars, hanging our heads through the opening like dogs, craning our necks to gaze at the waterfalls and the cliffs and the greenish-yellow haze of trees in Agawa Canyon. Later we moved to the grimy little platform at the very end of the train to watch the tracks rush out from beneath us and points of scenery gradually recede. The few people we spoke with, some canoeists and trainmen and Indian children, all mistook us for Canadians. We liked blending in, eh, and marveled at how quickly we had assimilated the mannerisms and inflections.

MAGDA KRANCE

Author Krance (above) shows that bike touring requires walking uphill if riding taxes the legs too much. Doing tuneups at camp (left) helps prevent equipment failures on the road.

At Franz, a puny whistle-stop marked only by crossed tracks and an empty station, we waited in the dusty heat for a Canadian Pacific train to bear us west. For a while the station manager had us convinced we would have a twelve-hour layover, a dismal proposition. A train pulled in two hours later but went only 50 miles to White River. We would have to wait out the night in a motel until the next train at 5:15 a.m.

Half asleep, we pedaled back to the station in the early morning darkness, loaded up, and dozed for a few fitful hours. We woke to the spectacle of Lake Superior at sunrise, richly colored, shimmering, cluttered with uninhabited islands.

Finally, Nipigon. Somewhat self-consciously we disembarked, changed into our riding duds and set off—not down the Trans-Canada, but up a country road toward Lake Nipigon. It seemed like a good idea to warm up for a day or so away from traffic, and a Canadian friend had told us that some beautiful dunes lay on the eastern shore of the sizable ancillary lake.

We never made it that far. After 30 miles of sweating heavily and inhaling dust along a terrifically boring road studded with power lines, we came upon a rundown Boy Scout camp on Lake Forgan at the southern tip of Lake Nipigon. Close enough. Sunburned and exhausted, we ate supper in the meager shade of some thin willows and encountered our first mosquitoes. So much for beating the beginning of the bug season. The sun didn't set until after 10 o'clock.

"What a pair of slugs!" I wrote in my journal the following day. We had slept until after 8:00, losing the cool stillness of the early morning. It was midafternoon by the time we retraced our dreary path back to Nipigon and 4:30 before we made it out of town, this time down the highway.

Within a few hours we discovered our earlier "remarkable foresight" had backfired: we had no tailwind out of the northwest. Instead, even though the road was mostly level or downhill, we found ourselves straining against the stiff southeastern wind. A fluke, we thought. It'll shift tomorrow.

We stopped for the night on Kama Bay. There was supposed to be a campground where we pulled off the road, but we found only a dirt parking lot and some filled trash barrels. Steve, who had acquired the nickname "Great White Hunter" on one of our Boundary Water trips (for what exploit, I don't recall), set off bravely down the train tracks in search of the Ideal Campsite—under the circumstances.

That's one thing about bicycle touring: you can never get away from the trappings of mainstream civilization. In Ontario, power lines are almost always in sight, and you can't really ride any distance without roads, whereas you can get along very well in roadless areas if you're skiing, canoeing or backpacking.

So much for profound insights, I thought, as I schlepped my wheels along the tracks behind Great White (for short) and listened to the rumbling transports in the distance. Ahead of us to the left lay a pebble beach, a brook and a clearing, with a log cabin tucked back in the woods to the right. This, Steve proclaimed, would be our campsite.

Timidly, we approached the cabin. No one home, but a note had been left in the window: "Back soon. Veikko Koskela." Peering beyond the note, we saw a half-full coffee cup on a table, as if the owner had just remembered an errand to be done, had rushed off to take care of it, and would be back any moment. We trespassed respectfully, pitching our tent under a tree near the garden and eating dinner on the cabin porch. The sun slid behind violet clouds and distant power lines. It was magnified and violently colored, perhaps because of airborne ash from Mount St. Helens, which had blown a few days earlier. Mr. Koskela did not appear. In the morning I left a note thanking our unwitting host for the use of his lawn.

We had been pretty impressed with the scale of our first bike trip until we met solo biker Robert Lopno, who had begun his odyssey in Door County, Wisconsin. Proceeding south to Milwaukee, he had ferried across Lake Michigan to Luddington, had ridden up the west shore of the lake through Messick (the mushroom capital of the United States, he pointed out), on up to the Mackinac Bridge, over to Sault Ste. Marie and along Highway 17. He planned to proceed around Lake Superior to Duluth be-

fore riding the home stretch to Eau Claire, Wisconsin.

Suddenly our trip seemed very puny. Robert didn't rub it in, though; he was hungry for the company of compatriots, and we spent a few hours atop a boulder in the scorching midday sun. We exchanged stories, sized up each others' gear and compared notes—his bike versus ours, his bags versus ours, his 80 pounds of gear versus our 70 pounds total, his enviable nylon biking shorts versus our sweltering wool ones.

Within an hour we met another solo biker, this one bent on riding all the way from Thunder Bay to Terrace Bay in a single day, a distance of 125 miles. After exchanging brief bikers' pleasantries, he left us in the dust. We stopped to fill our water bottles in the Gravel River and wound up skinny-dipping to rinse our sweaty bodies and to enjoy the deliciously icy contrast of the water. The point of the trip, after all, was quality, not quantity.

But along with the good comes the—well, not the bad, but the difficult. "Some agonizing miles we put in this afternoon—hot as a desert on Highway 17, two huge hills, one about 2½ miles long," I wrote in my journal that evening. "My stamina lasts only for short spurts. I can ride a few hundred feet up a hill before my legs go jelly and I start panting. No relief, no shade, no water. The hills—arrgh—long and arduous; but the other sides, finally, are almost too much relief, too steep, too dangerous. It's fun, though, and exhilarating, but I remain terrified of high speed when I'm exposed—afraid of steep hills, of losing control."

The last long run of the day whisked us into the fishing hamlet of Rossport, which remains unsullied by tourist traps in spite of heavy summer traffic. Some local lads pointed us toward the Rossport Inn, but it wasn't open for overnight business yet. We pleaded and wheedled, looking as limp, sunburned and miserable as possible, and eventually the owner, Gwenn, relented and let us stay in a cold-water housekeeping cabin barely big enough for us, our bikes and the sagging, squeaky bed. The expansive view of the harbor, its fishing boats and the rugged, wooded islands beyond made up for the lack of space, however, and Gwenn let us use the family shower in the main building.

After dark we wandered back to the inn to hear the Humbar River Valley Boys, a deservedly well-known bluegrass band from

Bicyclers' First-Aid Kit

WILLIAM SANDERS

THE FOLLOWING list will give you the basic idea, but remember that none of it is of any value unless you know how to use it properly.

ADHESIVE TAPE, 1" wide (be sure this is waterproof)

STERILE GAUZE, 2" wide, 1 roll

STERILE GAUZE PADS, 3" square (3 or 4 for ordinary use, half a dozen or so for rough stuff)

BUTTERFLY CLOSURES, half a dozen

ASSORTED BAND-AID-TYPE DRESSINGS, especially the wider kind—1" x 3" (remember that a large dressing can be put over a small injury and, if necessary, trimmed, but a too-small dressing will not cover a long gash or broad abrasion, so lean toward the larger sizes)

DISPOSABLE DISINFECTANT WIPES (try to get medical prep pads—ask your doctor)

MOLESKIN, 2 sheets (yes, cyclists do get blistered feet)

ACE-TYPE ELASTIC BANDAGES, 2" or wider, 2

ANTIBIOTIC OR TOPICAL OINTMENT, "triple antibiotic" kind if you can get it

DISINFECTANT SOAP (remember, person administering first aid must wash own hands first; Hibiclens Surgical Scrub or hexachlorophene—the latter is a prescription item—Hibiclens works better anyway)

IODINE (for water purification—also a first-aid item)

ASPIRINS (Percogesic tablets are a more effective painkiller and relaxant, probably the strongest nonprescription painkiller around—you may want to take them as well)

ANTIHISTAMINE CAPSULES, Contac, etc. (in cold or wet weather or for those prone to colds or hayfever—do not ride while taking these)

THROAT LOZENGES

ANTACID TABLETS (I suggest Pepto-Bismol; it helps control nausea and diarrhea as well—take more than you think you'll need, as the change in diet and environment tends to upset stomachs the first couple of days, even experienced ones)

MUSCLE EMBROCATION (Ben-Gay, etc.)

FOLDING SCISSORS (sold at fishing shops)

TWEEZERS

SMALL-GAUGE NEEDLES, 2

RAZOR BLADE

The kit should be stowed in a small, plastic, snap-lid box and then wrapped in a watertight plastic bag. Contents should be neat and organized, so that you don't have to rummage around in an emergency. Determine a particular place to carry the kit—usually an outside pannier pocket—and always keep it there. On group trips, everyone should know where it is kept. It should, of course, be carried by the group member with the most training or experience in medicine and first aid.

If one member of the group is clearly the logical choice as "medic"—a doctor, nurse, policeman or fireman trained in emergency medical procedures; a graduate of Red Cross or other first-aid courses; an ex-military medic, or the like—that person should not only carry the first-aid kit, but should ride last in the group. Groups tend to get strung out on bikes, and if there is a crash or other accident on the road, it is better if the injured person can simply wait for the group medic to come along, rather than have to have someone ride off up the road after the first-aid person and bring him or her back. This could save very valuable time. For some reason, doctors who cycle tend to be very hot, fast riders who love to get out ahead and burn up the road, so it may be necessary to do some serious talking about this point.

Even if no member is particularly skilled in first-aid techniques, the kit still should be carried by the last person in line, for obvious reasons, just as the man or woman with the maps goes up front. If you want to trade positions, trade the stuff, too.

First-aid supplies are very dangerous if used improperly. Do not attempt anything beyond your training and skill; with bicycles available, there is rarely any valid reason why you can't *go for help*, and get the victim to a doctor. Only on truly remote trips or in special situations (if, for example, flooded streams have temporarily closed the only routes to the outside world), should you attempt anything beyond the most elementary first aid—the stuff listed above is primarily there to treat minor cuts, abrasions, sorenesses and discomforts.

There are many, quite good, small first-aid kits on the market, sold in drugstores, sporting-goods stores, outdoor shops and the like. If you get one, check the contents. Sometimes they sell you a lot of stuff you don't really need, while leaving out essential items. So check it out. □

William Sanders is a contributing editor to Bicycling *magazine and is the author of* Backcountry Bikepacking, *recently published by Rodale Press, from which this short article is excerpted.*

London, Ontario. It gave us a chance to mingle with, or at least to observe, the local people beyond the brief glimpses we got as we rode. Most of the two-dozen people in the bar that night were young men; everyone smoked a lot of cigarettes and drank a lot of beer. The atmosphere was relaxed, convivial. The band was playing in Rossport all week; some of the audience had driven in from more than 50 miles away.

Our wills collided constantly during the next day's ride, exacerbated, perhaps, by the wrong-way winds that continued to plague us. With the uncharacteristic winds came unseasonably clear skies and high temperatures, in the 80s and 90s virtually every day. The heat made it hard to wear our helmets or much clothing, but stripping down scorched our skin and made us dehydrated and headachey—ideal conditions for interpersonal storms. I found myself chewing gum so tensely my jaws ached.

As we pedaled a stretch with unpaved shoulders, I mused on how considerate the transport drivers had been, honking from an unstartling distance and giving us a wide berth. Mid-muse, however, two trucks raced past us so closely that we were blown off the road. So much for charitable thoughts.

After we regained our equilibrium and rode some easy, pretty miles, Steve surprised me by asking a trucker stopped by the side of the highway to give us a ride to Terrace Bay, 30 miles ahead. There we bought fresh vegetables for dinner and rode to the edge of town, where Steve again insisted on hitchhiking. I asked whether this was a bicycle tour or an attempt to get from point A to point B in the least amount of time. He backed down, and we made good mileage through fairly gentle terrain, with the exception of one killer hill that forced me onto my feet.

We lunched by the Steel River, an impressive torrent on whose damp shore I came upon a convention of monarch butterflies—20 or so fanning their wings in the sun and the river spray. The delight of my discovery was quickly dissipated, however, when Steve flagged down yet another truck before I could protest. My consolation was that we had Neys Provincial Park virtually all to ourselves. We camped on a sand beach on Prisoner Cove and clambered for a few hours on other, rocky stretches of shore.

A hazy, cool morning brought welcome relief and reminded us of Washington's Olympic Peninsula, where we had honeymooned two years earlier. On that trip, too, we had enjoyed unseasonably warm, sunny weather.

By the time we reached Marathon the sky had cleared, and again the heat weighed on us. We looked out onto the beautiful bay

Ancient Indian pictographs at Agawa Bay.

studded with jagged islands and bemoaned the fact that a massive paper mill had been built right on the shore. The stench was similar to that of carrion, and it carried for several miles.

After poring over the map, Steve and I agreed, this time, that the next 50 miles weren't worth the trouble it would take to ride them. He unabashedly marched up to one transport after another, looking for one going our way and willing to take us.

While Steve solicited, I scribbled random thoughts and observations:

"Packing, repacking, unpacking—we are like neurotic little ferrets, or squirrels sorting our nuts into piles and pockets. Every day, a number of times, we go through this ritual. How much time we spend in organizing, preparing!

"One thing is sure: next time we plan a bike tour it will be for longer, a month perhaps, or two, so that diversions can be savored, delved into, rather than sacrificed for the sake of a schedule.

"We've got a ride!"

Our free ride ended at the road to Dubreuilville, a French-speaking enclave where the trucker would pick up another load of wood chips. The last lap of the day was no fun: blackflies descended with a vengeance as we unloaded, and the highway was uncomfortably crowded as we made our way to Wawa, a sizable town named for the call of Canada geese. Mike O'Connor had recommended we put in at the Wawa Motor Lodge, which proved to be a handsome complex of log housekeeping lodges, motel rooms and a first-rate restaurant. We feasted on steak, salad and butter tarts—a divine little dessert indigenous to Ontario.

The next afternoon found us in a far different setting. After pedaling the length of Lake Superior Provincial Park, we ducked down a steep dirt road that I had skied down two months earlier. Where a hiking trail split from the road, leading to some Indian pictographs, we started walking and soon veered off into the bush until we found a suitable hiding place for the bikes. We then scrambled up massive, overgrown boulders to the top of a cliff and found our home for the evening.

Agawa Bay is a holy place to Native Americans in the region, and it certainly seemed mystical to us that night. The sky sighed with warm winds that gathered and coursed across the vast, calm lake. The water, illuminated by the half-moon, shimmered like a pointillist painting in motion, its surface rippling and darkening at the wind's touch. A hummingbird flew within a few inches of me, decided I wasn't its kind of flower, and zipped off to examine our tent. It was difficult to sleep, to tear our senses away from the quiet richness of our surroundings. During the night the warm wind rose, for a time nearly flattening the tent with its strength.

The next morning was our last. We were close to O'Connors' cabin; reluctant to end our trip any earlier than we had to, we traipsed up and down the cliffs, finding all manner of flowers and lichens, savoring the sensations of walking rather than riding. I splashed hesitantly in the icy water.

Two months earlier I had skied to the cove, when its walls were coated with blue and yellow ice. Now, Steve and I had to scramble up, over and down to the sheer wall faintly inscribed with the figures of men, bears, deer, fish and the mythical spirit of the lake, Michipizhou. The pictographs' dates are unknown; the spot has been sacred for centuries, and legend has it there used to be even more paintings, but a massive section of the cliff crashed into the lake more than 100 years ago, unable to withstand the abusive elements any longer.

Retrieving our bikes from their hiding place, we hit the road one last time. In one short week spring had become summer; the leaves were out completely now. Our own seasoning was nowhere near as spectacular, but we *had* grown; we knew more about bicycling—and about ourselves—than we had a week earlier.

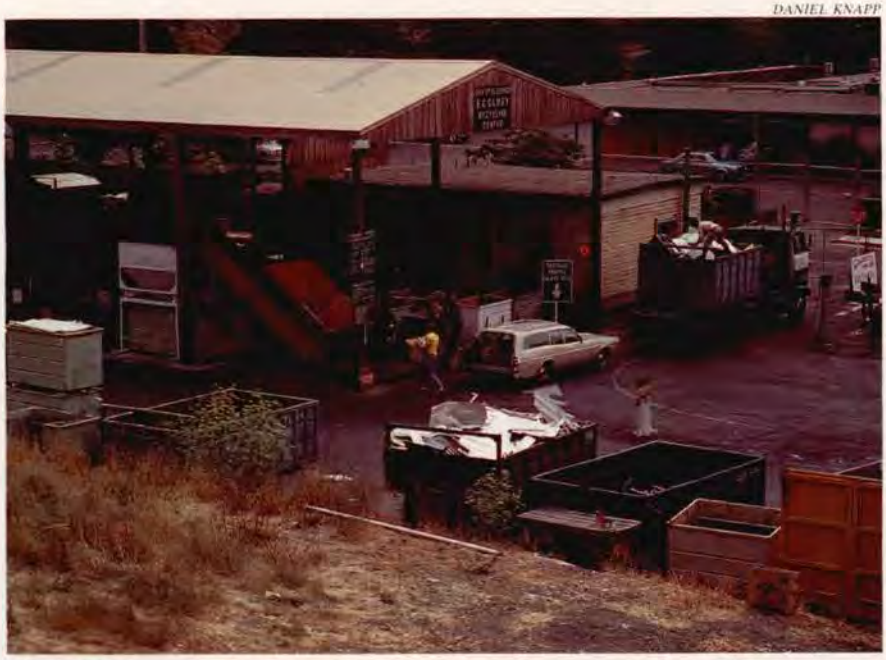
We had one hard, final climb, and then a speeding, triumphant run down Montreal Hill to O'Connors' cabin, to our sunbaked car, to the end of our first tour. We swelled with that familiar mixture of emotions that accompanies any achievement: relieved to have it done and proud of having done it (albeit with a little help), yet already nostalgic. In spite of the wrong-way winds, the head-splitting heat, the muscle-wrenching hills, the roaring transports and the ravening bugs, we had learned that it doesn't take much to fall in love with bicycle touring and to rekindle affection and respect for Lake Superior's Canadian shore. □

Magda Krance writes often for The New York Times *and* Time *magazine. A former editor of* Outside *magazine, she is an avid outdoorsperson.*

Mining the Urban Ore

DANIEL KNAPP

DANIEL KNAPP



The E.C.Ology center in El Cerrito, California, disposes of separated wastes for $2.77 per ton; in nearby San Francisco, it costs $83 per ton to dispose of garbage.

IF THEY agree on nothing else, environmentalists and their opponents both realize that we all depend on natural resources to live. The real question—the one that polarizes interest groups and creates intense political controversy—is where to obtain those resources. Traditional industrial interests tend to think of natural resources in their raw form. When faced with the question of where to obtain timber, oil and gas, or cobalt, their thoughts turn to wells and mines, which they increasingly (and alarmingly) hope to locate in national forests, wilderness areas and roadless areas. The very places, in short, that conservationists are most anxious to protect from unnecessary exploitation. But *is* the real conflict between consuming and conserving resources? Perhaps not entirely.

The richest vein of many of the most valuable resources is often closer to hand than wilderness and could be much easier to mine. It is the stream of wastes—of garbage—that flows from homes and industries every day and finds its way to the nearest dump (or its more recent form, the "sanitary landfill"). These wastes consist of much more than the household items—glass, newsprint, metal cans—that most people think of when they hear the word "recycling."

The waste stream in its totality is urban ore, a rich resource base with material components far more refined and intrinsically valuable than the low-grade ores processed by traditional mining industries. Gearing production to exploit this resource would save energy and would relieve much of the pressure to open new natural areas to exploitation of raw resources. Pollution by toxic substances, as well as litter and air pollution, would be reduced.

Using the waste stream as a source of valuable materials is not a simple undertaking—though it is a promising one. The amount of wastes is tremendous. According to the EPA, the United States generates enough solid wastes every day to fill the New Orleans' Superdome from floor to ceiling—twice. Most people are accustomed to thinking of solid waste as material that must be gotten rid of, and the United States devotes considerable space and energy to burying waste in landfills or burning it or otherwise trying unsuccessfully to make it disappear.

But the key to solving this problem lies in the solid-waste stream itself. Any description of its contents is bound to be partial because the materials are so many and varied. David Gordon Wilson, author of the *Handbook of Solid-Waste Management*, writes, "Solid wastes may potentially contain any of the solid materials found in nature, and in addition any of the man-made materials. They constitute the most heterogeneous collection of materials possible."

Determining what exactly—or even approximately—is in this complex flow is surprisingly difficult. Most studies of the municipal waste stream really refer only to household wastes delivered for disposal in "packer trucks" (the familiar noisy dump trucks that collect the contents of garbage cans and apartment house dumpsters). But generalizing about municipal wastes from this sample will produce inaccurate results. The household waste stream makes up less than half of the total that ends up at the landfill. For example, Berkeley, California, is predominantly a residential community, though it also has a major educational institution, several hospitals, an industrial belt and a number of commercial areas. But even given its residential nature, the household waste stream is only 30% of the total. Let's put aside for a moment the question of the other 70%.

What's in the household waste stream? Paper constitutes 40% to 50% of the total. If the paper is properly separated it is valuable; depending on its grade and type, it might fetch from $20 to $200 per ton. Another 5% to 7% is container metal ("tin" and aluminum cans); cleaned and adequately prepared, these metals are worth from $25 to $600 per ton.

Another 6% to 8% is glass. Rising energy costs have made recyclable glass more valuable in the last several years. Glass for remelt now brings more than $40 per ton. And collecting, washing and selling bottles back to businesses for reuse has become one of the best money-making opportunities in the glass-recycling business.

There are some encouraging signs that profitable recycling of plastics may soon be

under way, a welcome development given the proportion of plastic wastes.

The rest of the household stream is yard wastes, food scraps, dirt, wood—all compostable—and a tiny fraction of other ingredients.

If these household wastes are separated into components that can, in turn, be processed and marketed efficiently, no substantial part of this material should be worth less than $20 per ton. As recycling-center architect Mark Gorrell puts it, "A big enough pile of anything is worth something."

Lay people use the term "garbage" as more or less synonymous with "waste" or "refuse." But recyclers use "garbage" to mean the most mixed and least valuable of all the fractions of the waste stream. The value of garbage is below zero: separating these hopelessly mixed materials would require far more energy and effort than the materials could be worth. Moreover, the cost of disposing of garbage—now between $20 and $70 per ton—is rising. Transportation costs continue to rise, as do the costs of obtaining new landfill areas. Recycling, in other words, makes economic as well as environmental sense. It is by far the most cost-effective method of disposal. Recycling costs from zero to $10 per ton.

Perhaps the key to understanding the economics of recycling is the approximate two thirds of the waste stream that is not delivered to the landfill in packer trucks—the part that does *not* consist of household wastes. Four basic streams of waste join household waste at landfills; all four are more easily recoverable and more valuable than household wastes. They come from: construction and demolition sites; institutions and large commercial establishments; landscaping and agriculture; and industries.

These streams include large quantities of wood that could be cleaned and reused for building, or chipped to become fuel or soil amendments; metals of all types and forms that could be reused as they are or melted and reformed; plant wastes and other organics that could be composted or fermented to produce alcohol fuel. There are building parts, too, and furniture, clothing, chemicals, precious metals—even money.

At the landfill in Berkeley, California, about 25% of the total refuse consists of construction and demolition debris. Clean lumber extracted from this source sells for around $300 a ton. Pieces too damaged to be used as lumber can be cut up for firewood, which still brings a respectable $100 to $150 a ton. Even chipped for fuel, wood is worth a minimum of $24 a ton in the San Francisco Bay area. Building parts—moldings, staircases, windows, doors and so on—that can be reused for restoration or remodeling often command high prices.

Landscaping wastes form another 25% of the main waste stream. When reduced by composting, these materials sell for from $50 to $250 a ton in many parts of the country. Plant wastes can be fermented to produce alcohol for fuel, and many companies are devising systems to do so. Institutional and commercial wastes are rich in higher grades of paper; industrial wastes are also excellent sources of metal and other valuable materials.

At the point they are discarded, waste materials are valuable, ready for a good use to be made of them. But mixed with other materials in a garbage can or dumpster, they begin to lose marketability. Dumped into a packer truck and crushed by a hydraulic ram, they are further homogenized and contaminated. Dropped into a pit and run over by the steel cleats of compactors, they be-

How to Find Recyclers in Your Community

MARY LOU VAN DEVENTER

LOCATING RECYCLERS in your area is probably easy; perhaps the key resources are your own imagination and conception of what constitutes recycling.

Try the *Yellow Pages* first. Besides "recycling," look for headings under "salvage," "used goods" and "secondhand stores." Most cities or large towns have salvage yards for autos, construction materials and other kinds of heavy merchandise.

Most consumers don't think of them, but antique stores and secondhand stores are also outlets and buyers or at least receivers of recycled materials. Salvation Army, Goodwill Industries and St. Vincent De Paul are among the most prominent stores that specialize in used materials.

Local flea markets, too, serve as recycling centers. Many cities have these loosely organized collections of people who sell used household goods in parking lots (or similar areas) on weekends.

To find the more traditional recycling groups, try contacting the solid waste or public works department of your local city government. Someone there can put you in touch with private groups involved in recycling. These are the departments responsible for garbage pickup or supervision, and they will know the nonprofit groups. Ask which materials the recyclers will accept, whether they pick up at curbside, whether they pay for materials and how they require materials to be prepared.

JONATHAN A. MEYERS

A worker in Albuquerque bags cans after a machine has flattened and separated them magnetically.

A final option: visit your local dump. Not only will it give you a valuable perspective on just how vast and diverse the waste stream is, you'll also discover who, if anyone, is retrieving the materials that would otherwise be wasted.

If no one is doing so—a likely situation—ask why not. In many areas, salvage operations are prohibited on a variety of grounds. One common reason is that federal guidelines raise questions about workers' safety. Other local guidelines restrain the operation of salvage projects. In other areas, scavenging is encouraged and is profitable. If you'd like more information about recycling across the nation, contact the National Recycling Coalition, Inc., 45 Rockefeller Plaza, Room 2350, New York, NY 10111. □

come a thoroughly unappealing mess. Then, at a majority of the landfills in this country today, all this potential wealth is crushed and buried together.

After they have been mixed and contaminated (the first step in the current system of waste disposal), valuable discarded materials become useless garbage. Each subsequent stage of the process produces more contamination and disorder. This process is fully subsidized by normal fee systems that reward the production and destruction of garbage by paying 100% of its costs, plus a profit for the hauler and the landfill.

In contrast, recycling produces usable resources as its first step and continues to do so throughout the process. Recycling disposes of wastes just as surely as does burying garbage, but it receives no generous subsidies. Instead, recycling is expected to pay its own costs by selling the materials it saves. If there is a gap between income and outgo (which is often the case because of recycling's dependence thus far on low-value household recyclables), it is sometimes made up with grants, equipment loans, labor subsidies and other "soft" forms of assistance. More often it has been offset by low wages and deferred paychecks, the origin of the "dedicated recycler" image.

Despite these disadvantages, some recycling businesses have managed to become entirely self-supporting by concentrating on better preparation of more valuable materials. Most programs, however, have had to find some form of assistance to stay in business. Now that a new wave of financial instability has been brought on by a combination of recession-affected markets and the withdrawal of subsidies in the name of fiscal conservatism, recycling enterprises are in trouble.

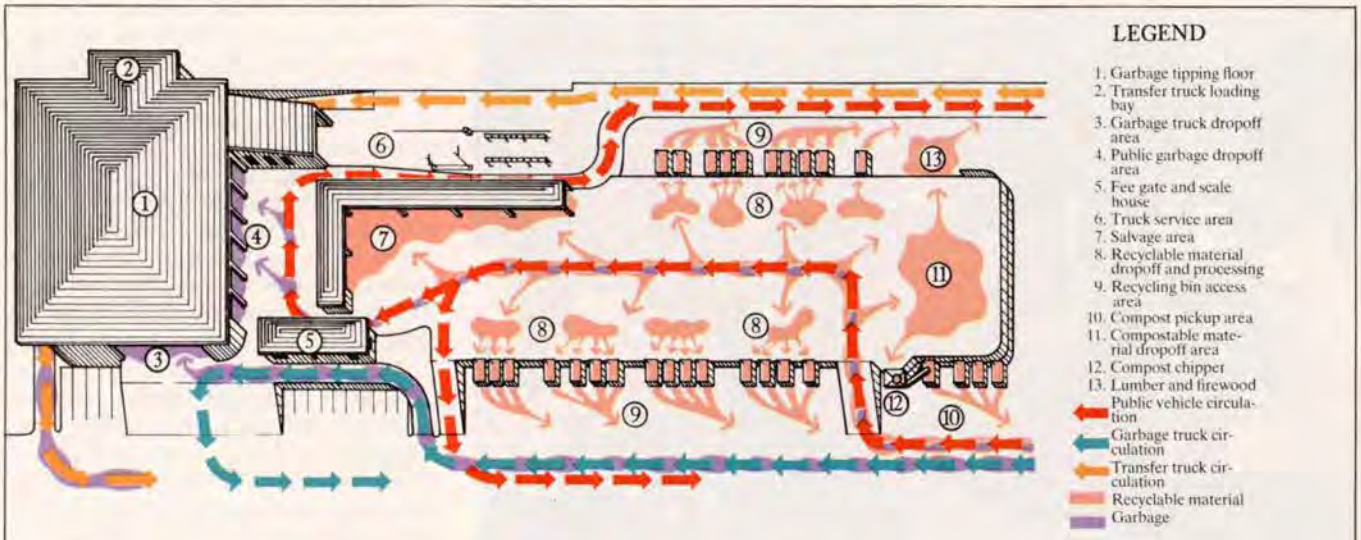
There is, however, a sort of paradox also at work. Several aspects of the economy are working in favor of recycling. One such factor is the scarcity of landfill sites. In the early days of sanitary landfill, the years immediately following World War II, land disposal was free or very cheap. Fill space was plentiful, and there were few environmental or zoning restrictions. Thousands of mined-out gravel pits near towns and cities were filled with garbage, including some materials that would later be banned as hazardous. Marshes, streambeds and canyons became garbage dumps or landfills, too.

The situation has changed, however. The cost of disposing of wastes is rising even faster than inflation. Full landfills must be replaced, and it is difficult to find new landfill sites near populated areas. So landfills are being "exported" to rural areas, where there aren't so many people to complain and where real-estate values are not so high. The new sites tend to be larger (because of the high volume of wastes that must be disposed of) and are often 50 or more miles from the source of the wastes. This series of related changes has required investment in long-haul garbage trucks and multimillion-dollar garbage transfer stations, where loads from smaller trucks are combined into bigger ones for the final trip to the landfill.

To reduce the cost to the public, the garbage-disposal industry has been trying, for the last decade, to derive some income from garbage. In the early 1970's, thousands of corner recycling depots sprang up; the industry's response was to proclaim a new era of mechanized "resource recovery." Garbage would be separated into glass, ferrous metal and fuel; the leftovers would be landfilled. The metal and glass would be sold for recycling. The fuel (paper, plastics, fiber) would be burned in special facilities designed to produce either steam or electricity.

The concept had an undeniable theoretical appeal, especially to environmentalists. Unfortunately, it didn't work. All the "resources" produced by these plants have had to be disposed of in landfills anyway. None of the complex designs originally proposed has actually been able to separate the garbage into anything marketable. The contamination of resources during the first (and successive) steps of the disposal cycle could not be overcome by cleaning and separating further down the line. The problems in combining wastes initially in hopes of separating them later couldn't be easily solved. Garbage in, as it happened, really did mean garbage out.

Once the original notion of "resource recovery" proved a failure, a new concept was introduced: "energy recovery." The latest proposals involve "mass burn" facilities that do not even attempt to recover materials. Instead, the wastes are simply pushed into furnaces and burned. The basic concept—burn garbage and sell the heat to industry or use it to generate electricity—hasn't really changed. The proponents of mass burning claim the process is simpler



An activist architect designed this recycling transfer station to show the Berkeley city council that recycling can be done efficiently. The city, which had planned to build a garbage transfer station that would have recycled only 2% of material received, changed its design to achieve 50% recycling.

DIAGRAM BY MARK GORRELL

than mechanized resource recovery, so it is not subject to the vast range of problems that plagued the earlier equipment.

But the underlying obstacle remains the same: contamination. The fuel mass burners are designed to process contains small but significant quantities of toxic and hazardous materials. Industry and even some public-works officials routinely overlook or minimize this problem, but people who work at landfills and transfer stations are familiar with it. Salvage workers at Urban Ore, a recycling company based at the Berkeley landfill, have encountered aged bags of DDT powder, containers of 2,4,5-T and 2,4-D, transformers and other electrical gear containing PCBs, all sorts of fuels and contaminated oils (which could later cause explosions if compacted or struck), and recently even a one-pound bottle of mercury (the type dentists use in making fillings).

MARY LOU VAN DEVENTER

Most materials in this photo were recovered from the dump; author Knapp wears the yellow hat.

These are the obvious sources of hazardous wastes; others are more subtle. For example, a new kind of smoke detector came on the market a few years ago. Each unit contains a speck of americium. The isotope of americium used in them is a bone-seeking, cancer-causing radioactive "daughter" product of plutonium, with a half-life of 450 years. Many of these smoke detectors have now worn out and are being thrown away in large numbers with the rest of the trash, contrary to the instructions on the container. They should certainly not be burned.

Since garbage-as-fuel is significantly contaminated by toxic substances, and since so much of it simply doesn't burn (glass, metals), mass burners cannot avoid producing large volumes of post-combustion residues. These residues—often referred to as "ash" (though they contain other types of material as well)—are toxic and are currently regarded as hazardous by the EPA. (Some cities and counties are trying to have these residues removed from the list of hazardous substances in order to simplify the process of final disposal.) But, currently, this "ash," together with the sludges and dusts removed from the stacks of the combustion facility, must be hauled to special hazardous-waste disposal areas, which are usually located even farther away from the source of waste than are the new dumps. Their disposal rates are also much higher.

Burning facilities have further problems. They are expensive to construct and operate; a mass burner proposed for San Francisco was stalled for more than a year waiting for an investor with sufficient capital to turn up. Franklin, Ohio, does have such a plant. But it is not yet functional and, pending resolution of its operating problems, is piling up a $65,000-a-year debt-service fee estimated to endure until 1996. In Akron, Ohio, the only way the city could keep enough burnable material coming into its giant incinerator was to consign all local wastes to the facility through an ordinance that effectively prevents recycling.

All these factors have raised the cost of conventional garbage disposal rapidly. Disposal rates doubled in Berkeley in the last two years and will soon rise again; nearby Oakland experienced a sudden fivefold increase when it switched from local dumping to transfer-and-haul. The state of California expects statewide increases of 30% every year for at least the next three years. Elsewhere in the country the situation is much the same; in some places it is worse.

High and rising disposal fees are both a problem for garbage and an opportunity for recycling. When Lane County, Oregon, switched from tax-supported dumping to a fee system, three effects were noticed immediately: less garbage went through the approved system; illegal dumping increased; and recycling suddenly increased by 30% and stayed at a high level. In Cotati, California, a free recycling facility placed in front of the garbage disposal area—and before the fee gate—has helped reduce the volume landfilled.

In Fort Bragg, California, a pilot project to study the composition of the waste stream succeeded in recycling 10% of the tonnage received at a small rural landfill. It was a "full-line" system; that is, it recycled many materials, including scrap metal, household discards, lumber and other reusable goods.

These successes are hopeful signs. There *is* gold in the trash (I personally have found some), but sophisticated mining techniques will be necessary to master the intricacies of the waste stream. All in all, the lesson of the last dozen years is that recycling is the best and most reliable form of resource recovery.

Still, the required changes in thinking come hard for local officials and public-works engineers accustomed to thinking in terms of garbage instead of useful discarded materials, or thinking that capital-intensive systems are automatically more economical that labor-intensive ones. On the advice of its Public Works Department, the Mendocino County Board of Commissioners turned down a proposal to install a permanent recycling facility at the Fort Bragg landfill and run it free of charge. This is especially ironic because a feasibility study had already predicted economic success for the venture. Instead, the local garbage would be baled, then hauled 40 mountainous miles to a mass burner to be installed at the city of Ukiah's landfill. Following this decision, the materials recovery facility developed by the study was bulldozed into the dump and buried. Recently, after a public hearing revealed strong local sentiment against the incinerator, the Ukiah City Council voted three to two against sponsoring the burner.

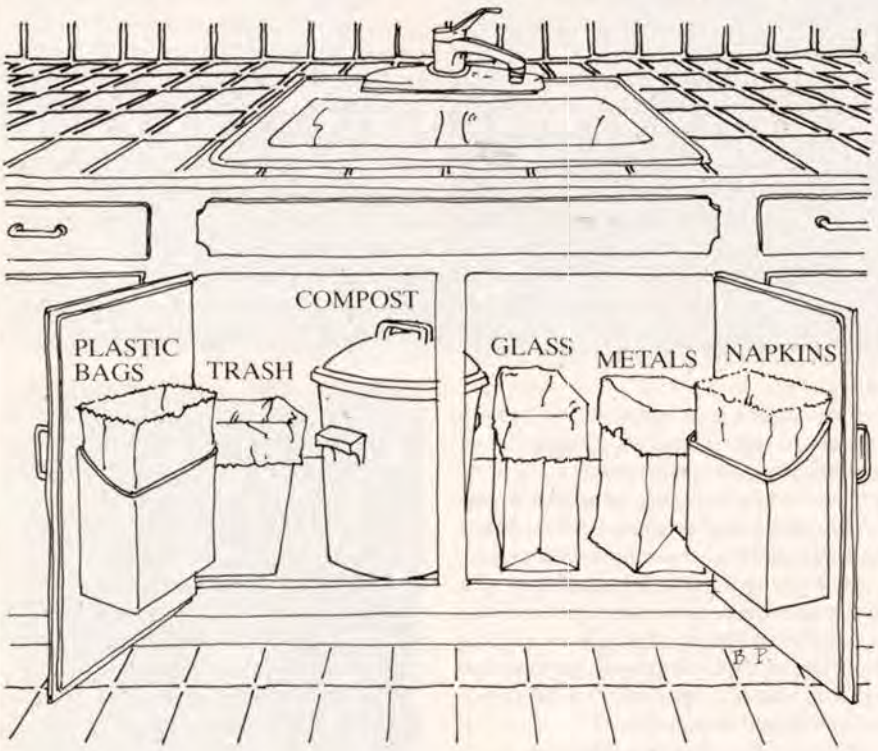
It's true that recycling can survive even if it is separated from the dump. Most of the familiar successful forms of recycling today—donation and dropoff centers, curbside pickup services and "buyback" programs (which pay the people who bring materials)—have evolved separately from

landfills. They, along with the Salvation Army, Goodwill Industries, Saint Vincent de Paul and the network of salvage and secondhand businesses, have served as an inefficient *de facto* materials-recovery system. For example, Urban Ore's retail salvage yard in Berkeley is two miles from the landfill, and every day it receives materials from haulers who prefer free or buyback disposal to the kind they have to pay for.

But recycling deserves better. In 1981, a survey by the California Solid Waste Management Board found that 97% of the people in the state favored recycling and wanted to do more. But recycling programs have been kept away from the richest resource flow—the landfills.

There is no doubt that installing full-line recycling facilities at landfills and at transfer stations would immediately reduce the amount of material being buried, but this is happening in very few communities. Only local activists can discover how much recycling is being done and how it can be increased. Only local activists can persuade officials that large-scale recycling makes good economic sense. Only local activists in thousands of towns can prevent the creation of garbage and recover resources instead. The time to begin the work is now. □

Daniel Knapp, a former sociology professor, is now co-owner of Urban Ore, a salvaging and recycling operation in Berkeley, California.



Recycling in the Kitchen

MARY LOU VAN DEVENTER

THE KITCHEN probably contributes more wastes to the landfill than any other room in the typical house. These materials, if separated at the source, could become usable resources. It's easy to cook in a kitchen set up for full recycling, and it would probably take no more than an hour to arrange the equipment using materials already on hand. The required receptacles are four large grocery bags, two medium-sized ones, a wastebasket and a five-gallon plastic bucket with a lid (you might need to buy this at a hardware store).

First, push back the stuff under the sink to make room for a row of bags in front.

1) Line the wastebasket with one big grocery bag. This is the receptacle for trash: waxed packages, cardboard frozen-juice containers and their little plastic sealers, bread-wrapper ties after they can't be used even one more time, and other miscellaneous nonrecyclable materials.

2) Another big grocery bag goes into the five-gallon plastic container—fold the top down so it stands up firmly. This is the receptacle for organic compostable materials—eggshells, limp lettuce, moldy food, coffee grounds (including used paper filters) and houseplant prunings. The grocery bag keeps the moist solids from sticking to the sides and makes the bucket easy to clean.

3)This bag, standing alone with its top folded down, can hold glass of all colors.

4) The fourth big bag is for all metals—mostly aluminum and steel cans, but also aluminum foil and bottle tops.

5) This medium-size bag is for reusable and recyclable plastic bags.

6) This one is for slightly reusable paper napkins and paper towels.

After a week or so of putting scraps and moldy leftovers into the compost bucket, you can empty the bucket either into a compost pile, which is easy to make with just garden trimmings, lawn clippings, leaves and kitchen wastes, or into a trench you can dig in the garden. Dig the trench about three feet long, a foot wide and eight to ten inches deep, then spread the bucket's contents along the bottom, chop the wastes into the dirt with a shovel and cover the trench with dirt. The scraps will decompose almost completely in three to four weeks. For some reason, urban animals don't dig up the materials, or at least haven't in my experience. You can plant seeds on top, too; the plants grow big fast. To keep the bucket from smelling bad, rinse it out and set it in the sun for a couple of hours; that kills all (or nearly all) the anaerobic bacteria that cause odors. Once every six months or so, leave the bucket out for two days.

If you live in a high-rise apartment with no garden, you could probably find a homeowner or community garden that would welcome your organic garbage, as long as it is separated from your other wastes.

When you clean the kitchen, one of your routine chores can be putting the recyclables together into the car for a trip to the recycling center the next time you're in the neighborhood. Take the newspapers, too. Then set up a group of fresh bags.

If you follow these easy routines, you will discover in the course of four or five weeks that you have recycled the great majority of kitchen materials that you formerly wasted. □

PHOTOGRAPHING

You don't need a telephoto lens to get a great shot

ROBERT S. WINKLER

ASK MOST PHOTOGRAPHERS who use single-lens-reflex cameras what kind of lens they would buy if they are interested in bird photography and the answer will most likely be: a zoom or a telephoto. This would be the choice even though the longer focal lengths are among the most expensive and least versatile of supplementary lenses.

However, the immobility of a tripod-mounted camera and lens, the limited apertures and shutter speeds available in those long lenses, and the narrow focusing range that allows little room for error, combined with the graininess of the faster films usually required, makes a combination that often proves self-defeating. One way to be free of such restraints, while avoiding large expenditures for equipment, is to practice stalking techniques that will bring the camera and the subject closer together.

With a few inexpensive accessories, a standard 50mm lens can take bird pictures that will equal or better the results achieved with super telephotos and zooms—if the photographer approaches his subject at the right time, in the right place, and with the stealth of a hunter. This does not mean that you must go crawling through swamps; merely that you can make nature and bird behavior work in your favor.

One good way to begin is by "scouting" an appropriate location. This is best done *without* your camera because your purpose now is to cover the ground and identify the best places for bird photography, and to plan your shots. Cameras seem to get in the way of these planning activities—they cry out to be used—so leave them behind at this time.

One good choice for your first scouting expedition is to take a drive or walk past some coastal marshes. Before you go, however, check your local tide tables for that area. At high tide, wading birds retreat to roosts in trees, so their watery haunts will be deserted. At low tide, on the other hand, they are usually too far out for decent viewing or picture taking.

The compromise is to scout the area during mid-tide or "half-tide rising," when birds that feed along the water's edge are halfway out and will be following the incoming tide as it moves them closer to shore—when they will be close enough for observation, but not so close as to be frightened away by your presence.

When you reach the coastal marsh, look for great and snowy egrets. Both birds are white and have long necks and long, pointed bills. The snowy is the smaller and tamer of the two; its "field mark" is yellow feet on dark legs. The great egret, a majestic bird, is the symbol of the National Audubon Society.

As you watch the birds feed, take note of which areas in the marsh they seem to prefer and check to see if there is adequate concealment for you nearby—tall grass, shrubs or trees. Also observe the intensity and direction of the lighting. If it is early in the morning or late in the afternoon, will there be enough light for films with low ASA ratings? Will you be shooting against the sun, or will it be at your back? Is the quality of the light pleasing, or would you prefer another time of day?

If the conditions are right, note the time of day so you can return with your camera at approximately the same time next day. The only accessory you need is a lens shade.

Since the tide rises about one hour later each day, delay your second arrival accordingly. Take your position behind appropriate cover as close as possible to where you saw the birds feeding. (At this point, they should be some distance away, unperturbed by your presence.) Gradually, the rising tide will push your subjects closer.

Keep low by crouching, kneeling, or sitting on the ground—or bring a chair, because birds are alarmed by the erect posture of humans. When the egrets come within range, peek out from your camouflage and start shooting.

A shutter speed of 1/125th of a second is quite adequate for great egrets, because they stand motionless for significant periods. Their smaller relatives, however, are active fishermen, so use a speed of 1/500th of a second if snowies are present.

To achieve full color saturation, offset the bright reflective quality of the birds' white plumage by stopping down one f/stop more than the camera's meter indicates. At all times, try to remain quiet and make no sudden movements. One slip and your birds will take flight.

Do not be discouraged if your stalking needs refinement. In bird photography, as in hunting, success is never guaranteed. Not only are trial and error involved, but you should be prepared to modify your plans as the situation dictates. For example, before abandoning a bird that doesn't fill the frame, consider whether it will add foreground interest to an otherwise run-of-the-mill scene.

The more common birds mustn't be overlooked. Gulls are often thought of as mere scavengers, but knowledgeable birders agree they are among the most skillful and picturesque flyers. Accustomed to the proximity of humans, many species can be approached and photographed from close up with minimal effort.

The familiar herring gull is abundant around harbors, beaches, sewage outlets and dumps. One of our most common birds, it is the species most of us refer to when we speak of "seagulls." Herring gulls break open shells by dropping them from the air, and they often rest in parking lots, on piers and atop solitary rocks.

Although their numbers are greatest during fall and winter, the best season for herring gull photography is in early summer, when the birds are busy tending to the annual duties of nesting. Passing near a herring gull colony then can be a harrowing experience, because parent gulls in defense of their young will swoop down at any intruder. To do it, the adults have to leave the nest, exposing it to other dangers. Keep a good distance away from the colony.

What makes this all worthwhile is that close-range normal lens photographs are possible whenever one of the feathered missiles makes a pass. If you have access to a herring gull colony—usually located on a small island—plan for a photographic outing. When you go, stay out of the nesting area, and be careful not to step on chicks or eggs, which blend in so well with their surroundings that they are practically invisible.

You can also concentrate on the smaller laughing gulls. These birds have black heads in summer, which turn nearly white by fall. They frequent harbors and protected beaches. Have a friend throw pieces of bread to the birds and they will catch the food in midair. For sharp, full-frame pictures of their aerial display, prefocus your normal lens near infinity and select the smallest aperture and fastest shutter speed that lighting conditions will permit. Add drama by decreasing exposure one f/stop; the outstretched wings silhouetted against interesting cloud formations create a striking effect.

Other common waterfowl that allow a

BIRDS

A hungry warbler (below) is trying, rather clumsily, to sip nectar as a hummingbird does. A white-crowned sparrow (below left) is almost dwarfed by a persimmon. Both setups involved fixed cameras equipped with long cable releases.

PHOTOGRAPHS BY HARRIET LEE

close approach are mallards, mute swans and Canada geese. In many localities, these species readily swim toward anyone offering food, but avoid the tendency to aim down at them from a standing position. More natural pictures result when you lower your camera to approximately the same level as your subjects. One word of caution: mute swans can be dangerous, so always keep a safe distance away from their bills and wings.

Passerines or perching birds are easiest to photograph at a window feeder, but the presence of a feeding tray and a window sill in the picture takes away from the authenticity of a bird photograph. Still, the feeder makes it possible to shoot 50mm portraits of blue jays, cardinals, black-capped chickadees, house finches, tufted titmice and more, if you use two simple accessories: a tripod and a remote air release.

(An air release is a long piece of hollow plastic tubing with a squeeze-bulb at one end that activates a metal plunger at the other. The plunger end screws into a socket in the camera's shutter release button. These air releases are available through most camera stores.)

Begin by observing how the birds approach your feeder. They usually have a favorite perch—often the nearest tree branch—from which they assess the safety of dining before flying in. Place your camera on the tripod and train it on this branch. (You may find it advisable to first let the birds get used to the tripod by leaving it outside for a few days.)

Since you don't know whether large or small birds will come, or exactly where on the branch they will land, get maximum depth of field by selecting the smallest aperture possible. Also, because smaller perching birds move with lightning quickness, choose a shutter speed of at least 1/500th of a second.

If your camera has a mirror lock, use it; the sound of the mirror snapping back and forth can startle your subjects. Advance the film after attaching the air release, then extend this into the house or behind a natural "blind." Finally, replenish your feeder, then wait for the diners to arrive.

Almost as easy as taking bird pictures from the comfort of your home is bird photography from the comfort of your automobile. Birders have long known the value of this moving blind; ironically, birds feel less threatened by a person in a car than by a person on foot.

Eleven miles northwest of Atlantic City, a self-guided auto tour passes through Brigantine National Wildlife Refuge, a haven for birds migrating along the Atlantic Flyway. Park to one side of the eight-mile one-way route to photograph herons and egrets, gulls and terns. Thousands of wintering ducks and geese begin converging on Brigantine by late fall. To use the strategically located photo blinds, obtain a permit at refuge headquarters.

Jamaica Bay Wildlife Refuge (west of Kennedy Airport) accommodates autos in its parking lot only, but the 1¾-mile footpath around West Pond is bound to provide photo opportunities. With the World Trade Towers in sight, and with a subway stop within walking distance, the sheer numbers of fall birds are astounding. For directions to Jamaica Bay and Brigantine, along with detailed discussions about the birds most likely to be seen at different seasons, consult Olin Sewall Pettingill's *A Guide to Bird Finding East of the Mississippi* (Houghton Mifflin Company), available in soft cover for $7.95. Contact your local Audubon Society for more information about local sites and seasons.

Pettingill's guide also describes Everglades National Park, which, for those who take midwinter vacations in Miami, is worth the 50-mile trip south. Normal-lens bird photography here is extremely rewarding along celebrated Anhinga Trail, where birds are so accustomed to the constant stream of tourists that a species as exotic as the purple gallinule can be photographed from up close with impunity. Approachable birds seem to be everywhere, but don't get so carried away that you forget to keep an eye out for the park's most famous inhabitants: alligators. □

Robert S. Winkler is a freelance writer and photographer in Connecticut.

WATCHING

FRED VALLEJO

ARCTIC TERNS wing their way from Labrador to South Africa and back again, a yearly migration of 11,000 miles each way. Storks and cranes course on the north winds at 20,000 feet. Peregrine falcons hurtle earthward at speeds approaching 200 miles an hour. They are all birds, all fascinating.

The name given to people who spend countless hours identifying such creatures in the field is "birdwatcher"—or "birder," to use the vocabulary of devotees. Birdwatchers are curious, adventuresome, dedicated, ambitious, fun-loving, and more than a little peculiar at times.

Why do birders such as myself birdwatch? I can cite several reasons. First, birds are special creatures; they are majestic, graceful, beautiful and funny. But more than that, watching a bird sing, bathe, build a nest or feed its young is a humbling experience that can leave you with a feeling approaching reverence or awe.

Many people feel an indescribable relationship with birds. Birds and humans are very much alike in some ways. We are bipeds, absolutely comfortable and sure-moving on two feet. We both stand erect (or nearly so) with our heads up, alert and watchful. We learn about our surroundings through both sight and smell. Both of us are able to see colors. We both sing. Both fly. Also, birds may be the only other animals besides ourselves to use the stars for navigation.

Perhaps our fascination stems from strictly an emotional source, jealousy. Birds have always represented, above all else, freedom—a freedom the birder can never know.

Maybe it's because we can learn from birds. Take the diminutive sanderling, for example. A small ball of reddish-brown and white in its summer plumage, the sanderling spends the day darting along oceanfronts in search of whatever nourishment the sand will provide. It is not an easy task, because the ocean is not still; it moves forward and retreats. The sanderling must do so, too. Its tiny feet scurry noiselessly over the wet beach, while its head is bent forever forward toward the sand. Although it appears impossible to stay dry, the bird manages time after time to dash just out of the reach of the water.

Some people consider the sanderling an accommodator, a survivor because it takes what the sea brings in, then flees before the next surge. The sanderling knows the meaning of give and take. But others see it differently. Each time the peep charges, the sea withdraws. Who is accommodating whom? The sanderling, a picture of grit and determination, is really playing the mighty ocean to a draw!

Birding, of course, has its more practical aspects. It can be an important first step toward becoming a naturalist or an environmentalist, or it can add a dimension to other outdoor activities from picnicking to canoeing or hiking. Birding also brings home the fact that humans and all other species have but one habitat to share, and we had better do our best by it. Some 52 birds in the continental United States are now endangered; forces such as DDT and other toxic chemicals, housing tracts and deforestation have all but done them in. Birders soon learn they should not only watch birds, but also watch over them.

Happily, birding is an easy sport—and make no mistake, it *is* a competitive sport—to get into, particularly if you are already enamored of the outdoors. A good field guide and a pair of binoculars are all you need to get started.

Many field guides are on the market, but any birder worthy of the name these days has one, if not all, of the following: *Birds of North America* by Chandler Robbins, Arthur Singer, Bertel Bruun and Herbert Zim; *A Field Guide to Birds East of the Rockies* by Roger Tory Peterson; and *A Field Guide to Western Birds,* also by Peterson.

Although it was first published in 1966, *Birds* remains accurate, and it's easy to use. Four-color illustrations face the texts that describe them and also include multicolored seasonal range maps. The book also contains song diagrams, which help the reader visualize the approximate pitch, quality, phrasing and tempo of a song, the length of individual notes and the entire song. Moreover, all birds in the continental United States and Canada are described in a single volume.

Roger Tory Peterson is called the father of modern birding, a sport that has boomed in popularity over recent years to include an estimated 20 million Americans. In 1934, the young artist and naturalist tried his hand at writing and illustrating a book on birds. Nothing like it had been done before. It became his first edition of the *Field Guide*. Then about four years ago, after some cajoling, Peterson began the exacting task of revamping and updating his guide for the fourth time. He says he did it because "I didn't want to go to my grave with the third edition as my artistic testament."

Peterson's new *Field Guide* is patterned to a large extent after *Birds*. Its format is far tighter than it used to be and now has text facing detailed illustrations. Every illustration is new or redrawn and, for the first time, all species are shown in color. It also includes 390 seasonal range maps and color plates of many "accidentals"—birds spotted out of their normal ranges. Unlike *Birds,* though, the range maps are placed together in the back of the book. Peterson says he designed the guide this way so the maps can be revised for new printings without having to change all 394 pages.

The major drawback to *Field Guide* is that it covers only birds of eastern and central North America, but Peterson is said to be at work on an update of his guide to the western birds.

Of course, *Field Guide* continues to include what Peterson calls The System—his method, which has been adopted the world over, of using arrows to pinpoint critical field marks on each bird. Field marks are the identifying features by which a birder can tell one bird species from another. In trying to tell some 50 different species of warblers apart, even experienced birders need all the help they can get.

Birds costs $4.95 in paperback, *Field Guide* $9.95 and *Western Birds* $8.95. If you can afford them, I would encourage you to buy all three, because their illustrations, though similar, are not exactly alike. Colors vary a bit, as do the positions of the birds and descriptions about them. Using them all, you should be able to identify virtually any bird you get a good look at.

The problem of getting a good look brings us to the question of optics. You may be able to see birds, but you certainly won't be able to identify them without a good pair of binoculars. The dozens on the market can be almost too many to choose from. Therefore, establish a couple of guidelines before you begin looking. Let price be the first guideline. If you don't have $1,000 to spend on binoculars, don't spend it. Some good birding glasses are available for around $200 and under. Let use be another guideline. If you intend to use the glasses for birding alone, size and weight may not be all-important considerations. If, on the other hand, you want to squeeze binoculars into your backpack along with 40 pounds of other gear, find a pair that is compact and lightweight.

Here's a short course in understanding those cryptic numbers on binoculars that

BIRDS

HARRIET LEE. INSET: HAL LAURITZEN

A birdwatcher (left) in his natural habitat. An Allen's hummingbird (right) at a trumpet vine flower. An electronic flash and a shutter speed of 1/10,000th of a second was necessary to stop the wings from blurring.

read "8x40," "10x50," "7x35" and the like. The first number refers to the magnification of the binoculars, or its power. A pair rated 7x means a bird looks seven times larger (that is, nearer—⅐ the distance away) than it does with the unaided eye.

Most birders prefer to forego high-power binoculars, those above 8x, because they are heavy, because they magnify the fluttering movements of birds (as your hand also shakes) so that the birds seem to vibrate, and because they narrow your field of vision significantly.

The number after the "x" is the diameter of the objective lens—the lens farthest from your eye—in millimeters. This lens determines how much light enters the binoculars. The larger the lens, the greater the light and the brighter the image. Common widths of objective lenses used for birding binoculars are 35mm, 40mm, and 50mm.

Field of vision also is engraved on most binoculars, and shown in either feet or degrees. The term "Field 420," for example, means that at 1000 yards you will see through your binoculars an area 420 feet across. The term "8 degrees" means the same thing. Multiply 8 by 52.5 to find the field of vision in feet ($8 \times 52.5 = 420$).

Binoculars must do certain things well if they are to be useful. Be sure to check out a pair thoroughly *before* buying them. To be acceptable, binoculars must bring objects into sharp focus at any distance within the focusing range. The image should not blur at the periphery of the field. The lenses should be clear, unscratched and properly coated to reduce reflection and allow maximum transmission of light to your eyes. The binoculars should not contain dust; an easy way to check is to look through the objective lens at a white background, such as a ceiling. Finally, the exit pupils—those small circles of light you see behind the lens in both eyepieces if you hold the glasses at arm's length—must be round and evenly bright.

Theoretically, the exit pupil must be as big as or bigger than your own pupil to provide as bright an image through the binoculars as you can see without them. You can figure the size of the exit pupil in millimeters by dividing the diameter of the objective lens by the magnification. For example, 7x35 binoculars would have an exit pupil size of 5mm, which is adequate for seeing birds in dim light, such as at dawn and twilight.

Another approach to the same problem is to use the rule of thumb offered by *Birds*: the diameter of the objective should be about five times the number of the magnification to get a bright enough image with a wide enough field. There is a tradeoff between being able to see in dim light and having a wide field of vision. For example, a 7x50 lens is excellent for late twilight because it offers a bright image, but the field of vision is quite narrow. Again, the 7x35 looks like a good choice.

Once you have bought a pair of binoculars, practice aiming and focusing them on birds near your house. At first, try looking at a bird sitting on a fence or a telephone wire. Then try to find one perched well up in a tree. Fix your gaze on it and raise your glasses quickly, yet surely, to your eyes. If all you see is a blur of branches and leaves, sight the bird along the top edge of your glasses first, then lift them up to your eyes. Or pick a reference point and position the bird to it. Practice at home until you are reasonably sure of your skill.

After you've practiced with your binoculars and bought your field guide (or guides), all that remains is to find birds. Plenty are around. Government studies estimate that 645 of the world's 9000 species of birds nest in the continental United States and Canada. If you add accidentals, the number increases to 710 species or more, which amounts to about a trillion birds. After considering numbers like these, you begin to wonder how birds can sometimes be so difficult to locate. The fact of the matter is, a good birding eye depends less on innate ability than on training. Here are a few tips to help you improve your rate of success.

First, spring and fall are typically the best seasons to bird. They are the migratory seasons, so your chances of seeing a wide

variety improve greatly. Spring may be preferred to fall, because then the dull winter plumage of males gives way to colorful breeding plumage.

Second, birds are most active at dawn and sunset, so those are the best times of day to see them.

Third, birds are often easiest to find at an ecotone, which is a place where two natural systems meet, such as the border between a field and woods.

Fourth, keep your binoculars focused for mid-range viewing (about 25 yards or so). That way you won't waste needless, often precious seconds bringing a bird into focus.

Fifth, always take your field guide with you, but don't overuse it. When you spot a bird, spend as much time as possible watching it. Try to determine what makes it unique. Refer to your field guide only after the bird has flown or after you have had a long, satisfying look at it.

Finally, leaf through your field guide(s) in your spare time. You'll be surprised to find that by doing so you will gradually memorize the colors, shapes and field marks of birds, and be able to recognize them at first sighting in the field. A well-educated birder can identify hundreds of birds and can do it in an instant.

Making fast, accurate identification is quite a skill. The large number of bird species in our country leaves birders plenty of room to mistake identities. Certainly color is important. But you must be aware of other characteristics as well, if you are to succeed where others fail.

BEHAVIOR. The way a bird moves is sometimes a giveaway to its identity. In dim light, for example, two inconspicuously small birds, nuthatches and creepers, might not be told apart. But the creeper will always work its way up and around the tree trunk in a spiral fashion, while the nuthatch will work its way down the trunk, head first.

BILL SHAPE. In dim light or thick woods, it is sometimes difficult to distinguish one kind of perching bird from another, but the shape of the bill can provide a clue. Wrens and vireos, for instance, use their narrow bills to snatch crawling insects from leaves. The flat, wide bills of flycatchers and king birds are made for nabbing flying insects. The short, thick, conical beaks of finches, grosbeaks and sparrows are used to crack open seeds, their dietary staple.

FIELD MARKS. If a bird will sit still for you long enough (not a good bet), you can run through a mental checklist of markings to help you identify a species. Many times, one telling mark is all you'll need. Occasionally, however, you must find more than one to make a positive identification. Birds can be distinguished by their tail markings, breast patterns, eye colors, wing patterns, eye stripes or rings, rump patches and wing bars and by the color of their bills, eyes and legs.

HARRIET LEE

This starling at its nest-hole was spotted in a sycamore tree along a busy street. A prefocused camera was mounted and tripped with a long cable release.

FLIGHT. Contrary to popular belief, birds do not fly alike. All have wings, but the similarity stops there. The difference between the flight of a hummingbird and a raptor is, of course, obvious. But the flight patterns of birds whose appearances might otherwise fool you are also distinct. Storks, ibises and cranes, for instance, fly with their necks outstretched, while herons and egrets tuck theirs in.

HABITAT. Sometimes species that look almost identical can be identified by the environment they live in. The gray vireo and the Rocky Mountain solitary vireo are good examples. Both have slurred songs, but the gray is found in arid, scrub habitats of pinyon and juniper, while the Rocky Mountain solitary is found in northern hardwood forests.

SHAPE. If the light is such that you can't discern a bird's color, look at its shape. Does it have a crown like a waxwing? Or a forked tail like a swallow? Or a dihedral wing-set like a turkey vulture? Both *Birds* and *Field Guide* provide silhouettes. Study the differences in the species' body shapes, wing shapes, tail positions and length and overall postures.

SOUND. Experienced birders can often identify a bird by its song. Records and tapes of birdsongs are available. If you are the ambitious sort, you can tape birdsongs yourself. One birder in the Washington, D.C., area has made a name for himself thanks to his knowledge of songs. He listens to tapes every morning while he shaves and dresses for work!

One word of caution. Though birders operate on a strict honor system, a rare find should be substantiated by others whenever possible. You might be convinced you saw that Little gull, but be prepared for a thorough quizzing. Experienced birders will want to know: how extensive was its hood? How did it fly? Was it light or dark under the wings? If they think you had a good enough look to be certain, they'll accept your sighting and will be the first to spread the word about your good luck. If you're a novice birder, you'll learn more quickly and see more species by watching with trained observers. Birders are a friendly lot and usually anxious to help.

One thing they will recommend is that you keep a list. Every serious birder keeps a life list—a record of every bird he or she has ever seen. America's top birders (about 20 people) have identified more than 700 species. But 400 will gain you respectability in most parts of the States.

Of course, the life list is only the start. If you become an active and eager birder, you could create a rash of sublists: the number of birds you've seen in your yard; the number you've seen in your state; the number you've seen in one season; the number you've seen in one year; the number seen from one window; the number heard but not seen. You get the idea. Only imagination puts a limit to listing.

The overall merits of birding are many. It is a clean sport. It is competitive. It is relatively inexpensive. It provides as much or as little exercise as you want. It keeps you outdoors, fair weather or foul. It puts you in close contact with nature and can add to your understanding of the natural world that is around you.

Moreover, while birding you discover the intricate interdependence of life forms, a lesson that eventually leads you to the logical conclusion that the environment, on which both you and birds depend for life, should be protected.

These important virtues aside, the best part of birding is that it's just plain fun. □

Fred Vallejo, a freelance writer based in Washington, D. C., regularly writes on outdoor topics.

SIERRA CLUB OUTINGS

It's Not Too Late to Sign Up for a 1982 Outing

A LARGE NUMBER of Sierra Club 1982 outings are filled, with waiting lists for some, but many outings are still available. If you act promptly, you can probably find space on any of the trips listed below. Please refer to pages 98 and 107 of the January/February issue of *Sierra* for application form, reservation instructions and deposit/cancellation/refund policy information, and page 59of this issue of *Sierra* for an Outings information order coupon. Look for a special Outings section describing next year's Foreign and Winter trips in the July/August *Sierra* and a listing of 1982 Spring trips in the November/December issue.

Trip Number	E = Educational Outing • = Leader approval required	Date	Rating	Trip fee (Incl. Deposit)	Deposit	Leader
ALASKA						
59	Exploring Alaska by Bus	Aug. 7-Sept. 6		2260	70	Margaret Malm
61	Stikine River-Misty Fjords Raft Trip, British Columbia/Alaska	Aug. 20-Sept. 3		1240	70	John Ricker
BACKPACK						
87	•Cumberland Sheltowee, Daniel Boone Forest, Kentucky	June 6-12	L-M	130	35	Jim Absher
97	•Grizzly Lake, Trinity Forest, California	July 10-17	M-S	155	35	Grace Adams
106-E	•Bear Creek Spire Photography, John Muir Wilderness, Sierra	July 18-25	L-M	160	35	Jim Gilbreath
108	•Rosy Finch, John Muir Wilderness, Sierra	July 19-29	L	200	35	Ray Collins
109	•Mineral King to Cottonwood Lakes Leisure, Sequoia Park/ Golden Trout Wilderness, Sierra	July 19-30	L	205	35	Joan Glassey
111	•Eagle Cap Wilderness Area, Wallowa-Whitman Forest, Oregon	July 20-28	M	215	35	Cathie Pake
112	•Red Spur-Kaweah, Mineral King/Sequoia Park	July 22-31	M-S	170	35	Karen & Andrew Merriam
115-E	•Minarets Loop Cross-Country Photography, Inyo Forest, Sierra	July 29-Aug. 6	L-M	175	35	Bob Paul
116	•Kern Basin Lakes, Sequoia Park, Sierra	July 30-Aug. 7	M-S	150	35	Cal French
120	•Mt. of the Holy Cross Wilderness, White River Forest, Colorado	Aug. 1-6	M-S	175	35	Fred Gunckel
121	•Chiricahua Wilderness, Arizona	Aug. 1-7	L-M	145	35	Richard Taylor
122	•Mt. Tehama, Lassen Park/Cascades, California	Aug. 1-7	M	130	35	Ken Lass
129	•Glacier Divide, Inyo Forest, Kings Canyon Park, Sierra	Aug. 7-14	M	140	35	Phil Gowing
131	•Tyndall Creek, Sequoia Park, Sierra	Aug. 7-15	S	160	35	Ken Maas
138	•Center Basin to Milestone Basin, Kings Canyon/ Sequoia Parks, Sierra	Aug. 15-24	M	170	35	Bruce Straits
139	•Beartooth High Lakes, Beartooth-Absaroka Wilderness, Montana	Aug. 16-24	M-S	235	35	Bob Madsen
141	•Red and White Mountain, John Muir Wilderness, Sierra	Aug. 21-28	M	140	35	Andrea Bond
142	•Carter-Mahoosuc Ranges, New Hampshire	Aug. 22-Sept. 1	S	260	35	Phil Titus
145	•Sequoia Lakes and Canyons, Sequoia Park, Sierra	Aug. 28-Sept. 5	M-S	155	35	Don Lackowski
146	•Ionian Basin, Kings Canyon Park, Sierra	Sept. 5-13	M	155	35	Diane Cook
147	•Forgotten Canyon, Sequoia Park, Sierra	Sept. 9-18	L-M	170	35	Mac Downing
148	•Humphreys Basin, John Muir Wilderness, Sierra	Sept. 11-19	M-S	160	35	David Reneau
149	•Great Western Divide, Sequoia/Kings Canyon Parks, Sierra	Sept. 11-19	M-S	155	35	Kern Hildebrand
150	•Around Mt. Goddard/Kings Canyon Park, Sierra	Sept. 13-21	M	155	35	Wes Reynolds
152	•Salt Trail to Tanner Trail, Grand Canyon Park, Arizona	Sept. 25-Oct. 2	S	210	35	Sherman Cawley
153	•Cold River and Indian Pass, Adirondack Park, New York	Sept. 25-Oct. 3	L	215	35	Daniel Reed
156	•Presidential Range, White Mountain Forest, New Hampshire	Oct. 3-9	S	240	35	Kevin Cresci
157	•San Francisco River, Gila/Apache Forest, New Mexico/Arizona	Oct. 10-16	L	175	35	Don Lyngholm
158	•Finger Lakes Trail, New York	Oct. 10-16	L-M	180	35	Connie Thomas
159	•Georgia Blue Ridge Autumn, Chattahoochee Forest, Georgia	Oct. 16-23	L-M	190	35	Chuck Cotter
160	•Tanner-Hance Holiday Loop, Grand Canyon Park, Arizona	Dec. 19-24	M-S	160	35	Bob Madsen
300	•Grand Canyon, Arizona	Dec. 27-Jan. 2, 1983	M-S	150	35	Lester Olin
JUNIOR BACKPACK TRIPS						
161	•Dusy/Palisades Basins, Inyo Forest, Sierra	June 27-July 4	M-S	145	35	Andy Johnson
162	•Kings-Kern Divide, Sequoia/Kings Canyon Parks, Sierra	July 10-18	M-S	170	35	Ed Shearin
163	•Wind Rivers Wilderness, Rocky Mountains, Wyoming	July 12-19	M-S	175	35	Andy Johnson
165	•McClure's Traverse, Yosemite Park, Sierra	Aug. 1-8	M	155	35	Ellen & Jim Absher
BASE CAMP TRIPS						
168	Lost Lake Alpine Camp, Kings Canyon Park, Sierra	July 10-17		230	35	Jerry South
171	Davis Lakes Backcountry Camp, Minarets Wilderness, Sierra	Aug. 7-21		475	70	Ray Des Camp
173	Minarets West Alpine Camp, Sierra	Aug. 15-27		325	35	Emily Benner

Trip Number	E = Educational Outing • = Leader approval required	Date	Rating	Trip fee (Incl. Deposit)	Deposit	Leader
BICYCLE TRIPS						
179	•Wisconsin Bikeway, Wisconsin	June 13-19		175	35	Fred Gooding
180	•Atlantic Provinces Bike and Hike, Canada	Aug. 9-20		280	35	Sharon & Bob Hartman
181	•Crater Lake Tour, Oregon/California	Sept. 5-12		220	35	JoAnn & Paul Von Normann
182	•Lancaster County, Amish Country, Pennsylvania	Oct. 9-16		190	35	Herb Schwartz
BURRO TRIPS						
185	•Symmes Creek to Onion Valley, Inyo Forest/ Sequoia Park, Sierra	July 17-24		305	35	Jack Holmes
189	•Reds Meadow to McGee Creek, John Muir Wilderness, Sierra	Aug. 14-21		305	35	Dan Holmes
190	•McGee Creek to Rock Creek, John Muir Wilderness, Sierra	Aug. 21-28		305	35	Ted Bradfield
FAMILY TRIPS						
WILDERNESS THRESHOLD			Rating	Parents and one child / Each addl. child		
191	•Gila Wilderness, New Mexico	June 27-July 3		590 / 145	35	Sheri & Dick Ricker
192	•Dinkey Lakes, Sierra	July 25-31		815 / 205	35	Hugh Kimball
194	•Cramer Basin, Sawtooth Wilderness, Idaho	Aug. 3-10		960 / 240	35	c/o Harry Reeves
196	•Chamberlain Lakes, White Cloud Mountains, Idaho	Aug. 13-20		830 / 210	35	Ann & Tom Carlyle
FAMILY BACKPACK						
203	•Triangle Lake Loop, Caribou Wilderness, Lassen Forest, California	Aug. 2-8	L-M	385 / 95	35	Molly & Harry Reeves
FOREIGN TRIPS (See River Trips for another foreign outing.)						
945	Highlights of Peru	June 24-July 16		2060	100*	Rosemary Stevens & Ray Des Camp
960	•Central Pyrenees, Spain	July 18-31		1180	100*	John Doering
970	•Hut Hopping in the Dolomites, Italy	July 4-17		1100	100*	Tarcisio Pedrotti & Fred Gooding
985-A	•On the Weg Through the Schwarzwald, West Germany	Aug. 2-8		555‡	100*	Carl Wood
985-B	•On the Weg Through the Schwarzwald, West Germany	Aug. 9-15		555‡	100*	Carl Wood
605	•Hike in Japan	Sept. 11-Oct. 1		1975	100*	Stewart Kimball
610	•Sikkim Trekking Adventure	October 10-30		1560	100*	Norton Hastings
615	•Gorkha-Lamjung Himal Trek, Nepal	Nov. 6-28		1285	100*	Al Schmitz
630	Galapagos Islands	Feb. 17-March 10, 1983		TBA	100*	Betty Osborn
635	Tanzania Safari	Jan. 28-Feb. 11, 1983		TBA	100*	Betty Osborn
640	Chile	Feb. 1983		TBA	100*	Stewart Kimball
	‡2 weeks is $1050 *Per person per deposit					
HAWAII TRIPS (Trip prices do not include airfare.)						
213	Molokai Holiday, Hawaii	Dec. 24-Jan. 1, 1983		455	35	Pete Nelson
HIGHLIGHT TRIPS (See Wilderness Threshold for another Highlight-type outing.)						
218	Central Uintas, Wasatch Forest, Utah	Aug. 3-10		475	35	Jerry Clegg
219	Ruby Mountains, Humboldt Forest, Nevada	Aug. 14-21		475	35	David Horsley & Chuck Schultz
222	Minarets Circle, Sierra/Inyo Forests, Yosemite Park, Sierra	Aug. 28-Sept. 11		710	70	Jane & John Edginton
223	The Maze/Land of Standing Rocks, Canyonlands Park, Utah	Oct. 4-14		675	70	David Horsley
224	High Desert Special, California	Jan. 30-Feb. 5, 1983		250	35	Dolph Amster
SERVICE TRIPS						
TRAIL MAINTENANCE PROJECTS						
225	•Wild Lake, Marble Mountain Wilderness, Klamath Forest, California	June 29-July 13		100	35	Warren Olson
227	•Happy Camp, Klamath Forest, Siskiyou Mountains, California	July 5-13		80	35	Bryan Wilson
229	•Baboon Lakes, John Muir Wilderness, Sierra	July 17-25		80	35	Dave Bachman
230	•Targhee Tetons, Targhee Forest, Idaho	July 25-Aug. 4		80	35	Bruce Horn
232	•Moonlight Lake, Inyo Forest, Sierra	July 27-Aug. 6		80	35	David Simon
233	•West Fork Lake, Kanitsu Forest, Idaho	July 30-Aug. 9		80	35	Cathlin Milligan
234	•Papoose Lake, John Muir Wilderness, Sierra	Aug. 10-20		80	35	Keith Proctor
236	•Guanella Pass II, Pike Forest, Colorado	Aug. 13-23		80	35	Jim Bock

Trip Number	E = Educational Outing • = Leader approval required	Date	Rating	Trip fee (Incl. Deposit)	Deposit	Leader
237	•Goodale Pass, John Muir Wilderness, Sierra	Aug. 24-Sept. 3		80	35	Keith Proctor
238	•Painted Rock Ranger District, Bighorn Mountains, Wyoming	Aug. 25-Sept. 4		80	35	Susan Liddle
240	•Alamosa Ranger District, Rio Granee Forest, Wyoming	July 21-30		575	70	Serge Puchert
241	•Granite Park, John Muir Wilderness, Inyo Forest, Sierra	Sept. 1-11		80	35	Scott Larson
	CLEAN-UP PROJECTS					
242	•Yosemite Park, California	July 20-30		80	35	Phil Dettmer
244	•Airplane Wreck Clean-up, Sierra	Aug. 1-11		80	35	Marc Lacrampe
246	•Grand Gulch, Utah	Sept. 21-27		80	35	John Ricker
	SKI TRIPS					
291	•Maine Back Country Ski/Snowshoe Tour	January 1983		TBA	35	Fred Anders
292	•Adirondack Ski Touring, New York	January 1983		TBA	35	Walter Blank
	WATER TRIPS (See Alaska for another water outing.)					
	RAFT TRIPS					
52-E	Birds of Prey, Snake River, Idaho	May 2-6		525	70	Harry Neal
251-E	Rogue River Natural History Paddle Trip, Oregon	June 25-29		395	35	Martin Friedman
252-E	Grande Ronde River, Oregon	June 27-July 1		460	35	Jim Gifford
254	Grand Canyon Oar Trip, Arizona	July 2-13		1080	70	Lynn Dyche
255	The River of No Return, Main Salmon, Idaho	July 3-8		740	70	Ruth Dyche
256	Trinity River Paddle Trip, California	July 5-9		175	35	Chuck Fisk
257-E	Tatshenshini-Alsek River Expedition, Alaska	July 18-29		1420	70	Blaine LeCheminant
258	Rogue River Raft Trip, Oregon	July 26-30		390	35	Bob Hansen
261	Rogue River Raft Trip for Physically Handicapped Persons, Oregon	Aug. 2-4		120	35	Frankie Strathairn
262	Hell's Canyon Paddle Trip, Snake River, Idaho	Aug. 6-11		545	70	Bruce Macpherson
263-E	Lower Salmon-Hell's Canyon "Row-It-Yourself" Trip, Idaho	Aug. 8-12		455	35	Hunter Owens
264	Nahanni River Expedition, Northwest Territories, Canada	Aug. 15-25		1860	70	Mary O'Connor
266	Rogue River Raft Trip, Oregon	Aug. 30-Sept. 3		390	35	Doris Flom
267	Grand Canyon Oar Trip, Arizona	Sept. 30-Oct. 11		1080	70	Steve Anderson
	SAILING TRIPS					
269	Inside Passage Sailing Adventure, British Columbia, Canada	July 20-28		880	70	Harry Neal
	CANOE TRIPS					
278	•Trinity River, California	July 12-17		285	35	Charlie Doyle
280-E	•Yukon Canoe and Backpack Tour, Yukon, Canada	July 28-Aug. 28		995	70	Larry Requa & Kent Doughty
281	•Rogue River, Oregon	Aug. 2-7		290	35	Chuck Schultz
282	•Kejimkujik Park, Nova Scotia, Canada	Aug. 22-31		370	35	Connie Thomas
283	•Trinity-Klamath Whitewater, California	Aug. 23-28		290	35	Bill Bricca
284	•Upper Saranac Lake, Adirondacks, New York	Sept. 11-18		200	35	Sue Tippett & Fred Anders

FOR MORE DETAILS ON OUTINGS

Outings are described more fully in trip supplements, which are available from the Outing Department. Trips vary in size and cost, and in the 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, saving yourself the cost and inconvenience of changing or cancelling a reservation. The first five supplements are free. Please enclose 50 cents apiece for extras. Write or phone the trip leader if any further questions remain.

Clip coupon and mail to:

Sierra Club Outing Department
530 Bush Street, San Francisco, California 94108

Sierra Club Member Yes No

Send Supplements:

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CITY _____ STATE _____ ZIP _____

Enclosed is $_____ for supplements requested over 5 at 50 cents each. Please allow 2-4 weeks for delivery.

SUBSISTENCE, A CULTURAL SUSTENANCE

PEGGY WAYBURN

Villagers: Athabaskan Indian Life Along the Yukon River, by Claire Fejes. Random House, New York, 1981. $14.95.

WHAT IS SUBSISTENCE? Most people think of it as a kind of bare-bones existence, an eking out of a living, as in "subsistence farming." Dictionaries, however, reveal that the word—which stems from the Latin *subsistere*, to stand still, stand up, or remain standing—properly has further and broader dimensions to its meaning. Subsistence is "sustenance" and "real being" as well as "the condition of remaining in existence" and "the minimum [of food and shelter] necessary to support life." *Roget's Thesaurus*, incidentally, lists "subsistence" as an alternate word for "existence."

To many of Alaska's Native peoples, subsistence means more than any of the above, or all of them taken together. They perceive subsistence as a fundamental human right that must be respected and preserved. It is also a major political issue: to perpetuate traditional subsistence was the intent, in part, of the hard-fought-for 1971 Alaska Native Claims Settlement Act (ANCSA). The 1980 Alaska National Interest Lands Claims Act (ANILCA) also recognized the importance of subsistence rights by allowing Natives to remain (where established) on all federally administered lands in Alaska, including the new national parklands. Even so, subsistence is an increasingly threatened way of life in Alaska's rapidly changing conditions.

What underlies the powerful Alaskan subsistence mystique? After all, the environment of much of the state can be harsh and inhospitable; why fight to hunt in subzero weather? Why continue to live in remote and lonesome places with difficult, uncertain accessibility? Why travel over dangerous terrain, or balance on treacherous ice floes, if you don't absolutely have to? Other people in difficult environments have abandoned their old ways or migrated elsewhere, given the opportunity, and Alaskans increasingly have that opportunity. What, then, keeps so many Alaskans where they are, fighting for a sometimes perilous and almost always hard way of life?

Part of the answer is that Alaskan subsistence living reflects a deep-rooted history. As an ingrained life-style and culture, it affirms and perpetuates that history. Put simply, it is the enduring identity of a people. (In the past, subsistence was also a true economic necessity, but this is less and less the case.)

Along with this significance, and perhaps accounting for some of it, there is the matter of aesthetics. Alaska may be a cruel place to live, but it is also magnificent. The geography may be of a scale that dwarfs a human being, but it is grand and awe-inspiring. While it may be cold and dark for much of the year—ah, the beauty of the aurora, and the quality of the light when the sun hangs for hours like a great, glowing brass disc just above the horizon! To exist as part of such a place can be a special kind of fulfillment.

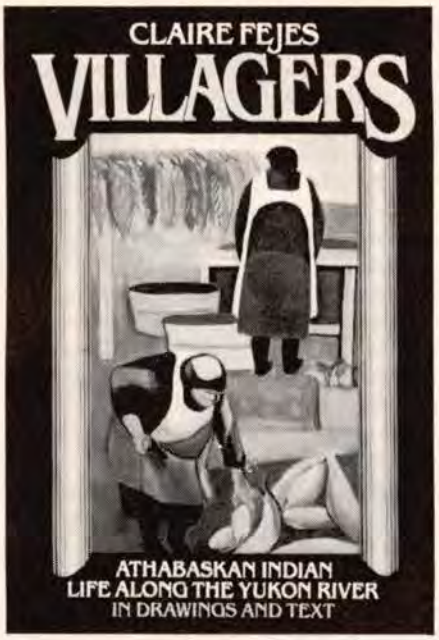
Moreover, much of Alaska is still wild, and many Natives enjoy and nurture themselves on the pure wilderness experience as much as any wilderness lover from the contiguous 48 states ever would. I once listened to an Athabaskan Indian speak casually and with little pleasure of the experience of killing game. Then he grew lyrical telling me of the coming of spring and the softening of the wild, frozen land he lived upon. He spoke of autumn, when the birch trees turn golden and the alpine bearberries burn crimson all over the vast, quiet hills, and the spruce trees cast deep blue shadows (and, incidentally, when the temperatures drop low enough to immobilize the mosquitoes).

As challenging as it is, the Alaskan subsistence life also provides something extra for the ego. A special satisfaction comes of living directly with and on the demanding arctic and subarctic land, and making it. (Quite a few non-Native Alaskans have discovered this hard-won pleasure, too.) Native cultures traditionally reinforce this aspect of subsistence, recognizing the successful subsistence hunter and providing a special niche for (historically) him or (more recently) her in the community hierarchy. (There is also special notice for the gatherer, preparer and preserver of food—almost always a woman.)

Alaska's traditional subsistence has another appealing aspect: it is based not only on an individual's ability to survive, but on sharing. The successful moose hunter shares his kill or is ostracized; indeed, an entire community may share the hunting and the subsequent meting out of game. There is also, or has been, the shared cultural experience that springs from the subsistence way of life—the songs, the chants, the dances and, during those long periods of darkness, the telling of stories and the recounting of history. Among the Indian cultures there has been the potlatch, a unique kind of sharing.

It is worth noting that there are four more or less distinct kinds of peoples among Alaska's Natives, each with somewhat different customs, languages and climate. So subsist-

"Potlatch," 1981. This and following drawings by Claire Fejes.



ence patterns vary, though often in subtle ways. Consequently, while everybody harvests the plentiful and varied berries and whatever edible green plants are available, the arctic coastal Eskimos (the Inuit), for example, have depended for their livelihood on both the beluga and the endangered bowhead whales, along with seals and caribou. Their traditional dress, art and life reflect their use of these animals. The Athabaskan Indians have looked to salmon, moose and small game; the Aleuts, again a primarily coastal people, have also turned to the sea for their principal sustenance. The Southeast Indians, Tlingit, Haida and other related tribes, have traditionally relied on wildfowl and land animals as well as a wide and succulent menu of fish and shellfish.

The following "subsistence calendar," sent me by a non-Native Juneau friend, gives some idea of the possible bounty of southeastern coastal subsistence. January is the last great king-crab month, she wrote. February and March are the best months for low tides and for catching other crabs. March and April are the months to get herring for salmon bait, and in May and June the king salmon run. June also brings runs of sockeye salmon, and in July come the silver and pink salmon. In August there are still salmon to be taken, and early deer hunting begins in the mountains. September and October are deer hunting months, as the animals descend ahead of the snow line; geese and ducks also arrive. In October and November there are clams, crabs and deer. While December is the tail end of deer season, that is when the king crab abounds.

The purity of Alaska's traditional subsistence way of life has, of course, long since been diluted, beginning when Europeans

went to Alaska in the mid-1700s. It has undergone increasingly profound changes as outsiders have brought different values and land ethics into Alaska. Delicate ecological balances—such as that between the Eskimos and the caribou—have been disturbed, perhaps irrevocably.

The pressures have also increased on the animal populations as more people have come to live in Alaska and as sport hunters have competed more with subsistence hunters for the available fish and wildlife. Furthermore, as various parts of Alaska have become developed, the habitats of both animals and people have too often been rearranged. Former patterns of existence have been disrupted or lost.

In addition, the Native peoples are being increasingly exposed to the seductions of white culture. As an Indian friend of mine once told me, it is a lot easier to turn on the faucet than it is to haul water a couple of miles. He was obviously right, but he failed to mention how often pipes freeze in Alaska. Children are educated in terms of a different (and easier?) society. More roads have been built, air travel is available more readily, and native peoples are more and more mobile. First radio, and now television, have become integral parts of life even in remote villages. It's tough on small village stores, where shelves may be half empty of the staples people have come to depend upon, to satisfy the new demand for products such as Right Guard advertised on TV.

With the passage of ANCSA has come an almost shocking new dimension of existence for Alaska's Natives: each has become a stockholder in both a village and a regional corporation, with money-making a priority. As one Native leader put it, each of them has now been turned into "a red-blooded American capitalist." Today, Native corporations play increasingly important roles in Alaska's developing economy. The centers of much of Alaskan Native leadership are shifting inevitably from the small rural villages to Alaska's principal cities—Anchorage, Fairbanks and Juneau—where the action is. There is a growing dichotomy between the urban and the rural (subsistence) ways of life.

Faced with these new economic and cultural realities and challenges, it is noteworthy that so many Alaskan Natives, including many younger ones, still cling to the subsistence ways. One wonders if the old ways offer not only an aesthetic reaffirmation of a culture, but also a more attractive way of life in the increasingly troubled world that now impinges inescapably upon Alaska's people. It is a measure of Alaska's size and ruggedness that subsistence is still possible.

A very real question is whether it can continue to be so. This question is vitally

important on several counts, and not only to Alaskan Natives. Alaska's subsistence lifestyle, as a living history unique in the United States, is therefore valuable in its own right as well as for its deeper meaning to those who practice it. It also holds the key to basic survival in arctic and subarctic lands, information that might be invaluable to more people than today's Alaskans. Also, since wilderness and subsistence are two sides of the same coin—wilderness being vital not only to the aesthetic experience of subsistence but to the continuing health of the animals on which it depends—the survival of the subsistence way of life must concern anyone interested in Alaska's wilderness.

The best way to understand this situation in Alaska is to go there and get to know the people first-hand, to visit remote villages and observe what is going on. But this was never a particularly easy thing to do and is less so now, since many Native villagers no longer welcome strangers with open arms, especially if they arrive uninvited and unannounced. As a Native friend of mine once put it: "People think they can just drop down out of the sky and start asking personal questions that are, really, none of their business. We've had it with them."

The next best way is to do some exploratory reading. There is a body of literature on many aspects of subsistence, including the biological and anthropological. Authors such as Robert Weeden (*Promises to Keep*) and Richard K. Nelson (*The Shadow of the Hunter* and *The Hunters of the Northern Forests*) offer entertaining reading as well as useful insights based on their scientific observations.

But there are few books, technical or otherwise, written by Alaskan Natives. The written word is not a traditional part of their

culture. There are exceptions in parts of *Alaska Native Land Claims*, edited by Robert D. Arnold, which is a particularly helpful book in understanding some of the causes and effects of ANCSA. There is also Poldine Carlo's book, *Nulato, an Indian Life on the Yukon*, which I found both provocative and disturbing. The written literature will also be supplemented soon with oral histories; many older Alaskans are now being interviewed and recorded on tape, sometimes by their own descendants, so that their stories and experiences will add important dimensions to the present cultural knowledge.

Among this body of work, Alaskan author Claire Fejes took a unique approach to the Native subsistence way of life. In *Villages, Athabaskan Life Along the Yukon*, Fejes—a Fairbanks resident for some 35 years—set out deliberately to write about Indian life today "from the Indian's point of view." The result is an unusual and sensitive work about Alaskan Native life in Interior villages of from 150 to 250 people as Fejes has observed it. Inevitably and happily, the book is also about Fejes herself.

Fejes is a well-known, successful artist who migrated to Alaska from New York with a would-be-miner husband, who later became an art dealer and musician. Her first book, *The People of the Noatak*, was also a chronicle of her experiences in rural Alaska. She spent a year with the Eskimos who live on the lower banks of the Noatak River, painting and noting her observations. Pub-

lished in 1970, this book documents a village life that has changed radically since the book was written.

Now Fejes tells why she undertook her second volume: "The passage of the Alaska Native Claims Settlement Act on December 18, 1971, awarded 40 million acres of land and $962.5 million to Native village and regional corporations in Alaska. In the last few years Natives have become more purposeful in their demands for a better life. They are becoming more militant, aware of their power and economic clout, seeking their own roots and heritage. The bush [rural] vote is now recognized in politics as a powerful force. To understand and record the heritage of the Athabaskans and changes in their life-styles resulting from the Native claims settlement, I decided to visit Athabaskan villages along the Tanana and Yukon rivers, where once the Indians traveled as nomads."

Lugging her heavy box of oils and other painting supplies, a rucksack full of warm clothes—including a Cowichan Indian sweater—and her sleeping bag, Fejes set out first on the riverboat *The Yukon* down the Tanana and Yukon rivers. A year later, she boarded *The Yukon*'s sister ship, *The Tanana*, to travel back upstream. Both of these boats were freighting immense barges that carried staples, along with high-status items such as Coca Cola, to the villages along the riverbanks. In all, Fejes visited a dozen and a half villages in her travels. In each one she explored and recorded not only the place and frequently its history, but what she could of the minds and hearts of the people. Because she is a long-time Alaskan, used to rural ways and innately sympathetic to the Native life-style—and perhaps also because she is an artist with the magic of being able to bring people to life on canvas—Fejes was accepted and often welcomed. The women, in particular, were willing to share their philosophies, joys, sorrows and memories with her.

Villages is illustrated generously and often captivatingly with Fejes' black-and-

white sketches. It is particularly pleasing to find the person you are reading about pictured on the page. Fejes also uses her artist's eye for detail as she writes, so she captures the color and sense of today's Native life in her words as well as in her drawings. For instance, she writes: "The landscape changed constantly. The sun, which had a moment before been shining on the distant blue-violet hills, geese flying overhead, now became overhung with dark clouds and storm. The flow of the river gave me a sense of impermanence; when I tried to capture it, it was gone.

"Two Indian women walked down the road loaded with bucketsful of raspberries. A small Indian cemetery had gray fences with little carved knobs. The childrens' graves had spruces and fireweed growing on them. As I walked further down the bend, a huge black bear stood in the road facing me; then he turned and ran away while I stood there in amazement."

Although there is a sameness to some of the villages, Fejes avoids monotony by describing her own travel and by recording different aspects of Indian culture in the changing settings. At the same time, there are several themes or *leitmotifs* that run through the book and unify it. One is the importance of the peoples' identity and their closeness to the land. Of Belle Luke, at the age of 101 said to be the oldest living Kutchin lady, Fejes writes: "To be born Indian, to live as an Indian and to die as an Indian was important to her. Pride was respected and carried from birth to death. . . ."

Of a Yukon chief, she observes: "The chief's head had nobility and dignity, a sense that he was contributing to traditional Indian life. Not many men can sit on their land, survey hundreds of miles of wilderness—lakes, swamps, rivers, hills and mountains—and feel a continuity of spirit, knowing that their ancestors had fished, hunted and bathed in the same streams."

She captures both the intimacy of a setting and its deeper meaning: "The forest was illuminated by sunshine, and mosses were wet and soft against tree bark. The flying gnats and bees wove back and forth, adding music and aliveness to the scene. Cranberries grew in wine-red clumps near the rotted stumps. The odor was wild and rank. Insect country.

"I breathed deeply of mingled river scents, listening to the lapping of the water and to geese honking. I could sense what this land meant to people who had been born here. They felt it in every bone and fiber of their being; when they left it, they yearned to be back. I walked back, refreshed in my whole being, filled with joy."

Another theme of *Villagers* is the traditional roles of the Indian women. Fejes is at her best as she writes of them. Watch Olivia Esmailka of Nulato preparing food: "A spry, wrinkled lady of 89, she sat on her cot and plucked an enormous goose. Dangling from her earlobes were long gold nuggets, and on her legs were brown wool stockings. As she plucked the goose, it became smaller and smaller until it was one-third its size, a small pink-gray thing with limp legs and dangling head." Or come berry-picking with Fejes and Hannah Solomon from Fort Yukon: "[She] and I shared a love of berry picking. We would bend and pluck the cranberry rubies, inhaling their faint wild odor, kneeling in the soft . . . mosses as if we were at some altar. To us, it was a needful act, totally engrossing our minds and bodies. On an autumn day we heard the rustlings of aspen leaves and the call of the sandhill cranes. . . .

"Hannah was a serious berry picker: her movements were quick and economical and her searching eyes keen. Her bucket was always fuller than mine. . . . When I picked blueberries I stuffed handfuls into my mouth, seeking momentary pleasure. But Hannah's went into the bucket. . . .

"Her husband, Paul, died in Fort Yukon at 91, leaving Hannah 60 great-grandchildren and seven great-great-grandchildren."

Again: "Sarah took me to visit Eliza, the oldest woman in Eagle, introducing me proudly and acting as translator. Eliza, a shrunken, dark-skinned woman wearing a red kerchief, sat on her bed, her tiny feet poking straight before her.

"'Eliza is very old,' Sarah translated,

'maybe over a hundred.' A remnant from nomadic days, Eliza used to carry her baby on her back while pulling the sled with all her belongings. . . . All the anthropology books in the world could not convey to me the slightest impression that meeting Eliza did. In her body and presence was embodied the old life-style of the Athabaskan Indians; every wrinkle attested to this. Behind her eyes lay the old wisdoms, earned by hardship."

Salmon have played a major role in the Athabaskan subsistence life, and Fejes tells how the first salmon caught each year was greeted with a welcoming prayer until the advent of the fishwheel made it impossible for the Indians to tell which was the first fish caught. Then Fejes tells how to clean a salmon. Charlotte Adams of Beaver "stood at an old wood table, clad in an apron over her black dress, her hair pulled back into a net. Whetting the knife on a black stone, she split the fish right up one side as casually and as easily as I butter bread. Out plopped the liver, spleen and entrails. She slit the backbone, scaled and slivered the salmon. The parts she kept for the dogs went into one washtub; the slit fish into another. Later she hung it on a pole rack to dry.

"All was done without a single wasted motion . . . except for bloody hands, she remained clean, a skill handed down through generations of Indian river-women. The cleaning of fish was considered a religious act."

Throughout, Fejes reveals the charm of the older villagers. "A gray bird hovered about Peter John [a chief of Minto], not lighting on him, but seeming to. I looked startled. He replied that birds often sat on his arms, shoulders, knees and head. Immersed in wilderness, he had inherited an affinity for animals and birds of the forest. He was like a strong spruce with the sap still in him—birds

liked to be around him. 'Not the ducks,' he said. 'They know I am hungry for them and they don't come to me.'"

She also speaks of the innocence of the children. A young Kaltag boy reports on his first visit "outside" to Seattle, and what he saw: "Honking, blurry cars, miles and miles of pavement . . . they're going to have a terrible time getting all that gray stuff off the grass." He considered pavement, alien to his world, to be "a blight or a disease."

From such reporting a picture emerges of the whole subsistence life and its value system as it has evolved along the Yukon, in some of Alaska's most difficult climate, through the millennia. But there is another theme, too, that runs throughout the book, one of present and impending change. A Kaltag man voices it: "More people are coming up here. I don't like this much. This whole place used to be ours." Another old-timer complains, "For fifteen miles around our village, we hunt muskrats and moose. We always did. Now there are 24 camps there. Everywhere you turn you are bumping into a white man. . . . They shoot fox and wolf from the planes, and the trapper that goes with dogs don't have a chance." "They'll be putting up gas stations in Kaltag next!" the first man exclaims. "Our life is changing too fast."

Fejes wonders if "Beverly [will] spend her life within the village confines, raising ten children like her mother, or will she go 'outside' to school and never return? . . . there were [not] many jobs for young women in the village." Regarding the men she writes, "Beaver needed to find an industry to make the village self-supporting. The men were restless. Hunting was their love and their blood. It was too bad that hunting could not be made an industry, for it lent interest, substance and excitement to their lives. When there was not enough game to go around and the government relief checks supplied food, they lost all incentive."

Fejes touches delicately on the serious problems of alcoholism, suicide and crime among the rural Natives. Her final chapter tells of a potlatch at Minto that was held to honor seven souls. Two of them were young women who had been murdered horribly by a deranged man of the community; one was a young man whose adoptive mother says simply, "He died of whisky." He had been found frozen to death in the snow.

The potlatch is one of the Indians' ultimate ceremonies. It can articulate and release grief in traditional songs and dances. It reaffirms the importance of sharing. Most important, it repeats rituals that have recurred untold thousands of times, carrying forward an age-old cultural practice.

Fejes gives a moving description of the several potlatch ceremonies she attended, of the dancing, the chanting, the beating of sticks as though "pain itself" were being beaten, of the joyful songs and the bestowing of gifts. The principal host family "gave gifts costing thousands of dollars, representing long cold hours on the trap lines, depleting their savings and giving away their entire material wealth. Martin hats, afghans, patchwork quilts, moccasins, furs, snowshoes, gloves, rifles, coffeepots and many other articles were distributed by [the] family." Fejes comments, "To the Indian the potlatch was an honorable ceremony, and in giving everything away, he gained new prestige. He could . . . begin anew, a practice reminiscent of his grandfather, who walked out to hunt each day carrying all his possessions. A rich man who did not share his possessions was, to an Indian, a stingy man to be pitied." One guest at the potlatch remarks, "That makes ten blankets I got." He will save them for his own potlatch.

Fejes leavens her account with humor. When she is about to eat soup of unknown origin, she asks the woman next to her what is in the brew. "Eat it. Eat it and don't ask what's in it," the woman replies. A brave missionary, Fejes remarks, once ate a moose's eyeball that was floating in his bowl. I can sympathize, having once discovered that I had eaten a piece of moose nose at a potlatch in Old Crow.

The potlatch becomes a tremendously charged outpouring of emotion before it is over. There are almost no tears, however, and a month after the ceremony Fejes meets one of the hosts and asks, "Don't Indians ever cry?"

"We were crying, but you couldn't see it, Clara," the reply came. "The tears were inside." On this poignant note, Fejes ends her book.

This is a nonjudgmental work, and Fejes lets the Indians speak for themselves. In doing so, she has tried to "put herself in their moccasins." Whether she has totally succeeded, only an Indian could say. Certainly she identifies closely with her subjects. She was the only non-Indian at the potlatch she writes about, and someone asked her (the second time such a thing had happened) if she were an Indian. She writes simply, "I thought it over and replied, 'I'm not, but maybe I was in some former life.' I identified with the Indian women. I thought Indian culture was a hard way of life."

The "outside" reader cannot help but feel closer to the Athabaskan people and better acquainted with their life today after reading this book. Whatever its anthropological and cultural merits, *Villagers* makes for good reading and an acquaintanceship with the author, who projects her own sympathies and feelings until she may be the best-portrayed character in the book. It is also

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hard not to grieve with her over what she sees is passing, and to share her apprehension about what lies ahead for Alaska's people, its land, and the subsistence life-style that has sustained so many for so long, until now. □

Peggy Wayburn has contributed to Sierra *for many years and has traveled in Alaska often since 1967. Her latest book,* Adventuring in Alaska, *has just been published by Sierra Club Books.*

Water Politics

DAVID GANCHER

Water and Power, by William L. Kahrl, University of California Press, Berkeley, California, 1982. Cloth, $24.95.

In the March/April issue, *Sierra* reviewed Friends of the Earth's *Water and Power*, an analysis of California's proposed Peripheral Canal. The title is popular; another *Water and Power* has recently been published. This one, written by William Kahrl—editor of the landmark *California Water Atlas*—and published by the University of California Press, takes a historical perspective. Subtitled "The Conflict Over Los Angeles' Water Supply in the Owens Valley," this book explains the issues that the film *Chinatown* was based on but only alluded to.

The Owens Valley's most impressive natural feature is Mono Lake, the fate of which is largely dependent on water policies related to Los Angeles's water system. The significance of the topic, however, is far greater than one would at first imagine for a local controversy involving a desert watershed. Water politics form the basis of wealth and power in much of California and have international repercussions. Consequently, this is more than a local story; as Kahrl puts it, "The city . . . has continued to exercise an influence over the course of water development within California that is considerably greater than the proportionate size of its municipal water system."

The history that Kahrl documents and analyzes is fascinating. The book is a drama dressed as a history, and fictional plots pale compared to the byzantine twists of this story. It involves a duplicitous campaign to feign the effects of a drought; a large amount of speculative real-estate money; a political regime; a resident genius; and a classic villain only too willing to cooperate.

Kahrl's book is not a polemic but has lively writing and well-informed opinions. It is even-handed and demonstrates a balanced and informed awareness of the importance of its issues. □

FOR YOUNGER READERS

ASK A PUNNY QUESTION...

ALLAN W. ECKERT

Make a pun to answer these questions. Example: "What bird is a portal through which prisoners pass?" Answer: "condor" (door for cons).

1. What mammal does not play fair?
2. What mammal is not old?
3. What mammal is an aim or ambition?
4. What bird seems to tremble with fear?
5. What fish is a shrewd gambler?
6. What fish is a piano repairman?
7. What flower is a superb African cat?
8. What flower says hello to Cynthia?
9. What insect means "to run away"?
10. What insect is a listening device attached to a piece of furniture?
11. What tree is less frequently well?
12. What shrub is not me?
13. What tree is what a male deer sees with?
14. What tree has many friends?
15. What bird could live as cheaply as one?
16. What bird is not yours?
17. What bird is a baseball outfielder?
18. What mineral signifies liquid measures?
19. What mineral means to send a child's toy by postal delivery?
20. What mammal is parts of a chain?
21. What mammal means "Farewell, my boy"?
22. What plant is the bite of a feline?

23. What plant is a drippy faucet?
24. What plant has to do with clocks?
25. What marine animal is a ruler with a sour disposition?
26. What flower is a country of automobiles?

27. What flower means "you get out of here"?
28. What dog is a small pond?
29. What dog belongs to a physician?
30. What dog describes living in luxury in the capital of China?
31. What bird is an astute chicken?
32. What fish means you detected an odor?
33. What fish means to "struggle helplessly"?
34. What insect is baby talk for a pretty girl?
35. What plant is an astronaut's version of athlete's foot?
36. What plant is a hen-fruit factory?
37. What reptile means Diane is angry?
38. What bird is part of the Rice Krispies commercial that goes "snap . . . pop"?
39. What bird is a nocturnal windstorm?
40. What bird is a portion of a hill?

Answers on page 78

Allan W. Eckert has written 24 books, primarily on natural history and American history. Four of his books have been nominated for Pulitzer Prizes. He has always been an inveterate punster. Excerpted from WHATTIZZIT? by Allan W. Eckert, published by Landfall Press, Dayton, Ohio.

ILLUSTRATIONS BY KIRK CALDWELL

Dialing for Donors—Group Finds Activists, Too

ROBERT IRWIN

Perhaps it was merely coincidental, or perhaps it was part of the same sea change that has brought the many new members into the Club. Whichever it was, the Eastern Pennsylvania Group (EPG) of the Pennsylvania Chapter entered 1981 resolving to *do* something about the two major environmental problems in its heavily industrialized areas: polluted air and hazardous waste.

The Philadelphia-based group was formed in the early 1960s under the wing of the Atlantic Chapter; then Pennsylvania became a separate chapter in 1972. After its first flurry of activity the EPG slipped into a routine of holding meetings, adopting resolutions and offering outings, as many chapters and groups tend to do. The core of activists shrank. It became progressively harder to fill the twelve seats on the executive committee (excom). But the group's election in late 1980 brought seven new people to the excom, and they wanted some action.

At its first meeting in 1981, the new excom selected the problems it would tackle and charted its course. The group needed to develop a corps of dedicated volunteers to educate the public, lobby and write letters. A paid staff person in an office with a telephone was to coordinate the volunteers' efforts. But, of course, all that required money.

To raise funds, the committee took a step usually regarded as impossible or impractical: the committee members, with three dozen other activists from the group, telephoned 1200 of the EPG's members. Each caller explained the chapter's new program

and asked for a donation to support it. Members were also asked if they would work on a phone chain. To the committee's amazement, the fundraising drive reaped $7600 in pledges, almost $7 per call. Even better, those one-on-one contacts opened lines of communication and helped to disclose members' interests, skills and talents. The callers had simultaneously produced the necessary dollars and built up an informal list of volunteers.

Group Chair Gregg Moore, now in his first year on the excom, told how they organized the fundraising-by-telephone. First, they got printouts of all EPG members in zip-code order from Club headquarters. Arranging lists by county, they cut them into vertical strips of names and addresses and pasted each strip down on sheets of paper opposite columns headed *Date Called*, *Pledge Response*, *Pledge Amount*, and *Volunteer for Phone Center*. Callers also noted whether volunteers wanted to work in a particular area. Two teams of callers were formed, one to operate a phone bank for Chester and Philadelphia counties, the other for Delaware, Montgomery and Bucks counties. After completing the tedious task of finding and entering phone numbers, the teams spent several long evenings on phones in the offices of four of the group's members. Soon it was clear the "impossible" telephone campaign had hit pay dirt.

The fundraising drive's success led to the next step: activating the reserve of volunteers. In summer 1981 the excom decided to form a chain of letter writers and telephone lobbyists whose purpose would be to seek support from elected and administrative officials. Because their most frequent and urgent contacts would be with the eight congressional representatives from the group's area, chain volunteers had to be sorted by congressional district (CD). Each of the CD offices provided a list of all ZIP codes in its area; with the codes as guides, volunteers could be assigned by district. Fortunately, all of that ZIP-matching drudgery can be handled by the Club's computer in San Francisco for a penny a name. The computer can list any selection of chapter or group members by ZIP code and by CD. But much more work remained.

At the spring meeting of the excom, no one knew exactly how much time organizing the chain might entail. Nevertheless, Ann Linton, an active conservationist now in her second year on the excom, volunteered to do it. She procured the lists of ZIP codes, consulted the roster of members interested in lobbying and collated their names by district. Then she began telephoning.

This is how she set up the chain:

At the first level in every CD there are a

minimum of two "coordinators," each of whom phones five "callers" at the second level. Each caller in turn contacts five letter-writing or local-phoning volunteers (the third level). Members at the first and second levels also write letters or make calls on the issue at stake. Of the more than 100 people Linton called, 96 agreed to be coordinators or callers, and another 25 were willing to write letters or call their representatives' local offices.

Linton still recruits people for the chain. Appeals appear in the group's newsletter and are made at meetings. People already participating call prospects in their neighborhoods. As another adjunct to the chain, the group recently received two more lists from the Club's computer. One list shows members willing to write letters; the other, activists interested in clean air, water resources and endangered wildlife. Both lists should forge many new links for the chain. Linton hopes the chain will soon start to coordinate its efforts with other environmental organizations, including the three local Audubon chapters, which have even more members than the Eastern Pennsylvania Group.

When the chain becomes fully staffed and operational it may involve hundreds of members, but the group is not likely to activate it more than six times a year. Consequently, many of the volunteers will have time to serve the group in other ways, such as by doing committee work, recruiting new members and organizing outings. According to Linton, the group and its excom have committed themselves strongly to recruiting and developing volunteers. Those are the principal functions of the group's new office, which opened last fall, and of half-time staffer Phyllis Gilbert, who manages it. To involve volunteers more fully, some members are holding a series of small wine-and-cheese parties in their homes. Although the get-togethers are held primarily to acquaint local members with one another, at least one excom member is always on hand to answer questions, discuss issues and suggest ways people might participate in the EPG programs. Group Chair Gregg Moore hosted the first of the series in February.

Clearly the Eastern Pennsylvania Group, which now claims more than half of its chapter's members, has left its doldrums behind. One telling measure of success is the group's 1982 budget of $26,375. The group will stage a major fundraising dinner by early June to ensure it meets that fiscal commitment. A prevailing message in this lively group's activities is that the individual member *can* make a difference. In this critical political year, Ann Linton, Gregg Moore and all the others in the group are making a difference for Eastern Pennsylvania.

NEW CLUB PUBLICATIONS FOR ACTIVISTS

An editor at *Sierra* magazine has repeatedly tried to determine, once and for all, how many publications the Sierra Club as a whole issues in any single year. The answer, however, proved practically impossible to determine.

The Sierra Club has 54 chapters as of May 1982; each one has a newsletter. These chapters, in turn, include a current total of 281 groups, most of which have at least one regular publication. In addition, some of these groups' areas are so large that each "activity section" has its own newsletter.

The Information Services Office at the Club's San Francisco headquarters maintains a regular inventory of more than 200 articles, backgrounders and information sheets on a wide scope of topics.

The Sierra Club regularly publishes approximately ten periodicals, ranging from *Sierra*, which reaches every member, to such relatively specialized newsletters as "Citizen Update on Shoreline Policy." Other newsletters discuss wildlife, nuclear waste, population policy, international environmental issues, and the course of current environmental legislation.

Sierra Club Books publishes a separate renowned series of books and calendars. This is a trade publishing venture as well as a vehicle for conveying the Club's abiding interests.

One unusual publishing format has been growing within the Sierra Club. A still-evolving "Special Publications" series discusses topics involving different aspects of environmental and political efforts. The most recent publications include the following:

Global Energy in Transition: Environmental Aspects of New and Renewable Sources for Development, prepared by the Sierra Club International Earthcare Center. This is an analysis of the environmental and resource management issues involved in developing alternative sources of energy. Though it was prepared specifically for the UN Conference on New and Renewable Sources of Energy held in Nairobi in August 1981, it stands on its own as an intelligent guide to the various sources of fuel and energy available to less-developed nations, and to the environmental consequences of developing those sources.

Minerals and Public Lands: An Analysis of Strategic Minerals Issues and Public Lands Policy, October 1981. The issue of strategic minerals has become politically sensitive, involving questions of national security and wilderness areas. This 105-page booklet is

the product of seven major national environmental groups, including the Sierra Club. Chapters deal variously with foreign dependence on crucial resources, domestic production, public lands, conservation alternatives and a particularly acute version of a particularly dangerous piece of legislation: H.R. 3364, the Mining Bill. The issue itself is complex, but this pamphlet is both readable and technical enough to be used by citizen activists.

The Green Vote Handbook: Environmentalists and Electoral Politics, by Rob Kutler and SCCOPE, 1982. Mike McCloskey explains this handbook as one that "focuses on both the reasons for working on political campaigns and the methods for helping a candidate. People who have never done this type of volunteer work should find the handbook especially informative, as it discusses how a campaign is run and how volunteers can help. Leaders can employ the handbook to motivate members and to learn tips on making environmental issues campaign issues." This is not merely a theoretical tract on the importance or inevitability of environmentalists becoming involved in politics. Rather, it's a hands-on guide to actual involvement in political campaigns, dealing with such specific questions as polling, phone banks, canvassing, recruiting volunteers, even producing and distributing yard signs.

Media Handbook: A Sierra Club Guide for Media Activists, by the Public Affairs Department. This is a bare-bones guide to the various options and procedures available to environmental activists who don't have money to hire specialists for media activities. It's designed for the intelligent novice (whoever that may be) who is probably going to be working with a group of like-minded activists. It emphasizes the most productive projects—and explains how to do them. It maximizes the cooperative aspects of these projects and the ways to make them work.

Handbook on Population Projections: How They Are Made . . . and How They Make Themselves Come True, by Judith Kunofsky and the Population & Growth Policy Program of the Sierra Club.

The philosophy that informs this 151-page booklet is expressed in the brief quotation on the title page: "If you don't get the water," William Mulholland stated in the early stages of the debate over Los Angeles's water system, "you won't need it." The book goes on to analyze the way population projections are evaluated and the various issues surrounding policy debates. These issues address the question (implied in the title) of the extent to which planning growth

accommodates and predicates growth itself.

Following chapters cite case studies, discuss the mechanisms and variables of the ways in which demographers and planners set about planning or predicting, and determining the future of their communities. The subject, though complex, lies close to the heart of other issues long recognized as traditional concerns of the Club: where growth should occur; what form it should take; the relative claims of agricultural versus residential development, and so on.

To whet appetites, here is a sample from *The Green Vote Handbook*. This is the section called "Precincts and Targeting":

Every well-run campaign at some point turns its attention to the basic unit common to every election—the precinct. A precinct is usually composed of 500 to 700 voters, although in urban areas the numbers may be higher. It is the smallest demographic unit that produces discrete vote tabulations which can be analyzed for strategic purposes. By using the precinct as the building block, a campaign is able to target an area that is small enough to uncover differences in voter trends and demographics, yet large enough for tailored efforts to affect a significant number of voters.

The first step in precinct organizing is targeting; this involves a statistical analysis of past voting records in order to determine "priority precincts" that are most likely to be swayed by the campaign's efforts. All precincts in the district are divided up into at least three basic categories—precincts that consistently vote with the same party as the candidate, those that usually vote with the opponent's party, and those that "swing" from one party to the other depending, at least in part, upon the candidate in a particular election. When deciding where to focus their efforts, most campaigns traditionally pay little attention to the precincts that usually vote with the opposition party, and normally wait until the closing days of the election to shore up the precincts that ordinarily vote for the candidate's party.

Most campaign efforts then are concentrated on the "swing" precincts, although occasional work is done in the other two types to ensure that the "favorables" stay that way, and at least see if the unfavorables can be persuaded. Unless there has been a dramatic and noticeable shift in the population, targeting based on past voting trends generally provides an accurate survey of where the votes need to come from. It may not be the last word, however. Polling, canvassing or other data may indicate that the precinct has changed or that the present candidate has an appeal (or lack of appeal) not reflected in past voting trends. A precinct can then be shifted into or out of the

Spring Notes from Sierra Club Books

It was the first true day of Spring in San Francisco—the sun warm and the air clear. There was talk of getting away, to the mountains and to the shore. It reminded us that most of our Spring book titles intend to help readers do just that: get away and sample the pleasures of the wilderness. However, for the majority of city and suburb-bound people, the strongest signal of Spring is in the burgeoning of plant life, and our thoughts turn to gardens. Sierra Club's first gardening book, *The Complete Book of Edible Landscaping*, just published, promises to become a hardy perennial. Diana Landau, the book's editor describes its growth from a seedling proposal.

"In the spring of 1979 a book proposal was delivered to me that stood out from the usual run of manuscripts and proposals. This one was accompanied by a mason jar of applesauce with the author's homemade label on it. The book idea was intriguing—about home landscaping with edible plants and environmentally sound techniques; the author's background as an activist (including work on several Club task forces) was a plus; but I can't say for sure that it wasn't the applesauce that sold me on sponsoring the project.

Three years and a lot of work later (the author helped smooth the rough places with frequent gifts of produce from her gaden: exotic, nut-flavored avocados, purple string beans, golden zucchini, armloads of annual flowers) *The Complete Book of Edible Landscaping* is out in the world. I don't mind saying that it's a terrific book, because outside authorities agree: garden magazines, reviewers, and Book-of-the-Month Club, who bought 30,000 copies—our biggest book club sale ever."

Jon Beckmann,
Director, Sierra Club Books

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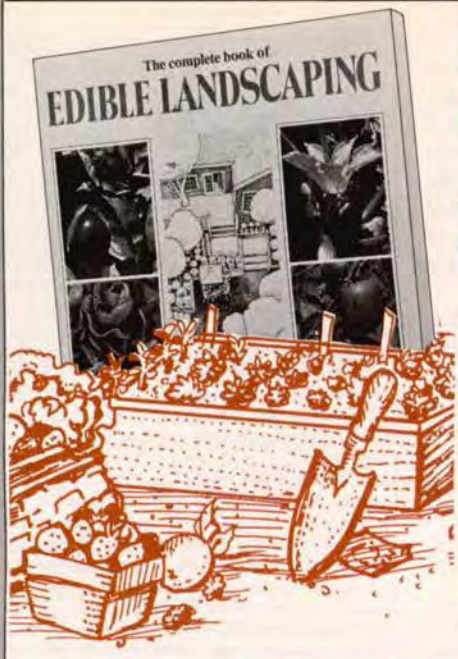

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swing category and the amount of attention it receives adjusted accordingly. How many precincts are targeted, however, is usually a function of the amount of money and number of volunteers available. Of course, political advertisements and news generated about the campaign reach all the voters in the district, so few voters are completely ignored.

Precinct organizing is important to understand because it is the backbone for most of the voter contact work, such as phone banks, literature distribution and door-to-door canvassing. Precinct organizing is also important because it's the framework for the "get-out-the-vote" drive virtually all campaigns must undertake. A good precinct system requires one person in every important precinct to serve as coordinator, and two or more others to be assistants. If possible, additional people should be recruited to contact neighbors and distribute literature. In a suburban area, a precinct can usually be covered by two to three people distributing literature in a couple of hours. Other activities in a precinct for which volunteers are needed are canvassing, yard sign placement, or organizing and hosting coffee hours with the candidate. Often one person will also be a poll checker on election day, noting who comes to vote and ensuring proper voting procedures are followed.

Since each campaign determines the priority precincts, consult with the campaign leadership to determine the extent of activities to be undertaken where Club members live. Campaigns usually have names of people who are active in their neighborhood, so if you become a precinct coordinator, you can call them to help.

IN MEMORY OF STU DUNCANSON

In July the calls of the loons will still be echoing from the spruce-rimmed shores of Kawnipi Lake in Ontario's Quetico Provincial Park, twenty miles north of Minnesota's Boundary Waters Canoe Area. But Sierra Club canoeists will not be rhythmically dipping their paddles; the person who would have led the canoe trip, Stu Duncanson, died a year ago.

Duncanson, 63, drowned on a national Club trip he was leading in the Quetico. His canoe hit a submerged rock near a waterfall and capsized; although he was a strong swimmer, he was sucked under by the turbulence below the falls; his canoe partner managed to escape. Duncanson joined the Club in 1968 and, since 1972, led more than 20 outings in the Quetico he loved so well.

ANSWERS:

1-cheetah; 2-gnu; 3-porpoise; 4-quail; 5-shark; 6-tuna; 7-dandelion; 8-hyacinth; 9-flea; 10-bedbug; 11-sycamore; 12-yew; 13-buckeye; 14-poplar; 15-toucan; 16-mynah; 17-flycatcher; 18-quartz; 19-malachite; 20-lynx; 21-bison; 22-catnip; 23-leek; 24-thyme; 25-king crab; 26-carnation; 27-begonia; 28-poodle; 29-dachshund; 30-Pekingese; 31-sage hen; 32-smelt; 33-flounder; 34-cootie; 35-mistletoe; 36-eggplant; 37-dinosaur; 38-grackle; 39-nightingale; 40-partridge.

FIVE NEW DIRECTORS

In April, Sierra Club members elected five candidates from a field of nine to serve on the national board of directors. The directors who take office this year will serve for three years. A total of 56,870 valid ballots were received (a record!). The winning candidates are: Phillip Berry, Ann Duff, Brock Evans, Shirley Taylor and Sanford Tepfer.

The Sierra Club's board of directors is drawn from the ranks of the Club's most active volunteers; it plays a key role in the operations of the Club. The board analyzes and sets conservation policy, establishes a set of environmental priorities for staff operations, determines and allocates the Club's budget.

Phillip Berry, from Lafayette, California, has participated in Club leadership for years and served as president from 1969 through 1971. He regards the Reagan administration's environmental policies as "a national disaster" but thinks the Club can weather the storm. He has outlined seven major thrusts he thinks the Club should take in the next three years to build its position, and he stresses avoiding compromise of our ethical ideals.

Incumbent Ann Duff lives in Wayzata, Minnesota, and has been a member of the Club for more than 40 years. She thinks energy is the key issue for the next three years and institution-building is the key challenge for the Club, keeping in mind the Club's rapid growth. She wants to find ways to improve Club members' "political savvy at city hall" and with representatives at other levels of government.

Brock Evans, until 1981 a director of the Club's office in Washington, D.C., and still a resident of the capital, joined the Club in 1964 after discovering a Forest Service clearcut on a favorite hiking trail. Since then he has learned the political ropes of the capital and wants to use his knowledge to strengthen the Club's position, paying particular attention to developing the power of individual members and the volunteers.

Floridian Shirley Taylor, from Tallahassee, currently chairs the Club's National Coastal Committee. She is most concerned with protecting the nation's water—location, quantity and quality—because water is fundamental to all life.

Sanford Tepfer, from Eugene, Oregon, is also an incumbent and has been a member since 1945. His perspective on service is that a board member should "be open-minded, a good listener, bear no grudges, play no favorites, and should represent the entire Club membership." He is chair of the International Committee, which works with the expanding International Earthcare Center and its program.

Letters

Continued from page 8

formation in the article. These Alps are located in Slovenia, the northernmost republic of Yugoslavia. The language spoken there, and in parts of Austria and Italy, is Slovenian—quite distinct from Serbo-Croatian. The article also erred in properly naming and spelling most of the places. For example, "Koc Pri Triglavski Sedmehih Jezerih" should have been "Koča Pri Triglavskih Sedmerih Jezerih," "Valika Planina" is "Velika Planina," "Bukovljue" is "Bukovlje."

Despite these reservations, I was very happy that the author made this lovely place better known to the American public. These mountains in their beauty, accessibility and compactness provide a unique reflection of the sturdy and friendly people who live there.

B. Matija Peterlin
San Francisco, California

Central American Recruiting

We would like to congratulate you on your recent article, "The Poisoning of Central America" (September/October 1981). It is a sad reality that has preoccupied us for a long time. We are two organic farmers from Costa Rica who would like to do something about it. With a group of friends, we want to start planting seeds of ecological awareness. We plan to gather and disseminate ecological news throughout Latin America, good and bad news on ecological topics, and information on appropriate technology.

Even though we have plenty of enthusiasm and many good ideas, we need organizational, technical and financial support to make this dream come true. We would like to ask you and all the members of the Club to help us in any way you can.

German Llano
Clara I. Fernandez
996 E. Ojai Avenue
Ojai, California 93023

Nuclear War

I was pleased to see the recent article, "Nuclear War as an Environmental Issue" ("The Observer," November/December 1981). The threat of nuclear war is the ultimate threat to the environment and is clearly too serious to ignore.

If we look closely at our military buildup, we see war is being waged, even if no missiles are fired. The cost of preparing for war is much more than an unbalanced federal budget. A military economy means not having enough money to provide clean air and water, to clean up toxic waste sites, to develop renewable energy sources, to build and maintain mass transit, to provide jobs, education, health care and decent housing.

Struggles over control of scarce mineral and energy resources lead us closer to war and leave less for human needs. Promoting a conservation ethic is promoting peace. Preventing environmental destruction helps prevent war.

We must support peace education along with environmental education, peace campaigns with environmental campaigns. The mentality that brings us H-bombs and atoms, for peace and for war, is the same mentality that promotes the throwaway, driveaway culture. Let's not throw away our planet, nor the lives that depend on it.

Robert N. Wilke
Ann Arbor, Michigan

Fire!

We delayed writing this letter for several months because it brings back the one odious memory of an otherwise wonderful experience. We feel compelled to write about it, however, in the hope that someone else may benefit from our mistake.

Last summer two of us, both experienced

hikers and outdoorspeople, undertook an extended hike in the mountains of California. We used a camp stove for the majority of our cooking, but on infrequent occasions we built a small campfire to cook biscuits, warm ourselves, or just to sit around and talk. On one such occasion we built a fire in a ring of rocks in a small cleared space not far from our water supply. Before leaving our campsite the next morning, we checked to see that all wood was thoroughly burned in the fire ring. We then poured water from the nearby stream onto the ashes and briefly stirred them. We detected no heat from the ashes after our hasty procedure, so we started on our way in confidence that the fire was completely out.

It was not. The next day we were questioned and then told by Forest Service investigators that our "dead" campfire was the origin of a fairly extensive burn; we had heard the sirens and thought nothing of it. Apparently the core of the fire had remained hot. Eventually the duff underneath had ignited and burned under the rock ring before the fire surfaced. Although the area was lush and green, the fire spread quickly.

It is hard to describe our feelings when we were told of the fire. The next few days were miserable; we were submerged in grief and embarrassment. Throughout the trip, and even now, we were often reminded of our responsibility.

Next time you break camp and extinguish your campfire, think about this letter. It is well worth a little extra effort to make another trip to the stream or lake for water. Then feel the ashes with your hand to confirm that they are dead. Please benefit from our mistake.

Two Sierrans

Trouble With Plastics

I recently received a cry for help to save the Environmental Protection Agency. This reminded me of a conflict of interest for all of us: our use of plastics and human-made materials and their advertisement in *Sierra*. Picking up two issues on my coffee table, I counted 23 companies in 24 or 25 advertisements for products using human-made materials. This count excluded photographic products and any on which I had questions.

We don't need to return to hemp ropes and canvas tents and packs; plastics and artificial fibers have their place. The problem is that it is not possible to know who made a product. Even with a trademark, the product could have been made under license by another company, and there is no telling who supplied the feedstock. Maybe it was a "clean" company, but the monomer may have come from Hooker Chemical. Consequently, while we try to clean up the environment, we support firms that are its worst defilers.

There is, of course, no simple solution. I know of no "miracle" materials that can be made without creating some toxic waste. Our choice of materials should take these considerations into account; the suppliers of outdoor equipment should be encouraged to use the products that are least toxic overall and to buy their supplies from companies with better environmental records. Is there in our membership a chemical engineer who can supply this information for us?

With a combination of strict environmental laws strictly enforced and people making informed choices, I believe we can have our "miracle" materials *and* a clean environment.

Fred L. Stearns
Austin, Texas

Erratum

In the March/April issue, Lewis Thomas' "Are We Fit to Fit In?" was reprinted with the permission of the *Amicus Journal*. We regret the omission of this credit line.

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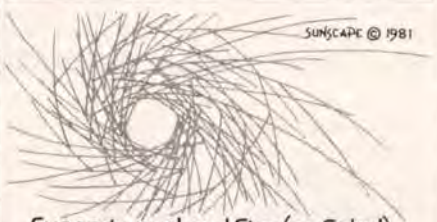

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GUEST OPINION

WHY WE NEED A STRONG CLEAN AIR ACT

REPRESENTATIVE GUY V. MOLINARI

I AM THE CONGRESSMAN who represents Staten Island and Lower Manhattan. I am also a Republican who has been endorsed by the Conservative party in New York City. And I am also an ardent supporter of a strong Clean Air Act.

In fact, my support for the act has often taken people who do not know me by surprise. As a Republican who was elected along with President Reagan I was supposed to be in favor of "gutting" the Clean Air Act. Well, I take quite the opposite view and I believe the administration is making a mistake in its desire to loosen standards and reduce the effectiveness of the act.

Although I was elected to the U.S. House of Representatives in 1980, the major theme in my campaign was not the economy or balancing the budget. I ran on the platform of fighting in Washington against the construction of a coal- and garbage-burning power plant on Staten Island. This plant as proposed could shed nearly 30,000 tons of toxic pollutants every year into the environment in the New York City area. Various experts agree that up to six deaths would result annually from the operation of this plant. The number of illnesses would be much higher.

In February 1981, the results of the Ohio River Basin Energy Study were made public. This study shows that sulfates and other air pollutants from coal-fired power plants might be a factor in the death of more than 8000 people a year in the Ohio Valley. It also indicated that, if current trends continue, 163,000 people could die in this area in the next 20 years from heart and lung disease caused by pollution. Weak enforcement of existing controls could increase this number to 200,000.

In the Tri-State area (New York, New Jersey and Connecticut) seventeen power plants are currently under consideration for conversion. Assuming that the most modern air-pollution technology was used, one must conclude that the result would still be significant damage to the health of the citizens in this region.

Being most familiar with the New York City area, I am aware that the national improvements in air quality have been reflected in the air quality of the city. However, the city of New York is still in "nonattainment" status for ozone and carbon monoxide, and "unclassified" for nitrogen oxide.

The current structure of the Clean Air Act, which relies heavily on State Implementation Plans (SIPs) for bringing areas into attainment with air-quality standards, is ineffective in dealing with the widely recognized and growing problems of interstate pollution. State Implementation Plans spell out emission-control strategies to bring areas within states into compliance with air standards. Therefore, under the Clean Air Act, states can regulate only emissions within their boundaries. This state-by-state approach to air-quality planning has increasingly resulted in situations in which pollution generated in one state crosses boundaries into another state, leaving the second state unable to protect its own public health, or to limit intrastate or municipal growth stemming from the industries that produce the air-quality problems.

I believe the American public wants support for these and several other changes in the act. In a public opinion poll taken by the Harris organization, 86% of those polled felt that the Clean Air Act should be strengthened or kept the same. Those opposing the reauthorization of a strong Clean Air Act have been using euphemisms such as "streamlining" and "cutting bureaucratic red tape," goals that are worthy and to some extent needed in the fine tuning of the act. However, we cannot allow opponents of the Clean Air Act to hide behind these terms while in reality attempting to ease restrictions on standards. In fact, if we examine the arguments presented by the act's opponents, we find they are easily rebutted by common sense.

The question concerning the cost-benefit relationship between clean air and productivity has been the cornerstone of arguments against reauthorization of a strong Clean Air Act. I am often asked if the cost involved with keeping the environment clean has slowed the growth of the economy or somehow been partially responsible for the current economic situation we find in our nation. I always answer that question with an emphatic NO! Actually the opposite appears to be true; new investment into pollution control devices has really balanced out the impact they have had on the industries being regulated. For every job lost because of pollution control, ten to twenty have been created.

I firmly believe that the most important role government has is to protect the health of its citizens. Although I am committed to local and state governments being held responsible, there is clearly a need for a strong federal role in preserving the quality of the air we breathe. We have come a long way in the past ten years, from not recognizing there was a problem with our environment, to awareness and a commitment to eventual recovery. Let us not turn away from the progress that has been made, but ensure that we leave our children a clean and healthy environment in the years ahead. □

Representative Guy V. Molinari, a Republican from New York, represents Staten Island and Lower Manhattan. He is a member of the Small Business and the Public Works and Transportation committees.

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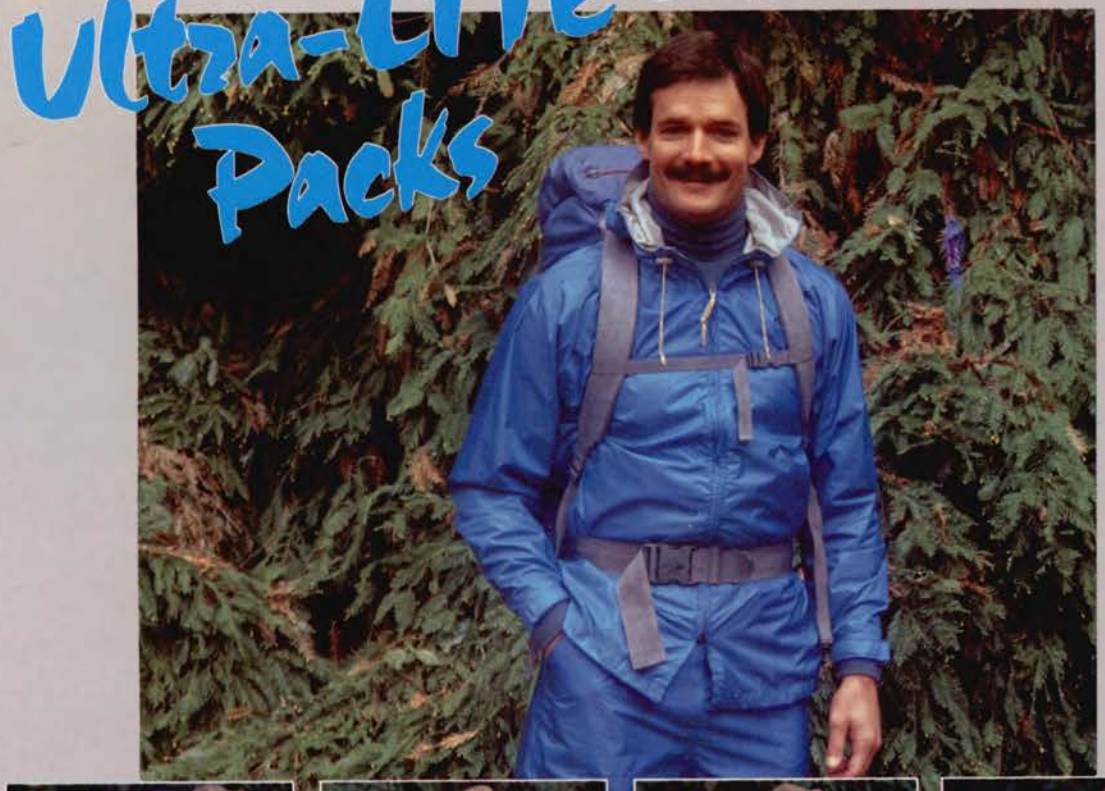

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