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Sierra

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Deciduous chopsticks, rock management, cash for courage, wide-open animals, Crater Lake sewage, a corny idea.



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COVER: An 1896-style outing. Photo by Joseph N. LeConte, courtesy of the William E. Colby Memorial Library Collection. Color by Ann Rhoney.

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SAN FRANCISCO (rush hour)

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LETTERS

OPPORTUNITY RAPS

William Ashworth's "The Great and Fragile Lakes" (November/December 1987) provides a litany of the Great Lakes' industrial problems, but omits mention of the most exciting opportunity presently available to environmental activists in the basin. The International Joint Commission for the Great Lakes (IJC) has mandated that remedial action plans (RAPs) be developed for 42 toxic hot spots. Cleaning up these bays, harbors, and tributaries is essential for the long-term health of the Great Lakes. The RAP process should assemble local environmentalists, government agencies, elected officials, business groups, and industries (from manufacturing to tourism) to address the problem of in-place pollutants and related water-quality and land-use issues.

The IJC insists on extensive citizen input in the process of developing a RAP. During the next two years the Sierra Club's binational Great Lakes Committee will be working with the Lake Michigan Federation and Great Lakes United to foster citizen input to the RAPs now in progress, and to exchange information among interested Sierra Club entities.

Frank Shaw, Chair
Sierra Club Great Lakes Committee
Milwaukee, Wisconsin

William Ashworth's article celebrates the tremendous environmental resource, as well as the desperate need to dramatically improve management, of the Great Lakes. I am optimistic that we can move ahead to address many of the problems described in his article and provide for the long-term management of the nation's great "inland sweetwater seas."

Sen. Robert W. Kasten, Jr. (R-Wis.)
Washington, D.C.

HETCH HETCHY: WHAT NEXT?

Ever since Interior Secretary Donald Hodel's August announcement of a proposal to undam Hetch Hetchy, I have been anxiously awaiting the Sierra Club's reaction and plans for the future.

I was excited when I opened my November/December 1987 issue and saw Carl Pope's article, "Undamming Hetch Hetchy." My reaction was "Great! Here's what I've been waiting for."

Although Mr. Pope presented a fine article, I still felt empty after the last sentence had been read. We learned what *had* happened, which those of us following the issue already knew. I wanted to hear about what *will* happen. What does the Sierra Club intend to do?

Jennifer H. Foygate
Davenport, California

Carl Pope replies: I'm sorry that my article did not give as much vision of the future as the issue of Hetch Hetchy's restoration deserves. But I know from other letters I received that most Sierrans needed a recap of what had happened because they were not able to follow the issue in their local media. As to the immediate future: Over the next few months the Department of the Interior will conduct a study to turn the restoration idea into a proposal. A few Club leaders are involved in this study, but as I write today, it's not clear what other concerned people can do until the Interior Department's proposal is on the table.

UNCHARTED ART

Cornish artist Tony Foster should have included a map in his "standard assortment of gear that all backcountry travelers tote" ("Sierran Souvenirs," November/December 1987). Then he could have avoided labeling Banner Peak as Mount Ritter. Also, Foster misspelled "Forester Pass."

Thomas H. Jukes
Berkeley, California

A NO-HURT YURT

Although "Yurts!" (November/December 1987) suggests a good alternative to building permanent ski huts on public lands, some people argue that a yurt will do more than "minimum damage" to the environment when its "relatively inconspicuous wooden plat-

form" remains in place year-round.

Pacific Yurts, which has designed and manufactured modern yurts since 1978, sells sectional and portable decking that can be removed along with the yurt itself, leaving no trace whatsoever of the winter shelter during the off-season.

*Alan Bair, President
Pacific Yurts, Incorporated
Cottage Grove, Oregon*

HODEL'S HYPOCRISY

I've never been to Alaska, but that doesn't impede my anger over the Interior Department's oil-drilling proposal in the Arctic National Wildlife Refuge. James R. Udall's "Polar Opposites" (September/October 1987) was not the first I've heard of the plan, but it brought the issue into clearer focus.

On July 17, 1987, Interior Secretary Hodel signed a treaty with Canadian Environment Minister Thomas McMillan for the conservation of the Porcupine caribou herd. Such hypocrisy!

I urge all Sierra Club members (and others, obviously) to contact their elected officials immediately in hopes of halting the Interior Department's dangerous oil-drilling plans. America's heritage depends on it.

*Michael Leonard
West Haven, Connecticut*

THE REALLY REAL THING

A recap is in order regarding Denis Voelker's article on Coca-Cola Foods and Belize ("Afield," September/October 1987).

As stated in the article, Coca-Cola Foods did indeed purchase 197,000 acres of land in Belize with the intention of using some of it to grow oranges for its Minute Maid subsidiary. The land was part of a 700,000-acre parcel originally owned by a Belizean, Barry Bowen.

Coca-Cola Foods does not, however, intend to "preserve up to 166,000 acres in their natural state." For economic and political reasons, the corporation has made the following decisions regarding its holdings: It intends to keep 50,000 acres; give 10,000 acres to the Belizean government for agricultural purposes; donate 40,000 acres for conservation as a national park; and sell the remaining acreage at its purchase price.

The corporation also gave \$50,000 to

the Massachusetts Audubon Society, which will use the money to begin an endowment for management of the conserved area.

Meanwhile, Bowen has put another 110,000 acres of his parcel on the market. The land, which is exceptional tropical forest, is contiguous to the land Coca-Cola Foods donated for conservation. Massachusetts Audubon and a number of other organizations have begun a fundraising drive called Programme for Belize, through which they hope to raise several million dollars to purchase the 110,000 acres from Bowen, add to the park endowment, and hire a natural resources planner. The plan has proceeded with the advice and full cooperation of the Belize Audubon Society and the government of Belize.

*James Baird, Vice-President
Massachusetts Audubon Society*

WE'RE ALL THAT WE CAN BE

Understandably, there are magazines that identify a problem, select appropriate facts, insert a little innuendo, and then expound some preconceived conclusions that bear little resemblance to reality. You took a shot at such an article in "Doing the Nerve Gas Shuffle" ("Priorities," July/August 1987).

There is no question that "we" have a problem concerning old and deteriorating stocks of chemical munitions—and the "we" includes not just the Army. The Congress, the executive branch, the judiciary, and "We the People" all have the problem, and we, together, must solve it.

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*General Frederick J. Kroesen, U.S.A. (ret.)
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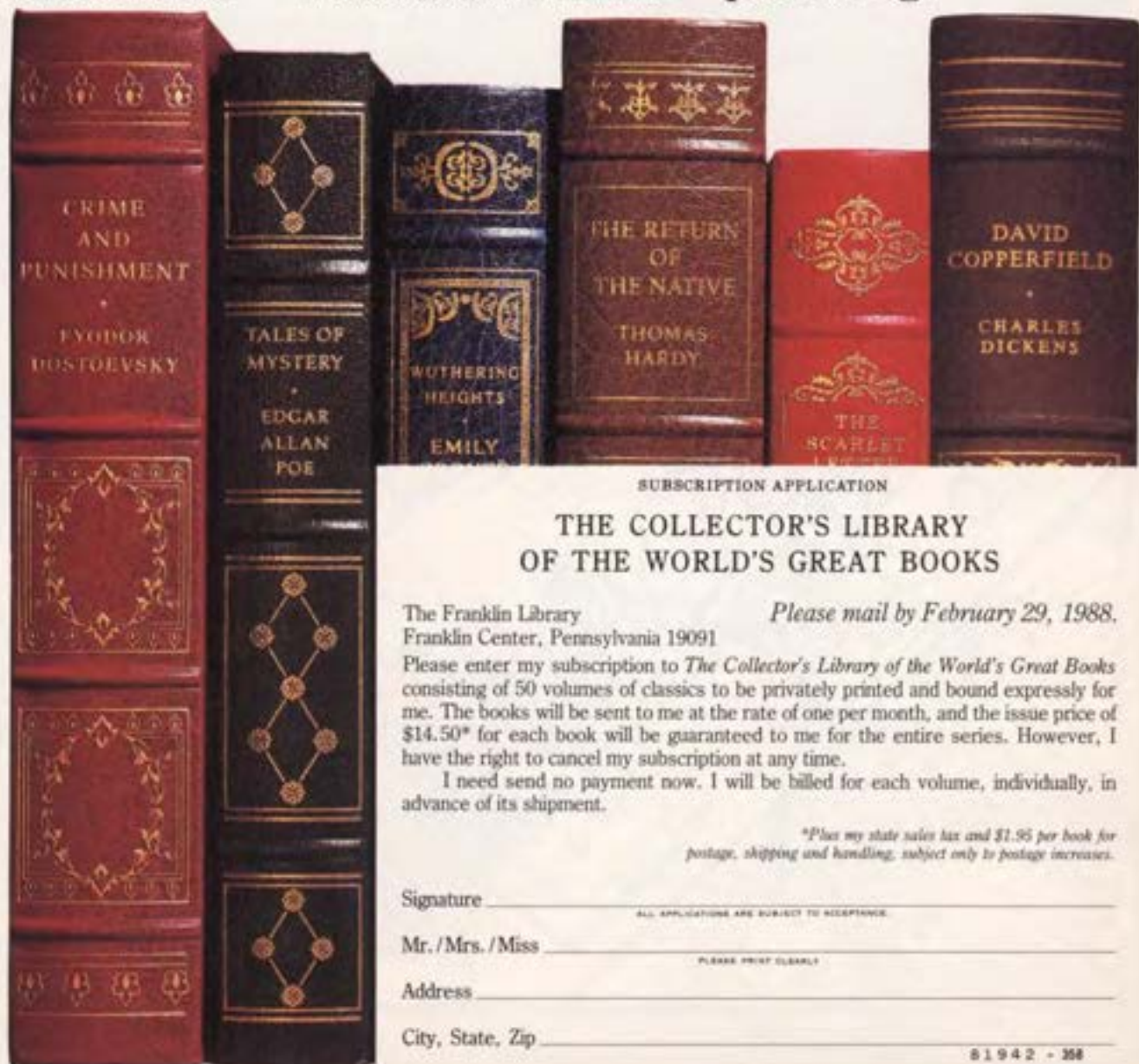
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CHOPSTICKS JOIN MIDWEST WITH FAR EAST

Workers at the new Lakewood Forest Products Limited plant in Hibbing, Minnesota, had two reasons to be in a festive mood one Tuesday last October. First, they had jobs, a rare commodity in the economically depressed northern region of the state. Second, they were on hand to applaud as the first trucks left the plant loaded with the factory's initial product: chopsticks destined for Japan.

That nation's consumption of disposable chopsticks, called *usuribashi*, is astoundingly high—the Japanese toss out 130 million pairs daily. Until now this insatiable appetite for the wooden implements has been satisfied not only by pine and cedar harvested in Japan, but by the tropical gubas tree, felled and processed in the Philippines. The opening of the Hibbing plant, environmentalists hope, represents one less demand on tropical forests: Lakewood Forest Products' *usuribashi* will come from local aspen.

In addition to the fact that aspen have a clean, white wood that appeals to the Japanese, the trees are a good ecological choice, says Kevin Proescholdt, executive director of Friends of the Boundary Waters Wilderness in Minnesota. "They regenerate quickly," he explains. "In fact, there's a surplus of aspen growth in the state."

The Hibbing plant is expected to produce 7 million pairs of chopsticks daily for sale in the Far East, primarily to Japanese restaurants. Although this will mean that fewer tropical trees will end up on dining tables, the Tokyo-based Waribashi Action Network feels that a change in Japanese habits is also necessary. Dedicated to rainforest preservation, the organization is urging people to carry reusable chopsticks. —Mark Mardon

FLASHBACK

A Sierra Club outing to Yosemite National Park, 1909. The Outing Committee reported that some 220 people, including John Muir, made the grand circuit of the park, and "neither illness nor accident of a serious nature occurred to mar the pleasure of the trip." This year's Outing Catalog begins on page 45.



ROCK REVIVAL IN THE COCONINO

Time was, a visitor's request to see the prehistoric rock art that adorns the red canyons and bluffs of Arizona's Coconino National Forest was met with stony silence. Hoping to protect the ancient art from defacement by 20th-century vandals, officials were reluctant to reveal the whereabouts of the area's treasures.

But things have changed, according to Peter Pilles, the forest's chief archaeologist. When visitors ask the way to the rock-art galleries today, they're handed a map marked with hiking routes to some of the most spectacular sites, or else referred to a commercial service that will guide them there.

Pilles sees the benefit of the new policy as twofold. "First, cultural resources on public lands belong to everyone. We don't have the right to keep them secret," he says. "In addition, we've found that by increasing visitation to these sites we have decreased vandalism." Pilles speculates that people are less likely to deface sites if they think they might be interrupted in the act.

Simple cleanups have also been successful. "It seems





WILLIAM E. COLBY MEMORIAL LIBRARY COLLECTION

that graffiti at a site just encourages more of the same," Pilles says. His challenge was to remove as much of the doodlers' modern inspiration as possible—without damaging the rock art.

After experimenting with several chemicals and solvents, Pilles found that distilled water works best.

"It looks easy, but you have to be extremely careful,"

Pilles told 26 Sierra Club members who turned out for a weekend cleanup of a defaced site that was soon to be opened to the public. He advised the cleanup crew that no one should employ the method they were about to learn without the supervision of an experienced professional. As Pilles tactfully reminded his helpers, "If you damage cultural resources, even with the best of intentions, you have violated federal law." —*Dan Dagget*



DAN DAGGET

HONORING THE RIGHT & LIVELY

Eight years ago, a Swedish-German writer and philatelist named Jakob von Uexkull provided an endowment for a prize that would "honor and support those working on practicable and replicable solutions to the real problems facing us today." Each year since then, an international jury has bestowed the Right Livelihood Awards upon people and organizations who work for a more livable world. The 1987 winners will share an honorarium of \$100,000.

■ The Chipko Movement, "for its dedication to the conservation, restoration, and ecologically responsible use of India's natural resources." Chipko activists advocate nonviolent resistance to the felling of trees, particularly in the Himalaya of India's Uttar Pradesh state.

■ Mordechai Vanunu, "for his courage and self-sacrifice in putting his loyalty to humanity first." Vanunu, now imprisoned in Israel, is a former nuclear technician who is

being tried for treason for revealing the extent of Israel's nuclear weapons program and the country's collaboration with South Africa on nuclear matters.

■ Hans-Peter Durr, "for his profound critique of the Strategic Defense Initiative and his work on converting high technology to peaceful uses." Durr, a physicist at the Max Planck Institute in Berlin, is an organizer of the Global Challenges Network, which addresses issues of resource depletion and economic injustice.

■ Frances Moore Lappé, "for revealing the political and economic causes of world hunger and showing how ordinary citizens can effectively help to remedy them." Lappé, author of *Diet for a Small Planet* and many other books, is co-founder of the Institute for Food and Development Policy in San Francisco.

Johan Galtung, a Norwegian scientist, was given an honorary award for his research on the arms race and his contributions to the peace movement. —*M.M.*



MARK MARON

PAMELA DRUCKER CLAY ILLUSTRATION; CHRISTINE ALONSO PHOTO

WANTED: A HOME WHERE BUFFALO ROAM

ASerengeti in Montana? Civil engineer and former rancher Bob Scott made the proposal a year ago, and it's still a contentious topic among the ranchers in the eastern part of that state. While many call the plan foolish or at best unrealistic, Scott calls it the Big Open.

Scott proposes





PAMELA DRUCKER CLAY ILLUSTRATION, CHRISTINE ALONSO PHOTO

that 15,000 square miles of Montana be gradually transformed from a rangeland for domestic livestock into a wildlife reserve. The wind-swept, overgrazed land where cattle and sheep now forage would become a cultivated habitat for bison, elk, deer, and pronghorn. "I'm an idealist," says Scott. "I'm trying to establish the principle that wildlife is worth something."

Scott emphasizes that the

Big Open is not a government program. Residents, he claims, would retain ownership and use of their land, and could double their income through hunting permits and access fees. Nevertheless, he's finding few takers among the 3,000 people who live within the boundaries of the proposed reserve. Many local ranchers work the same harsh country their grandparents homesteaded, and they take

offense at someone trying to tell them what to do with their land. While some residents see merit in the concept of wildlife ranching, they reject the idea of eliminating livestock. The Sierra Club has dismissed the Big Open as unworkable.

National attention to the proposal has died down, but that hasn't lowered the pitch of local wrangling. Bob Scott remains optimistic about the Big Open through it all. Time and economics, he insists, are on its side.

—Jane Easter Bahls

FIELD NOTES

“For a little while you have dwelt close to the heart of things. And these things live with you long after the outing has passed and you are back in the working world, linger even until the growing year once more brings around the vacation days, and you are ready to turn to the hills again, whence comes, not only your help, but your strength, your inspiration, and some of the brightest hours you have ever lived.”

“Some Aspects of a Sierra Club Outing,” by Marion Randall, published in Volume 5 of the Sierra Club Bulletin, 1905.

UNWELCOME VISITORS SULLY CRATER LAKE

The world's clearest lake may be getting a raw deal. In 1969, Army Corps of Engineers limnologist Douglas Larson lowered a white disk into Oregon's Crater Lake and watched until it disappeared 44 meters below the surface. It was, says Larson, a world-record clarity reading for a lake. But when he returned to perform the test ten years later, his readings were reduced by 25 percent. Something, apparently, was clouding the lake.

With the help of fellow researcher Clifford Dahm, Larson checked all five dozen springs that feed into the lake. They found a likely

suspect in what is officially known as spring number 42.

Sewage, they're convinced, is leaching into the lake from the Crater Lake National Park cafeteria's septic drainfield. In the water of spring number 42, near the cafeteria and other park buildings, they found nitrate levels ten to twenty times higher than those of other springs. What's more, the levels increased during the summer, when most of the park's half million annual visitors arrive to tax aging waste systems.

This increased nitrate level is moderate, but it's enough to feed small organisms such as diatoms and other plankton. The proliferation of these life forms in the lake, the scientists theorize, is causing the loss of clarity.

"I've brought this to the superintendent's attention every year since 1978, but so far nothing's been done," says Larson. "Crater Lake is extremely fragile. It can't absorb a lot of punishment. The effects could be irreversible."

Park Superintendent Bob Benton counters that sewage is



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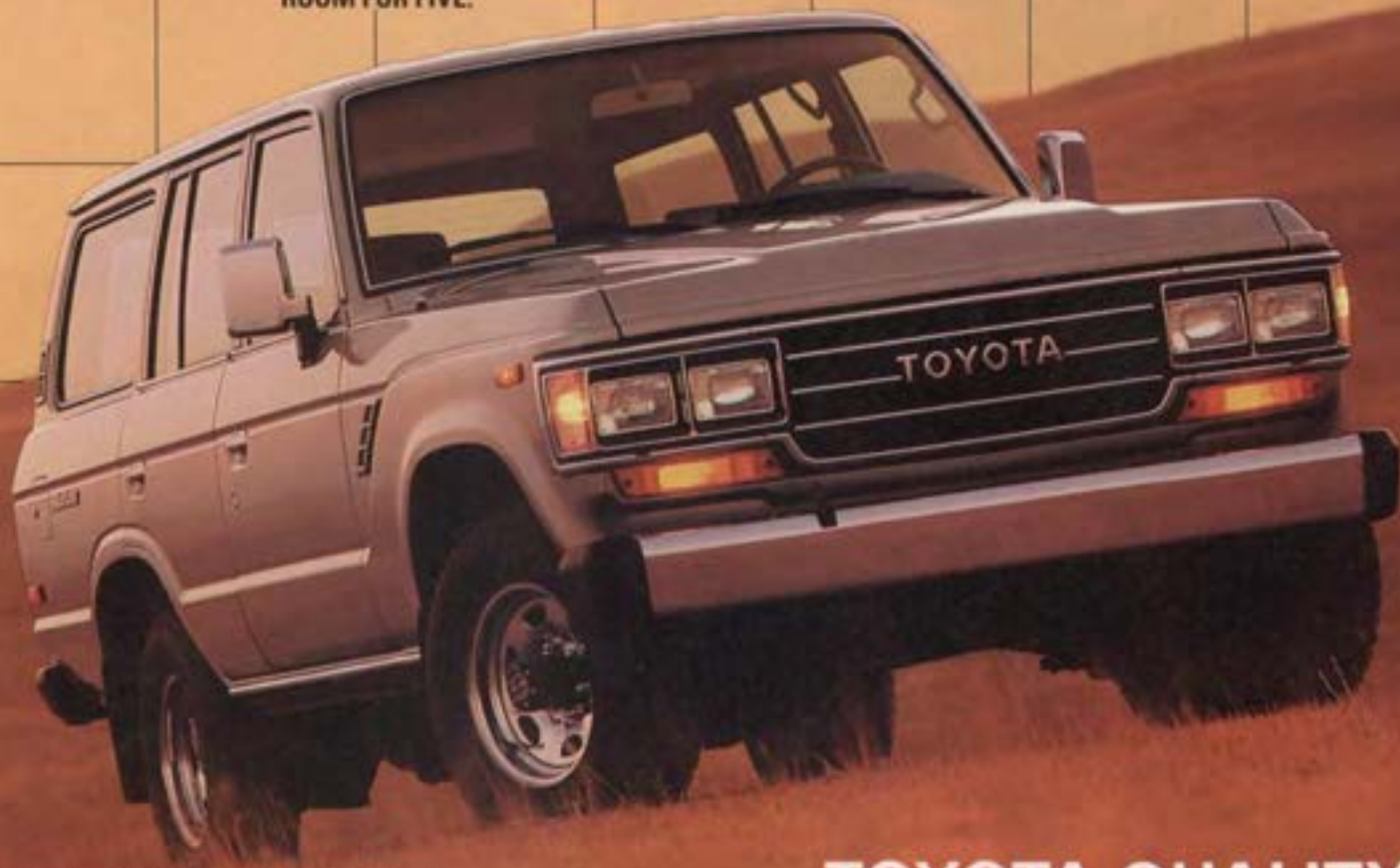


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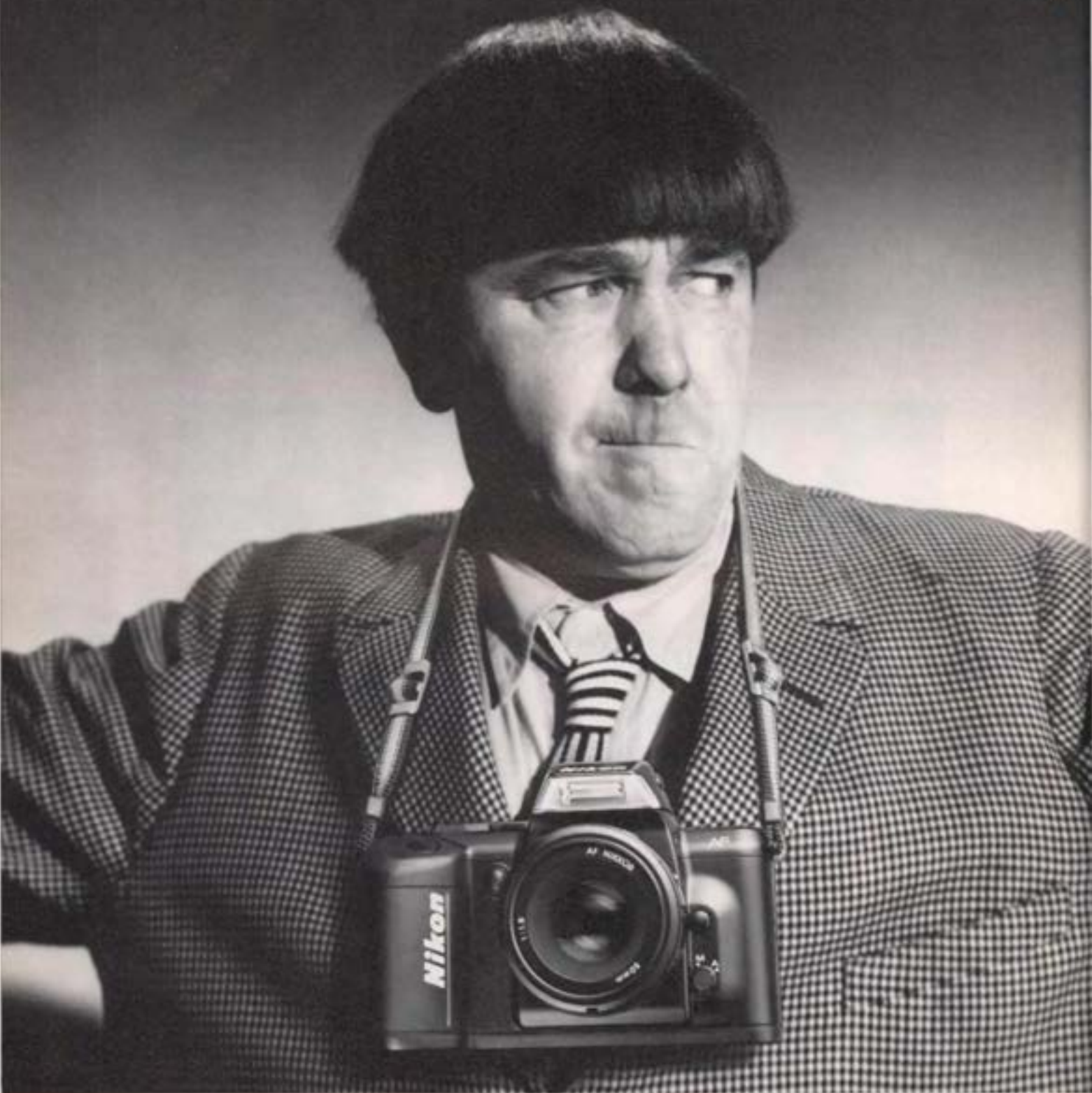
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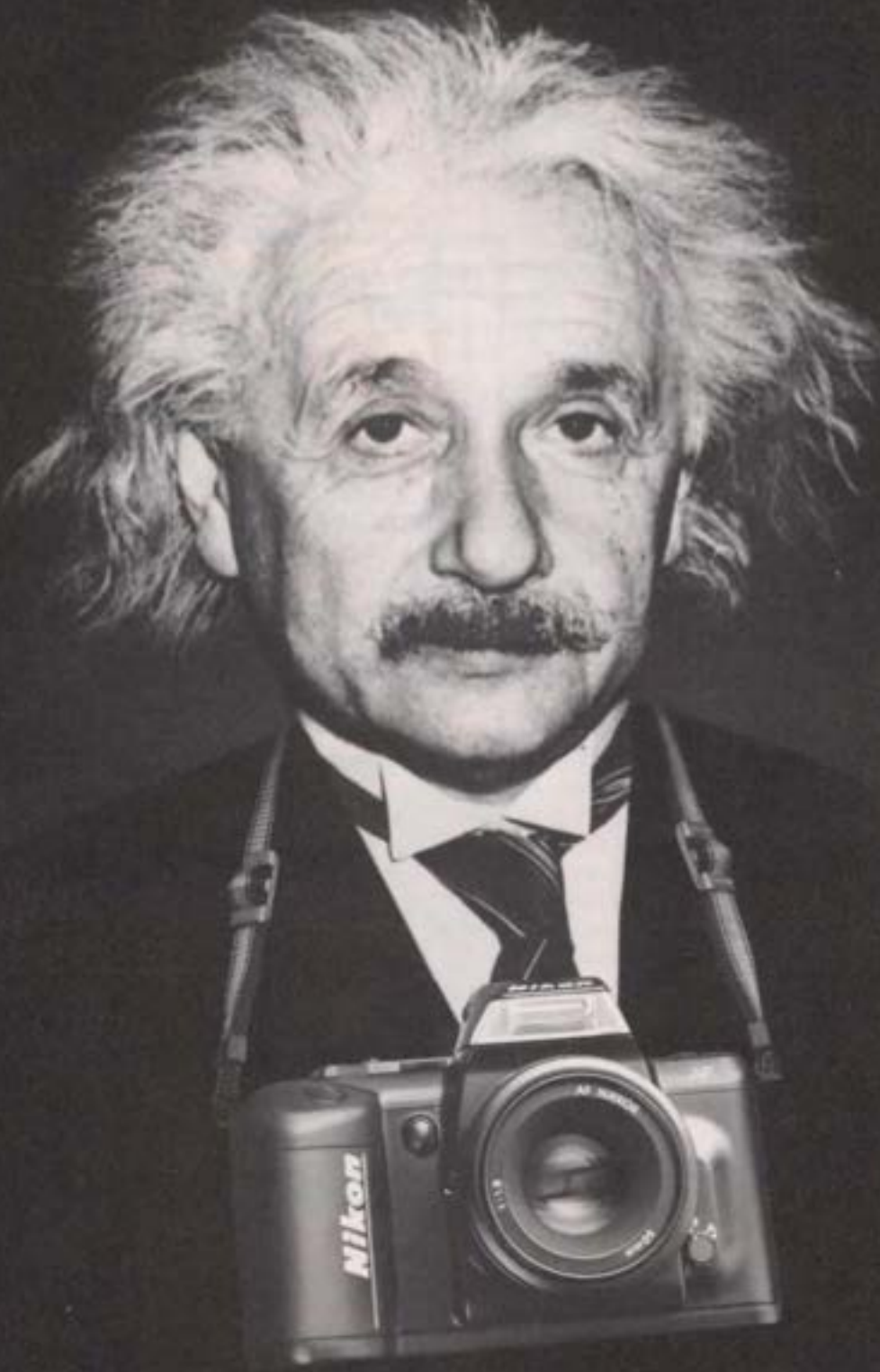
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only one possible explanation for what he calls an "infinitesimally small amount" of increased nitrates in the suspect spring. Although a search of the sewer lines turned up no leaks, last March a panel recommended the sewage be moved, and the park is complying. "We're not acknowledging that sewage is the problem," says Benton, "but we're going to move it." —*Jim Stiak*

ECOLOGISTS MAKE A SEPARATE PEACE

It was spring in the Catskills and it could have been any other conference: Representatives of several countries coming together to share knowledge, revitalize old friendships, and create new professional ties. But this gathering was far from routine. The occasion was the International Conference on Ecology in Vietnam, and it was the first meeting on American soil of Vietnamese and U.S. scientists since the war between the two countries ended in 1975. For four days, five Vietnamese scientists discussed with some 35 colleagues the extent of and possible solutions to Vietnam's ecological problems.

Those problems are formidable. Forest depletion, soil erosion, rapid population growth, and loss of genetic diversity plague the developing nation. Decades of war have left their mark: Twenty-five million bomb craters scar the countryside of a nation only slightly larger than New Mexico.

After several sessions that addressed the restoration of Vietnam's troubled landscape, the ecologists discussed ways to increase cooperation among themselves. The Vietnamese

invited their foreign colleagues to help establish an Institute of Resource Management and Environmental Studies at the University of Hanoi as well as a network of agroforestry projects throughout the country. Conference participants made plans for scientific collaboration and education of Vietnamese scientists in the United States.

The meeting occurred as some constraints between the United States and Vietnam were being relaxed. Vietnam has indicated a desire to strengthen international ties, and the United States has loosened restrictions on exports to Vietnam for educational and humanitarian purposes. But such bureaucratic matters seemed distant in the Catskills, where people speaking the universal language of ecology were working to heal past wounds.

—*Jeff Romm*



BIRDS ARE TOP GUNS IN THE GREENHOUSE

When insect pests infiltrate the greenhouses of the future, they may meet an unexpected adversary: squadrons of pet finches.

So far, few horticulturists have recruited birds to fight buggy invaders. But at least one indoor farmer is

finding that her feathered friends are worth their weight in pesticides. "We never spray," says Anita Kohl, who cares for a combination aviary-greenhouse in Carbondale, Illinois. "Our birds take care of everything."

Kohl's experiment began in 1980, when her husband bought a pair of zebra finches from a local pet store. The Kohls, who were building a new greenhouse at the time, then came up with a novel idea: Instead of caging the birds, why not give them free run of the greenhouse? Now some 25 finches—five different species—patrol the premises, protecting date palms, citrus trees, and other tropical plants.

Though finches tend to feed heavily on seeds (well-stocked feeders supplement the diets of greenhouse



DRICK HALLSTAD; BARBARA LINDSON PHOTOS



birds), some species are also eager to sample insects. With a hungry family to feed, finches can become voracious consumers of unwanted bugs. Kohl's birds have gobbled up outbreaks of aphids and spider mites, and they have helped stop an infestation of scale insects on her lime trees.

But perhaps an equal benefit is the birds' beauty. "It's delightful to have them flying free," says Kohl. "We have our own little ecosystem." She emphasizes, however, that would-be aviculturists should buy only finches raised in captivity, thus avoiding the illegal removal of wild birds from their native habitats.

Meanwhile, some experts suggest a more extensive greenhouse menagerie. Adding species that specialize in insects—including captive-raised tropical tanagers and thrushes, tree frogs, and lizards—could really keep out unwanted pests. —*Michael Kantor*



BURGERS (AND A LITTLE CHICKEN) FOR OZONE

Chlorofluorocarbons, those ozone-depleting chemicals we've grown to know and hate (see "High Anxiety," page 34), have found widespread use in fast-food packaging. In August, after McDonald's promised to kick the CFC habit, Friends of the Earth challenged other fast-food chains to do likewise. Wendy's vowed to go clean this year; Kentucky Fried Chicken, Burger King, and Roy Rogers declared they have not used and will not use the deadly foam-puffers.



SCORECARD

- On October 21, Senators William Roth (R-Del.) and Bill Bradley (D-N.J.) introduced legislation that would designate as wilderness the coastal plain of the *Arctic National Wildlife Refuge*. At presstime the bill had seven cosponsors.
- As a result of years of work by dedicated activists, stretches of three California rivers—the *Kings*, *Kern*, and *Merced*—are now part of the National Wild and Scenic River System.
- Congress and President Reagan have given their approval to legislation that protects 92,015 acres of *wilderness in Michigan*.
- The Senate Environment and Public Works Committee has passed a bill to strengthen the *Clean Air Act*. The bill, S. 1894, has 22 cosponsors.
- Voters in Maine rejected a referendum that would have closed the *Maine Yankee nuclear power plant*. Pro-nuclear forces spent \$5 million on the campaign; anti-nuclear activists spent \$600,000.
- In November a Superior Court judge blocked the Pacific Lumber Company from clearcutting 400 acres of *old-growth forest* in Northern California pending a comprehensive environmental review.

BAGGING THE CORNSTARCH MOLECULE

The plastics we use every day take longer than steel to break down in a landfill. When burned, they can form some of the most toxic gases known. Their manufacture requires the use of nonrenewable petrochemicals. But it looks as if the solution to some of these problems may be found in an ear of corn.

According to Richard P. Wool, a professor of polymer science and engineering at the University of Illinois, the cornstarch molecule in many ways resembles the petrochemical molecule used in plastics. With the help of geneticists and chemists, Wool has developed a resin for the manufacture of plastic garbage bags that requires half the usual amount of petrochemicals.

Wool has joined with Don Fisk, an Illinois farmer and businessman, to commercialize the process. Through their company, Agri-Tech Industries, they plan to market biodegradable plastic trash-can liners early this year.

The cornstarch solution is good for more than the environment. With a national surplus of five billion bushels of corn squeezing American farmers, "adding cornstarch to plastics is an exciting prospect," says Dave Drennan of the National Corn Growers Association. Agri-Tech predicts that within five years the process could consume a half-billion bushels of corn annually.

—*Lucy Covington*



EPA Wavers Again on Chlordane

Regulators stumble toward a U.S. ban on this carcinogenic pesticide—while the manufacturer readies tests to bring it back.



WILLIAM CONE

enough to bring back on the market.

"What we've seen today is a federal agency that has failed to protect the public," said Jay Feldman, director of the National Coalition Against the Misuse of Pesticides (NCAMP), the organization that initiated the request for an injunction in association with the Sierra Club, Friends of the Earth, and other groups. "This decision certainly disappoints us."

The action by U.S. Judge Louis F. Oberdorfer was just one more frustration for environmentalists in their 25-year battle against chlordane. And this battle has not been an isolated case: A history of the conflict over chlordane says much about the weakness of pesticide laws in general and the reluctance of EPA officials to suspend sales of a toxic product even after its dangers are well known.

Chlordane, a colorless chemical that has an overpowering odor, first came on the market in 1947 as a by-product of U.S. Army nerve gas research. It came to be used widely as a pesticide on farms and in homes.

The American love affair with this and other powerful new chemicals continued through the 1950s. But the tide of public opinion began to turn with the publication of biologist Rachel Carson's *Silent Spring* in the fall of 1962.

Carson wrote that the gardener who dusted his lawn with chlordane might not develop health problems immediately—but this, she said, "has little meaning, for the toxins may sleep long in his body, to become manifest months or years later in an obscure disorder almost impossible to trace to its origins."

Velsicol officials maintained that the

Josh Getlin

AS THEY SPOKE QUIETLY outside a federal courtroom in Washington, D.C., last fall, a group of environmental activists and their attorneys couldn't help but feel disappointed. After weeks of legal skirmishing, a judge had denied their request for an immediate, nationwide ban on sales of chlordane, a carcinogenic termite killer that has been used in 30 million homes across the United States.

Instead, the court had approved a

controversial settlement in which the EPA and the Velsicol Chemical Corporation of Rosemont, Illinois, the pesticide's sole manufacturer, would "phase out" sales over an eight-month period. Although studies have shown that the chemical causes cancer in laboratory animals and may be responsible for birth defects, leukemia, brain cancer, and lung disorders in humans, its use could continue in thousands of homes.

The settlement also allows Velsicol to test new application techniques that it believes will make chlordane safe

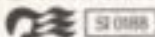
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PRINCESS TOURS

product is safe when properly applied, a position the company continues to hold. But environmentalists charged that chlordane runoff from farmland had contaminated fish and animal life in lakes, streams, and rivers throughout the nation. Others feared the product would severely pollute groundwater supplies.

These complaints increased, yet not until the mid-1970s did the EPA take action. Responding to evidence that chlordane caused cancer in laboratory animals, the agency banned all agri-

cultural uses of the product. But, establishing a pattern that would infuriate environmentalists over the next 12 years, federal officials limited their action. First, they allowed Velsicol to phase out existing stocks of chlordane rather than order it to halt sales. Second, they allowed continued use of the pesticide against termites, saying there was no proof that such applications would result in harmful levels of exposure to people or the environment.

The decision would be criticized in later years, but it was prompted largely

by a controversial 1972 amendment to the Federal Insecticide, Fungicide, and Rodenticide Act. That amendment requires the government to reimburse the maker of any pesticide that is immediately taken off the market as a health hazard. The cost of reimbursement is often prohibitive, usually running into millions of dollars, and as a consequence the EPA has been reluctant to take such action.

"I cannot imagine a more brazen special-interest provision in a law," says Diane Baxter, a Washington, D.C.-based toxicologist for NCAMP. "Here we have people peddling this poison, and the government has to pay them to take it off the market."

As chlordane use continued in homes, consumer horror stories began surfacing. Hundreds of people who applied the pesticide or simply breathed large amounts of the vapors after a professional application reported headaches and nausea, heart problems, blood disease, and lung disorders. They also began filing lawsuits against Velsicol and pest-control firms, in some cases dropping their claims for big settlements.

Velsicol officials continued to deny that chlordane had caused health problems and said they had no intention of taking it off the market. But things changed when the EPA, spurred on by Air Force studies of chlordane contamination in military housing, released test results last year showing that one to three out of a thousand people who breathed chlordane vapors in homes treated according to the manufacturer's instructions ran the risk of developing cancer over a lifetime of exposure.

The product should have been taken off the market then and there, according to NCAMP's Feldman and other critics. But EPA officials failed once again to lower the boom. Instead, the EPA settled for an agreement signed last August in which Velsicol pledged to halt U.S. sales of chlordane. Agency officials said they would not allow the product back on the market unless new tests showed it could be used safely, without contaminating homes.

The agreement did not, however, immediately affect existing stocks of chlordane in stores across the nation—a supply that would last 60 to 90 days at the

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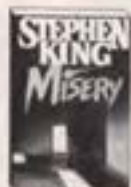
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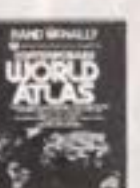
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normal rate of consumption, or longer if users stockpile the product. Sales of this supply are legal through April 15, 1988. And Velsicol has reportedly advised its subsidiaries that the ban will in fact be temporary, pending completion of the new tests.

Velsicol may also continue to manufacture chlordane for export because EPA jurisdiction covers only domestic distribution. Although many countries have banned or restricted chlordane, others continue its widespread use.

Feldman says the chlordane case shows that the EPA cannot be counted on to protect consumers against dangerous pesticides. Unless the agency changes its approach, he adds, environmentalists should prepare to fight the same battle many times again.

"In this case, people are still at risk," Feldman says. "It's 25 years after *Silent Spring* and we're still trying to get a handle on this pesticide."

JOSH GETLIN is a Washington, D.C., correspondent for the Los Angeles Times.

riorating global environment and ask for some solutions," he said.

The congress, which had never before been held in the United States, attracted 1,500 people from 62 countries, including government officials, diplomats, scientists, economists, and conservation leaders. It provided a forum for "the best debate yet on the interface between the environment and development," said Sierra Club Chairman Michael McCloskey.

Presentations were laden with examples of environmental degradation unimaginable in the United States. Tropical forests—reservoirs of half the world's plant and animal species and one fourth of the world's fresh water—are disappearing at the rate of a hundred acres per minute, scientists estimate. In Africa, desert is invading farms, putting 35 million people at risk of starvation. Much of this shattering environmental destruction has been forced by the need of Third World nations to produce exportable goods to finance their debts.

Ironically, most of the major speakers called for more economic development, rather than less, to remedy the world's

WILDERNESS

Poverty, Prosperity, and Preservation

At a recent environmental congress, world leaders discussed ways to develop their countries without damaging the planet.

Dyan Zaslowsky

SOME VISITORS might have expected purely talk of pristine places at the Fourth World Wilderness Congress in Denver and Estes Park, Colorado, last September. If so, they must have been disappointed to

find that "sustainable economic development" was the hottest topic.

According to conference organizer and Sierra Club Vice-President Edgar Wayburn, the congress was planned that way. "We wanted to present the worldwide, interrelated problems of the dete-

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Norwegian Prime Minister Gro Harlem Brundtland on a panel at the Fourth World Wilderness Congress with Canadian Environment Minister Thomas McMillan (left) and former United Nations Under Secretary General Maurice Strong (right).

ills. But in the future, they asserted, development must be sustainable, not short-sighted; intelligent, not idiotic. (All that was lacking in this general prescription was, to borrow a phrase from theologian Reinhold Niebuhr, the wisdom to know the difference.)

Treasury Secretary James Baker, the keynote speaker, brought news of the World Bank's recent commitment to make environmental analyses a central factor in evaluating development loans to Third World nations. But he also insisted that "growth and development are absolutely essential for conservation." As he put it, "the poorest conservation is practiced by the poorest countries."

This point was echoed later in speeches by banker David Rockefeller, Canadian entrepreneur and former United Nations Under Secretary General Maurice Strong, former EPA Director William Ruckelshaus, and Norwegian Prime Minister Gro Harlem Brundtland, chair of the United Nations' World Commission on the Environment and Development.

"Environmentalists alone can't save the environment," said Strong. "This is Planet Earth, Incorporated, and we have to run it like a business."

The congress passed a resolution backing the creation of a world conservation bank. Such an institution, according to Michael Sweatman, director of the U.S.-based International Wilder-

ness Leadership Foundation, would marshal both public and private money to protect critical habitats or wilderness areas of international significance.

The idea of "debt-for-nature" swaps also received a great deal of attention. Such swaps allow nations in financial trouble to be forgiven all or a portion of their foreign debts in return for a commitment to protect tropical forests, grasslands, and river basins. So far, debt-for-nature swaps have been arranged by The Nature Conservancy in Costa Rica and by Conservation International in Bolivia. (See "Afield," *Sierra*, November/December 1987.)

The emphasis on economics made a number of congress participants edgy. Environmental studies professor Raymond Dasmann was so bothered by other speakers' romance with "sustainable development" that he departed from his prepared speech to question the meaning of the words. "Beware of bankers bearing gifts," he warned. "When you talk about economic development, you have to ask, development of what, in what way, for the benefit of whom, and at whose expense?"

In one of the few major speeches that did not address economics, Michael McCloskey presented the Sierra Club's inventory of the world's remaining wilderness areas. He explained that Club researchers had analyzed highly detailed maps of the globe to identify spaces

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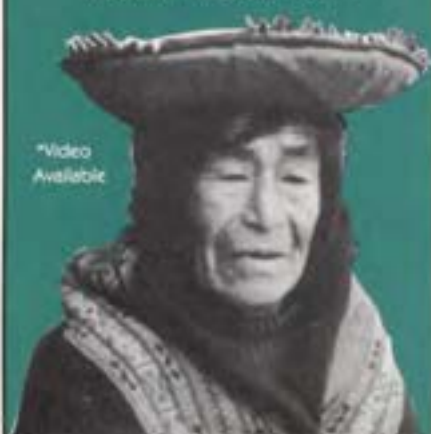
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larger than one million acres that contain no roads, settlements, power lines, or other signs of human infringement. They found more than 12 billion acres of such blank spaces, covering one third of Earth's land surface.

Countries with the most wilderness, according to the inventory, are Canada, with 65 percent of its area still untrammeled; the Soviet Union, with 39 percent; Australia, with 33 percent; and Brazil, with 28 percent. Although the United States may have the most advanced wilderness preservation system in the world, it does not rank near the top of this particular list because it has so few untouched areas of one million acres or more.

"With this inventory, we can start to track what is happening and to mark trends as subsequent inventories reveal changes," McCloskey said. "Humanity can decide whether and where it is losing too much wildland."

In addition to offering speakers, slide

presentations, books, and papers, the meeting had its incongruous sideshows. Booths displayed everything from pamphlets to chained raptors. At the congress' Denver site, wild furs and jewelry made of African ivory were sold.

Yet through the scrim of these wares and a hundred or more delivered papers, the global imperative was clear: All nations must abandon the ruinous economic practices of the past to save the environment of the future.

Many environmentalists from the United States walked away with a firmer resolve to see problems in global terms, according to organizer Wayburn. "No matter how many battles we win on our own soil, we will lose the global war if changes are not made worldwide," he said. "The Fourth World Wilderness Congress was a positive step toward implementing these changes."

DYAN ZASLOWSKY, a Colorado writer who specializes in environmental topics, is author of *These American Lands* (Henry Holt, 1986).

TOXIC WASTES

The Legacy of Love Canal

Ten years and many cleanup plans later, peace of mind eludes former residents of this contaminated neighborhood.

Melanie L. Griffin

"SEE THE RED TULIPS under that tree?" The woman points through the high chain-link fence. "Those are my tulips—I planted them. That was my front yard." She sounds as if she doesn't believe it herself. A decade after she and her family fled their home at New York's Love Canal, Pat Brown still seems unable to accept the fact that her old neighborhood is a vacant lot studded with piles of rusting industrial drums. Outside the fenced area, row after row of boarded-up houses keep mournful vigil over desolate streets.

Most people think of Love Canal as history, perhaps a turning point in the nation's awareness of the social costs of industrial irresponsibility. Indeed, the tragedy that struck the ten-block area in Niagara Falls, New York, was one of the catalysts behind the creation of the Superfund, the nation's hazardous-waste

cleanup program. But for the people who once lived there, the ghosts of Love Canal are all too present.

Between 1942 and 1953, Occidental Petroleum's Hooker Chemical and Plastics Corporation buried some 21,800 tons of chemical waste in an abandoned waterway named after its former owner, William Love. The company then covered the canal and sold the property to the Niagara Falls Board of Education for one dollar in April 1953. During the mid-1950s, home construction in the area boomed and an elementary school and playing field were built on the site.

Chemicals rose to the surface periodically over the years, but in 1977, water from the Niagara River, one-quarter mile away, flooded the canal and forced contaminated groundwater into residents' basements. Two hundred chemical compounds were identified in the landfill, including benzene, trichloroethylene, and dioxin. In 1978,

President Jimmy Carter declared Love Canal an emergency disaster area, and several hundred families were evacuated in a \$20-million federal/state buy-out program.

Soon after the story hit the media in 1978, New York State health officials placed a clay cap over the most severely contaminated 16 acres and set up a drainage system to prevent any more poisons from entering the groundwater. In 1984 an expanded cap with a synthetic liner was laid over 40 acres. And there the wastes have festered while political infighting, questions of liability, and lack of coordination between federal and state agencies have stalled cleanup.

On October 26 the EPA announced its intention to dredge the dioxin-tainted waste from the sewers and creeks around the dump and incinerate it, an approach that EPA Assistant Administrator J. Winston Porter says will leave only "clean dirt" with no "detectable" levels of dioxin. The dirt will then be sprinkled over the landfill.

Not everyone is enthusiastic about the long-awaited plan. The EPA has not provided any details about the proposed incineration technology or its environmental effects. Some former residents are skeptical of the decision to spread the detoxified material on the site. And while the EPA calls the plan the final stage of cleanup, the landfill itself will remain.

For many area residents the lack of a comprehensive health study is even more distressing than the government's

glacially paced and controversial waste-cleanup plans.

"The few minimal or incomplete studies that have been done show enough serious health problems to warrant a major study," says Sister Margeen Hoffmann, director of the Ecumenical Task Force of the Niagara Frontier, a victim support group.

New York state officials conducted some blood studies on Love Canal residents, according to Sister Hoffmann, but many of the samples were mishandled and most residents never received results. "Yes, some blood samples were lost, broken, or spoiled," recalls Sandra Stanish of the New York State Department of Health's Bureau of Toxic Assessment. "I can't say mistakes weren't made."

Karen Kalajjian of the state's Division of Environmental Health Assessment explains that "a lot of data has been collected but it has not been compiled or analyzed. We are currently discussing what kind of follow-up is appropriate."

"They've been saying that since 1980," responds Beverly Pagan, a research biochemist who conducted early health studies at Love Canal for the state health department. Her 1980 study of more than 900 children from the area produced some chilling results. Seizures, learning problems, eye and skin irritations, incontinence, and severe abdominal pains were much more prevalent among Love Canal children than among children from nearby neighborhoods. Pagan calls it "criminal" that



In these backyards forever: The Love Canal landfill is not part of the EPA's "final" cleanup.

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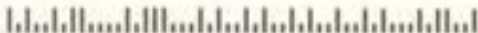
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no follow-up studies have been done on the population.

Sister Hoffmann, whose convent housed families during the initial evacuation, adds, "Love Canal is a tremendous psychological scar on these people." Pat Brown agrees. "Sometimes our own families are frightened of us," she says. "It's like AIDS. People just don't understand."

Brown, who had two miscarriages and a daughter born with tumors on her knee, works at the Ecumenical Task Force with Sister Hoffmann, mostly taking calls from toxic waste victims. "Every time their child gets a rash, they wonder, 'Is this it?' And then they get angry. I'm glad I'm here for them to talk to. I had no one."

Since 1978 approximately 800 families have left their homes. Two households chose not to evacuate from the "inner ring." "They zigzagged that fence right around them," Brown remembers. After losing a mother to cancer, putting an ailing father in a nursing home, and discovering that a son in his late 20s had developed cancer, one of the families finally decided to move away less than two years ago.

The state is now studying the possibility of moving people back into the neighborhood. The EPA's Porter calls the agency's recently announced cleanup plans "consistent" with the goal of rehabilitation. But, he says, the real question is whether the dioxin is "so ubiquitous that you just can't live there."

Sister Hoffmann insists that the area should not be inhabited at all. "It's absolutely unconscionable," she says. "Speculators would just take over. The houses would be cheap rental properties for low-income families and elderly people." She would like to see the entire area become a hazardous waste research facility. "Why not make it a site where we can learn from the past?" she asks. "There are plenty of lessons here."

Brown says she will continue to do what she can to support other victims and to push for health studies. "I'm here for the children," she says, "and I will be until I die." ■

MELANIE L. GRIFFIN is the Washington, D.C., specialist for the Sierra Club's Great Lakes Federal Policy Project.

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The Myth of Mitigation

Tom Turner

WHEN A shopping mall developer named Edward J. DeBartolo went looking for a site in southern Massachusetts, he settled on a boggy plot in South Attleboro. Situated along the I-95 corridor between Boston and Providence, surrounded on all sides by traffic, Sweeden's Swamp seemed just right.

To fill in a swamp, however, a developer needs a dredge-and-fill permit from the Army Corps of Engineers. To get this permit, the developer must persuade the Corps that there is good reason for the project to be near water, and that there are no economically feasible alternate sites. Finally, the applicant must convince the Corps that its mitigation measures will minimize the project's adverse effects.

Mitigation—that slippery, multisense word.

Essentially, to mitigate means to reduce the unpleasant effects of development. In the Attleboro case, Pyramid Companies, which took over the property from DeBartolo, proposed several mitigation measures, the most controversial being creation of a 30-acre wetland in a gravel pit a couple of miles away from the existing swamp. Pyramid contended that, with some on-site habitat restoration, this would more than make up for the 32 acres to be buried under the new mall.

The proposal for the artificial bog failed to impress the local office of the Corps of Engineers. But when word of the pending disapproval reached Corps headquarters in Washington, D.C., Director of Civil Works Major General

John F. Wall ordered approval of the application. In fact, the Corps later argued that because there would be a net growth in wetland acreage, the impact of the project would be positive. "The Corps said, in effect, 'We prefer what you had in mind to what nature had in mind—so you can have your way with nature,'" says Bob Dreher, the Sierra Club Legal Defense Fund staff attorney who represented the Club in the litigation that followed.

Opponents of the proposed mitigation pointed out that attempts to create wetlands seldom succeed and that it takes years to determine if a man-made swamp will sustain itself. Furthermore, they noted, the wetland Pyramid proposed to create would attract different species from those that depended on the existing swamp. Finally, they argued that the new wetland would be too far from the existing swamp to serve as proper mitigation.

Mall opponents found an ally in the EPA, which has the power under the Clean Water Act to review—and veto—the Corps of Engineers' dredge-and-fill permits. It had exercised that power only four times. Sweeden's Swamp was the fifth.

In a strongly worded decision, Jennifer Joy Wilson, an assistant administrator of the EPA in Washington, D.C., vetoed the Corps' approval of Pyramid's permit. "It is unacceptable," she wrote, "to trade the certain benefits provided by this functioning wetland for the uncertain benefits of a large-scale wetland creation."

Pyramid sued, claiming that the EPA had overstepped its limits. The Sierra Club Legal Defense Fund (SCLDF) intervened on behalf of the Club on the

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EPA's side, as did several other groups interested in maintaining what they considered a vital check-and-balance system. On October 6, 1987, Federal District Court Judge Thomas J. McAvoy upheld the EPA action, a decision hailed by wetland defenders throughout the country.

The creation of artificial habitat is not the only issue in the mitigation debate. Another aspect of the discussion centers on conflicting interpretations of the Council on Environmental Quality's definitions of mitigation. According to the CEQ, mitigation entails (1) avoiding an impact altogether by not taking an action or parts of an action; (2) minimizing an impact by limiting the degree or magnitude of an action and its implementation; (3) rectifying an impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating an impact over time through preservation and maintenance during the life of the action; and/or (5) compensating for an impact by replacing or providing substitute resources or environments.

The CEQ's definitions mean something different to each agency involved in mitigation. The EPA, for example, thinks the CEQ options ought to be considered in order, with number 1 being first choice in all cases and number 5 being the last resort. The Corps disagrees; its formal policy is to consider all five and choose what it thinks best.

Those five definitions are staid and formal. Others are more pungent. In *Waterfront Age*, Joy B. Zedlin, a biologist at San Diego State University, describes mitigation as "a license to develop." Karin Sheldon, a SCLDF attorney in Denver, calls mitigation "an agency's excuse for doing what it wants to do anyway." Indeed, some proposals have stretched the word's meaning to the breaking point:

■ On the Klamath River in Oregon, the city of Klamath Falls and a developer want to build a dam that would destroy a popular stretch of whitewater. As mitigation, they propose building a ski resort some miles distant.

■ In southern Texas, where the Rio Grande joins the Gulf of Mexico, a private developer wants to build a resort that would destroy 8,000 acres of seasonal wetlands. The developer offers artificial freshwater ponds and irrigated golf courses as mitigation.

■ In Northern California, Oakland International Airport wants to fill 180 acres of wetlands in order to build new facilities. Airport operators put forward a plan to mitigate the damage by acquiring and setting aside comparable acreage in the Napa Valley. Not only would the habitat be quite different, the mitigation site would be some 50 miles from the damage.

■ In northern Louisiana, the Corps mitigated the effects of a barge canal project by buying and giving to the Fish and Wildlife Service 17,400 acres of freshwater wetlands and uplands that then became the D'Arbonne National Wildlife Refuge. The Corps neglected to acquire the mineral rights beneath the refuge, however, and natural gas operators have poisoned dozens of acres with brine and toxic mud.

■ And to describe American Cyanamid's offer of surgical sterilization for its female workers as an alternative to losing their jobs in a lead-contaminated factory, Judge Robert Bork used the term—you guessed it—mitigation.

While the definition debate rages, more and more cases are winding up in courts. A few judges have ruled on the side of environmentalists. The Ninth Circuit Court of Appeals in San Francisco recently agreed with the Oregon Natural Resources Council's contention that mitigation provisions proposed in an environmental impact statement (EIS) for a dam on a tributary of the Rogue River were too vague. "The importance of the mitigation plan cannot be overestimated," the court's ruling stated. "It is a determinative factor in evaluating the adequacy of an environmental impact statement."

From a case in Southern California came what is perhaps the first court order to stop a project because mitigation promises haven't been kept. The

case involves construction of a flood-control ditch and freeway interchange through Sweetwater Marsh in Chula Vista. To mitigate the impact of this project, San Diego County promised to acquire and preserve 188 acres of habitat critical to the survival of two endangered species of birds: the light-footed clapper rail and the California least tern. When construction continued without satisfactory progress toward protecting the critical habitat, the Sierra Club and the League for Coastal Protection filed suit. In May 1987 the court halted construction until San Diego completes the mitigation work.

"We won because the Endangered Species Act is tough," says SCLDF attorney Laurens Silver. "Most other mitigation litigation has been brought under the National Environmental Policy Act, which simply requires a federal agency to follow a few procedures before it goes ahead with what it wants to do—unless the agency wants to interfere with endangered species."

Except in cases involving endangered species, no court has forced an agency to abide by mitigation measures promised in an EIS. "It's an enormous loophole in NEPA," says Buck Parker of SCLDF. "Judges are quite happy to stop an agency from doing something, but much less eager to tell the same agency to do something positive—even if the agency has promised to do just that."

While some broken promises end up in court, many probably do not. In an attempt to find out how well mitigation promises are kept, Rep. Gerry Studds (D-Mass.) recently asked the General Accounting Office to conduct a survey of federal agencies' compliance with NEPA to find out how faithfully they have carried out mitigation projects. Most environmentalists expect the report, due out sometime this year, to expose a sorry record.

The general failure of mitigation as practiced has given rise to a controversial innovation known as mitigation banking. Crudely put, mitigation banking is a system whereby an agency generates mitigation credits to be sold later

to developers who want permission to destroy a functioning habitat.

It's supposed to work as follows: An agency—probably public but conceivably private—acquires a degraded site such as a diked wetland or a filled-in marshland. The agency restores the wetland and is entitled to make a deposit at the mitigation bank—four habitat credits, let's say. Along comes a developer who wants to dredge ten acres of a bay shore to build a marina. To obtain a permit, he must prove that he will mitigate the loss by preserving or restoring ten acres in the vicinity. He can't find any suitable wetlands himself, so he goes to the mitigation bank and buys ten acres' worth of mitigation credits.

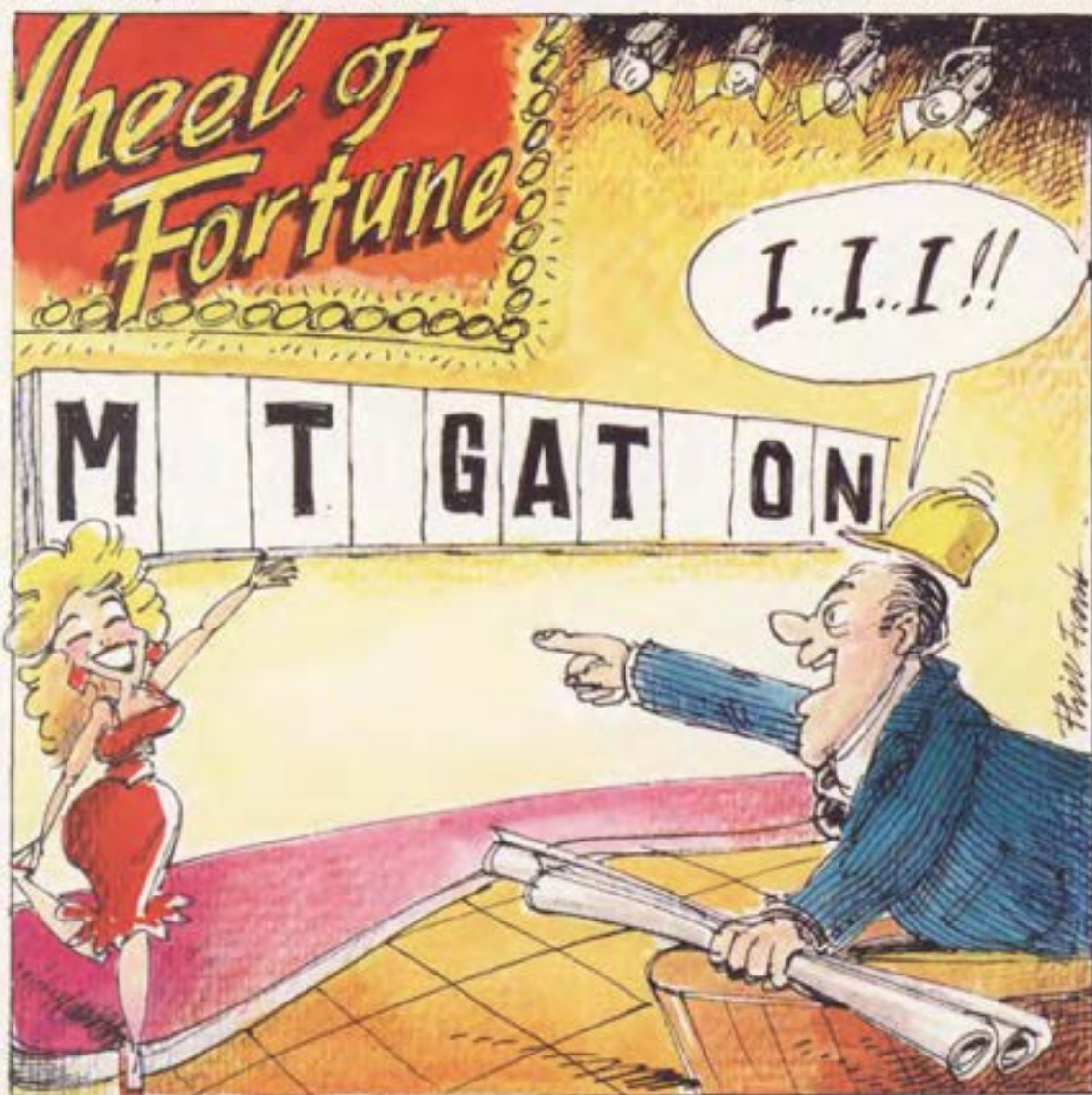
One version of mitigation banking is being tested in Oregon, where a new law developed with the help of Sierra Club activists has just gone into effect. The law authorizes the state to set up a publicly owned mitigation fund; limits off-site mitigation to five acres; requires that mitigation occur within the same habitat and within 40 miles of the development; and provides for careful monitoring and frequent reporting on the progress of mitigation sites.

"The intent of the new law," according to Jon Christenson, a Sierra Club activist who worked on the legislation, "is to prevent the mitigation fund from encouraging projects that will destroy

existing wetlands." He points out that banks may be used only after all on-site mitigation methods are examined and found to be impracticable. "We're not totally convinced that this is the way to go," he says, "but we hope that the Oregon experience may serve as a model for efforts elsewhere."

damage to the original site," she says.

In an essay in *Audubon* magazine last spring, Peter Steinhart delivered a short but elegant verdict: "Mitigation isn't." Indeed, even with the concept firmly entrenched in several federal laws, the United States is losing wildlife habitat at an alarming rate—close to half a million




One question underlies all of the disputed mitigation schemes and attempted reforms: Is it really mitigation to "save" one parcel of land in order to get permission to destroy another? Vivian Newman, chair of the Sierra Club's National Coastal Committee, is vehement about the subject. "Buying substitute habitat only leads to a net loss and does nothing at all to lessen the

acres per year of wetlands alone.

Parker of the Sierra Club Legal Defense Fund agrees with Steinhart. "We've talked of unmitigated disasters for years," he says. "That suggests there's such a thing as 'mitigated' disasters. Maybe we're learning, finally, that there is not." ■

TOM TURNER is staff writer for the Sierra Club Legal Defense Fund.





HIGH ANXIETY

In the beginning it was a pencil exercise, aimed at solving what looked like a minor scientific mystery.

It was 1974, and the question that University of California chemists F. Sherwood Rowland and Mario Molina were trying to answer involved a class of industrial chemicals known as chlorofluorocarbons (CFCs). These inert gases had been around for more than four decades and had come to play an increasingly important role in refrigeration, aerosol propellants, and plastic foam. Because of their unusual stability and low toxicity, CFCs were regarded, in fact, as near-miracle chemicals.

Intrigued by reports that traces of the compounds were turning up far from the world's industrial centers, Rowland and Molina decided to track them further. If CFCs were stable enough to travel thousands of miles without breaking apart, then where would they eventually end up? "We thought, well, these compounds can't possibly last forever, so what's going to happen to them?" Rowland says.

Rowland and Molina weren't prepared for the troubling hypothesis that came to light beneath their pencils. In a series of calculations drawn from the known characters of

Ozone.

At 70,000 feet it moderates the planet's climate

and shields us from the sun's harmful rays.

But a hole in this protective layer is bringing a stratospheric crisis down to Earth.

CASS PETERSON

Illustrations by Nicholas Wilton

chemical reactions, molecular stability, and atmospheric composition, Rowland and Molina determined that the "miracle" compounds were unleashing a demon high above Earth.

Chlorofluorocarbons, they concluded, would never break down on the surface of the planet. They would rise slowly, over a period of 50 to 100 years, into the stratosphere some 10 to 30 miles above the ground. There, intense ultraviolet radiation would finally sever the compounds' tight chemical bonds, releasing highly reactive chlorine atoms. Once liberated, the chlorine would react swiftly and repeatedly with stratospheric ozone—and destroy it.

The implications were terrifying. Stratospheric ozone is Earth's guardian, a natural envelope that absorbs ultraviolet rays and protects the planet from the sun's most damaging radiation—radiation that can cause skin cancer and cataracts and weaken the body's ability to fight disease. If their theory was accurate, in other words, Earth and all its inhabitants were facing a crisis of unprecedented proportions.

Stunned, the scientists checked and rechecked their work. The conclusion did not vary. "We went over and over it, and couldn't find anything wrong," says Rowland. "The feeling was as if the bottom had dropped out. It was like looking into the abyss."

Last autumn, 13 years after Rowland and Molina first sounded the alarm, the world took the first tentative step away from the abyss. At an extraordinary convention in Montreal, most of the world's industrialized nations endorsed an agreement that would freeze the world's consumption of CFCs at 1986 levels and then steadily cut it back. Imperfect as it was, the agreement was historic. It was the first international effort to control an air pollutant, a tacit acknowledgment that no nation by itself can protect the global resources upon which all nations rely. It was the first time that an international agreement had been reached without evidence of ground-level environmental damage. "There weren't any dead bodies," as one negotiator put it.

More to the point, however, the agreement demonstrated an astonishing consensus that the human race had over-

stepped the limits of technology and was flirting with disaster. By the time the diplomats sat down in Montreal, the case was so strong that a last-ditch attempt by the Reagan administration to weaken it failed.

By all accounts, the galvanizing event was the discovery two years ago of a gaping "hole" in the ozone layer over Antarctica. Each winter, ozone concentrations over the icy continent were plummeting by 40 percent or more, a level of destruction even Rowland and Molina had not foreseen. "The Antarctic findings electrified the debate," says Daniel Albritton, chief of the National Oceanic and Atmospheric Administration (NOAA) aeronomy laboratory in Boulder, Colorado. "The scientific community knew then that it had an ozone problem that required immediate attention."

The drama of the ozone hole goes a long way toward explaining why the problem moved so rapidly from scientific theory to political action. "I am reminded," Rowland says wryly, "that the English discovered the hazards of smoke pollution in 1300 and banned it after the killer smog of 1952." The appearance of the ozone hole, he says, made it clear that the world did not have 600 years to address the problem—if indeed it had any time left at all.

THE DISCOVERY that provoked Rowland and Molina had its origin in the late 1960s on a farm in Ireland, where a British chemist named James Lovelock had set up a device of his own invention, an electron capture detector. True to its name, this instrument was capable of detecting an absence of electrons after they had been "captured" by chlorinated molecules. When Lovelock found that his invention could detect CFCs, he realized that he could use the chemicals as inert tracers of air motions.

Chlorofluorocarbons were gaseous, and thus easily transported in the atmosphere. They were chemically stable, suggesting that they could be detected far from their initial release point. Best of all, they were undeniably man-made, easily distinguishable from the "noise" of naturally occurring compounds.

A group of chemists at General

Motors Corporation had developed the first chlorofluorocarbon prototype in 1928. It was an inert, nontoxic gas first used as a coolant in refrigerators, replacing treacherous ammonia. Over the years, chemists developed more of the compounds. Refrigeration remained the primary use of the CFCs, but they also proved ideal for aerosol propellants because they were nonflammable and wouldn't react with the contents of a spray can. Before long, CFCs were being used to "puff" plastic foam products (because they produce uniform bubbles) and as cleaning solvents for electronic products. By the 1960s, international CFC production was approaching a billion pounds per year.

In its tranquil country setting, Lovelock's device found peaks of CFC-11, one of the most widely used compounds, in the air emanating from London. By measuring the concentration of CFC-11 in the air at various points downwind, Lovelock reasoned, scientists might better understand atmospheric behavior.

Then one of Lovelock's devices was installed on a British ship bound for the Southern Hemisphere. To Lovelock's surprise he found traces of CFC-11 there, far from any release point of consequence. It appeared that CFC-11, once released into the atmosphere, never washed out. It seemed simply to spread and spread, mingling with other molecules in the air until it coated the globe.

Rowland heard of Lovelock's findings in 1972, while attending a scientific meeting in Florida. He and Molina decided to pursue the issue a year later. "It was just intellectual curiosity," says Rowland. "We wanted to see if we knew enough to determine what would happen in the atmosphere."

It did not take them long to realize the CFCs would cause a chain reaction.

OZONE IS constantly created in the stratosphere by intense ultraviolet radiation. In a naturally occurring process, the radiation splits up ordinary oxygen molecules (O_2), and some of the free atoms join with other oxygen molecules to form ozone (O_3). While two-atom oxygen molecules do not effectively absorb longer-wavelength ultraviolet radiation,

HELTER SWELTER: EARTH'S CLIMATE GOES AWRY

Like the phenomenon of ozone depletion, the greenhouse effect had its prophet. At the turn of the century a Swedish chemist named Svante Arrhenius warned that mankind was engaging in disastrous tinkering with the atmosphere by burning vast volumes of coal. Arrhenius theorized that carbon dioxide released into the air would trap the sun's heat, eventually increasing global temperatures by as much as the increase that marked the end of the last ice age.

Nearly a century later, many scientists believe that the warming trend Arrhenius warned of is already showing up. Most of the rest believe that it's merely a matter of time until it does. Since 1900 the concentration of carbon dioxide (CO₂) in the air has increased by more than 20 percent, and the mean global temperature has risen one degree Fahrenheit. If current rates of fossil-fuel burning continue, the CO₂ concentration will double by the middle of the next century—enough to raise global temperatures by an average of 9 degrees.

It may not sound like much; to residents of colder climates it may even sound pleasant. But along with the overall warming would come some decidedly unpleasant side effects. Rainfall patterns would likely change, drying up cropland and rivers in some areas, flooding others. "We can't predict where the precipitation will increase and where it will decrease," says James E. Hansen, head of the National Aeronautics and Space Administration's Goddard Institute for Space Studies in New York. Some computer models have suggested that America's Midwest would become a dust bowl. Oceans would become warmer, expand, and rise, inundating coastal areas. If the increased heat were enough to melt polar caps, the rise would be even steeper—by some estimates, enough to drive much of the Atlantic and Gulf shorelines inward a thousand feet or more.

And it would get hotter. Lots hotter. According to a NASA analysis, the number of days with temperatures warmer than 90 degrees in Washington, D.C., could increase from the current 35.5 to 87 per year.

The greenhouse effect is a natural process, albeit one that mankind has strongly influenced. It works like this: Visible light passes through the atmosphere to Earth's surface and warms it. The planet, and objects on it, emit the sun's energy back as infrared rays. Some of those rays escape back into



space, but some are trapped by carbon dioxide and other gases in the lower atmosphere. So far, so good: If the warming rays were not trapped, Earth would be bitterly cold.

But human processes have significantly increased the concentration of gases that absorb infrared radiation. Since the beginning of the Industrial Revolution, fossil-fuel burning has put about 185 billion tons of CO₂ into the air. More recently, destruction of tropical rainforests has contributed to the greenhouse effect. Left growing, the forests remove CO₂ from the air through the process of photosynthesis. Cut down and burned or left to rot,

the vegetation releases carbon dioxide instead.

And that's only half the problem. Recent studies conclude that trace gases, including chlorofluorocarbons (CFCs), methane, and nitrous oxide, are responsible for as much global warming as is carbon dioxide. While not as plentiful as CO₂, many of these compounds are efficient absorbers of infrared radiation. Cutting back CFC emissions could help slow the greenhouse effect, and in fact already has. "Had it not been for a leveling off of CFCs in the 1970s, CFCs alone would be having an impact similar to CO₂ now," says Hansen.

But controlling the other emissions is clearly an enormous problem. Reducing the burning of fossil fuels, for example, would require massive changes in the world's energy supply—not impossible, but economically and politically formidable. Some scientists believe that the most feasible option now is to augment Earth's natural capacity to absorb excess CO₂. Protecting and replanting forests is one obvious step.

Last summer's heat notwithstanding, scientists themselves won't be certain of the greenhouse effect until the 1990s, when gradually rising temperatures are expected to break free of the normal fluctuations that they refer to as "statistical noise." But most have little doubt that it is coming. "A lot of the greenhouse effect from the gases we've added has not yet occurred because of the delayed response time," Hansen says.

Indeed, much of the last century's accumulated heat has been absorbed by the oceans, which will release it over the next 30 to 50 years. "Even if we stop adding greenhouse gases now," says Hansen, "it is possible that another one degree Fahrenheit is already in the system."—C. P.

ozone does, thus preventing harmful rays from reaching Earth's surface.

At the same time, ozone molecules are constantly destroyed by gaseous compounds that reach the stratosphere and are broken apart by ultraviolet light. Some of these are natural, such as methane, a gas formed by decomposing matter. Throughout most of the planet's history, this system has operated in rough equilibrium.

Chlorine, however, has thrown the cycle out of balance. Freed from its atomic bonds, chlorine readily attacks ozone molecules, binding with one of the oxygen atoms to form chlorine monoxide (ClO) and O₂. But the molecules don't stay in that configuration. As soon as another oxygen atom breaks up the ClO, the oxygen atoms pair and free the chlorine. The chlorine atom charges another ozone molecule. According to Rowland, every free chlorine atom removes 100,000 ozone molecules before it drops out of the reaction chain.

"It's like a bucket with water coming in from a tap and the same amount of water going out through a hole in the bottom," says NOAA's Albritton. "What we've done is drill new holes."

Despite its implications, Rowland and Molina's theory initially attracted scant notice. When they published their work in the British scientific journal *Nature*, says Rowland, "it landed with a dull thud." But that autumn, September 1974, the story hit the headlines and remained in the public eye until early 1977, when the United States announced its intention to ban CFCs as aerosol propellants beginning in 1978.

Despite this, depletion of the ozone layer remained the Chicken Little of environmental issues. For one thing, the theory was too esoteric to build a base of public concern. "People were used to visual images," Rowland says. "This lake is poisoned. These trees are dead." With the ozone theory, he observes, "You had to say to yourself, 'Do I really believe this?'"

Then, too, the issue was politically knotty. Chlorofluorocarbons were, after all, valuable chemicals with demonstrable public benefits. Few members of Congress were willing to tackle the increasingly powerful CFC industry on the basis of a scientific theory, and even

fewer had any idea what they would propose as an answer. Ban refrigerators? Give up air-conditioning?

"If you don't see a solution to a problem, it's a lot easier to ignore it," says Curtis Moore, a staff member of the Senate Environment and Public Works Committee. Moore recalls senators wondering "how to hold a hearing on the subject without being perceived as hysterical."

TWO THINGS changed that political climate in 1985. The first was a rapidly approaching deadline for the EPA to decide whether additional controls on CFCs were necessary. Available evidence pointed toward tighter regulations. After a brief decline following the aerosol ban, CFC production was growing again. At current growth rates, EPA analysts estimated, CFCs would destroy enough ozone to cause an additional million skin cancers and 20,000 deaths over the lifetime of the existing U.S. population. Other scientists estimated that as little as a 1-percent increase in ultraviolet radiation could raise the number of deaths from melanoma, a particularly virulent form of skin cancer, by 5 percent. Still other studies indicated that increased ultraviolet radiation would exacerbate smog, adversely affect aquatic organisms, and possibly influence the climate.

Only a few nations had taken a cue from the United States and banned CFCs in aerosols, however, and the EPA was not eager to impose more unilateral restrictions on the domestic industry.

The better alternative appeared to be support for an international agreement on CFCs. The framework for such an accord had already been established by a 1985 international protocol signed in Vienna. "Industry supported an international agreement so it wouldn't have domestic rules," says Eileen Claussen, an international programs specialist at the EPA. "The most it thought it would get was a freeze on production."

But the plan was quickly overshadowed by the second, more dramatic event: the discovery of a massive "hole" in the ozone over Antarctica.

The first report came in 1985 from the British Antarctic Survey, which had been collecting ozone data at its Halley

Bay Station for decades. Each October, the team reported, ozone levels over the continent dropped by as much as 40 percent before slowly recovering in late November. The British had first noticed the puzzling seasonal drop in 1977. They did not report the anomaly earlier in part because they knew the United States had an observation satellite monitoring global ozone levels. Surely, if the annual depression were real, the more sophisticated satellite equipment would have picked it up.

As it turns out, the satellite, sponsored by the National Aeronautics and Space Administration, had indeed recorded the ozone drops. By one report, the data was initially read by a computer programmed to reject such large fluctuations as "improbable." By another account, NASA scientists *did* look at the raw data but disregarded it because ground stations (such as that of the British) had *not* reported it.

To the scientific community, the Antarctic report was not only embarrassing late, it was shocking. None of the sophisticated computer models developed to predict atmospheric behavior had foreseen an ozone drop of that magnitude. "Impossible" is not a common term in the scientific lexicon, but the figures were, to say the least, highly unlikely. Worse, the satellite data showed in alarming detail that the "hole" was widening each year, gradually stretching across the ocean to the tip of South America.

A hastily assembled scientific expedition, sponsored by various federal agencies and the Chemical Manufacturers Association, trekked to Antarctica in August 1986 (midwinter in the Southern Hemisphere) to gather additional data. Its findings: The "hole" was real. It grew larger on schedule. And while natural causes couldn't be entirely ruled out, a chlorine-containing chemical catalyst—such as chlorofluorocarbons—was the most likely cause.

BY LATE 1986, the U.S. government had formulated its negotiating position for the upcoming discussions on ozone protection. Richard Benedick, who represented the State Department at the talks, said the position was hammered

out in standard fashion, through inter-agency meetings at which scientists were well represented. But the severity of the U.S. proposal came as a surprise to other nations and especially to the CFC industry. The United States would seek an immediate freeze on CFC production, followed by a 95-percent reduction to be phased in over a number of years.

"I think we really shocked people at the table," says the EPA's Claussen. "Everybody thought we were crazy. The U.S. industry people went around saying, 'Oh my god, they're all out of control.'"

In some ways, however, the industry had contributed to the hard-line position. Du Pont—which produced nearly one fourth of the world's estimated 2.4 billion pounds of CFCs per year in 1985 under its Freon trademark—had publicly ventured the guess that safer substitutes for CFCs could be developed within the next five years, given appropriate "economic incentives." What better incentive, the negotiators reasoned, than a near-total ban?

In desperation, the industry turned elsewhere in the Reagan administration for relief. One place they received a sympathetic reception was the Interior Department. The agency wasn't intimately involved in the CFC issue, but Secretary Donald Hodel was a member of the Cabinet Council on Natural Resources. Through him the industry hoped to win attention to its cause from the White House.

The plan backfired badly when it was disclosed that Hodel's position centered on the concept of self-protection. If ozone depletion results in increased skin cancer, the argument went, then potential victims should protect themselves with sun hats and skin lotions. The idea was greeted with hoots of derision. Mirthful environmentalists smeared themselves with zinc oxide at press conferences and invited reporters to imagine animals in sunglasses, dousing themselves with Coppertone.

Interior officials initially tried to explain away the proposal as one of many "alternatives to regulation," and Hodel later denied suggesting it at all. But Claussen says that EPA officials spent hours arguing against the Interior De-

partment's suggestion. "We actually did spend a great deal of time on the cost of sunblock and hats and whatnot," she says. After editorial cartoons started mocking the idea, she says, "We didn't discuss it anymore."

The agreement was signed in Montreal on September 16. It was not as strong as the United States had initially proposed, but U.S. officials involved in the negotiations said privately that it was as strong as they had dared hope. In

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addition to a freeze at 1986 levels beginning in 1990, the pact calls for a 50-percent annual reduction in CFC emissions by the end of the century. Many developing nations, in need of inexpensive refrigeration, are exempted for ten years, and the Soviet Union will be allowed to complete CFC production plants that are under construction.

While the CFC industry decries the cost of a freeze, environmentalists and some scientists do not feel that the agreement goes nearly far enough. "We have to go for a 95-percent cutback, and soon," says Rowland.

Such a reduction was part of federal legislation pending last fall, as was a prohibition of U.S. imports from other countries that did not institute similar bans. The Montreal pact took the steam

out of that legislation, and sponsors have stepped back to give the treaty a chance to be implemented. Blake Early, a Sierra Club lobbyist in Washington, D.C., notes that the European community was much more agreeable to the treaty's provisions in September than it had been to similar proposals last spring. "Why are they going along now? It could be because they were looking at tough U.S. legislation," he says. "Unless Congress is willing to prohibit imports, it's unlikely that we'll see more than 50-percent reductions."

IN THE MEANTIME, the ozone problem will continue to grow. Scientists returned to Antarctica a few weeks after the Montreal conference, equipped this time with high-flying research planes and more-sophisticated devices for sampling. The "hole" was deeper than ever—there had been a 55-percent depletion since 1979—and the data suggested even more strongly that CFCs were largely to blame. The researchers found sharply elevated levels of chlorine monoxide, not on a notepad in California this time, but in the ice clouds 13 miles above Antarctica. A combination of bitter cold, polar winds, and ice clouds apparently traps chlorine atoms over the continent and creates an ideal setting for their chain reactions with ozone. "The conditions in Antarctica are like hitting the fast-forward button on ozone depletion," says Albritton. "Few are saying that Antarctica is symptomatic of what will happen everywhere. The question is: Could it occur at one tenth that rate?"

The answer to that question is yet to emerge, but some things are certain: The stratosphere has not yet received the full load of CFCs produced in the last 50 years; millions of tons have yet to be released. Chlorofluorocarbons will come from the air-conditioning system in the junked automobile, from the refrigerator smashed in the landfill, from the crushed foam cup, the discarded furniture, the ripped-out foam insulation. Meanwhile, ultraviolet light will hit CFCs, chlorine will hit ozone, and we will be increasingly trapped in this fatal reaction. ■

CASS PETERSON is a staff writer for the Washington Post.

Old Patterns New Places



Just the right mixture of comradeship and solitude brings this hiker back to Sierra Club outings year after year.

◆ LIKE A SACK FULL OF belated Christmas presents, *Sierra's* Outings issue arrives to warm an otherwise icy January. Thumbing through its pages, I spot trip after trip I'd like to join. Some are described with tantalizing titles: "North of the Arctic Circle," "Cloud Peak Wilderness," "Kenya Wildlife Walking Safari," "Indian Heaven Wilderness Llama Trek," "Boundary Waters Voyageur Canoe." Others involve old friends: Bob Hartman is leading a trek to Baja again, Serge Puchert is going to the Tahoe Basin, and there'll be another week in Fish Creek Canyon the latter part of May.

My pleasure comes partly from speculation, as I conjure up wild adventures

in Alaska's Brooks Range, or fancy meeting an African elephant face to face, or dream about Sierra basins I've never seen. My pleasure comes partly from memory, too. No two outings are ever alike, of course, and no two trip descriptions sound the same, but often my wilderness imagination anticipates what elements will recur. Reading my new Outings issue, I remember the patterns with special fondness.

Illustrations by Randall Enos

◆ THE FIRST DAY OF any Sierra Club trip—like the first day of any backpacking excursion—involves measurement. I calculate the heft of my pack, wondering if I can lift the thing by myself, worrying if I can walk without toppling over. For some of the participants this doesn't pose too much of a problem; for anyone under five feet five who intends to stay out of civilization for more than a week, it's a real concern. Should I leave my flannel shirt or my eight ounces of bourbon in the car? Can I afford to tuck in that extra T-shirt? I measure perspiration against comfort, and find the equation impossible.

I measure my fellow hikers, too. I've

been on enough outings to know that I always end up hiking somewhere in the middle of the pack. Too slow to keep up with the front of the line, I'm never as out of condition as the people at the back. Nonetheless, I always eye the group on that first day, wondering just where I'll fit in. Can I keep up with the two teachers from Seattle? Will the geologist and his overweight wife be too slow? A little shy, I stand to one side and watch the maneuverings for position.

I also watch the leader. Once upon a time I supposed that he or she would be invincible, would have scouted every inch of trail, would volunteer encouragement at every stream crossing, would be a gourmet chef, and would, if necessary, spirit rain clouds from the skies. By the third day of my first outing I knew the truth. A half-dozen trips back and forth over the same bristle of shin-tangle and downed logs, and several urgent scans of the topo map, taught me that leaders are just as fallible as their followers. That particular adventure also taught me two other important axioms: Never blindly follow a leader who's wearing long pants, for he or she inevitably will walk through rather than around bushes; and never, when going cross-country, hike near the front of the line. From British Columbia to Baja California these crucial principles have saved my legs (not to mention my temper) from countless lacerations.

Memory plays wonderful tricks, though. Scratches heal and bodies recover. In British Columbia the first day began with an icy river crossing, followed by a dozen miles of moderate exhaustion. In both California's Sierra and Utah's Uintas, gathering thunderheads soon turned to torrents that sped us to hasty camps. Once in Arizona we couldn't stop until we found water, while in Colorado—where snow covered the basin that was our goal—we had too much water. But these are not the things I think about most while thumbing through my new Outings issue. Instead, I recall

the small herd of bighorn sheep peering over an Idaho cliff at sunset, the single yellow flower beside a desert pool, the artist from Oregon with her keen eye for photography, my favorite chocolate cheesecake, a soft night's sleep.

♦ IF DAY ONE IS A TIME FOR measurement, Day Two is a time for arthritic adjustment. Unexpected blisters rub against unforgiving boots, while painful hip bones grind beneath a so-called padded belt.

Second days last a long time. The scenery improves, to be sure, but it improves slowly, often at increasingly high elevations, as city dwellers stretch atrophied muscles and apply large quantities of sunblock. Several excruciating second days loom large in my memory and recede. Perhaps recession is best.

♦ ALL SIERRA CLUB OUTINGS, no matter how leisurely or how strenuous, inexplicably contain one day that had best be forgotten. That day is also the day—not so inexplicably—that no one ever forgets, the day that inspires trip members to heroic physical accomplishment and later provides fodder for countless campfire tales.

I can recall at least two sidehill shuffles designed to save elevation loss and gain that resulted instead in daylong stumbles

through brush and bog. A more astonishing day, however, started simply enough on an ostensible trail. We meant to drop off a high-desert escarpment and camp a mile or two from our parked cars. That way we could reach and traverse the remaining miles of dirt road, potholes, and under-repair interstate early the next morning, well in time for five of us to catch an evening plane.

In memory I see 16 unwary backpackers descending through the desert life zones, stopping to admire assorted cactus, a spring guarded by a substantial snake patrol, three moth-eaten cows, and some decidedly spectacular red rock. Expecting to intersect an abandoned road by early afternoon, we dropped lower and lower off the escarpment. At 3:30 we found not a road but a river, one that ran some six or seven miles and some 3,000 feet below the spot where we'd left our vehicles. I don't believe anyone actually cried, although several trip members did turn their backs temporarily.

After waiting more than an hour for the hundred-degree heat to subside, we set off in pursuit of the shortest distance between two points. Due north through a maze of fallen rock, dried cactus, sand, exhaustion, and expletives deleted, we followed a dry wash upward. Sometimes the route required us to hoist our packs by hand; sometimes the way was blocked by sticky, shoulder-high bushes. Once we even crossed the river again. One woman fell in.

We camped that night in a dry watercourse, the only spot flat enough to hold the group. Wedged hip to hip on a tiny square of sand, the 16 of us whispered voodoo imprecations to keep inquisitive rattlers and flash floods away. There wasn't enough room for our tents, but we did manage to serve dinner before complete darkness descended upon us.

I wish I could report that the cars were just over the hill. To the contrary, they were still several circuitous miles away. When we found them the next day, it was nearly



noon. When we finally reached civilization, after we'd jury-rigged the jeep that wouldn't start, it was nearly midnight. Yet it was one of my favorite trips, as I recall.

That denouement was unique in my experience, because final days usually get lost in the haste of trip members racing for home. Sometimes, though, the group becomes so closely knit that the participants hate to separate. Once we all ended up in Mexican Hat, Utah, at the local café. Starved for food that didn't come out of premeasured packages, we ordered our favorite treats. "Two double cheeseburgers and a plate full of french fries," called out a desiccated man from Denver. "And don't hold the grease!"

♦ **COMMISSARY PRESENTS AN** interesting challenge to those who plan a trip's food. First, it's an absolute fact that dehydrated food will resemble neither Chicken McKentucky nor Chez Bon Appetit—and even if the meals did taste like one or the other, half the group would be disappointed. Next, while a percentage of trip members are sure to complain about the weight of the food being packed along, another percentage—generally male and under the age of 25—will always believe that starvation is imminent.

Resourcefulness makes commissary tolerable. One leader carried a pint of wine for each night of his trip. Unfortunately, he cooked each night's ration with dinner. I thought drinking the alcohol would have improved the meals more dramatically, and daily contemplated hijacking his supply.

Better yet are the trips planned to include trout. While I am not a fisherperson, I most definitely am a fish-eater-person. One trip in the Uintas found trout on the menu at every campsite. After early dinner, the anglers went to work. Then, from dusk until midnight, appetites took over, and we gorged on trout so big and juicy they could be laid di-

rectly on the coals. No cleanup was necessary. When we were ready to stop, we just threw the bones back on the fire and added a couple of logs. Interestingly enough, no one tired of the food on that trip. The Uintas did, however, ruin my appetite for subsequent store-bought fish. Now I'm convinced that if it wasn't swimming 20 minutes ago, it isn't fresh.

I'm also convinced that good food is an essential ingredient of any good trip. Perhaps that's because careful planning affects every aspect of a wilderness outing. So I stand around surreptitiously whenever edibles and cook pots are distributed, peering into packets and trying to guess menus in advance. A couple of years ago we carried eight pots; within a few days my worst suspicions had been confirmed. On the trip before that, commissary was so well designed that even the noncooks could prepare tasty meals. Of course the ham-and-cheese-glue on rice wasn't perfect, but nine out of ten pseudogourmet nights wasn't a bad average.

♦ **LEADERS OFTEN CONCOCT** exotic menus for layover days. This means a few trip members actually need to lay over, to sit around camp scrubbing bits of darkened pancake and watching Jell-O chill. Fortunately, two or three people on every trip—laun-

dryphiles, generally speaking—happily choose to spend a leisurely day in camp. The rest of us take the opportunity to spend a lightly burdened day somewhere else.

If I were a peakbagger, I could relate a mountain climbing anecdote now, a thrilling narrative of danger, excitement, and breathtaking accomplishment. But I'm not, even though several of my most memorable trips were taken with hikers of that ilk. Instead, I'm a peak watcher, preferably from a mountain meadow.

One of my favorite leaders designed a Colorado outing, eight or nine years ago, so he could climb three 14,000-foot peaks. On hiking days we moved through high terrain punctuated by countless flowers, occasional sheep, more marmots than one could imagine, and several abandoned mine shafts. On layover days we paused at carefully pre-selected sites where assaults could best be launched. The peakbaggers were in seventh heaven—except when lightning chased them off one summit after a ten-second victory celebration.

Every layover morning I rose at dawn, packed my lunch, and set out with the heroes. Sometime in mid-morning I found a flowered niche and excused myself from the foray. While the marmots and climbers cavorted, I read my book, or dozed, or just stared into space. Once, in an area not eight feet square, I found five different paintbrushes ranging in color from bright orange-red to an almost dull gray-green-white. Another time I just counted butterflies.

I suppose this could be called a mild form of laying over, but for me it's an engaging activity. Some of my best solitary mountain thinking has been done on a windy overlook in Wyoming, in an inscrutable Utah canyon, alongside the last pitch up the Sierra's version of the Matterhorn. Maybe this part of the outings pattern—the solitude and comradeship combined—is what draws me back year after year.



◆ EVERY OUTING I'VE been on has been filled with likable people who are both physically and intellectually energetic. On my last trip an opera singer, after regaling our cook crew with Gilbert and Sullivan sketches, floated baritone arias across the lake at sunset. A day later I argued about transcendentalism for two hours with a Methodist minister from Pennsylvania. Equally interesting was the conversation with the chemist who had finished a trip in Oregon's Eagle Caps the week before. "Rather exciting glissades," she reported dryly.

Participants come from all states—although the Sierra tends to attract more Californians—and from all ages and stages. Many are repeaters who, like me, appreciate sharing their experiences at least in part with other people. Besides, it's fun to get acquainted.

One arduous Canadian trip kept us 60-some miles from anywhere, so for safety's sake a doctor accompanied us. But since it was the doctor's vacation, too, anonymity was maintained; we could take care of our own blisters until a real medical emergency arose. Curiosity drove me to uncover the physician's identity. After three or four days of casual conversation, I was stumped; three or four more days of intense gregariousness, and I had the answer. She was the lawyer's wife.

◆ SOMETIMES I WISH THAT A meteorologist would be standard equipment, too, although no one can predict wilderness weather successfully. Even a trip name like "The Wind River Range" may not adequately forecast the days ahead.

That outing started benignly, with two warmish hiking days and a pleasant layover under partial clouds. The wind blew somewhat aggressively, but not uncomfortably.

On the fourth day we wandered across a high, rock-strewn meadow that reminded me of Norway. Conscious that the wind was gaining energy, that



the temperature was fluctuating, and that the sky was darkish-green, we stopped for lunch before heading cross-country over a pass to a secluded alpine lake. As we finished eating, the sky exploded. Nearly simultaneous thunder, lightning, and hail sent us scurrying to put up our tents and crawl inside. There we spent the afternoon, listening to the elements and periodically crawling outside to put up our battered tents again.

Sometime around four in the afternoon, snow replaced the hail and rain. At five, as we shoveled a drift to make room for dinner preparations, the owner of an outdoor thermometer shyly announced, "It's 23 degrees Fahrenheit inside my tent." Two feet of August snow fell on us before the temperature rose above freezing. I spent the remainder of the trip clad in all the clothes in my possession, thinking there must be a better way to lighten one's pack.

Like most adventures, this one turned out well. Not only were the photographs astounding, but the tale gets better each time it's told. When we returned to civilization we learned that, while we cowered in our tents in Wyoming that day, the rest of the nation watched Richard Nixon resign the presidency of the United States.

◆ A NUMBER OF SUCH coincidental vagaries color my outings memories. Vice-President Agnew and vice-presidential hopeful Eagleton each bowed out while I was in the middle of nowhere, and as I walked a little northeast of Washington's Mt. Olympus, man first walked on the moon. Most trips, though, remind me more of happiness than of headlines. Just as an Outings issue frees me from winter for an hour or two, so a Sierra Club backpack or highlight trip saves me from the press of every day. I'm sure if I selected one of the options other than hiking—burros, skiing, a service trip, or whatever—I'd find as much to savor. I see them all through prisms. Two feet of

Wyoming snow melt next to the thrill of standing astride the mighty Green River's headwaters, and 15-mile days lose their terror after a layover spent surrounded by huckleberries.

◆ CARRYING A GALLON OF water apiece, we scrambled up a semi-abandoned Indian trail near Mummy Cave to make a dry camp on the rim of Arizona's Canyon del Muerto. Crackling thunder compelled the leader to chase us from the shelter of a rock overhang and the assistant leader to herd us back from the edge. The next day was just as heady, with lightning threatening whatever stood on the plateau.

What I recall, though, is the fry bread and watermelon we ate at a Navajo hogan, and the view down into Canyon de Chelly at sunset, with shadows projecting black monsters against salmon-pink castles. I think about white pictographs, hand high, and a three-story ruin perched too precipitously for me to reach. Finally, I recall sitting at the base of Spider Rock, listening to our Indian guide tell legends of the ancient ones.

Perhaps that's what's best about Sierra Club outings—sitting down and telling tall tales of the ancient ones. ■

ANN RONALD, a professor of English at the University of Nevada-Reno, edited *Words for the Wild* (Sierra Club Books, 1987).

“Rabik was six months younger than our daughter, and we felt an instant bond with him; his first Christmas card sits next to his picture on our mantel...”

The Kloss Family
Windber, Pennsylvania



Throughout the year, Save the Children receives heartwarming messages like this from sponsors across America. Caring people, like the Kloss family, who share their love with children in need...and experience extraordinary rewards in return.

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SIERRA CLUB

1988



OUTINGS

CHAIRMAN'S MESSAGE

Perennial readers of our outing catalog will notice changes. While our basic format remains the same, we are substituting a geographic trip index for the trip schedule. Our individual trip descriptions are as informative as ever, and we have included more photos. We hope you will find the catalog an attractive and useful publication so you can easily find the vacation that's suitable for you, your family, and your friends.

Look for information about this year's Outing Program in each issue of *Sierra*. We will keep you up to date on the domestic and foreign trips our volunteer leaders have planned for Club members.

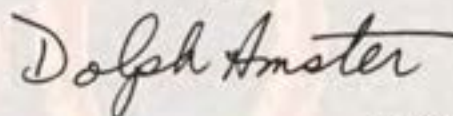
While the backbone of our program is still trips to domestic wilderness areas, our foreign trips are designed for Club members who want to visit exotic places in the company of like-minded conservationists. This year the foreign trip schedule includes a spring outing to that most cosmopolitan of cities, Paris. Meeting with French conservationists, trip members will explore the city's inner workings as well as the relationship it has to its region—not, of course, without taking the opportunity to observe Parisian life from the famed sidewalk cafes!

We've increased the number of our leisure trips this year, and one of them will take place in that marvelous meeting of land and sea, the Golden Gate National Recreation Area. From a

camp at a secluded beach cove within sight of lovely San Francisco, trip participants will venture out each day to hike redwood forests, mountains, and seashores.

As our program changes, we make an effort to preserve those qualities that make our trips special. Members enticed with opportunities to join opulent expeditions and treks will, we hope, welcome the relative simplicity of our offerings. On most of our trips, participants assist in setting up camp and cooking meals. Some of our backpack trips incorporate reconnaissance rather than following a rehearsed itinerary. Emphasis is always on minimizing environmental impact. We ask trip participants to bring just enough clothing and equipment to be safe and comfortable—but to be sure to bring along their sense of humor, too! And trip participants seem to take pleasure in having a respite from all those amenities they couldn't do without back home.

As you browse through this year's catalog, we hope you will find a trip that's just right for you, and that you'll enjoy the challenges and rewards of being in a wilderness environment in the company of those who also cherish the Earth's wild and scenic places.



Dolph Amster
Outing Committee Chairman

OUTINGS

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IMPORTANT

Please Read Carefully

■ The Outing Department will begin processing reservations for summer and fall trips on January 4, 1988. Applications received before then will be processed beginning January 4. Supplements will also be available on that date.

■ To order supplemental information on specific trips, please see page 109.

■ Make sure you read the Reservation and Cancellation Policy carefully before applying.

■ Many trips can accommodate special dietary needs (e.g., vegetarianism, allergies), while others cannot. Check individual trip supplements or contact trip leaders about your particular situation.

■ Make sure to include your membership number on your trip application. It can be found on your membership card or on the mailing label of your copy of *Sierra*.

PHOTOS WANTED

The Outing Department thanks our photographers and requests that black-and-white prints and color slides for outing publications be sent to Steve Griffiths, Sierra Club, 730 Polk St., San Francisco, CA 94109. The deadline for the 1989 outing catalog is October 1, 1988.

This catalog is dedicated to the memory of Ellen Kent Howard. As a backpack leader, she introduced countless hikers to the California wilderness. We will miss her delightful and cheery presence.

Cover: Sentinel Dome, Yosemite National Park, Sierra by Gordon Wiltzie. This page: Yellowstone National Park, Wyoming by Earl Belofsky.

THE MORLEY FUND

Created in 1951 by the bequest of Mrs. F. H. Morley, the Morley Fund has money available to help defray the trip costs of teachers and other educators who could not otherwise afford to go on trips. If you think you might qualify, inquire by writing to the Outing Department, Sierra Club, 730 Polk St., San Francisco, CA 94109 for an application.

OUTINGS

INNER CITY OUTINGS

Inner City Outings (ICO) is the Sierra Club's community outreach program. ICO volunteer leaders work in cooperation with community agencies and schools to provide recreational and educational wilderness experiences for those who would not otherwise have the opportunity. Outing participants include urban youth, hearing and visually impaired persons, the disabled, and senior citizens.

Inner City Outings offers these special groups a chance to meet the physical and mental challenges of traveling in the wilderness; to develop cooperative and leadership skills; to establish friendships with people of different ages, cultures, and ethnic backgrounds; to learn about the geological, botanical, zoological, and historical aspects of a particular area; and to have a lot of fun in the process.

All ICO leaders are trained in outdoor and safety skills. Outings include day hiking, backpacking, whitewater rafting, cross-country skiing, and snow camping.



In 1987, our volunteer leaders provided 250 outings for 2,500 participants. Currently there are 25 ICO groups, each affiliated with a Sierra Club chapter or regional group:

Austin, TX	Miami, FL
Boston, MA	New Orleans, LA
Charlotte, NC	New York, NY
Chicago, IL	Philadelphia, PA
Cincinnati, OH	Phoenix, AZ*
Dallas, TX*	Raleigh, NC
Denver, CO	Sacramento, CA
Detroit, MI	San Francisco, CA
El Paso, TX	San Jose, CA
Houston, TX*	Santa Cruz, CA
Laramie, WY	Seattle, WA
Los Angeles, CA	Washington, DC
Louisville, KY*	*Established in 1987

Each ICO group is supported primarily by donations of money and/or equipment. All contributions to the program are tax deductible. Checks should be made out to **Inner City Outings/Sierra Club Foundation**. If you would like your donation to be earmarked exclusively for use by a particular ICO group, please indicate this on your check.

Donations and requests for information about becoming an ICO leader or forming an ICO group should be sent to:

ICO Subcommittee
Sierra Club
730 Polk St.
San Francisco, CA 94109

The subcommittee is grateful to individuals who contributed to Inner City Outings in 1987, particularly those who made donations in memory of Porter Baker and Tom Pillsbury. The subcommittee would also like to thank the following clubs, corporations, and foundations for their support:

Bothin Foundation
California Alpine Club
Chemical Bank
Mary A. Crocker Trust
D & L Appliance Parts Company, Inc.
First Interstate Bank of California
Foundation
Greater Cincinnati Foundation
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Corporation
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Shaklee Corporation
L. J. Skaggs and Mary C. Skaggs
Foundation
Wodecroft Foundation

ALASKA

One fifth the size of all the lower 48 states put together, Alaska has a population less than that of San Francisco, with nearly half living in and around Anchorage. Of the 365 million acres of land stretching from the Arctic Ocean to the glaciated bays and rainforests of southeastern Alaska, most are essentially uninhabited.

The Alaskan wilderness is almost beyond comprehension. The permafrost of the arctic slope, the grandeur of the Brooks Range, the Taiga (winter territory of the caribou), the immense river drainage systems of the Yukon, Porcupine, and literally thousands of other rivers and streams—all are a part of this magnificent land that culminates, in a sense, at Mt. McKinley, the highest point on the North American continent.

Sierra Club trips offer a wide range of possibilities for studying a fascinating diversity of wildlife and flora that mirrors the country itself—an opportunity to encounter wilderness of such magnitude and power that the experience is at once humbling and uplifting.

Conservation issues are a critical concern in Alaska. Beyond the pure wilderness experience, our trips provide a chance for active conservationists to study an area firsthand and to use that knowledge to help determine its future.

Nothing you have done before can quite prepare you for your first encounter with Alaska. Nothing you do afterward will let you forget it.

All Alaska trips require leader approval. Trip prices do not include travel to Alaska or charter air costs on most trips.

[88072] Brooks Range-Arctic Wildlife Refuge Backpack, Alaska—June 17–26. Leader, Wilbur Mills, 2318 Brick Rd., Ellensburg, WA 98926. Price: \$935, Dep: \$70. The 19-million-acre Arctic National Wildlife Refuge contains some of the most

spectacular tundra and mountain wilderness in North America. June is the best time to visit; insects are minimal, flowers are blooming, and wildlife is abundant. Our route covers a total of approximately 50 miles, through glacier-carved moun-

tains and beyond, to the North Slope, calving grounds of the great Porcupine caribou herd. It is almost certain we will see caribou with their newborn fawns, as well as an array of other wildlife, including Dall sheep, musk ox, grizzly bear, a host of nesting birds, and perhaps the tundra wolf. Hiking is moderate but requires frequent stream crossings. Trip members must be experienced backpackers. Charter air transportation is not included in the trip price.

[88073] One Park, Four Alaskas, Lake Clark Park and Preserve, Alaska—June 19–28. Leader, Dwight Taylor, 2 Marston Rd., Orinda, CA 94563. Price: \$795, Dep: \$70. Lake Clark National Park is blessed with snow-capped mountains, winding glaciers, turquoise lakes, boreal forests, rolling tundra, superb trout fishing, and vast herds of wildlife. Many feel that it epitomizes our last frontier. From Anchorage we embark on a charter flight to this remote wilderness 200 miles to the west for a moderate 40-mile backpack trip



BOB HARTMAN

'It was a long nine miles in and out, but worth every bit of energy expended.'

M.A.H., Ridgecrest, CA



BOB HARTMAN

Left: Aichilik, Alaska. **Above:** Gates of the Arctic National Park, Alaska. **Above right:** Noatak River, Alaska.



IAN WALTON

with several layover days. We will have ample opportunities for wildlife observation, fishing, and photography in the nearly 24-hour daylight. The trip price does not include charter airfare. Prior backpacking experience and leader approval are required.

[88074] Glacier Bay Sea Kayaking, Alaska—June 21–July 2. Leader, Ian Walton, 430 Hampstead Way, Santa Cruz, CA 95062. Price: \$995, Dep: \$70. Come with us to explore the islands, fjords, and tide-water glaciers of Glacier Bay National

Park. We'll paddle two-person sea kayaks through floating ice up to the face of some of the park's huge glaciers. We'll see killer whales and seals, and birds by the thousands. Layover days will allow hiking and exploration. Previous kayaking experience is not required, but you must be comfortable in a small boat in deep water.

SPECIAL

[88075] Arctic Mountains and Coastal Plain, Arctic Wildlife Refuge—July 2–16. Leaders, Bob Hartman and Sharon Wilkinson, 1988 Noble St., Lemon Grove, CA 92045. Price: \$1,000, Dep: \$70. North America's unique wilderness and wildlife resource, the Arctic National Wildlife Refuge, is threatened with development by the oil industry. This backpack trip will explore the remarkable mountain range and coastal plain that are under attack. We hike from the Neruokpuk Lakes, the largest freshwater lakes in the Alaskan Arctic, to the coastal plain, then return for a possible climb of Mt. Chamberlin, the second-highest in the Brooks Range, and a visit to the surrounding summits of the Romanzof Mountains in the Hulahula

River Valley. Charter air service is not included in the trip price.

[88076] Swan Lake and Kachemak Bay by Canoe and Kayak, Alaska—July 3–16. Leaders, Blaine LeCheminant and Pete Nelson, 1857 Via Barrett, San Lorenzo, CA 94580. Price: \$1,095, Dep: \$70. This trip presents a rare opportunity to explore two of the Kenai Peninsula's special features by canoe and kayak. Our journey begins in the spruce, birch, and aspen-covered hills of the Swan Lake Canoe Route. Streams and short portages connect a chain of lakes through this part of the picturesque Kenai Wildlife Refuge. From the canoe route we travel by van to Kachemak Bay. Claimed to be the finest wilderness in south-central Alaska, the bay displays a backdrop of precipitous peaks, hanging glaciers, fjords, forested slopes, and noisy bird and seal rookeries. Sea kayaks will give us access to this area strongly influenced by volcanic forces. Watercraft and van transportation are included in the trip price.

[88077] Valley of the 10,000 Smokes, Katmai Park, Alaska—July 3–16. Leader, Jerry Lobel, 2216 E. Sahara Dr., Phoenix, AZ 85028. Price: \$995, Dep: \$70. In 1912 Katmai was the site of one of the

OUTINGS

largest volcanic eruptions in history. Ample evidence of the great event remains, and there are still active fumaroles and potentially active volcanoes in this segment of the "Ring of Fire." Other major attractions include glacier-clad mountains and abundant wildlife, especially the Alaska grizzly and brown bear. We will begin at

CAROL DRENGER



Brooks Lodge, where we will enjoy many of the resources provided by the park; salmon fishing should be outstanding. We then backpack through this exciting wonderland for ten days, emphasizing photographic opportunities and local exploration. The terrain is gentle and distances will not be long, but Katmai's weather is both unpredictable and unforgiving. Flexibility and a sense of humor will be most helpful. This will be a leisurely to moderate trip.

[88078] Sea Kayaking, Prince William Sound, Alaska—July 5–16. Leaders, Carol and Howard Dienger, 3145 Bandera Dr., Palo Alto, CA 94304. Price: \$995, Dep: \$70. This summer, discover the excitement and solitude of sea kayaking in the deep-water fjords of Prince William Sound. Here, where glacial ice once flowed from the Sargent Icefield, are miles of narrow, sheltered waterways to explore. Forested islands, quiet coves, rocky beaches, spectacular glaciers, and ice-filled bays provide the setting for paddling, hiking, fishing, or just listening to and smelling the ocean. We will find sea otters with their young, spawning salmon, sea bird rookeries, and occasionally a pod of whales as we paddle through Dangerous Passage to Jackpot Bay, Icy Bay, Nassau Fjord, and Whale Bay. This trip is suited for beginner or veteran paddler, but you must be comfortable in a very small boat in deep water. Charter

transportation to and from the starting point is not included in the trip price.

SPECIAL

[88079] North Through the Sadelrochit Mountains, Arctic Wildlife Refuge, Alaska—July 17–30. Leader, Cal French, 1690 N. Second Ave., Upland, CA 91786. Price: \$995, Dep: \$70. Flowing between the glacier-covered peaks of the eastern Brooks Range, the Hulahula River (named for its twisting course) marks the first part of our route winding through river valleys and over low passes. Later we emerge onto the flowering arctic plain, summer home of North America's largest caribou herd. This is an adventurous trek into a true wilderness, with more than 80 miles of travel on foot. Two or three layover days will allow time for fishing, resting, or day hikes. Charter air fares are not included in the trip price.

[88080] Atlin Lake Backpack, British Columbia—July 18–29. Leader, Sigrid Miles, 1036 First Ave., Napa, CA 94558. Price: \$1,195, Dep: \$70. Atlin Lake lies on the northwestern edge of British Columbia. The scenery and remoteness of this wilderness make it attractive to backpackers. We will hike in relative ease with a local guide through boreal forests and meadows abundant with wildflowers and through alpine tundra. Moose, caribou, stone sheep, and bear are often seen. Backpacking is leisurely to moderate at elevations from 2,500 to 5,500 feet. We have some camps in primitive mountain huts, with food drops. Our trip starts at Torres Channel Camp and includes a visit to historic Atlin.

[88081] Wind River Paddle Raft, Arctic Wildlife Refuge, Alaska—July 25–August 5. Leader, Jon Kangas, 10141 Bon Vista Ct., San Jose, CA 95127. Price: \$1,295, Dep: \$70. Challenging, seldom-traveled, and scenic, the Wind River originates on the Arctic Divide, in the rugged heart of the Brooks Range entirely above the Arctic Circle, and flows 70 miles south through the Arctic National Wildlife Refuge before joining the Chandalar River. A floatplane will take us to the upper regions of the Wind River, an area of open tundra and glaciated mountains that invites hiking, relaxing, and savoring the solitude. The swiftly flowing river cas-

ades down to the broad forested floodplain at the confluence. On this designated Wild and Scenic river, you can look forward to an entirely different Alaskan flora, plus grasses and abundant berries. Wildlife viewing and fishing should be excellent. Overall the river is Class II; previous whitewater experience, while not required, is recommended.

[88082] Yukon River, Yukon Territory—July 26–August 12. Leader, Barbara B. Sharpe, 2921 Bedford Ave., Placerville, CA 95667. Price: \$1,095, Dep: \$70. The historic Yukon River between Whitehorse and Dawson is located in the northwest corner of Canada between British Columbia and Alaska. This flatwater river flows through a magnificent primitive wilderness with few signs of civilization. The seven-mile-per-hour current provides a leisurely paced trip, with canoe camps along the riverbanks. Sandbars often provide easy access. Lake Labarge, Hootalinqua, Ft. Selkirk, and Big Salmon offer a glimpse into the history of the Klondike gold discovery era. Time is planned for individual exploration of Dawson before the return transportation to Whitehorse. Canoeing experience is preferred. Canoes, paddles, and lifejackets are provided.

Below: Gates of the Arctic National Park, Alaska.



OUTINGS

CAROL DENGER



Right: Noatak River, Alaska. Below: Kenai Fjords, Alaska.



CAROL DENGER

[88083] Alaska Range, East of Denali, Alaska—July 28–August 10. *Leader, Harry Reeves, P.O. Box 1571, Quincy, CA 95971. Price: \$935, Dep: \$70.* Traveling over seldom-visited mountain tundra and glaciers in this region dominated by Mt. Deborah (12,339 feet) and Mt. Hayes (13,832 feet), we will explore an ever-changing and always challenging land where we expect to find Dall sheep, caribou, and other northern wildlife. To allow time to observe and enjoy, our pace will be moderate. The terrain can be difficult and the weather unpredictable; backpacking experience is necessary. The cost of the bush flight across the Tanana Flats is not included in the trip price. Leader approval is required.

[88084] Noatak River Paddle Raft, Arctic Wildlife Refuge, Alaska—August 1–12. *Leader, Kern Hildebrand, 288 Fairlawn Dr., Berkeley, CA 94708. Price: \$1,295, Dep: \$70.* Our trip begins at the headwaters of the Noatak in the midst of the rugged and remote Brooks Range, en-



ROBERT COWAN

tirely above the Arctic Circle within the Arctic National Wildlife Refuge. A float-plane will take us to Twelve Mile Creek,

and we will spend the next 12 days paddling by raft down 80 miles of the meandering Noatak River. We will experience the vast isolation of the arctic tundra and see Dall sheep, caribou, arctic fox, and occasional signs of grizzly. Rafting, relaxing, hiking, enjoying the vast openness, and fishing will fill our days. Although only a Class I river, the Noatak on some days can be very strenuous; previous river experience is recommended; participants must be in good physical condition.

[88085] Noatak River Canoe Exploration, Gates of the Arctic Park, Alaska—August 7–20. *Leader, Steve Torrence, P.O. Box 82720, Fairbanks, Alaska 99708. Price: \$1,095, Dep: \$70.* The Noatak River in the Brooks Range of northern Alaska offers a unique opportunity for the adventurous trekker. Free-flowing and crystal clear, it is recognized as a national Wild and Scenic river as well as a World Biosphere Reserve. We will be exploring the upper reaches of the river, where lofty arctic tundra gives way to precipitous mountain peaks. On layover days we will day hike up side valleys with a possible overnight hike toward the headwaters. Bring an inquisitive mind and be prepared to see Dall sheep, caribou, grizzly, and possibly wolf, fox, and moose. Grayling and arctic char will be available for the fisherman. Charter air transportation is not included in the trip price.

[88086] Skilak Glacier, Kenai, Alaska—August 18–27. *Leader, Serge Puchert, 11025 Bondshire Dr., Reno, NV 89511. Price: \$795, Dep: \$70.* This ten-day, mostly cross-country backpack will start from Tustumeno Lake and end at Sterling Highway, skirting and crossing the Skilak and Killy glaciers. This trip is for experienced backpackers who are fit and ready for the challenge of difficult terrain and uncertain weather. In return are the rewards of magnificent scenery and a chance to hike through a varied terrain with glaciers, alpine lakes, fast-flowing rivers, and tall lush grass, plus a chance to observe numerous wild animals prevalent in this remote area. A food drop and one or two layover days will ease our loads and give us time to rest and fish. A local naturalist with intimate knowledge of the area will further enhance the trip. A short plane shuttle is not included in the trip price.

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BACKPACK

Experience the wilderness on a rewarding and adventurous backpack trip. Packing everything you need for the trip adds an extra dimension of freedom and satisfaction to your outing. And backpacking has another benefit: It's the least expensive way to go.

Our trips are really small expeditions. Each is individually planned by the leader, who seeks challenging routes and attempts to get off the trails and set up camp in untrampled, out-of-the-way places wherever possible. The trips almost always provide one or more layover days for relaxing or exploring.

All backpack trips are run with a central commissary; trip members share cooking and cleanup chores. All are expected to carry a fair share of food and commissary gear in addition to personal belongings.

Your trip leader serves as a teacher as well as a guide, and will demonstrate the ways of traveling best suited to protecting the land and making participants more aware of good wilderness manners. For example, in almost all cases we cook on stoves instead of fires.

There are more than 70 backpack trips being offered this year throughout the United States. They vary in length and difficulty. To help you make a selection based on your own fitness and experience, we have rated the trips in five categories. Leisure (L) trips have fairly easy daily mileages, up to 35 miles in a week of four to five travel days, the remainder being layovers. Moderate (M) trips cover a longer distance, closer to 35–55 miles a week, and may include rougher climbing and more cross-country route finding. Strenuous (S) trips cover as many as 60–70 miles per week, with greater ups and downs and continuous high-elevation travel. Leisure-Moderate (L-M) and Moderate-Strenuous (M-S) are interim ratings. Individual trip supplements explain each trip's rating in more detail.

Leaders are required to approve each applicant before final acceptance, and will ask you to write a response to their questions. These responses help the leader judge your backpacking experience and physical condition. Unless specified, the minimum age for trips (excluding junior backpack trips) is 16.

[88031] Mazatzal Wilderness, Tonto Forest, Arizona—April 9–16. *Leader, David Mourry, 3848 W. Lawrence Rd., Phoenix, AZ 85019. Price: \$245, Dep: \$35.* The Mazatzal Wilderness, the largest in Arizona, provides many samples of the different climatic and topographic zones found in the state. We will hike along the crest of the Mazatzal Mountains through ponderosa pine forests down into rugged side canyons and into the Sonoran Desert in spring bloom. The latter portion of the trip will include hiking and camping along the Verde River, one of the few Wild and Scenic desert rivers in the country. (Rated M)

[88032] The Grand Canyon: South Rim to the Colorado River, Arizona—April 9–17. *Leader, Bob Posner, 3216 Rittenhouse St. NW, Washington, D.C., 20015. Price: \$315, Dep: \$35.* We meet at the Cameron Trading Post on the Navajo Reservation and drive along the Little Colorado into the Grand Canyon. After exploring the South Rim, we backpack down to the Tonto Plateau to camp at Salt and Hermit creeks, and to the Colorado River at Granite and Boucher rapids. Views of the North Rim, leisurely exploration of side canyons, wildflowers, and experiencing the power of Boucher, Crystal, and Hermit rapids are highlights of this moderate trip. (Rated M)

[88033] Galiuro Wilderness, Galiuro Mountains, Arizona—April 10–16. *Leader, Jim Urban, 5170 S. Alton Way, Englewood, CO 80111. Price: \$230, Dep: \$35.* This seldom-visited range 60 miles east of Tucson provides a great variety of hiking experiences, from dry brushy ridges to thickly forested canyons with clear streams. We will loop through the area, camping at elevations ranging from 4,000 to 7,100 feet, with night temperatures near freezing expected at higher elevations. A layover day will allow a visit to the site of a western shoot-out and an old mine. Travel is on an overgrown (and thorny) trail, some of it good but with a bit of cross-country. (Rated M-S)



'I really enjoyed our recent trip to Death Valley. It has taken me 40 years to get there—but it will be less than that before I return!'

S. G., Los Angeles, CA



Above: Death Valley, California

DOLPH AMSTER

[88034] Slickhorn Canyon, Utah—April 16–23. *Leader, Chuck Shinn, 5318 Redbridge Dr., Boise, ID 83703. Price: \$320, Dep: \$35.* Slickhorn Canyon is adjacent to the famous Grand Gulch Canyon near the town of Blanding, Utah. During springtime in the desert, we'll explore the numerous Anasazi ruins in the upper canyon arms and enjoy swimming in pools found on the canyon floors as we hike to the San Juan River. (Rated L-M)

[88035] Junipero Serra, Ventana Wilderness, Los Padres Forest, California—April 22–30. *Leader, Bob Berges, 21 Stone Harbor, Alameda, CA 94501. Price: \$200, Dep: \$35.* Spring is the time of year to stroll through the Coast Range, enjoying sunshine and wildflowers. This moderate trip with a layover day to climb Cone Peak can be a pleasant start to your year's backpacking ventures. We will be hiking on the east side of the range for most of the trip, so a late-season storm on the west side shouldn't pose any major



STEPHEN KASPER

difficulties. A good portion of the trip will be in the expanded areas of the wilderness. (Rated M)

[88036] Kanab Canyon/Thunder River, Grand Canyon, Arizona—April 22–30. *Leader, Peter Curia, 1334 W. Willetta, Phoenix, AZ 85007. Price: \$260, Dep: \$35.* The cornucopia of scenery along our route is perhaps the best the Grand Canyon offers to off-trail adventurers. There is the expanse of the Esplanade, the red-

wall narrows of Jumpup, the sometimes muddy but always sinuous Kanab Creek, the sculpted floor of Scotty's Hollow, the murmur of Whispering Falls, the crash of Deer Creek Falls, and finally the explosive headwaters of Thunder River. The terrain is difficult and there are no layover days, but the memories you take with you are forever. (Rated S)

[88037] Navajo Mountain-Rainbow Bridge, Arizona—May 1–7. *Leader,*

OUTINGS

Nancy Wühl, 325 Oro Valley Dr., Tucson, AZ 85737. Price: \$205, Dep: \$35. Visible for a hundred miles, the rounded dome of Navajo Mountain (10,388 feet) rises on the Navajo Reservation of northern Arizona. Overlooking the San Juan River, this isolated mountain is often called the grandest natural edifice in the southern end of the canyon country. Around the base is a land of colorful, twisting sandstone canyons, clear creeks and pools, natural bridges and arches, giant domes, and abundant spring wildflowers. This trip in the Southwest is a photographer's delight. (Rated M-S)

SPECIAL

[88038] **Appalachian Historical Odyssey, Maryland and Pennsylvania—May 21–29.** Leader, Chuck Cotter, 1803 Townsend Forest Lane, Brown Summit, NC 27214. Price: \$240, Dep: \$35. On our fifth trip of the "Appalachian Trail Odyssey," we traverse the beautiful state of Maryland. We plan to start in Pennsylvania at Caledonia State Park, heading toward Harpers Ferry, West Virginia. Along the way we will visit Turners Gap, Fox Gap, and Brownsville Gap, site of the South Mountain Battle in 1862. We will also cross the Mason-Dixon Line and visit the Washington Monument and Harpers Ferry (site of John Brown's

raid). The beautiful countryside saturated with history makes this trip unique. (Rated L-M)

[88090] **Death Hollow/Sand Creek, Escalante Canyons, Utah—May 28–June 4.** Leader, Bert Fingerhut, 225 W. 83rd St., New York, NY 10024. Price: \$245, Dep: \$35. When Congress established the Box-Death Hollow Wilderness in 1984, it failed to decide the long-term fate of this wonderful area. Now the Forest Service proposes to allow drilling for carbon dioxide along four high ponderosa pine ridges deep in the wilderness. Our trip will explore Death Hollow, Mamie Creek, and Sand Creek via magnificent sandstone canyons reminiscent of Zion. This trip is for experienced backpackers only. (Rated S)

[88091] **Pleasant Valley, Yosemite Park, Sierra—June 20–29.** Leader, Bob Berges, 21 Stone Harbor, Alameda, CA 94501. Price: \$225, Dep: \$35. Late June is the ideal time to visit the canyons of northwestern Yosemite, filled with snow, waterfalls, and wildflowers. This moderately paced trip will include two layover days for exploration or relaxation. A high spot will be our camp in the so aptly named Pleasant Valley. The difficulty of the trip could vary with the snowfall in

this part of the Sierra, but well-conditioned beginners are welcome. (Rated M)

SPECIAL

[88092] **Seven Devils, Nez Percé Forest, Idaho—June 23–July 1.** Leader, Tom Erwin, 631 Elverta Rd., Elverta, CA 95626. Price: \$365, Dep: \$35. Exorcise the de-



DAN SMITH

mons of a long winter working indoors with too little open air on a hike through Heavens Gate to the Seven Devils Mountains. We will reach a seldom-visited area located above the Hells Canyon of the Snake River. Each turn of the trail reveals a rugged basin cradling a shimmering lake, while overhead the He Devil and She Devil tempt you to come closer and climb higher. (Rated M)

[88093] **Skyline Trail, Pecos Wilderness, New Mexico—June 26–July 2.** Leader, Joanne Sprenger, 2805 Eighth St., Las Vegas, NM 87701. Price: \$200, Dep: \$35. Much of our trip in the Pecos Wilderness will be at 11,000 feet. We reach this elevation on the Skyline Trail on our third day. The trail is fairly level with some gentle changes in elevation, and offers grand vistas and occasional sightings of elk. (Rated L-M)

Below: Disappointment Lake, Sierra



DAN SMITH

OUTINGS

[88094] **Humphreys Basin, John Muir Wilderness, Sierra—June 29–July 6.** Leader, Bill Hoover, P.O. Box 723, Livermore, CA 94550. Price: \$195, Dep: \$35.



BOB ROBINSON



STEPHEN KASPER

Humphreys Basin is a two-mile-high, lake-studded triangle in the southern Sierra, with Mt. Humphreys and Four Gables dominating the east side. We will parallel the canyons bounding the southwest and northwest sides, with possible climbs of Humphreys, Four Gables, and Pilot Knob during layover days. This is a moderately strenuous, above-timberline trip. There may be considerable early-season water and snow. (Rated M-S).

[88095] **Mono and Silver Divide Peak-bagging, John Muir Wilderness, Sierra**

—June 30–July 9. Leader, Howard Drossman, 906 Lake Ct., Madison, WI 53715. Price: \$265, Dep: \$35. This ten-day loop trip in the wilderness between Yosemite and Kings Canyon national parks promises wonderful scenery and challenging ascents. Early-season hiking provides spectacular views of snow-covered peaks and alpine lakes. We will hike 45 miles in seven days with three layover days to ascend Mts. Gabb, Abbot, Hilgard, Izaak Walton, and Red and White Mountain. Our largely cross-country route traverses granite passes and glacial valleys. Tasty natural food dinners beside some of the most beautiful Sierra lakes will be a trip highlight. This moderately strenuous trip is for the experienced hiker who enjoys a challenging opportunity to explore the high Sierra. (Rated M-S)

SPECIAL

[88096] **The Best of West Virginia—July 3–9.** Leader, Bob Goldberg, 21404 Davis Mill Rd., Germantown, MD 20874. Price: \$240, Dep: \$35. Some of the finest hiking and scenery in West Virginia lies within 50 miles of Seneca Rocks. We will establish two or three different campsites and day hike (7 to 12 miles daily, with elevation changes up to 2,500 feet) on several different trails. Areas to be visited include Dolly Sods, Spruce Knob, Laurel Fork, and Seneca Rocks. Early July is usually comfortably cool. There will be plenty of time for pictures, swimming, and general relaxation. (Rated L).

[88097] **Glacier Peak Wilderness/ Stehekin Valley, Washington—July 9–17.** Leader, Rodger L. Faulkner, 412 Jewell St., San Rafael, CA 94901. Price: \$320, Dep: \$35. We enter the heart of the Washington North Cascade mountain range via ferry boat on 50-mile-long Lake Chelan. Our walk up Railroad Creek will introduce us to views of waterfalls, wildflowers, and lakes. At Lyman Lake, encircled by snow-covered peaks, we enjoy a sunset that will turn Lyman Glacier pink and the peaks bright rose. We travel to Cloudy and Suiattle passes on our way to the Image Lake basin for dramatic views of snow- and ice-covered Glacier Peak. Some cross-country travel takes us to the Agnes Creek drainage with its tall cedars, and to the Stehekin Valley. Nutritious gourmet backpacking food will be featured and we will allow time for bak-

ing pizza and fresh bread while on trail. (Rated M-S)

[88098] **Mt. Ritter Adventure, Ansel Adams Wilderness, Sierra—July 12–21.** Leader, Wes Reynolds, 4317 Santa Monica Ave., San Diego, CA 92107. Price: \$260, Dep: \$35. This wilderness adventure will cover about 32 miles on and off trail. We will cross the Ritter Range twice on our loop—at Ritter Pass and Glacier Pass. Our visit to the headwaters of the North Fork of the San Joaquin River will allow time to view the scenery and geology of this lesser-known area. Mt. Ritter, Banner Peak, and the Minarets dominate the landscape here. Although hiking will be challenging, daily mileages will be short, with time for individual activities. (Rated M).



Chuck Cotter

This year Chuck Cotter will be leading the fifth trip of his "Appalachian Trail Odyssey," a sequence of backpack trips unique in the history of the Outing Program. Beginning with a 1982 outing in Georgia, each trip has been along a different portion of the trail and in a different state, working northward. After this year's trip in Maryland and Pennsylvania (#88048), Chuck expects to run ten more trips in this exciting series. Like many Sierra Club leaders, Chuck became involved in the Club out of concern for the environment. He is an accomplished photographer and is currently working on his master's degree in biology.

SPECIAL

[88099] **Natural History In and Around the Clark Range, Yosemite Park, Sierra—July 16–23.** Leader, Gerry Dunie, 831 N. Garfield Ave., Alhambra, CA 91801. Naturalist, Suzanne Swedo. Price: \$215, Dep: \$35. Starting just south of Yosemite Valley, our 50-mile loop with more than 8,000 feet of elevation gain offers us several views of the glacier-carved Clark Range far and near, through the eyes of both our naturalist and our group leader, an avid peakbagger. Suzanne, a

OUTINGS

Yosemite naturalist for the past nine summers, will share her botanical and geological expertise. We will have a layover day for optional peakbagging,



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fishing, or loafing. Several desirable summits await us near Red Peak Pass (11,180 feet). (Rated M)

[88100] Many Glacier Loop, Glacier Park, Montana—July 16–23. *Leader, Bob Posner, 3216 Rittenhouse St. NW, Washington, D.C. 20015. Price: \$380, Dep: \$35.* Experience the rugged majesty of the mountains, glaciers, lakes, wildflowers, and wildlife of Glacier National Park. We will explore a vast scenic and remote area of the park on a seven-day loop trip. Camps are planned near Elizabeth, Mokowanis, Fifty Mountain, and Kootenai lakes and Granite Park, with a layover day to explore the Ptarmigan Wall. (Rated M-S)

[88101] Mount of the Holy Cross, Sawatch Range, Colorado—July 18–27. *Leader, Bob Berges, 21 Stone Harbor, Alameda, CA 94501. Price: \$270, Dep: \$35.* William Jackson's famous photograph, taken while he was a member of the Hayden Survey Party, brought fame and name to this peak. The famous cross that is visible in early summer has suffered from erosion on the vertical and horizontal couloirs that create it. We will attempt to climb Mount of the Holy Cross (14,005 feet) and various 13,000-foot summits during the two layover days on this moderately strenuous backpack. Expect spectacular views. (Rated M-S)

[88102] Sphinx Quest, Kings Canyon Park, Sierra—July 18–27. *Leader, Jim Watters, 600 Caldwell Rd., Oakland, CA 94611. Price: \$235, Dep: \$35.* Many of the



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BOB POSNER

magnificent glacial canyons of the Kings River country are aligned in the southern part, emanating from the Kings-Kaweah Divide. This trip's search for novelty travels up, down, or across three of the great ones: Deadman, Ferguson, and Cloud. The last is of such scale that it is known to generate its own weather. Memorable features you will enjoy during an adventure-seeking ten days include Big Bird Lake, Coppermine Pass, the sculpted buttresses of Mt. Brewer, and Sphinx Creek's "staircase." All this discovery covers more than 50 miles, of which a third are off trail. A packer drop will ease hiking on day one. (Rated M-S)



Above: Banner Peak, Sierra

LAURE-ANN BARBOUR

[88103] Le Conte Divide, John Muir Wilderness, Sierra—July 19–28. *Leader, Bill Walsh, 1139 Westmoreland Circle, Walnut Creek, CA 94596. Price: \$295, Dep: \$35.* On this high-country loop we will explore granite basins of the John Muir Wilderness, where lakes perch beneath peaks soaring above 13,000 feet. On the way we will travel through the gentle forests of the western slope in a gradual, steady ascent to the rugged Le Conte Divide, over Hell-for-Sure Pass to lower Goddard Canyon. Mostly on-trail with a few cross-country days, this trip is for those who enjoy a little stiff hiking along with layover days for photography, fishing, or peakbagging. (Rated L-M)

[88104] Secret Meadow Leisure, Hoover Wilderness, Sierra—July 23–31. *Leaders, Ed and Helen Bodington, 697 Faun Dr., San Anselmo, CA 94960. Price: \$245, Dep: \$35.* From our roadhead at Leavitt Meadow we will travel south along the Walker River and then cover a narrow loop, camping at Hidden Lake, Secret Meadow, and Stella and Fremont lakes. Three layover days will allow climbs of nearby peaks, looking for wildflowers, or fishing. Travel days will average six miles with 1,000 feet of climb. A leisurely trip for well-prepared newcomers and veterans alike. We will use Canelo, our friendly llama, to carry equipment on this trip. (Rated L)

OUTINGS

SPECIAL

[88105] Pacific Crest Trail, Donner Pass to Johnsville, Sierra—July 23–31. Leader, Jim Carson, 706 Wildcat Canyon Rd., Berkeley, CA 94708. Price: \$225, Dep: \$35. Long since known as the heart of the



OWAD BRESLUPA

Gold Country, the 70-mile section we will hike of the Pacific Crest Trail is nearly at the end of the northern Sierra Nevada. The trip will pass the Lakes Basin and Yuba River canyons nestled in the Sierra Buttes (8,500 feet), as well as the remains of several pioneer settlements. Historical Sierra City will be the site of our food drop and layover day. A modified natural food diet is planned. (Rated M-S)

[88106] The Major General, Sequoia Park, Sierra—July 24–30. Leader, Tom Jones, 99 E. Middlefield, Apt. 40, Mountain View, CA 94043. Price: \$235, Dep: \$35. From Horseshoe Meadows on the east side we will hike 30 miles in the Golden Trout Wilderness and Sequoia National Park, heading for the high country, where we will be in the shadow of 13,000-foot peaks and camp by Sky Blue Lake. Pack animals will carry our equipment the first day. Our route crosses New Army Pass and follows Cottonwood and Rock creeks to the upper reaches of Miter Basin, passing by the impressive Major General (12,500 feet). Our two layover days will provide exceptional panoramas and allow us ample time to explore this unique land of glacial cirques and lakes. Layover op-

tions include climbing The Miter (12,770 feet), day hiking to Iridescent Lake, or simply taking photographs. (Rated L)

[88107] Mt. Brewer, Kings Canyon Park, Sierra—July 24–30. Leader, Jim Halverson, 7845 Skyline Blvd., Oakland, CA 94611. Price: \$225, Dep: \$35. Have

97232. Price: \$180, Dep: \$35. The Three Sisters—Faith, Hope, and Charity—are the crown of the central Oregon Cascades, a beautiful area of volcanic peaks, lava flows, alpine lakes, and flowery meadows. We will make a 50-mile loop around the Sisters, with one layover day and an optional nontechnical climb of South Sister (10,358 feet), the highest of the group. This is a good trip for amateur geologists or botanists, with plenty of photo opportunities. Enjoy spectacular mountain scenery on this moderate trip. (Rated M)

[88109] Moon Lake, John Muir Wilderness, Sierra—July 24–31. Leader, Don Endicott, 10707 Smerdon Circle, San Diego, CA 92131. Price: \$220, Dep: \$35. Featuring cross-country hiking in the alpine country west of Mt. Humphreys, this trip will approach the eastern Sierra from North Lake trailhead (9,360 feet) southwest of Bishop. We will enter the Desolation Lake area via Piute Pass (11,423 feet) and exit at the Pine Creek trailhead via Pine Creek Pass (11,120 feet). Our two layover days will provide opportunities for photography, fishing, peak scrambling, and wildflower hunting. Possible Class II climbs include Pilot Knob (12,245 feet) and Royce Peak (13,253 feet). Total distance is 30 miles, half cross-country. This trip is not for beginners; prior experience on talus is necessary. (Rated L-M)



BOB POSNER

you ever wanted to whisper to the gods? Well, this high-country trek in the southern Sierra will give you that opportunity. Some may even want to shout, so to save your strength for the real adventure, mules will lighten our load on the first day's climb to 9,600 feet. Later on in the trip, those who wish may climb Mt. Brewer as we loop around the mighty mountain. There will be one layover day for lake counting, and if you count correctly, you ride out on the leader's back . . . maybe. (Rated M-S)

[88108] Three Sisters Loop, Cascade Range, Oregon—July 24–30. Leader, Bill Gifford, 3814 NE Wasco, Portland, OR

[88110] Squaretop Mountain Loop, Bridger Wilderness, Wyoming—July 24–31. Leader, Barbara Beaumont, RR 2, Box 341, North Liberty, IA 52317. Price: \$380, Dep: \$35. The wildflowers are spectacular and the fishing fantastic in this section of the Bridger Wilderness surrounding Squaretop Mountain. Starting at the Green River Lakes Campground, we will make a 45-mile loop, camping at several lovely alpine lakes along the way. On one layover day we'll travel cross-country above timberline to a lake featuring large brook trout; on another day we'll climb Squaretop Mountain, the most photographed peak in the Wind River Range. The limited size of the group will enhance our wilderness experience. (Rated M)

[88111] Ritter Range Survey, Sierra Forest, Sierra—July 24–31. Leader, Chuck Schmidt, 4292 Wilkie Way, Apt. N, Palo Alto, CA 94306. Price: \$220, Dep: \$35. We will approach the Ritter Range

OUTINGS

from the west side of the Sierra by following the North Fork of the San Joaquin River to Lake Catherine. A straightforward ascent of Mt. Ritter is within reach from this location. By a combined cross-country and trail route, we will be able to ascend Iron Mountain and return via Mammoth Trail. Two layover days are planned to allow plenty of time for the adventurous to conquer a peak or two and for the sedate to soak in the mountain atmosphere. (Rated M)

[88112] Cirque of the Towers, Wind River Range, Wyoming—July 25–August 2. *Leader, Dave Derrick, 1916 Spring Dr., Louisville, KY 40205. Price: \$385, Dep: \$35.* The Wind River Range offers some of the most rugged scenery found along the Continental Divide. We enter at Big Sandy Opening and follow an old Indian trail to Jackass Pass on the divide. From there we descend into the Cirque of the Towers, where we will be dwarfed by

[88113] Back of Beyond, Selway-Bitterroot Wilderness, Idaho—July 25–August 4. *Leader, Sherri Serna, 2075 Coombsville, Napa, CA 94558. Price: \$415, Dep: \$35.* The Selway River and its tributary, White Cap Creek, are surrounded by wilderness. We will follow the creek along forested canyons from 3,000 to 8,000 feet elevation. On layover days we can fish, explore the crest of the Bitterroot Range, and scout for elk. Our route will include fabulous Patsy Ann Falls. (Rated L-M)

[88114] Yosemite Discovery Trek, Yosemite Park, Sierra—July 28–August 6. *Leader, John Bird, 5839 Clover Dr., Oakland, CA 94618. Price: \$275, Dep: \$35.* Our trip starts at Glacier Point (7,214 feet) where we are treated to a panoramic view of Yosemite Valley, Half Dome, and the major landmarks that have made Yosemite famous. From there we follow Illilouette Creek toward Merced Peak Pass Lakes. Our journey continues to Ottoway Lakes and over Red Peak Pass where we descend toward Washburn Lake on the fabled John Muir Trail. Our next to last day we plan to climb Half Dome and partake of views that will last a lifetime. Our trip ends in Yosemite Valley (3,980 feet). (Rated L-M)

[88115] Sequoia High Country, Sequoia Park, Sierra—July 29–August 7. *Leader, Don Lackowski, 2483 Caminito Venido, San Diego, CA 92107. Price: \$230, Dep: \$35.* A comprehensive tour of the high alpine country along the eastern boundary of Sequoia National Park parallels the magnificent Whitney crest, south to north, from Mt. Langley (14,042 feet) to Mt. Russell (14,086 feet); passes through three major lake basins; and includes a visit to the highest lake in the contiguous United States. Three layover days provide ample time for personal interests, including peak climbing, fishing, photography, exploratory day hikes, or leisure. (Rated M)

[88116] Cloud Peak Wilderness, Bighorn Forest, Wyoming—July 30–August 6. *Leader, Faye Sitzman, 903 Mercer Blvd., Omaha, NE 68131. Price: \$335, Dep: \$35.* Through this lake-studded alpine wilderness in north-central Wyoming we will travel six to nine miles a day with routes and camps mostly above 10,000 feet. One or two layover days will provide time for fishing, hiking, photography, and wildlife observation.

Spectacular views of Cloud Peak (13,165 feet) will grace this uncrowded region. Expect excellent food, weather, and trip planning. Extensive backpacking experience is not required, but all participants must be energetic and plan to undertake serious conditioning prior to the trip. (Rated M).

DAN SMITH



[88117] Sixty Lakes, Kings Canyon Park, Sierra—July 30–August 7. *Leader, Fred Schlachter, 7185 Homewood Dr., Oakland, CA 94611. Price: \$290, Dep: \$35.* A nine-day loop will take us over Kearsarge Pass and deep into the high country to more lakes than we can count in the Sixty Lake and Gardiner basins of Kings Canyon. We will have some vigorous hiking days, both on trail and cross-country, and layover days for a visit to the Rae Lakes to climb peaks or relax. A food drop will lighten our packs. We will have plenty of time for swimming and photography, excellent food, and good camaraderie. (Rated L-M)

[88118] Sea Coast to Alpine Meadows, Olympic Park, Washington—July 30–August 7. *Leader, Wayne Martin, 350 Brey Rd., Santa Rosa, CA 95405. Price: \$315, Dep: \$35.* On our hike through Olympic National Park we will experience the bird and animal life of the coast and mountains, passing marshland, rainforest, and alpine meadows. We will

Helen and Ed Bodington



When they are not leading Sierra Club outings, Helen and Ed Bodington are off on an adventure of their own. They have traveled to South America, Asia, Africa, and Europe. This past fall and winter they ventured southward to the far reaches of Patagonia. Helen and Ed led their first national outing, a wilderness threshold trip, only three years after joining the Sierra Club in 1958. Since 1971 the Bodingtons have been leading backpack trips exclusively. Their favorite part of leadership is sharing the splendors of wilderness with newer hikers, and they will be doing that again this year on a trip to Secret Meadow Lake in the Sierra (#88104).

the granite spires that encircle Lonesome Lake. Our route turns north over Lizard Head Pass, then crosses back over the divide at Washakie Pass. The trip includes long hard days on the trail, interspersed with four layover days for peak climbing, fishing, and taking in the high-country scenery. (Rated M-S)

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climb over the High Divide (5,475 feet), from which point we should have a good view of Mt. Olympus and Seven Lake Basin. After a well-deserved layover day we continue on to Soleduck Hot Springs. There will be time for day hikes, bird-watching, photography, and a good soak in the hot springs. (Rated M-S)

[88119] Among Monarchs and Kings, Kings Canyon Park, Sierra—July 31–August 7. *Leader, Lasta Tomasevich, 2610 Regent St., Apt. 202, Berkeley, CA 94704. Price: \$215, Dep: \$35.* In a setting fit for kings, the imposing Monarch Di-

over the clear alpine lakes of Dusy Basin, Evolution Basin and Darwin Canyon. There will be opportunity for fishing, swimming, photography, and meditation—with additional occasions for peakbagging on two layover days. Total trip mileage is 38, about one-third of which is cross-country. We'll be hiking at high altitudes (9,000 to 13,000 feet) with an average elevation ascent and descent of 1,000 feet. Recommended for experienced backpackers who wish to be overwhelmed by the beauty and wonder of the Sierra. (Rated M-S)

for fishing, optional nontechnical climbing, or just resting. (Rated M-S)

[88122] High Mountain Basins, John Muir Wilderness, Sierra—August 4–13. *Leader, Diane Cook, 631 Elverta Rd., Elverta, CA 95626. Price: \$235, Dep: \$35.* Our trip enters the Sierra at Wishon Reservoir east of Fresno, then travels to Red Mountain Basin at the foot of Hell-for-Sure Pass. We hike cross-country in the shadow of the Le Conte Divide up to Upper Bench Valley and then to Blackcap Basin, camping above 10,000 feet some nights. Two layover days provide opportunities to

ED BOONSTON



Left: Mount Reinstein, Sierra. Far right: Little Colorado Canyon, Arizona.

vide runs east-west between the vast canyons of the South and Middle Forks of the Kings River. We begin our exploration of this dramatic area by ascending Monarch Divide from the South Fork canyon. We then head east toward rugged Cirque Crest, enjoying the superb views along the way. Our loop route returns cross-country through several high, seldom-visited lake basins with more spectacular panoramas. One layover day for exploring or relaxing is included in this eight-day, 40-mile trip. A packer assist eases loads the first day. (Rated M)

[88120] Evolution Basin and Darwin Canyon, Kings Canyon Park—July 31–August 8. *Leader, Lisa Quinn, 5145 Coronado Ave., Oakland, CA 94618. Price: \$275, Dep: \$35.* On this nine-day loop we will sample the best of Kings Canyon National Park: its challenging Bishop and Muir passes and its panoramic views of glaciers and 13,000-foot peaks looming



STEPHEN KADPER

[88121] High Uintas Wilderness, Utah—August 2–11. *Leader, Bill Lewis, 1277 E. 100 South, Logan, UT 84321. Price: \$385, Dep: \$35.* Located in northeastern Utah, the Uintas make up the only major east-west range in the continental United States. Glacially sculpted, they contain unique geology and Utah's highest peaks. On a ten-day loop we cover about 50 miles, mostly on trail, with elevations in the 10,000- to 11,000-foot range. We visit and camp at high lakes, such as those in the Red Lakes Basin, and cross several passes. On our layover days we have time

DARY LAZZI



climb several 12,000-foot-plus peaks on the divide for panoramic views of the south central Sierra, to fish the many lakes, or smell the flowers. (Rated L-M)

[88123] Women's Beginner Backpack, Ansel Adams Wilderness, Sierra—August 6–13. *Leader, Carol Hake, 12830 Vistano Rd., Los Altos Hills, CA 94022. Price: \$210, Dep: \$35.* South of the boundary of Yosemite National Park lies a necklace of more than two dozen large and small lakes. We'll travel short distances between these gems, leaving most

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afternoons free to swim, sketch, relax, or explore without packs. This trip is suitable for beginners and experienced hikers who want to perfect their wilderness skills; use of topo maps, compass, stove, and shelter, as well as natural history and care of the environment, will be covered. Elevations range from 7,500 to 10,000 feet. Total distance traveled will be less than 30 miles. (Rated L)

[88124] Yosemite's High Sierra Wilderness, Sierra—August 6–13. *Leader, Roz Bray, 41 Hawthorne Ave., Los Altos CA 94022. Price: \$195, Dep: \$35.* After two nights at base camp, we will explore alpine meadows, dozens of lakes, high mountain passes, and a host of dramatic peaks on this eye-popping, seven-day loop trip. Possible climbs include Yosemite's highest peak, Mt. Lyell (13,144 feet) and Amelia Earhart Peak (11,982 feet). Our route will combine hiking on segments of the John Muir/Pacific Crest Trail with cross-country excursions. Some short hiking days and a layover day allow time for peakbagging, exploring hidden lakes, or doing nothing at all. Good physical condition is necessary and previous backpacking experience is desirable. Come discover the austere beauty of Yosemite's Sierra wilderness with us. (Rated M)

[88125] Center Basin Leisure, Kings Canyon Park/John Muir Wilderness, Sierra—August 6–14. *Leader, Hal Fisher, 6111 Baltimore Dr., La Mesa, CA 92042. Price: \$230, Dep: \$35.* Join us for a leisure backpacking trip at 10,000 feet plus through a pristine glacial valley with trout-filled alpine lakes surrounded by peaks to 13,000 feet. Center Basin was bypassed upon construction of today's John Muir Trail over Forester Pass and provides a true wilderness experience with few visitors. There will be layover days for photography, peakbagging, fishing, or the backpacker's favorite—relaxation. The trip will total 25 miles in five moving days. (Rated L)

[88126] Glacier Divide Loop, Kings Canyon Park/John Muir Wilderness, Sierra—August 7–14. *Leader, Jack Wickel, P.O. Box 996, Manhattan Beach, CA 90266. Price: \$245, Dep: \$35.* Starting on the trail from North Lake, we visit Humphreys Basin, Piute Canyon, and Evolution Valley, then hike cross-country through McGee and Darwin canyons, crossing the

divide at Lamarck Col (12,900 feet). The diversity of terrain is striking, from flower-dotted meadows and dense forest to rugged timberline lake basins with their panoramic views. There will be ample time for fishing and bagging several fine peaks on layover and short hiking days. A packer drop on the first day lightens our load. The spectacular scenery and a tasty menu will make this a trip to remember. (Rated M-S)

[88127] Golden Bear Lake, Kings Canyon Park, Sierra—August 8–18. *Leader, Ray Stafford, 932 Walnut St., San Carlos, CA 94070. Price: \$350, Dep: \$35.* We will be entering the high Sierra from Kearsarge Pass west of Independence. Our trails will take us from Mt. Clarence King and Sixty Lake Basin to Mt. Tyndall (14,018 feet). There will be time for peakbagging, fishing, day hikes, and photography. The trip's leisure-moderate rating may vary with the group's abilities and desires. (Rated L-M)

[88128] Baxter Park, Maine—August 11–20. *Leader, Philip H. Titus, 54 Al-lenhurst Rd., Buffalo, NY 14214. Price: \$400, Dep: \$35.* "Rising as an isolated, massive, gray granite monolith from the central Maine forest, broken only by the silver sheen of countless lakes, Katahdin is indeed the monarch of an inimitable wilderness." Myron Avery's statement, made early in this century, is no less true today. Katahdin is not one, but many mountains within Baxter State Park, a wilderness area of more than 200,000 acres. Our

moderately strenuous ten-day trip over this rugged country with its unpredictable weather will demand good physical condition and proper equipment, but backpacking experience is not necessarily required. (Rated M-S)

[88129] Cirque Crest, Kings Canyon Park, Sierra—August 13–21. *Leader, Joe Uzarski, 829 Lombard St., San Francisco, CA 94133. Price: \$275, Dep: \$35.* For the truly adventurous, the remote and seldom-visited Cirque Crest will not be soon forgotten. Fifteen of the 55 miles will be in untrammelled timberline country. En route we'll visit idyllic Lake Basin and return via Paradise Valley. Marion Peak, the highest point on the crest, may be climbed on our layover day. Packers will ease the 5,800-foot climb out of Kings Canyon on the first day. Not for beginners, but no particular mountaineering skills are required. (Rated M-S)



Above: Collegiate Peaks, Colorado

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[88130] Post Peak Pass, Ansel Adams Wilderness, Sierra—August 14–20.

Leader, Martha Schultz, 222 Willamette Ave., Kensington, CA 94708. Price: \$190, Dep: \$35. The high Sierra terrain of the Ansel Adams Wilderness features open



BOB POSENER

expanses of glacially polished granite surrounded by the rough metamorphic peaks of the Clark, Cathedral, and Ritter ranges. Our hiking days will be short on this seven-day trip to allow time to explore canyons and basins, swim in clear mountain lakes, and enjoy the views along the boundary between the Ansel Adams Wilderness and Yosemite National Park. We will stay mostly on trail with an occasional easy stretch of cross-country route-finding. On our one layover day we may scramble to the top of a peak for even more dramatic views. (Rated L)

[88131] Devils Punchbowl, John Muir Wilderness, Sierra—August 14–22.

Leader, Suzanne Riess, 700 The Alameda, Berkeley, CA 94707. Price: \$240, Dep: \$35. As we travel through John Muir's gentle wilderness, we'll have time to identify wildflowers, swim in "warm" pools, acclimatize to altitude changes, and anticipate layover days at Halfmoon Lake and Devils Punchbowl at timberline. We'll also have time to enjoy the splendor of lake-studded granite and to explore the "Range of Light" in intimate Red Mountain Basin. A car shuttle at the beginning of the trip will allow us to wander through Post Corral Meadows and out to Courtwright Reservoir. (Rated L-M)

[88132] Behind Mt. Whitney, Sierra—August 19–27.

Leaders, Cal and Letty French, 1690 N. Second Ave., Upland, CA 91786. Price: \$250, Dep: \$35. Mt. Whitney lies in the rolling country of the upper

Kern River basin. Surrounding peaks guard the access to this gentle wilderness. Lakes hide in the many angles and corners of the land, offering hikers individual Shangri-las. Much of our route is on trail, with some cross-country travel. Mules will lighten your load markedly on the first day over New Army Pass. We will have two layover days. Both leaders are interested in the history, geology, and ecology of this lofty area in "The Range of Light." (Rated M)

[88133] Above the Roaring River, Sequoia/Kings Canyon Parks, Sierra—August 19–28.

Leaders, David and Frances Reneau, 330 Nimitz Ave., Redwood City, CA 94061. Price: \$245, Dep: \$35. The upper reaches of remote Deadman and Cloud canyons feature wildflower-filled meadows, precipitous canyon walls, and cirque-bound lakes nestled against the

Below: Olympic National Park, Washington



STEPHEN KASPER

craggy summits of Glacier Ridge and the Great Western Divide. Our ten-day loop leads us from Wolverton across the tablelands, explores the lake basins and canyons of the Roaring River, and crosses back over Elizabeth Pass (11,360 feet). Total hiking distance will be 55 miles, including high-altitude, cross-country travel. Two layover days will allow time for nature study, fishing, relaxation, and climbs of nearby peaks. (Rated M-S)

[88134] Women's Beginner Backpack, Yosemite Backcountry, Sierra—August 20–28.

Leader, Tina Welton, 1319 Victoria Terrace, Sunnyvale, CA 94087. Price: \$240, Dep: \$35. See the beauty of

Yosemite National Park as we hike a loop through the scenic backcountry. We will follow the John Muir Trail past Cathedral and Sunrise lakes, climb world-famous Half Dome, hike up the Merced River with its many cascades to Merced Lake, and continue through the Vogelsang area with its breathtaking views. There will be one layover day for exploring or relaxing. You will gain self-confidence and learn many new skills: packing your gear, cooking on stoves, reading a map, and having minimal impact on the wilderness. Elevations range from 6,200 to 10,000 feet. There will be time for swimming, photography, and nature study. (Rated L-M)

[88135] Mono Rendezvous, John Muir Wilderness, Sierra—August 20–28.

Leader, Gary Swanson, P.O. Box 8351, Emeryville, CA 94662. Price: \$225, Dep:

\$35. We will trace the trans-Sierra trade route of the Monache and Paiute Indians up Mono Creek, then strike cross-country into the remote basin of Pioneer Lakes. Keeping to the high country, we'll wander through the "hanging valleys" carved by the Mono Glacier, spending two layover days to explore what we came here to experience—the exhilarating tranquility of emerald lakes surrounded by granite peaks under clear Sierra skies. Mts. Stanford, Crocker, and Hopkins await the peakbagger; wildflowers and golden trout await the naturalist and fisherman. Campsite elevations range from 7,800 to 10,900 feet. About one third of the 40-mile loop will be off trail, traveling

OUTINGS

through alpine meadows and talus fields. Two 12,000-foot passes will provide that essential panoramic view. (Rated M)

[88136] Alpine Lakes, Sequoia Park, Sierra—August 21–September 3. *Leader, Mac Downing, 2416 Grandview St., San Diego, CA 92110. Price: \$335, Dep: \$35.* Come visit the alpine lakes west of the Sierra Crest, from New Army Pass to Shepherd Pass. From the John Muir Trail we will hike along the upper Kern into the Cottonwood, Miter, Crabtree, and Wright basins. Five layover days allow time for peakbagging, fishing, exploration, and loafing. Camps will range from 10,000 to 11,000 feet elevation, allowing peak climbs to above 14,000 feet. A packer food drop will ease the load. Walk away from the world into a long alpine vacation. (Rated L-M)

[88137] Isberg Lake Beginner-Leisure Backpack, Ansel Adams Wilderness, Sierra—August 22–30. *Leaders, Frances and Patrick Colgan, P.O. Box 325, La Honda, CA 94020. Price: \$275, Dep: \$35.* This special packer-supported, easy-paced

DAN SMITH



backpack trip will focus on introducing new members to the joy of backpacking. Learn the ABCs from the pros. To make it easy, mules carry food and supplies up to our 10,000-foot layover camp in a remote, glaciated, lake-studded granite cirque. Here we enjoy overnight side trips and day hikes to places of special interest. An introduction to nontechnical peak climb-

ing supplements an itinerary of leisurely frolics, with lots of time for swimming, snoozing, or contemplating the curvature of the Earth. Other old pros, physically capable beginners, and extra-special young folks eight years and up are welcome. (Rated L)

[88138] White Divide, Sierra Forest/Kings Canyon Park, Sierra—August 24–September 2. *Leader, Gordon Peterson, 222 Royal Saint Ct., Danville, CA 94526. Price: \$245, Dep: \$35.* While looking over maps of the Sierra to determine where my backpack trip might go this year, I became enthused with the thought of revisiting some of the Sierra I traveled through in 1965 and 1970. Memories still seem fresh in my mind of the view from Spanish Mountain 8,000 feet down to the Kings River, and the view from the top of Tehipite Dome looking south to the Slide Bluff wall of the Monarch Divide. I remember well several beautiful lake basins along the White Divide that few people visit because they require cross-country travel and are many miles from any trailhead. How difficult will the trip be? We like to start hiking early in the morning and finish by early afternoon, but we will have some adventurous cross-country days over talus. (Rated M-S)

[88139] Granite Park, Sierra/Inyo Forests, Sierra—August 28–September 3. *Leader, Andrea Bond, 1730 Hyde St., Apt. 6, San Francisco, CA 94109. Price: \$225, Dep: \$35.* We will climb the eastern slope of the Sierra Nevada from near Bishop in the Owens Valley into Humphreys Basin. Both on-trail and cross-country, we will walk at above 10,000 feet among the peaks, lakes (some with no names), streams, meadows, and lovely granite of the high Sierra. There will be two layover days to explore the mountains and perhaps a couple of little glaciers. This area is so much like a huge garden that we will find it hard to leave; our descent will go through Granite Park, a beautiful valley that we'll long remember. (Rated L-M)

[88140] Mt. Whitney Grand Tour, Sierra—August 28–September 4. *Leader, Stephen Kasper, 1681 Crescent Ave., Castro Valley, CA 94546. Price: \$225, Dep: \$35.* Within a half-hour of shouldering our packs we'll veer off the beaten track and travel cross-country on this high-altitude circumnavigation of the Lower 48's tallest peak. Our route will be mostly above

timberline, crossing Russell Pass (13,280 feet), Crabtree Pass (12,560 feet), and Discovery Pass (13,500 feet) on the way to our last night on the top of Mt. Whitney. Sunset and sunrise from the summit (14,494 feet) will long be remembered. One of our two layover days will be spent in spectacular Miter Basin surrounded by challenging peaks and inviting glacial lakes. Lunch spots and campsites will be chosen by virtue of their photographic potential. Although our daily hikes will be relatively short, extreme elevation



Above: Zion National Park, Utah

gains and losses plus a good portion of cross-country travel account for the trip's moderate-strenuous rating. A sense of humor and off-trail experience are musts. (Rated M-S)

[88141] McGee Lakes Peakbagging, Kings Canyon Park, Sierra—August 28–September 5. *Leader, Vicky Hoover, 735 Geary Blvd., Apt. 501, San Francisco, CA 94109. Price: \$225, Dep: \$35.* The Evolution Basin north of Mt. Goddard is truly the essence of the wildest Sierra Nevada. Tucked into a quiet niche, McGee Lakes typifies the rugged, remote beauty of this primeval area. From a western approach we wander for nine days around the higher off-trail lakes and peaks at the edge of Evolution. The Hermit and Mts. McGee, Huxley, Spencer, Warlow, Fiske, and Haecel may offer strenuous peakbagging moments to 45 miles of moderate backpacking. (Rated M)

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[88142] Ruby Crest Trail, Humboldt Forest, Nevada—September 4-9. *Leader, Serge Puchert, 11025 Bondshire Dr., Reno, NV 89511. Price: \$225, Dep: \$35.* This six-day, 40-mile backpack is situated in eastern Nevada's Big Basin Range. Starting from Harrison Pass and ending in Lamoille Canyon, the Ruby Crest Trail runs through alpine forests and by lakes and occasionally looks down on steep-walled valleys to the Ruby Valley far below. The Big Basin Range offers unsurpassed scenery, solitude, and photo-

BRUCE OTTAVIAN



graphic challenges in one of the West's lesser-known wilderness areas. The trail begins at 7,000 feet, climbs to 11,000 feet by Wines Peak, and ends at 8,000 feet. Come and enjoy this beautiful region of Nevada. (Rated M)

[88143] Lake Reflection, Sequoia/Kings Canyon Parks—September 7-14. *Leader, Bob Madson, 3950 Fernwood Way, Pleasanton, CA 94566. Price: \$210, Dep: \$35.* After Labor Day, a loop around 13,570-foot Mt. Brewer is certain to be free of summer hikers. We will be able to view and enjoy the rugged scenery of the northern portions of the Great Western and Kings-Kern divides. Traversing the western flank below Mt. Brewer, we'll cross Longley Pass to Lake Reflection, which is surrounded by magnificent high cliffs. Only a quarter of this 42-mile loop will be off trail, with three layover days planned for exploring, peakbagging, or just relaxing. (Rated M)



SCOTT ERICKSON

[88144] Fish Creek Basin, John Muir Wilderness, Sierra—September 7-15. *Leader, Bill Engs, Drawer 3248, Crestline, CA 92325. Price: \$235, Dep: \$35.* We will visit three distinct areas just south of Mammoth Lakes. Starting on the east side of the Sierra crest, we will take two days to ascend the colorful valley along McGee Creek and allow time for exploration around Upper McGee Lake. The next four days will be spent in glaciated Fish Creek Basin. Two layover days (at Tully and Chief lakes) offer easy side trips, good fishing, and great photographic opportunities. Finally we will experience azure lakes and panoramas of high peaks as we travel through the Mammoth Crest area. Our 35-mile trek will be all on trail. (Rated L-M)

[88145] Sachse Monument, Emigrant Wilderness, Sierra—September 10-18. *Leader, Paul Cavagnolo, 19170 Old Vineyard Rd., Los Gatos, CA 95030. Price: \$220, Dep: \$35.* The Emigrant Wilderness borders the northern boundary of Yosemite National Park. Since it is not as high as the southern Sierra, it is well suited for an Indian summer backpack, with warm days and cool nights. From our trailhead at Leavitt Meadow, we will follow parts of the old Emigrant Trail as it crosses the spine of the Sierra on its westward journey. After spending at least two layover days to enjoy fishing, lake hopping, peak climbing, and the quietness that a late-season trip has to offer, we will return to the roadhead at Kennedy Meadows. One layover camp faces the towering Sachse outcrop. Most of the hiking will be in the 8,000- to 10,000-foot range. Given the trip's rating, well-conditioned beginners will be considered. (Rated L-M)

[88146] Summer's End in the Adirondacks, New York—September 11-17.

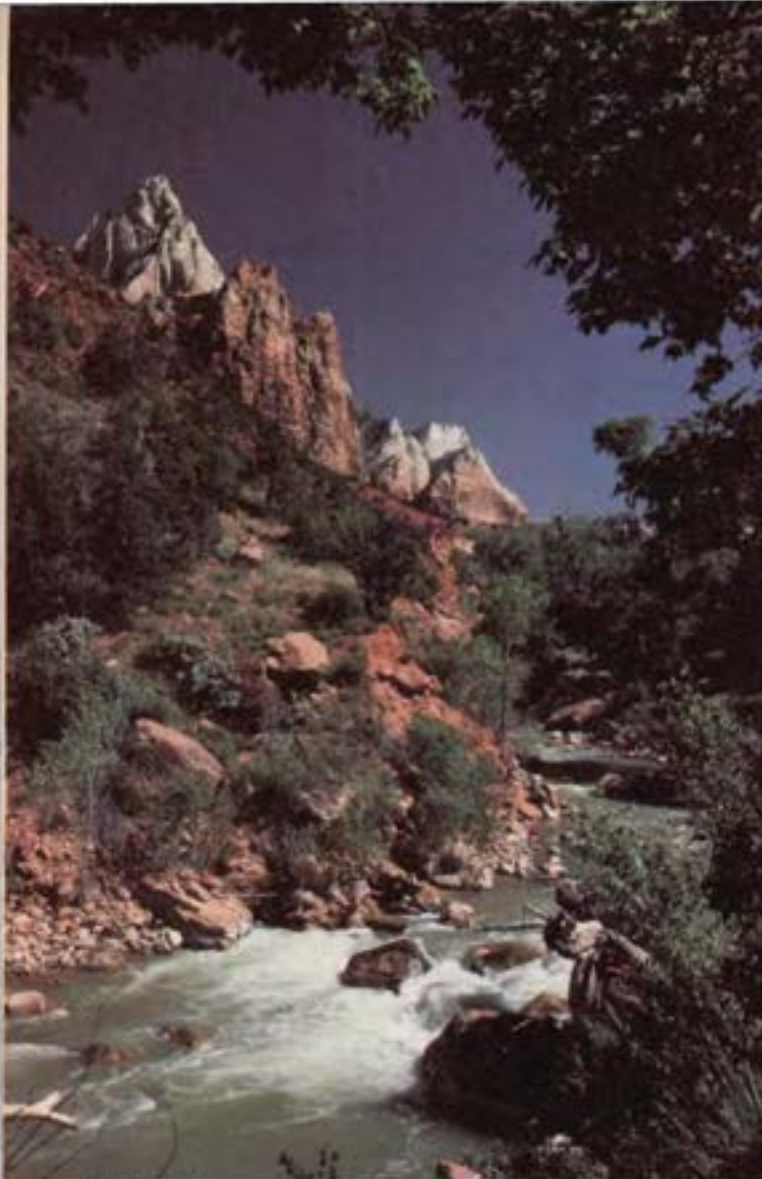
Leader, Frank J. Traficante, 9 Sherbone Place, Sayreville, NJ 08872. Price: \$290, Dep: \$35. Summer is almost gone and the crowds have left. What better time to backpack in the 2.5-million-acre Adirondack State Park? We will hike about 40 miles into the High Peaks region of the forest preserve (46 of the peaks are over 4,000 feet). The Indians called it Tahawus, or "Cloudspitter"; we know it as Mt. Marcy (5,344 feet), New York's highest. We will climb it and several others. Our camps will be by the lakes, ponds, and streams that become the Hudson River. (Rated M-S)

[88147] Fishing the Golden Trout Wilderness, Sequoia Forest, Sierra—September 17-25. *Leader, Jim W. Watters, 50 El Garilan, Orinda, CA 94563. Price: \$235, Dep: \$35.* Test your favorite flies in the waters of California's Golden Trout Wilderness. This trip is for the experienced backpacker who values extra time for fishing while still covering ground. Of course, you don't have to be into fishing to enjoy time off from a full pack! September is an ideal, quiet time to visit the area near Mt. Whitney. The hiking will be moderately paced on difficult off trail terrain at high elevations. (Rated M)

[88148] Mahoosuc Range, White Mountains, New Hampshire—September 18-23. *Leaders, Craig Caldwell and Jeanne Blauner, 12028 Gaylord Dr., Cincinnati, OH 45240. Price: \$295, Dep: \$35.* The Mahoosuc Range Trail from Gorham, New Hampshire, to Grafton Ranch,

RANDY SILVER





STEVE OTTINGER

Maine, is only 32 miles long, but it includes some of the most enjoyable and challenging sections of the Appalachian Trail. We will cross eight summits with a total altitude gain of about 10,000 feet, and go through Mahoosuc North, a dramatic landscape of huge boulders and near-vertical walls. Southward, the views of the Presidentials are beautiful from an angle seldom seen. Even on this trek we should have time each day to relax at our campsite. (Rated S)

[88149] West Elk Wilderness Wanderabout, Gunnison Forest, Colorado

—September 18–24. *Leader, John Lutz, 11563 Lillis Lane, Golden, CO 80403. Price: \$320, Dep: \$35.* The aspen will be at the height of their autumn color as we enter the West Elk Wilderness. Our journey will take us past the rock formations known as the Castles, over 11,000-foot Castle Pass, and around Storm Ridge. A moderate pace and daily distances combined with two layover days will allow us time for fishing, day hikes, or observing



STEVE WAPLE

wildlife. Bring your camera and capture Colorado at its best. (Rated L-M)

[89301] Dark Canyon, Utah—September 25–October 1. *Leaders, Dianne and Dan Leeth, P.O. Box 440289, Aurora, CO 80044. Price: \$255, Dep: \$35.* From our starting point near Natural Bridges National Monument, we will descend 4,200 feet through a very remote and unspoiled canyon system. En route we will

pass by natural arches, explore ancient Anasazi ruins, enjoy dozens of waterfalls, bathe in deep plunging pools, and savor 35 miles of spectacular canyon scenery. Short travel days and one layover will leave plenty of time for exploration, pho-

ROBERT CONAN



Left: Green River, Zion National Park, Utah

tography, swimming, or just enjoying a flat sunbathing rock. (Rated M)

[89302] Shinumo Amphitheater, North Rim, Grand Canyon, Arizona—September 25–October 1. *Leader, Sid Hirsh, 4322 E. Seventh St., Tucson, AZ 85711. Price: \$220, Dep: \$35.* Powell Plateau, North Bass Trail, Bass Camp, Hakatai Canyon, Merlin and Mordred Abyss, Elaine Saddle—we will do them

OUTINGS

all. Most of the trip is off trail on rugged terrain, with the worst bushwack you'll probably ever do scheduled for the last day. But the grandeur of the canyon, the magnificent scenery, and the fantastic wilderness of the Shinumo Amphitheater make this an unforgettable trip. There will be one layover day. (Rated S)

[89303] Clear Creek, Grand Canyon, Arizona—October 8–14. *Leader, John Malarkey, 861 S. Kachina, Mesa, AZ 85204. Price: \$180, Dep: \$35.* The remote Clear Creek area of Grand Canyon National Park has endless canyons to explore and beautiful waterfalls, basins, and coves where a hiker can find solitude. A day hike to Cheyava Falls will be one of the highlights. This trip is ideal for the first-time Grand Canyon backpacker or the experienced hiker who wants to visit this scenic area. The trip is 36 miles on trail, except for the day hikes. (Rated S)

[89304] Slickrock Wilderness, Nantahala and Cherokee Forests, North Carolina/Tennessee—October 8–15. *Leader, Bob Temple, 8357 Four Worlds Dr., Apt. 7, Cincinnati, OH 45231. Price: \$285, Dep: \$35.* Slickrock and two adjacent wil-

derness areas located just south of the Great Smoky Mountains make up an isolated, roadless preserve of fast-flowing streams and 5,000-foot peaks. Our trip will feature several layover days and time to explore on day hikes. A midweek food



ED BOGINGTON

drop will lighten our packs. Fall foliage colors, waterfalls, and a walk out through one of the largest virgin forests in the East are highlights of the week. This trip is suitable for novices as well as experienced backpackers desiring a leisurely outing. (Rated L-M)

[89305] Tuckup Canyon, North Rim, Grand Canyon, Arizona—October 8–16. *Leaders, Bert Fingerhut and George Steck, 225 W. 83rd St., New York, NY 10024. Price: \$325, Dep: \$35.* Our group of experienced canyon backpackers will descend Tuckup Canyon on our way to the Colorado River. After hiking along the river for several days, we will ascend Stairway Canyon. This trip will also include a visit to a major site of rock art, with pictographs and petroglyphs made by early Native American cultures (500–1,200 A.D.). (Rated S)

[89306] Clear Creek Winter Solstice, Grand Canyon, Arizona—December 18–23. *Leader, Bob Madsen, 3950 Fernwood Way, Pleasanton, CA 94566. Price: \$205, Dep: \$35.* This pre-holiday, six-day hiking trip on the sunny side of the canyon is on established trails. Two layover days are planned to explore sinuous Clear Creek and Cheyava Falls. Except for our day hikes, the trip is on established trails. The schedule allows for arriving home on Christmas Eve. (Rated M-S)

NOTE: See Alaska, Hawaii, and Foreign trips for other backpack outings.

JUNIOR BACKPACK

Share the wilderness with other young backpackers! Guided by competent and experienced leaders who enjoy young people, participants hike the backcountry, bag peaks, travel off trail, and learn wilderness camping skills. As with regular backpack trips, there is also time for fishing, swimming, snow sliding, or just watching the clouds drift by. Everyone is expected to help with cooking and cleanup chores and to carry a fair share of community gear and food. Parents are requested to assist with transportation to the roadhead and home again.

[88150] Convict Canyon Junior Backpack, John Muir Wilderness/Inyo Forest, Sierra—August 13–20. *Leaders, Jenny and Keith Moon, 310 Blanchard Lane, Benicia, CA 94510. Price: \$215, Dep: \$35.* Our journey begins among the twisted red-white-and-gray sedimentary layers that form the spectacular walls of Convict Canyon, famous for its beauty, history, and geology. Upon leaving the canyon, our hiking will be mostly off trail, crossing six passes as we circle Red and White Mountain. Our camps will be at the high-altitude alpine lakes at the head of the canyons surrounding the mountain. There will be time for peak climbing, fishing, and swimming. (Rated M-S)

BASE CAMP

Common to all base camp trips is a camp that serves as the base of operations for overnight backpacking, peak climbing, fishing, photography, ecological study, or nature walks—in short, a wide range of wilderness activities in many natural settings. Some activities are organized, but the choice of whether to participate is left to each individual. Many trips include a naturalist or photography instructor on the camp staff. Leaders emphasize conservation issues important to the areas visited.

Trips usually begin with dinner at the roadhead. The following day, up to 25 pounds of dunnage per person is transported from roadhead to camp while the trip members hike in. Camp is set up on arrival and—except at the beginning and end of each trip—neither packstock nor packers are in camp. Members take turns performing camp chores, including meal preparation, with instruction and aid from camp staff.

Base camp trips vary with locale. The following are general descriptions of the main types of base camps.

ALPINE CAMPS: Located in more remote spots and at higher elevations, these camps are for those who seek a rigorous program of wilderness activity in relative isolation. Cross-country hiking, overnight backpacking, and peakbagging are popular alpine camp activities.

BASE CAMPS: Especially suited for newcomers and family groups, the hike into camp is usually easier and the activities less strenuous than on alpine camps.

BACKCOUNTRY CAMPS: Our most remote location, reached by a two-day hike, is primarily an adult trip, although teenagers are welcome. It's more a do-it-yourself camp in which members are encouraged to conduct their own ventures. Staff leadership is available when needed.

DESERT CAMPS: Spring, fall, and winter are the best times for desert camp-

ing. Members' cars are used for side-trip transportation. Activities consist mainly of day hikes to interesting geological and natural history sites.

LODGE TRIPS: Base camps on these trips are at small inns, cabins, or lodges, usually reached by a hike in. Lodge trips combine the advantages of a wilderness setting with pleasant accommodations.

[88041] America's Paradise Base Camp, Virgin Islands Park—March 18–24. *Leader, Jim Absher, 225 Ansley Dr., Athens, GA 30605. Price: \$485, Dep: \$35.* Join us for a week's exploration of tropical splendors on St. John, the least developed of the U.S. Virgin Islands. Almost 65 percent of the island is included in Virgin Islands National Park. We'll stay in rustic

beachfront cottages and hike or drive to various locations for daily walks, snorkeling, or cultural programs. Naturalists will accompany us for many activities. On other days you'll be free to do as you wish: sunbathe, sail, or shop. We'll have Jeeps to visit the sights at our own pace and to take us into town for nightlife and Caribbean food. Meals are not included in the trip price, but the cabins have stoves and ice chests. You'll be amazed at the diversity and beauty of this national park—its tropical forests, white sand beaches, coral reefs, and more. Plan to stay a few extra days afterward to see other islands.

[88042] Anza-Borrego Natural History, Anza-Borrego Park, California—March 19–26. *Leader, Carol Baker, 2328 33rd St., San Diego, CA 92104. Price: \$215, Dep: \$35.* The Anza-Borrego Desert consists of more than a million acres east of the coastal range in Southern California. Uniquely juxtaposed terrain varies from 6,000-foot piney crags to fossilized badlands to a low inland sea that supports a rich variety of desert plants and animals for study with our naturalist. Participants will carpool to daily camps and trailheads. Hikes are easy to moderate; energetic walkers may climb a peak. Weather should be mild, but rain, wind, and snow are possible at this time of year.

[88043] East Mojave Scenic Area, California—March 26–April 2. *Leader, Ken Horner, 1223 Yale Ave., Claremont, CA 91711. Price: \$295, Dep: \$35.* Spring gives us a perfect opportunity to visit the desert region proposed as Mojave National Park in Sen. Alan Cranston's California Desert Protection Act. From our camp at 5,600 feet, we will take leisurely to moderate day hikes to 600-foot sand dunes, caverns, canyons, cinder cones, volcanic spires, mesas, and petroglyphs. More strenuous peak climbs are also a possibility. A naturalist will be with the group to help us learn more about this beautiful area.

[88048] Southeastern Wilderness Exploration I, Nantahala/Pisgah Forests, North Carolina—May 7–14. *Leader, Chuck Cotter, 1803 Townsend Forest Lane, Brown Summit, NC 27214. Price: \$205, Dep: \$35.* The first in a new series of trips takes us to beautiful western North Carolina. Numerous small wilderness areas were established throughout the state as a result of the 1975 Eastern wilderness bill and the 1983 North Carolina wilderness

bill. By using two different base camps we will be able to see five of these pristine and primeval areas. Everyone will be transported to the trailheads via carpools to keep expenses to a minimum. This trip is ideally suited for people who do not enjoy the physical demands of an extended backpacking trip but still want to have a wilderness experience.

SPECIAL

[88049] Habitat Studies, Gila Wilderness, New Mexico—May 15–21. Leaders,

Right: Milestone Valley, Sierra



ROBERT COWAN

Belva Christensen and Don Lyngholm, P.O. Box 103, Flagstaff, AZ 86002. Price: \$495, Dep: \$35. This area became the first designated wilderness through the efforts of naturalist Aldo Leopold, who believed that land should be viewed as a community, not a commodity. This is the perspective we will take in studying the topography, geology, climatic effects, wetlands, plants, and animals of this beautiful wilderness. Our classes will be conducted by Don Lyngholm, formerly a range ecologist on the Navajo Reservation. Classes will alternate with field exercises, horseback riding, and fishing. Our camp will be near broad meadows at about 7,000 feet. Come discover the land that Aldo Leopold loved and respected.

[88153] John Day Fossil Beds National Monument, Oregon—June 11–19. Leaders, Temma and Marvin Pistrang, 15603 36th Ave., NE, Seattle, WA 98155. Price: \$330, Dep: \$35. The John Day Fossil Beds National Monument is a magnificent outdoor classroom. Daily hikes and field trips will take us to world-famous geological, paleontological, and archeological sites. We will also explore canyons and hilltops to collect minerals and view wildflowers and birds. Our lodging and meals



SUSAN HELLER

will be provided by the Hancock Field Station, an educational facility of the Oregon Museum of Science and Industry. The staff will present lectures and slide shows on the area's natural history. Other activities include viewing fossil collections, visiting a lapidary shop, and square dancing.

[88154] Laurel Fork, Monongahela Forest, West Virginia—July 3–10. Lead-

er, Dick Williams, 609 S. Taylor St., Arlington, VA 22204. Price: \$230, Dep: \$35. The eastern edge of West Virginia consists largely of densely wooded, low but rugged mountains. We'll camp at 3,600 feet in isolated cabins adjacent to beautiful Laurel Fork Wilderness. The immediate area offers numerous hiking trails, wildlife, meadows, wildflowers, beaver ponds, and rushing streams. Short drives to the trailheads on forest roads will permit us to explore the nearby wilderness areas on foot.

[88155] Historical Meadow Lake, Tahoe Forest, Sierra—July 17–23. Leader, Serge Puchert, 11025 Bondshire Dr., Reno, NV 89511. Price: \$290, Dep: \$35. This history-oriented base camp will be located in the heart of the Gold Country, north of Interstate 80. We will explore early habitats, old pioneer trails, abandoned mines, and ghost towns on short hikes in the Donner Pass area. Campfire discussions and lectures will provide further background on the history of this area. A recently improved logging road will give us direct access to our campsite at beautiful Meadow Lake.

[88156] Palisade Mountaineering, John Muir Wilderness, Sierra—July 18–29.

OUTINGS

Leader, Melvin Wright, 655 Ninth Ave., Menlo Park, CA 94025. Price: \$490, Dep: \$35. Below the largest glacier in the Sierra Nevada and surrounded by peaks to 14,242 feet, we will camp near timberline at 10,500 feet. The area provides a com-

tor, we'll be able to show-and-tell the folks back home what they missed. Hikers and camera bugs of all levels and ages will enjoy the rugged beauty of the central Sierra as well as the creature comforts of the lodge. (See trip #88159.)

[88158] Golden Trout Lake, John Muir Wilderness, Sierra—July 27–August 4. Leader, Fran Crothers, 1410 Pearl, Alameda, CA 94501. Price: \$475, Dep: \$35. Enjoy eight days amid majestic rock cathedrals, scores of trout-stocked lakes, cascading creeks, slopes of quaking aspen and lodgepole pine, and meadows of wildflowers. Our eight-mile hike in from North Lake (9,400 feet) along the North Fork of Bishop Creek takes us past Mt. Emerson, over Piute Pass (11,400 feet) and into our camp near timberline. Day hikes provide the opportunity to scramble up nearby peaks, explore alpine lakes, fish, and identify wildflowers, trees, and geological formations. We may also choose to drop into the forests below for an overnight stay.



Jim Maas

An outdoorsman and conservationist, Jim Maas enjoys giving back to the Sierra Club some of what he's gained from leading wilderness outings. Jim has participated in national outings since 1961 and been a national trip leader for the past 11 years. He became involved with the Club to give his sons "a sense of wonder in the wilderness and a feeling for the importance of preserving wild places." Now retired, he is a museum volunteer, author, columnist, and gardener. His travels include Mexico, Greece, Japan, Italy, and Hawaii. Being a good husband and a wag are among Jim's many talents. This year he's co-leading two base camp trips, one in the Golden Gate National Recreation Area (#88159) and the other in the Sierra (#88157).

plete mountaineering experience: birdwatching, hiking, boulder-hopping, travel over snow and glaciers, plus moderate climbing at high altitude. Practice is available near camp. Class V on North Palisade begins at 13,900 feet. Located between Third and Fourth Lakes, our camp is about eight miles from the end of the road at Glacier Lodge on Big Pine Creek. Fishing and vigorous swimming are also possible in addition to simply relaxing.

[88157] Donner-Tahoe Discovery and Photography, Sierra—July 24–31. Leaders, Jim Maas and Betty Watters, 1411 Holly St., Berkeley, CA 94703. Price: \$335, Dep: \$35. Our base is at the Club's own Clair-Tappaan Lodge at 7,200 feet near Norden, California. The trip features day hikes and an optional overnight hike in the Lake Tahoe and historic Donner Summit areas, both of which are highly photogenic. With the help of a photography instruc-

[88159] San Francisco Bay Discovery, California—August 3–10. Leaders, Jim Maas and Betty Watters, 600 Caldwell Rd., Oakland, CA 94611. Price: \$265, Dep: \$35. This is a new concept in base camping, suitable for kids and grownups. Traditionally base camps have been located in or near wilderness areas, but our camp will be at a secluded beach cove within sight of the city of San Francisco. From our base just across the Golden Gate, we will venture out each day to hike redwood forests, mountains, parks, and seashores. We will be making Sierra Club history with a sense of what has been done to conserve open space near a major population center. (See trip #88157.)

[88160] Canada's Coast Mountain Wilderness, Tweedsmuir Park, British Columbia—August 8–14. Leader, Dennis Kuch, Cambridge Bay, Northwest Territories, Canada X0E0C0. Price: \$895, Dep: \$70. We will visit Tweedsmuir Park during its semicentennial celebration, staying in historic Tweedsmuir Lodge and making daily forays by foot and van into the surrounding forest and mountains of the park and the historic Bella Coola Valley. Leisurely hikes will take us to a

fjord and alpine meadows, allowing ample time for a refreshing dip in the nearby Atmarko River as we learn about the area's natural and cultural history.

[88161] Foerster Lake, Sequoia Park, Sierra—August 8–18. Leader, Bob Maynard, 116 Orchard Rd., Orinda, CA 94563. Price: \$580, Dep: \$70. Enjoy a leisurely stay in the high Sierra at our lofty campsite east of Franklin Pass (11,700 feet) out of Mineral King. Views of the Great Western Divide, Kaweah Peaks Ridge, and the main crest of the Sierra will be the high-

STEPHEN KASPER



Above: Golden Gate National Recreation Area, California

lights of various day hikes. Moderate peakbagging, flower and tree identification, fishing, and photography will be daytime activities. At night our astronomer will explain the mysteries of the heavens.

[88162] Midnight Lake, John Muir Wilderness, Sierra—August 10–18. Leaders, Sue Estey and John Esterl, 216 Carmel Ave., El Cerrito, CA 94530. Price: \$390, Dep: \$35. Just below the Sierra Crest, we'll camp within three miles of 18 named lakes and six named peaks at about 10,800 feet. The high trailhead at Lake Sabrina (9,100 feet) provides a good start for the five-mile hike in past Blue, Emerald, and Dingleberry lakes. Fishing, swimming, flower identification, day hiking, and climbing peaks such as Mt.

OUTINGS

Haeckel (13,435 feet) and Mt. Wallace (13,377 feet) will occupy the time between sunrise photography and sunset camaraderie.

[88163] Canyon de Chelly National Monument, Arizona—August 27–September 3. Leaders, Carol and Tom Baker, 2328 33rd St., San Diego, CA 92104. Price: \$470, Dep: \$35. This trip is open to individuals and families with children eight and up. We'll spend a week at 6,000 feet on the Navajo Reservation, experiencing Navajo culture and history



NANDY SILVER

firsthand. We'll also investigate the canyon's geology, while an anthropologist will help us explore the archaeological riches of Anasazi, Hopi, and Navajo dwellings and rock art. Hiking is light, with some rocky scrambles and sand. Dunnage is trucked, so we carry only daypacks and water. Our longest hike is ten miles, the highest climb 1,000 feet.

[88164] Bodie Fall Photography Workshop, California—September 18–25. Leader, Tom Roy, 9 Sunset Trail, Rockwall, TX 75087. Price: \$485, Dep: \$35. Sharpen your picture-taking skills in an authentic ghost town. From a nearby base camp we will photograph Bodie and other points of interest, accompanied by a professional photographer. The week will include discussions of technique and hands-on experience. This easy, vehicle-supported trip is suitable for experienced and beginning photographers.



NANDY SILVER

country overnight backpack will allow us to explore the forests, history, fauna, and geology of this southern Appalachian mountain range. Highlights include Thunderhead (5,530 feet), Mt. Le Conte (6,593 feet), and a few miles on the Appalachian Trail. We will stay in group camps at Cades Cove (1,807 feet, in the western section of the park) and Cataloochee (2,610 feet, eastern section). Participants will have a choice of easy and moderate hikes.

[89311] Geology of Death Valley, California—December 24, 1988–January 1, 1989. Leader, Jim McCracken, 3450 Yosemite, El Cerrito, CA 94530. Price: \$395, Dep: \$35. The ranges bordering Death Valley display upward of 10,000 feet of almost totally unobscured folded Paleozoic sediments. Other geological features include recent fan and lakebed deposits and Precambrian rocks almost a billion years old. We will explore much of the area aided by a professional geologist, with regular campfire talks. Vigorous hikes are planned, and side trips to Scotty's Castle, a ghost town, and other sites will be easy to arrange.

NOTE: See Family, Foreign, and Canoe trips for other base camp outings.

SPECIAL

[89310] Great Smoky Mountains Park, Tennessee/North Carolina—September 24–October 1. Leader, Helene Baumann, Route 6, Box 909, Hillsborough, NC 27278. Price: \$280, Dep: \$35. A variety of day hikes and an optional back-

BICYCLE

Doing no more harm to the environment than walking, bicycling covers much more country in a way that puts you closely in touch with your natural surroundings. Some trips intersperse travel days with layover days, but all include ample time for activities such as swimming, hiking, and sightseeing. Terrain and distance variations require different levels of skill and physical conditioning. Most trips are self-contained (no sag wagons), so trip members carry all gear on their bikes and buy groceries daily. Leader approval is required.

[88052] Bicycling the Outer Banks, North Carolina—May 29–June 4.

Leader, Fred Gooding, Jr., P.O. Box 142, Vassar College, Poughkeepsie, NY 12601. Price: \$285, Dep: \$35. Our North Carolina cycling tour will focus on the country's first national seashore. During our excursion we'll pass three historic lighthouses, take two ferry rides on Pamlico Sound, swim on the unspoiled beaches of the Outer Banks, and enjoy some of the finest and most varied seafood in the East. We'll carry all our gear, buy groceries daily, and camp in private and state-operated campgrounds as well as in those of the Cape Hatteras National Seashore. Spring is an excellent time of year to visit this coastal region.

[88168] Vermont Bicycle Tour—June 5–11.

Leader, George Neffinger, 207 Lexow Ave., Nyack, NY 10960. Price: \$425, Dep: \$35. Starting from the shores of Lake Champlain, we'll spend six days bicycling central and southern Vermont, with a touch of New York state. Each night will be spent at a lovely campground, except the last night, when we'll stay at a country inn with all the amenities. We will cycle through rolling countryside dotted with farms and wood-

lands, and through quaint New England villages with antique and craft shops as well as historic sites. Moderate daily mileages should allow time for swimming (at least once in an abandoned quarry).

Right: Adirondack Forest Preserve, New York. Above: Rocky Mountains.

shopping, picnicking, and just relaxing. A sag wagon will transport community and personal gear.

[88169] Wisconsin Hills and Valleys—

June 5–12. *Leader, John Arthur, 1301 Hwy 7, Apt. 141, Hopkins, MN 55343. Price: \$345, Dep: \$35.* Pack your panniers for this scenic eight-day tour traversing the rolling hills and valleys between Madison, Wisconsin, and the Mississippi River. Using the state's superb system of paved country roads, we'll travel through open farmland and small towns to the bluffs of Devils Lake State Park and to Wildcat Mountain. A layover day at Wyalusing State Park will allow ample time for exploration and photography. The tour is highlighted by an overnight stay at a historic inn in Mineral Point, site of one of the earliest mining villages in Wisconsin. We'll average 55 miles per day of moderately strenuous riding, carry our own gear, and camp most nights. Contrary to popular belief, Wisconsin isn't flatter than a trip leader's singing, so be prepared: The name of the trip says it all.

[88170] Lake Michigan Shoreline Cycling, Wisconsin and Michigan—June 18–25.

Leaders, Alice Van Deburg and Larry Ten Pas, 441 Virginia Terrace, Madison, WI 53705. Price: \$325, Dep: \$35. We'll pedal from Wisconsin's Green Bay to Michigan's Upper Peninsula, over the Straits of

J. MICHAEL LITWIN



OUTINGS



MICHAEL DETHROCKOVSKY

Mackinac, down to Sleeping Bear Dunes National Lakeshore amid the splendor of springtime flora along the shores of Lake Michigan. Highlights include lumberjack menus (without the timber harvesting), a side trip to Mackinac Island, and a rest day in the dunes. We'll carry our own gear and camp each night, averaging 60 miles of cycling per day.

[88171] Cycling Colonial Virginia—June 26–July 3. *Leaders, Bob Mathis and Tali Stopak, 2208 Colston Dr., Apt. 103, Silver Spring, MD 20910. Price: \$275, Dep: \$35.* Delve into history as we cycle through rural Virginia. We will explore Jamestown, the first permanent English settlement; and Williamsburg, a living colonial town. Our tour will take us near the Chesapeake Bay and its tributaries. There will be opportunities to explore cultural, recreational, and historical sites of colonial America. We'll average 58 miles per day of moderate riding, carrying our own gear and camping most nights.

[88172] Acadia Bike and Hike, Maine—June 19–25. *Leader, Bill Lankow, 178 Fairmount Ave., Hackensack, NJ 07601. Price: \$250, Dep: \$35.* Acadia, the only national park in the Northeast, is coastal Maine at its very best, combining mountains, cliffs, and beaches. From our base camp we will bike through villages, past inlets and bays studded with lobster buoys, and along carriage paths. When we reach the trailhead we will hike to the

summits of the mountains of Acadia, which offer views of Frenchman Bay, numerous islands, and Somes Sound, the only true fjord on the East Coast. There will be time for flora and fauna identification and swimming. The combination of hilly biking and hiking makes this a moderate trip.

[88173] Northern Great Parks Bicycle Tour, Montana—July 17–24. *Leaders, JoAnn and Paul Von Normann, 732 S. Juniper St., Escondido, CA 92025. Price: \$375, Dep: \$35.* Our moderately strenuous, 300-plus-mile, self-contained bicycle tour will follow Bikecentennial's



DEBBIE SAKAFAR

first international trail. This section of the route passes through some of the most scenic areas in the northern Rockies. We'll cycle along the gentle Swan River Valley to Glacier National Park, and explore its counterpart at Waterton Lakes in Canada. The excitement of pedaling over the Continental Divide with the Hanging Gardens in full view will challenge us to a variety of terrain sure to please the avid cyclist.

[88174] Lake Placid Circuit, Adirondack Park, New York—August 7–13. *Leader, John Borel, 130 Lancaster St., Albany, NY 12210. Price: \$375, Dep: \$35.* Circle the Adirondack High Peaks wilderness area, riding an average of 35 miles a day to allow for sightseeing, swimming, and shopping. The route is unexcelled in its panoramic views of the High Peaks, including Mt. Marcy at 5,344 feet. En-

compassing some of the world's oldest mountains, the 6-million-acre Adirondack State Park is larger than six states. We'll ride through the 100-year-old forest preserve and along the shores of Long, Tupper, Saranac, Placid, and Cascade lakes. The tour is appropriate for bicyclists of all levels. A sag wagon will transport gear.

[88175] Cape Cod and Islands Bicycle Tour, Massachusetts—September 12–18. *Leader, Betsy Cutler, 131 Sand Hill Rd., Middletown, CT 06457. Price: \$310, Dep: \$35.* September is the time when Cape Codders enjoy summer. The ocean is warm and the weather is perfect for swimming, beachcombing, and travel. We will stay at youth hostels while we explore Martha's Vineyard, Nantucket, and the outer reaches of Cape Cod. Moderate daily mileages over quiet roads will allow time for browsing and exploration of the area's historic villages. The trip will begin and end in Hyannis.

SPECIAL

[88176] Cycling Through the Shenandoah Valley, Virginia—September 17–24. *Leader, Martin Joyce, 4815 Roberta Dr., Pittsburgh, PA 15236. Price: \$360, Dep: \$35.* On this moderate loop trip we will be riding over rolling country in the shadows of Massanutten Mountain and Shenandoah National Park, with ample time to explore caverns, regional parks, and historical sites, sample the local cuisine, and take side trips. We will average 50 miles a day with one layover day. A sag wagon will carry the gear.

[89314] Hudson River Valley Fall Foliage Bike Trip, New York—October 2–8. *Leader, John L. Kolp, 453 Warren St., Brooklyn, NY 11217. Price: \$300, Dep: \$35.* This magnificent river valley inspired the great landscape artists of the 19th century with its mountain vistas, rich farmlands, and broad river views. We will enjoy the same scenery, bright with the "million blazing trees of autumn," with the added attraction of touring the many historic sites and towns we pass through as we journey north along the east bank of the river. A sag wagon will carry the gear.

NOTE: See Foreign and Hawaii trips for other bicycle outings.

KILL THE COLD

PACK THE ULTIMATE WEAPON AGAINST THE COLD AND DAMP. SLEEPING BAGS WITH DU PONT INSULATING FIBERS.

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BURRO

The friendliest and gentlest of pack animals, burros are your companions on these wilderness outings. Suitable for the novice camper or seasoned outdoorsperson of any age, a burro trip is truly a different type of outing. The burros are led by participants and carry most of the load. Although the burros' pace on the trail is not fast, participants must be in good physical condition. Most routes are at high elevations (8,000 to 12,000 feet) and a typical day covers five to ten miles.

Everyone takes part in the trip activities, including cooking, burro care and wrangling, and dishwashing. Layover days provide free time for relaxation or more strenuous activity. The burros provide elements of adventure and gentleness not found on other outings. A burro trip is a fine opportunity to get to know these delightful animals, see some beautiful wilderness, and learn about the outdoors.

[88178] Cora Lakes Family Trip, Ansel Adams Wilderness, Sierra—July 24–31. *Leader, Linda Coffin, P.O. Box 132, Pleasanton, CA 94566. Price: adult, \$400; child, \$265, Dep: \$35.* This moderate trip offers a unique wilderness experience for families. With the help of our friendly burro companions, we will hike up the Isberg Pass Trail through forest and meadows to visit Cora Lakes (8,400 feet), Saddle Lake (9,345 feet), and other alpine lakes near the southeastern border of Yosemite. On layover days there will be plenty of time to relax in camp, day hike, or swim and explore the lakes, which offer excellent trout fishing.

[88179] Around the Triple Divide, Ansel Adams Wilderness/Yosemite, Sierra—July 31–August 14. *Leader, Mark Roderick, 731 Florida, Apt. 101, San Francisco, CA 94110. Price: \$770, Dep: \$70.* Join our burro friends on this loop around Tri-

ple Divide Peak. On our two-week trip we will cross three high passes (all above 10,000 feet) and explore the headwaters of three rivers: the North Fork San Joaquin,

the Merced, and the South Fork Merced. Hard moving days will buy us lots of layover time for mountain fun. This trip is for those who want a rugged alpine trip without the rush. After two weeks in the Sierra, you'll never want to leave.

[88180] Breeze Lake and the Buena Vista Crest Family Trip, Ansel Adams Wilderness/Yosemite, Sierra—August 14–21. *Leader, Steve Akeson, 129 Lake Ave., Piedmont, CA 94611. Price: adult, \$400; child, \$265, Dep: \$35.* We begin our trip with a climb through mixed conifer forest to enter southern Yosemite above 10,200-foot Fernandez Pass. After a visit to Breeze Lake, we wend our way along the Buena Vista Crest, then turn north to the Mono Meadow trailhead. Layover days will allow time for day hikes and/or recovery. Opportunities abound for catching brook trout in the numerous lakes en route. This trip is rated moderate.

[88181] Heart of Yosemite Park, Sierra—August 21–28. *Leader, Cathy Neuhauer, 1711 Cork Place, Davis, CA 95616. Price: \$400, Dep: \$35.* Ever wonder what lies behind the familiar Yosemite landmarks of Glacier Point, Half Dome, and Vernal Falls? This trip is your chance to find out. In addition to going down the Illilouette Valley and crossing the top of Nevada Falls, our route will include parts of the Little Yosemite Valley and high mountain lakes near Cathedral Peak before coming out near Tuolumne Meadows. Elevations on this moderate trip will range from 7,000 to 10,000 feet, with layover days for relaxation. This promises to be a delightful trip.

DAVID HOLMES



FAMILY

Making it easy for families to enjoy the outdoors together is the one specific goal shared by all wilderness threshold trips. We introduce families to the joys of camping in a cooperative atmosphere and allow children to experience the fun of outdoor living with others their own age. Adults and older children share commissary duties and other camp chores. Besides helping less experienced families learn basic outdoor skills, the program tries to increase awareness of an area's plants and animals and an appreciation of ecological relationships. In addition to two-parent families, we welcome single parents, grandparents, or aunts and uncles.

Threshold camps vary. On wilderness trips, packstock is used to transport food, dunnage, and equipment from roadhead to camp. On other trips motor vehicles may be used to transport gear while participants hike from camp to camp. On lodge-based trips the "camp" is but a few yards from the road. In all cases the area surrounding each campsite offers opportunities for family enjoyment: nature study, day hikes, solitude, fishing, and swimming. The group meets for breakfast and supper, with lunch packed at breakfast. Most activities are informal and unstructured. Evenings often involve group activities.

Before you choose a trip, be sure to read the trip description carefully. There are different levels of difficulty and sometimes age or conditioning restrictions. General good health is required and some physical conditioning is advisable. Families going into high-country camps should plan to spend a day at high altitude before the trip for acclimatization.

[88044] Texas Toddler Tromp: Springtime in the Hill Country—April 3-9. Leaders, Steve and Janice Hanson, P.O. Box 160033, Austin, TX 78716. Price: adult \$215, child \$140, Dep: \$35. The central Texas hill country is delightful in the

spring, with pleasant temperatures and a profusion of wildflowers. We will set up base camps in two state parks (moving once) and visit several interesting natural areas, including waterfalls, a grotto, and a 500-foot granite dome. This trip is de-

signed for families with children two to five years old, so our hikes and excursions will generally be leisurely.

[88183] Little Harbor, Santa Catalina, California—June 25-July 1. Leader, Jim Absher, 225 Ansley Dr., Athens, GA 30605. Price: adult \$295, child \$195, Dep: \$35.

Share a diverse, exciting adventure on Santa Catalina Island. "From the Mountains to the Sea" will be our theme: We'll explore the central portion of this 26-mile-long nature preserve from mountaintop and coastside camps. Along the way we'll have the opportunity to see buffalo, fox, bald eagle, endemic plants, crashing surf, and sandy beaches. We'll also see evidence of Native American culture and enjoy marvelous sunsets and panoramic vistas. A naturalist will accompany us and help build our understanding of the island's unique ecosystem. There will be plenty of time to swim or relax in the sun. This trip is best suited for families with children six years and up. Two seven-mile hikes are included; while neither is strenuous, all family members should be in good shape.

[88184] Clair Tappaan Family Week, Sierra—July 3-10. Leaders, Beth and Bob Flores, 2112 W. Portobello, Mesa, AZ 85202. Price: adult \$295, child \$200, Dep: \$35.

The Sierra Club's own Clair Tappaan Lodge is nestled high in the Sierra Nevada near Lake Tahoe. This rustic old ski lodge is situated near natural and historical areas, hiking trails, and lakes and streams. Interpretive hikes with a naturalist and special nature-related activities for the youngsters are planned. The comforts of the lodge with its hot tub, fireplace, great meals, family-style sleeping bunks, and much more make for a great family experience in the Sierra without giving up all the amenities. This trip is suitable for families with children five and older.

[88185] Joe Crane Lake, Ansel Adams Wilderness, Sierra—July 16-23. Leaders, Carol and Tim Baker, 2328 33rd St., San Diego, CA 92104. Price: adult \$415, child \$280, Dep: \$35.

This camping trip to Joe Crane Lake is perfect for families with children six and up. Eleven-thousand-foot Post Peak is just a mile over our shoulders. We'll hike, swim, fish, and bag peaks. Some peaks, like Sadler, are easy for children; some, like Foerster at 12,058 feet, are harder but provide spectacular views of Yosemite and the Ritter Range.

'The mixture of people on the trip was great. I consider myself lucky to have spent 12 days with such a group.'

S. V., Austin, TX



Above: Sierra Nevada, California

ED BOGINGTON

Steve and Janice Hanson



Steve and Janice Hanson both work for the U.S. Postal Service and hail from Austin, Texas. Steve, a leader since 1975, has been active in his local chapter and enjoys sharing with others the places he and Janice find especially pleasing. Before they married, the Hansons co-led a Rio Grande canoe trip and a backpack trip in New Mexico. The family base camp trip they lead this year (#88044) will be their first with their son, Erik. Steve's interests include geology, land forms, stamp collecting, and railroads. Janice enjoys gardening, computers, and wildlife. They both like telling stories about exciting wilderness incidents and singing a cappella.

The walk to Joe Crane Lake (9,600 feet) is long: We climb 2,600 feet over ten miles from our trailhead at 7,000 feet.

[88187] Redwood Park Family Outing, California—July 17–24. *Leaders, Beth and Bob Flores, 2112 W. Portobello, Mesa, AZ 85202. Price: adult \$320, child \$215, Dep: \$35.* Redwood National Park contains 78,000 acres of towering virgin redwoods, magnificent ocean beaches, deep canyons, herds of elk, miles of beautiful hiking trails, and high golden bluffs with dramatic ocean views. The park provides an ideal setting for learning about nature firsthand, be it through photography, beachcombing, observing marine and wildlife, exploring the many trails (both hiking and interpretive), or simply slowing down to the rhythms of the ancient giants.

[88186] Gaspé Family Outing, Gaspé Peninsula, Quebec—July 17–24. *Leaders, Wanda and Tom Roy, 9 Sunset Trail, Rockwall, TX 75087. Price: adult, \$370, child \$245, Dep: \$35.* Come discover the Gaspé Peninsula on this family car camping trip. From Central Gaspésian Park we'll travel north along the St. Lawrence River to Percé, Quebec, taking time along the way to explore the countryside. Hiking, beachcombing, swimming, and exploring the area's natural history (including a visit to a world-renowned bird sanctuary on Bonaventure Island) are some of the activities planned. Our menus will feature the region's seafood. For families with children six years and up.



CAROL DENGER

[88188] Acadia Toddler Tromp, Acadia Park, Maine—July 24–30. *Leaders, Claudia Stoscheck and John Rogers, 256 Bruce Hill Rd., Spencer, NY 14883. Price: adult \$275, child \$180, Dep: \$35.* Acadia National Park is rich with all the natural wonders the New England coast has to offer—mountains, forests, lakes, wooded streams, islands, and the rugged sea coast. Maritime tradition permeates the small fishing villages dotting the park's location on Mt. Desert Island, in contrast to the more modern charm of Bar Harbor. Acadia is well suited for a family trip, with accessible hiking trails, bicycle paths, canoeing opportunities, and both fresh and saltwater swimming. This is a base camp designed for the interests and capabilities of families with toddlers.

NOTE: See Base Camp, Burro, Hawaii, and Service trips for other suitable family outings.

FOREIGN

On a Sierra Club foreign outing, trip participants enjoy wilderness-adventure travel to some of the most exotic locations on Earth. As a trip participant, you may find yourself cross-country skiing in the Austrian alps, trekking in the Himalayas, taking pictures of wild animals in Africa, or bicycling through central China.

Your foreign trip will also be a socially and culturally rewarding experience. You will meet local people, visit them in their homes, enjoy their cuisine, and learn to appreciate their customs and traditions. You will also likely develop life-long friendships with your fellow trip members.

Like all Sierra Club outings, some foreign trips can be physically demanding, while others are more leisurely. On some trips you camp in remote areas, while on others your accommodations could range from small guesthouses to comfortable and quality-conscious hotels. Be sure to read the trip announcement and supplement to determine which trip is right for you.

Unlike ordinary tour agencies, the Sierra Club is conservation oriented in all its outings and seeks to promote an understanding of local environmental issues. On foreign trips, participants are often witness to the tragic results of deforestation, soil erosion, industrial air and water pollution, and other man-made ecological disasters. We try to learn about the country and its conservation problems by talking with local conservationists who share our environmental concerns.

On a Sierra Club Foreign Outing, you will be in capable hands. Your trip will be organized, coordinated, and led by experienced and competent leaders who are sensitive to the needs of trip members as well as those of the host culture and natural environment. Your trip will be a richly rewarding experience. Be sure to bring with you a spirit of adventure.

Foreign trip prices do not include airfare.



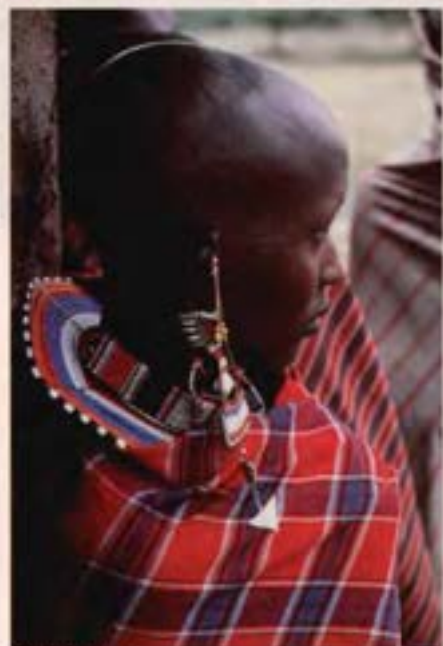
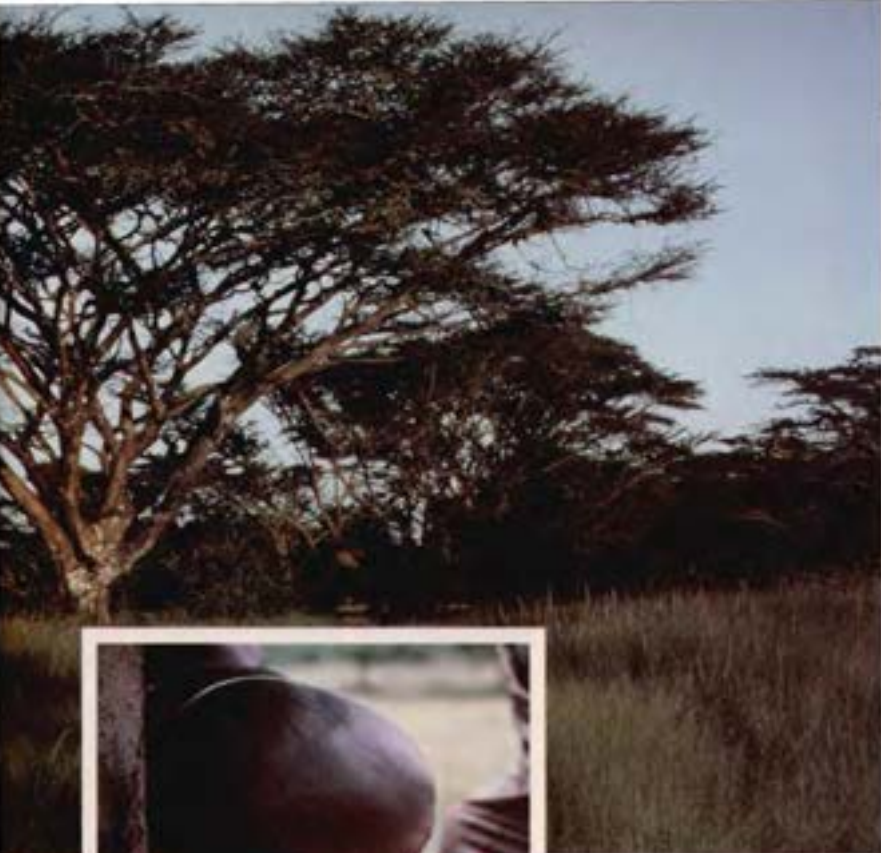
KEVIN HILDEBRAND

AFRICA

[88635] African Safari Spectacular: Tanzania—June 29–July 13. *Leader, Bud Bollock, 1906 Edgewood Dr., Palo Alto, CA 94303. Price: \$2,790, Dep: \$100.* Share the unusual experience of a stay at Jane Goodall's chimpanzee preserve on the shores of Lake Tanganyika. Then, from our safari camp, observe the vast herds of migrating wildlife on the seemingly limitless plains of the Serengeti. At Ngorongoro Crater, the world's largest concentration of game roams the Masai homeland. We travel by Land Rover to view Olduvai Gorge, site of the Leakeys' fossil discoveries. Nearby Lake Manyara National Park features elephant herds and tree-climbing lions. Come visit some of the finest, least-spoiled places on Earth. Leader approval required.

SPECIAL

[88660] Journey Through Time: Early Man and Wildlife Safari, Kenya and Tanzania—July 20–August 10. *Leader, Ruth Dyche, 2747 Kring Dr., San Jose, CA 95125. Price: \$4,340, Dep: \$100.* East Africa's rich anthropological sites where fossils of early man continue to be discovered are the focus of this unique and varied journey. Humanity's past will be revealed to us as we visit Richard Leakey's camp at Koobi Fora on Lake Turkana, Olorgesailie near Lake Magadi, Hydrax



Left: A Masai woman, Kenya. Above: Loita Hills, Kenya. Above right: Laikip Plateau, Kenya.

KEVIN HILDEBRAND



Hill, Kariandusi, and Olduvai in the southern Serengeti. We will also visit the best wildlife areas of Tanzania and Kenya: Ngorongoro Crater, Lake Manyara, and the Masai Mara provide an unrivaled game-viewing experience. Accommoda-

ANW WHITEHEAD



KEVIN HILDEBRAND

tions will be in comfortable lodges and tented camps. Travel will be by Land Rover and twin-engine aircraft. An anthropologist will accompany us to help interpret the mysteries of man's beginnings.

[88700] Walk on the Wild Side in Kenya—September 7-27. *Leader, Anneliese Lass-Roth, 712 Taylor Ave., Alameda, CA 94501. Price: \$3,655, Dep: \$100.* "Rugged and rewarding" sums up our three-week walking safari, which incorporates animal viewing with intercultural sharing. The trip will provide a fascinating blend of Kenya's varied fauna, flora, and culture. Hiking will be moderately strenuous. Leader approval required.

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

'Our leader's sensitivity to the people of Nepal and to the natural environment made this trip outstanding.'

L. S., Bethesda, MD



LAURIE ANN BARBOUR

ASIA

[88545] Rolwaling Trek, Nepal—March 20–April 10. *Leader, Peter Owens, 117 E. Santa Inez, San Mateo, CA 94401. Price: \$1,160, Dep: \$100.* This trip offers a 19-day trek into the remote Rolwaling Himal, west of Mt. Everest a few miles south of the Tibetan border. Known as the "Furrow" in the Sherpa language, the Rolwaling has always held a mysterious fascination; tales of the Yeti, the elusive abominable snowman, have poured from the handful of Sherpas who live there. Spring comes early to Nepal, and the rhododendron, Nepal's national flower, will be in full bloom. Maximum elevation reached will be 16,000 feet. Leader approval required.

[88575] China, Tripping the Eastern Fantastic—April 28–May 17. *Leader, Dolph Amster, P.O. Box 1106, Ridgecrest, CA 93555. Price: \$2,970, Dep: \$100.* Come and experience a slice of today's metropolitan and rural eastern China. From Beijing to Shanghai we will explore cities and villages, communes and temples. We will do overnight ascents of T'ai Shan (5,000 feet) and Lotus Flower Peak (6,000 feet) in the Huang Shan (Yellow Mountains), go for a boat ride on Tai Lake, and stay with a farm family. Traveling by plane, train, and bus (plus doing

some hiking), our accommodations will be the best available hotels or guest-houses. This is a moderate, easy-paced trip. Leader approval required.

[88580] Flowers and Birds of the Kingdom of Bhutan—April 30–May 20. *Leader, Jane Edginton, 2733 Buena Vista Way, Berkeley, CA 94708. Naturalist, Hugh Braswell, M.D. Price: \$2,995, Dep: \$100.* Where snowy Himalayan peaks shine above Buddhist monasteries, and the dense forest abounds with rhododendrons in exuberant blossom, we'll trek at altitudes of 6,000 to 13,000 feet and explore the unspoiled, secluded kingdom. The countryside will be alive with exotic birds in spring plumage, including the blood pheasant, the fire-tailed sunbird, and the brilliant blue Grandala. On this moderate trek we should see blue poppies, carpets of primula, orchid-laden trees, langur monkeys, and perhaps the elusive snow leopard. In this rare jewel of Tibetan Buddhism, handcrafted and painted architecture, and ancient culture, we will tour massive medieval fortresses and hike up to Taksang (Tiger's Nest), Bhutan's most famous monastery, which clings to the face of a cliff. We'll see handwoven textiles, the Royal Dancers, perhaps glimpse the popular young king, and sample local cider, trailside yellow raspberries, and yak cheese.



STEVE FARRISH

SPECIAL

[88590] The Garhwal Himal, Abode of the Gods, India—May 16–June 8. *Leader, David Horsley, 4285 Gilbert St., Oakland, CA 94611. Price: \$1,910, Dep: \$100.* The Garhwal, located in the northeast corner of India, is a part of the Himalayas that is little known to trekkers. Yet the mountains of this region are often described as the most interesting and impressive of the entire range. The trip begins in Delhi, where we take a private bus to Rishikesh and Haridwar, visiting Hindu temples on the banks of the Ganges River en route to our trailhead. Our trek encompasses the spectacular "Valley of Flowers" and Kuari Pass regions, taking

OUTINGS

us through beautiful forests and flowering meadows with the Himalaya Mountains (including India's highest peak, Nanda Devi) and their glistening glaciers always

MARK MARSDEN



Far left: Dhaulagiri, Nepal.

in view. The trails in the Garhwal rarely climb to more than 14,600 feet, but they can be steep and physically demanding. The rewards of this trek will be many. From our exalted vantage point it will be easy to see why the Garhwal is considered the Abode of the Gods.

[88600] Everest From Tibet via Kathmandu, China and Nepal—May 22–June 14. *Leader, Peter Owens, 117 E. Santa Inez, San Mateo, CA 94401. Price: \$3,185. Dep: \$100.* Join us for the Sierra Club's first trip to Rongbuk Glacier and Everest Base Camp on the Tibetan side, starting and ending in Nepal. Included are overland visits to both Shigatze and Lhasa in Tibet, as well as Kathmandu sight-seeing in Nepal. The trek will reach a maximum elevation of 17,000 feet.

[88615] Guilin and Yunnan Bicycle Tour, China—June 12–July 1. *Leader, Sy Gelman, 1387 Seventh Ave., San Francisco, CA 94122. Price: \$2,760. Dep: \$100.* This is a bicycle tour for the adventurous. Exploring Guilin and Yunnan Province, "the land of eternal spring," we will ride through spectacular and unusual landscapes, visiting areas few foreigners reach. We will also stop along the way to see the Great Wall and the sights in Beijing. Our Chinese ten-speed bikes will give us the freedom to roam through open-air markets, meet and mingle with the Chinese

people, and observe their lifestyles. A sag wagon will transport our luggage and give us an occasional break from biking. Expert English-speaking guides will be our interpreters. Expect the unusual: This will be an experience to remember.

[88630] Tilicho Lake, Nepal—June 25–July 23. *Leader, Bob Madsen, 3950 Fernwood Way, Pleasanton, CA 94566. Price: \$1,550. Dep: \$100.* One of the highest lakes in the world at 16,300 feet is nestled behind the Annapurna Massif. We'll reach Tilicho Lake after a 12-day hike. Starting our trek in a tropical region, we'll ascend to alpine country, gradually acclimatizing ourselves in the process. We'll pass through villages with Hindu and Buddhist cultures. During this monsoon-season trek we can expect rain only about half the time. The Tilicho Lake region is in the rain shadow, to afford days of no moisture. The return trip will be on an equally interesting route.

[88655] Batura Glacier, Nanga Parbat, Hunza Trek, Pakistan—June 25–July 24. *Leaders, Patrick Colgan and Peter Owens, P.O. Box 325, La Honda, CA 94020. Price: \$2,205. Dep: \$100.* Our trip to the Northwest Frontier District of Pakistan will include two eight-day treks. The first explores the 30-mile-long Batura Glacier in Upper Hunza, which offers unforgettable views of the 25,000-foot Batura Peaks. The second trek starts in the Astor Valley beneath the sheer south face of 26,600-foot Nanga Parbat, the ninth-highest peak

LAURE-ANN BARBOUR



in the world. Between our two treks we will visit remote Hunza Valley, a real "Shangri-la" renowned for its long-lived inhabitants. Rakaposhi, at 25,500 feet, rises majestically above the valley's many apricot orchards. Maximum elevation reached will be about 14,000 feet.

[88705] Tian Shan China Trek—September 11–30. *Leader, Don McIver, 7028 W. Behrend Dr., Glendale, AZ 85308. Price: \$2,675. Dep: \$100.* This trip will take us to Xinjiang Province in far northwest China, location of the beautiful Tian (Heavenly) Shan Mountains. The province's capital, Urumchi, is an oasis amid barren deserts,



Carolyn Downey

This year marks Carolyn's tenth as an active Sierra Club volunteer. She originally joined the Club to become more involved in conservation issues with her local chapter, and eventually went on to hold the position of vice-chair in the Grand Canyon Chapter. Since 1981 Carolyn has been involved in a number of outings, both as a participant and as a staff member. Besides leading a number of trips, she has filled other important staff positions, such as assistant leader and commissary manager. A registered nurse, she enjoyed assisting local villagers with medical problems on a 1986 trek in Nepal. Carolyn's leadership skills, sense of humor, and her willingness to serve on trips in a variety of staff positions make her a real asset to the Outing Program. This year she'll be leading trips to Mexico (#88047) and Nepal (#89810).

forested highlands, and snow-capped peaks. Near the famous "Silk Road" trade route, middle-eastern influences are strong and ethnic minorities still dress in colorful costumes and practice their distinct cultural traditions. While in the mountains we'll hike and camp at Sky Lake. In Turfan, an oasis more than 500 feet below sea level, the grapes, melons, and music of the Uygur people offer a special treat. Returning to the east, we'll stop at Xi'an to see the ceramic army of

OUTINGS

the Qin emperor, and at Beijing to visit the Forbidden City and the Great Wall. Travel will be by plane, train, and bus. The best available accommodations will be provided.

[89800] Yangtse Valley—Grand Canal, China by Bicycle—September 25–October 15. *Leader, Phil Gowing, 2730 Mabury Sq., San Jose, CA 95133. Price:*

Below: West Lake, Hangzhou, China



BUD BOLLOCK

\$2,650, Dep: \$100. China is a land of eternal wonder, with fascinating and beautiful scenery, exotic cultures, and warm and friendly people. This trip will be a great opportunity to explore the Yangtse delta area and tour a bit of the Grand Canal. On our bicycles we will rub elbows with the Chinese as they go about their daily business, visit some of the smaller villages and rural areas, see the great sights of some of the major cities, and satisfy much of our curiosity. We will visit the Great Wall, the Ming Tombs, the Forbidden City, Mao Zedong Memorial Hall, and much more. You don't have to be an expert cyclist to join us. We plan only 35 to 50 flat miles per day at a leisurely pace, with backup vehicles available for inclement weather and tired cyclists.

[89805] Annapurna Circle Trek, Nepal—October 3–28. *Leader, Serge Puchert, 11025 Bondshire Dr., Reno, NV 89511. Price: \$1,560, Dep: \$100.* On this moderate 26-day trip we will circle the Annapurna Massif by a route that takes us up the Manang Valley and over Thorong La Pass (17,650 feet). Then we descend to Muktinath, a sacred shrine for both Buddhists and Hindus, and proceed down awesome Kali Gandaki gorge between Annapurna and Dhaulagiri. We'll have time to explore Kathmandu and Pokhara, Nepal's second-largest city. Throughout the trip we will have the opportunity to interact with the

Nepalese and learn about their various cultures. Leader approval required.

[89810] Helambu, Majesty and Monasteries of Nepal—October 30–November 18. *Leader, Carolyn Downey, 1931 E. Duke Dr., Tempe, AZ 85283. Price: \$1,295, Dep: \$100.* As an ancient Sanskrit proverb says, "A hundred divine epochs would not suffice to describe all the marvels of the Himalayas." See some of these marvels as you trek in the spectacular Helambu area north of Kathmandu. Near our highest elevation (13,000 feet) at Panch Pokhari (Five Lakes), there are splendid views of the Himalayas all the way east from Langtang to beyond Everest . . . a perfect spot for our layover day. This will be a moderately paced trek. Porters will carry dunnage and we'll have ample time to photograph the mountains, mingle with the local inhabitants in teahouses, visit Buddhist monasteries, and experience the incredible beauty of the area.

JOHN DECOCK



Above: Buddhist Temple, Phuket, Thailand

[89815] Mountains to Jungle, Gorkha-Chitwan Photo Trek, Nepal—November 21–December 10. *Leader, Dolph Amster, P.O. Box 1106, Ridgecrest, CA 93555. Photographer, Martha Murphy. Price: \$1,710, Dep: \$100.* Following two days in the Kathmandu Valley, this culturally and photographically oriented trek leaves historic Gorkha for Gurung, Tamang, and other villages where westerners seldom go. En route for 12 days, we will view the Manaslu, Annapurna Himal, and many other high peaks, and pass the gumpa at Serandanda. We proceed to Royal Chitwan National Park and stay in comparative luxury for two nights in a lodge. At the park we will view many species of jungle animals as well as enjoy special eve-



Above: Swayambunath Temple, Kathmandu

ning entertainment. This is a moderate trek with a maximum elevation of 11,500 feet. Leader approval required.

SPECIAL

[89817] Thailand, A Journey to Its Temples, Hills, and Beaches—November 22–December 8. *Leader, David Horsley, 4285 Gilbert St., Oakland, CA 94611. Price: \$1,415, Dep: \$100.* Come share the opportunity to visit the beauty of this exotic land. Friendly people, ancient and modern Buddhist temples, palaces, historic ruins, and sun-warmed beaches and clear waters will provide an unforgettable trip for even the most experienced traveler. Our trip starts in Bangkok, where we will visit the ornately fanciful King's Palace and numerous wats (Buddhist temples). A day will be spent

Below: Kara Beach, Phuket, Thailand



JOHN DECOCK

OUTINGS

touring the ancient capital of Ayutthaya before we fly north to the city of Chiang-Mai and the hills of the "Golden Triangle." Chiang-Mai will provide opportunities for us to purchase traditional Thai arts and crafts before we start our trek into the jungle to visit the very independent tribal hill people. Following the trek we will fly to the island of Phuket in the south. Here we will enjoy swimming and snorkeling in the warm ocean water and relaxing on the sandy beaches. Before returning to Bangkok we will also visit the scenic islands of Phangnga Bay.

[89825] Lamjung Christmas Trek, Nepal—December 17–31. *Leader, Peter Owens, 117 E. Santa Inez, San Mateo, CA 94401. Price: \$955, Dep: \$100.* Come spend the holiday season on this moderate 12-day trek into the charming Gurung villages located on the eastern slopes of the Annapurna range. Our route takes us very close to Annapurna IV (24,688 feet), Annapurna II (26,041 feet), and Lamjung (22,740 feet). Timed to coincide with school holidays, this trip will emphasize interaction with local people and our Sherpa and Tamang staff. Many of our evenings will offer opportunities to join in local singing and dancing. Maximum elevation reached will not exceed 13,000 feet. Leader approval required.

[89830] South China Sea Hike and Leisure Backpack—December 20, 1988–January 2, 1989. *Leader, Phil Gowling, 2730 Mabury Sq., San Jose, CA 95133. Price: \$1,520, Dep: \$100.* There is another Hong Kong, rarely seen by westerners. We will hike rural and remote Lantau Island, the MacLehose Trail in the New Territories, and the scenic and rugged countryside surrounding the Shenzhen Special Economic Zone in the People's Republic of China. The dramatic and spectacular coastline and beaches of the South China Sea will be constantly in sight. We will spend our evenings in youth hostels, guesthouses, and monasteries as well as camp out. There will be ample time to visit remote fishing villages, along with an in-depth tour of newly modernized Shenzhen City. We will conclude our visit by celebrating and participating in the Second Annual Mt. Wutung Friendship Summit Meeting with a hiking group from the British Crown Colony of Hong Kong and a hiking group from Shenzhen in the People's Republic of China.

LATIN AMERICA

[88532] Magdalena Bay Sea Kayaking, Baja California, Mexico—February 20–26. *Leader, Carol Dienger, 3145 Bandera Dr., Palo Alto, CA 94304. Price: \$780, Dep: \$100.* Few methods of travel allow a more intimate bond with nature than kayaking. Journey with us on the narrow waterways of tranquil Magdalena Bay. This is the winter home of hundreds of California gray whales. To these protected inner waters the whales come each year to mate or bear their young. We'll also be able to see a wide variety of migrating shore and sea birds as we paddle through miles of mangrove-lined channels. On the barrier island, huge rolling barchan dunes await exploration, while miles of uninhabited shoreline are a paradise for the beachcomber. This trip is designed for inexperienced to expert paddlers. Instruction will be given and a support boat will carry duffel, food, and fresh water. The trip begins and ends in La Paz.

[88533] Belize: Reef and Ruins, Central America—March 5–14. *Leader, Karen Short, 826 14th St., San Francisco, CA 94114. Price: \$1,070, Dep: \$100.* The longest barrier reef in Central America, an amazing variety of birds and wildlife, and mysterious Mayan ruins—we will explore these and more in Belize! Using a rustic ranch as our base, we'll spend several days in Belize's lush interior exploring limestone caves, a jungle river, and local ruins. A highlight will be an overnight visit to the magnificent Mayan ruins of Tikal in neighboring Guatemala. Then we'll move

to the Caribbean coast and a palm-studded island adjacent to the barrier reef. We'll stay at a small guesthouse on the beach, snorkel in crystal-clear 80° water, and feast on fresh seafood.

SPECIAL

[88550] Exotic Highland and Lowland Parks of Costa Rica—March 27–April 2. *Leader, J. Victor Monke, 9033 Wilshire Blvd., Suite 403, Beverly Hills, CA 90211. Price: \$1,180, Dep: \$100.* Come explore the incredibly diverse flora and fauna of Costa Rica in the company of expert naturalist guides. In the highlands we will visit Poas volcano's moonscape peak, with its mile-deep active caldera. We'll also go to adjacent Emerald Lake and the Monte Verde Cloud Forest, the habitat of 2,330 species of plants, birds, and mammals. In the lowlands we'll visit the Palo Verde Refuge, a sort of intercontinental hotel for migratory fowl, and historic Santa Rosa, abundant with wildlife. It's springtime every day in Costa Rica. Come and enjoy this exotic and beautiful country.

[88553] Sea of Cortez Kayaking, Baja California, Mexico—April 2–8. *Leader, Harry Neal, 25015 Mt. Charlie Rd., Los Gatos, CA 95030. Price: \$780, Dep: \$100.* Espiritu Santo and Partida islands lie off the Gulf Coast north of La Paz. Explore sandy coves and inlets (excellent fishing and snorkeling), hidden canyons, fascinating geology, and spectacular desert vegetation. Spend a day snorkeling at Los



Above: Sacsayhuman, Peru

BOB BOLLOCK

Islotes (a sea lion rookery). This trip is designed for inexperienced to expert paddlers. Instruction will be given and a support boat will carry duffel, food, and fresh water. The trip begins and ends in La Paz.

[88565] River Rafting, Jungle and Beach Adventure, Costa Rica—April 23–30. *Leader, Mary O'Connor, 2504 Webster St., Palo Alto, CA 94301. Price: \$1,255, Dep: \$100.* This one-week adventure provides a variety of fascinating activities and environments. We will begin with three exciting days of paddle rafting on the Rio Pacuare with a professional river guide. We will experience the thrills of white-water and the serene beauty of deep river canyons, jungle beaches, clear pools, and spectacular waterfalls. A short flight will take us to Manuel Antonio National Park, one of Costa Rica's most beautiful areas, where jungle and beach intersect. A large variety of birds and wildlife can be seen on jungle hikes. The beach offers swimming, body surfing, and snorkeling. Marine life abounds. There will be two days in the historic city of San Jose and optional tours will be available for further exploration.

[88047] Mexico: Mayans and Mountains—April 29–May 7. *Leader, Carolyn Downey, 1931 E. Duke Dr., Tempe, AZ 85283. Price: \$1,380, Dep: \$70.* Ancient Mayan ruins, rivers, mountains, and beautiful colonial towns are the highlights of this trip south of the border. In the states of Tabasco and Chiapas we will visit the major Mayan ruins of Palenque, Yaxchilan, Bonampak, and Comalcalco, plus other, smaller sites. Because of the possibility of the Rio Usumacinta being dammed, this may be our last chance to experience some of these incredible ruins. In addition we will spend time high up in the mountains enjoying one of the most fascinating and charming cities in Mexico, San Cristobal de las Casas, at 7,200 feet. Our trip originates in Villahermosa and continues via air-taxi and bus. Accommodations will be in hotels, and participants will have the opportunity to enjoy local cuisine for some meals. Air transportation to Villahermosa is not included in the trip price.

[88610] Tawantinsuyo: The Four Quarters of the World, Bolivia and Peru—June 4–27. *Leader, Jerry Clegg, 9910 Mills College, Oakland, CA 94613.*



Above: Machu Picchu, Peru

CHARLES SCHULTZ



CHARLES SCHULTZ

Price: \$2,570, Dep: \$100. By plane, boat, train, and on foot this ambitious outing will take you through all four ecological zones of one of the world's great scenic areas. Starting on the *altiplano* of Bolivia east of Lake Titicaca at La Paz, we wind through the ice peaks of the Vilcabamba range to reach Machu Picchu in eastern Peru, delve into the Amazonian rainforest, and end up on the coastal desert of the Pacific at Lima. En route you will come to know the world's highest capital city, its highest navigable lake, and its highest rail line. You will make sturdy friends, hike to 15,000 feet, see unfamiliar stars, wander about imposing ruins and vast markets, and have an extraordinary time in the extraordinary remains the Incas called Tawantinsuyo.

[88620] Peru-Bolivia Adventure—June 20–July 10. *Leader, Chuck Schultz, 1024-C Los Gamos, San Rafael, CA 94903. Price: \$2,540, Dep: \$100.* Peru, at the heart of the Inca Empire, and Bolivia, a bit off the beaten path, both offer high Andes adventure. After a visit to Lima we'll go to Cuzco, gateway to the Urubamba Valley and Machu Picchu. We have five days in the Cuzco-Pisac-Machu Picchu area, then a glorious train ride across the *altiplano* brings us to Lake Titicaca, home of the Uros Indians and site of the austere *chulpas* of Sillustani. Crossing into Bolivia, we visit the Callawayas (known for their herbal healing) before beginning our five-day trek in the Cordillera Apolobamba. Our journey takes us to isolated hamlets and Inca mines and over glacier-guarded passes. Trek elevations range from 12,000 to 16,000 feet. At trek's end we're off to La Paz (seeing *vicanias* along the way) for R&R and a brief visit to Tiahuanaco before returning home.

BETTY POLLACK



EUROPE

[88540] Arlberg Ski Adventure, Austria—March 19-26. *Leader, Ann Hildebrand, 1615 Lincoln Rd., Stockton, CA 95207. Price: \$1,610, Dep: \$100.* Experience skiing where it all began—the renowned Arlberg area of Austria. With the expertise of local guide-instructors, we can perfect our off-piste technique using the convenience of ski lifts. The possibilities for unforgettable descents are nearly limitless as we ski from village to village. The group will be divided into two eight-person sections for the most advantageous instructor/skier contact. Accommodations will be in a comfortable hotel in Lech. The trip is designed for intermediate to advanced downhill skiers who like the thrill and challenge of off-piste skiing. On-piste possibilities are available for the less adventurous.

SPECIAL

[88560] Paris, France: A Different Perspective—April 21-30. *Leaders, Sidney Hollister and Sandy Tepfer, 42 August Alley, San Francisco, CA 94133. Price: \$1,905, Dep: \$100.* A Sierra Club trip to Paris? *Mais oui!*—a trip that will show you a Paris the tourist doesn't see. Explore what ties Paris to its region "ecologically," and sample Parisian life as Parisians live it. French environmentalists will explain to us how Paris gets its water and gets rid of its wastes, how it struggles to keep its air clean and move millions of people around the city every day, where its power comes from, and where Parisians go to escape the city's bustle. And, of course, we'll walk. A buyer will guide us through the Parisian wholesale produce market and we'll visit some of the city's more than 50 outdoor retail markets—including those serving the varied immigrant population. Our Parisian home will be a hotel in the heart of this ever-changing yet timeless city of light.

[88595] Walks in Historic Portugal—May 22-June 5. *Leader, Joe Lee Braun, 1323 Brandy Lane, Carmichael, CA 95608. Price: \$1,895, Dep: \$100.* Our route combines walking excursions with visits to cultural and historic areas of Portugal. Mountain ridges rising to 6,500 feet offer panoramic vistas and easy to moderate



*Left: St. Johann, Tyrol Valley, Austria.
Above: Notre Dame de Paris, France.*



STEPHEN KASPER

walks following the pathways of the Romans, Moors, Spaniards, and Portuguese. Vans will transport our group, accompanied by a Portuguese guide, to accommodations at *pensions* and *estalagens*. Along the way we will visit historic towns of the 12th to 14th centuries.

[88605A] Walking in the West Country, England—June 5-21. *Leader, Robin Brooks, 920 Kennedy Dr., Capitola, CA 95010. Price: \$2,225, Dep: \$100.*

[88605B] Walking in the West Country, England—June 12-28. *Leader, Jane Edington, 2733 Buena Vista Way, Berkeley, CA 94708. Price: \$2,225, Dep: \$100.* Cornwall, Devon, and Somerset are prime country for walkers. In Dartmoor National Park, sharp granite outcroppings punctuate the lonely moors where

Sherlock Holmes met the Hound of the Baskervilles. Gentler Exmoor National Park is *Lorna Doone* country, complete with picture-book villages, castles, and churches. The dramatic cliffs of the South West Coastal Path surround the entire West Country; Subtropical gardens and picturesque fishing villages on the Channel Coast contrast with the rugged



Sigrid Miles

A resident of Napa, California, Sigrid Miles grew up in Germany. She'll visit her native land this summer when she leads her first foreign outing to the Black Forest [#88680]. Sigrid has been hiking since she was a youngster and has toured much of Europe with family members. With her husband Ken, she went on her first Sierra Club national outing to Alaska in 1983. Taken by the beauty of northern landscapes, Sigrid is also leading a trip this year to Atlin Lake in British Columbia [#88080]. She is hoping to lead a trip to Cape Dorset in northeastern Canada—once she and Ken get an opportunity to scout the area. A physical therapist, Sigrid likes to relax by gardening, bird watching, skiing, and exploring the Napa countryside.

OUTINGS

Atlantic. Comfortable hotels featuring local specialties like Devonshire clotted cream, Cornish pastries, and Somerset cider await us after our moderate walks.

[88640] Ireland Bike and Hike—July 9–23. *Leader, Don Donaldson, 4125 Terra Granada, Apt. 1B, Walnut Creek, CA 94595. Price: \$1,690, Dep: \$100.* Ireland is a land revered in song and verse, a land of tumultuous history in 40 shades of green. We'll visit castles, keeps, and ruins through counties Clare, Galway, Mayo, and Sligo. For two memorable weeks we'll leisurely make our way on back roads along Erin's beautiful west coast, through the land of Joyce and Yeats, and spend our nights in Irish guesthouses and farmhouses. There will be optional hiking, biking, or relaxing on layover days. A sag wagon will ferry dunnage on moving days. Our trip starts at Shannon Airport (near Limerick), visits Galway and Sligo towns, and ends on the northern coast, where we'll bus back to Limerick.

[88645] Hiking the Northern Basque Country, France—July 10–23. *Leader, Nancy Auken, 120 Sheridan Rd., Oakland, CA 94618. Price: \$1,675, Dep: \$100.* Hiking sparsely traveled trails of the Pyrenees, our French guide's route will include ancient Roman roads, magnificent gorges, and shepherds' summer mountain homes. A visit to a Basque museum pre-

views this unique cultural experience. We will attend *fiets*, a *pelote* game, and celebrate Bastille Day, the most lively French national holiday. A van will carry our baggage to each *gite* (hostel), where meals are specially prepared by a French cook. The hikes will be moderately strenuous—an average of eight to ten miles a day with 3,000 foot ascents and descents. This trip is a rare combination of scenic beauty, great hiking, and cultural learning.

[88650] Tyrolean Hiking Tour, Austria—July 18–August 2. *Leader, Vicky Hoover, 735 Geary Blvd., Apt. 501, San Francisco, CA 94109. Price: \$1,480, Dep: \$100.* On this 16-day adventure wandering in the heart of the Austrian Alps in the provinces of Salzburg and Tyrol, we'll hike from one alpine hut to another—from the picturesque town of Lofer near musical Salzburg, via historic Kufstein, to charming Mittenwald at the Bavarian border. We'll also enjoy occasional hotel stops in between. We need carry only personal belongings and lunches as we wander in civilized European style high above the villages, past spectacular meadows, rocks, and snow scenery. Our route includes the famed Kaiser Gebirge, the rugged Karwendel Alpen, and the sparkling Achensee. Daily hikes will be mostly moderate but often steep, offering sufficient challenge to the experienced hiker and plenty of scenic excitement to the Alpine traveler.



CAROL DENIGER

[88665] Cultural and Historical Outing to the Rooftop of Europe, Switzerland—July 28–August 6. *Leader, Bert Gibbs, P.O. Box 1076, Jackson, CA 95642. Price: \$2,175, Dep: \$100.* A ten-day hiking tour to one of the most scenic areas of Switzerland, the region of Graubünden, will focus on flora and fauna as well as the culture and history of the Romansh people. One of the many delights of this outing will be a ride on the famous Glacier Express to the Italian-speaking part of Switzerland. The hiking will be moderate but at a leisurely pace. Accommodations will be in a comfortable hotel.

[88670] Service Trip to the Austrian Tyrol—July 31–August 14. *Leader, Jean Ridone, 272 Coventry Rd., Kensington, CA 94707. Price: \$805, Dep: \$100.* This will be a moderately strenuous trip that combines the satisfaction and fun of a service trip with the adventure of a foreign outing. We will be working with members of the Austrian Alpine Club, Innsbruck Chapter. The first week will be spent repairing and maintaining trails; the second week we will set up a base in the village of Igl, which sits on a shelf above Innsbruck, and take daily trips into the surrounding countryside. Leader approval required.

[88680] Around the Feldberg, West Germany—August 15–27. *Leader, Sigrid Miles, 1056 First Ave., Napa, CA 94558. Price: \$1,510, Dep: \$100.* The Feldberg is the highest mountain in the Black Forest, rising to 4,900 feet. Our walk in the Black Forest leads us through picturesque villages, isolated hiking trails, forest and

ROUND TRIP AIRFARES from San Francisco/New York to Foreign Cities

These approximate fares were quoted by our travel agent in October 1987 for this catalog. The information is provided as an aid in planning your foreign trip. Fares are of course subject to change, and the fare you pay will be the one in effect at the time you purchase your airline ticket. Trip leaders often negotiate lower group fares, and we suggest you contact your trip leader to get this information. Lower fares may be available but are often subject to restrictions and cancellation penalties.

Destination	SF/NY	Destination	SF/NY	Destination	SF/NY
Alice Springs	\$1397/1632	Hong Kong	\$ 726/ 935	Munich	\$ 670/ 446
Arusha	1690/1516	Islamabad	/1200	Nairobi	1596/1423
Auckland	1062/1268	Istanbul	1126/ 940	Paris	677/ 505
Bangkok	853/1060	Kathmandu	1272/1488	San Jose,	532/ 478
Barcelona	852/ 680	La Paz, Mexico	250/ 517	Costa Rica	
Beijing	1060/1296	La Paz, Bolivia	1078/ 834	Santiago	1116/ 935
Belize	564/ 515	Lisbon	757/ 582	Shanghai	957/1203
Calcutta	1131/1059	London	780/ 670	Shannon	750/ 580
Christchurch	1300/1508	Madrid	813/ 687	Tel Aviv	919/ 756
Copenhagen	1035/ 837	Melbourne	1440/1677	Zurich	697/ 525

OUTINGS

meadows with alpine flora, and up and down mountains with beautiful views of the surrounding valleys. We will stay in first-class hotels, our luggage will be transported, and all we need are our daypacks, cameras, binoculars, good hiking boots, and the spirit to experience this unique way of enjoying the hospitality of West Germany's Black Forest.

[88690] Central Alps, France—September 4–16. *Leaders, Marilyn and Jerry South, 483 Throckmorton Ave., Mill Valley, CA 94941. Price: \$1,670, Dep: \$100.* Moving between village inns and mountain huts, we explore Les Ecrins and Queyras, two parks southeast of Grenoble. In the repose of early autumn, these adjacent preserves offer the hiker contrasting terrain ranging from 13,000-foot peaks and dazzling glaciers of the high Alps to lush, sun-drenched meadows of the lower, Mediterranean-influenced elevations. We'll have some layover days, hiking options, and time to seek the Sierra Club plaque marking our early 1970s visit to this fabled region.

[88695] Biking in Denmark—September 4–17. *Leader, Len Lewis, 140 Stacy Lane, Grass Valley, CA 95945. Price: \$2,345, Dep: \$100.* Denmark is a biker's paradise: 23,000 miles of bike paths, and the highest point in the country is only 500 feet above sea level. Our route will take us from Copenhagen across the island of Zealand, then by ferry to the island of Fyn, north through Jutland, and back by ferry to Zealand and Copenhagen. There we will visit the famous Tivoli Gardens and climb the Round Tower for a great view of the city. Among the highlights of our trip will be the beautiful lake country of Viborg, and Elsinore of Shakespeare's *Hamlet*. This is an easy to moderate trip for the young at heart.

[88710] Hiking Tour of the Austrian Alps—September 21–29. *Leader, Len Lewis, 140 Stacy Lane, Grass Valley, CA 95945. Price: \$1,155, Dep: \$100.* This will be a nine-day moderate hike in the Voralberg area of western Austria. Hiking from one picturesque village to the next, we'll stay overnight in small guesthouses or *pensions*, where we will enjoy the renowned Austrian *gemütlichkeit*. Our luggage will be transported each day to the next stop, so you carry only items needed for the day. Leader approval required.

MIDDLE EAST

[88995] Exploring Israel—March 8–29. *Leader, Ray Des Camp, 510 Tyndall St., Los Altos, CA 94022. Price: \$2,545, Dep: \$100.* Our trip through Israel will give us an intimate view of this tiny land—its people, its landscapes, and its political, religious, and natural history. Driving, hiking, camel trekking, and flying will allow us the broadest possible exploration of the country. Our itinerary will include the coastal area and headwaters of the Jor-

dan in Galilee to the north, through the Judean Desert and the Negev to Elat, the Gulf of Aqaba, and the Sinai to the south. We'll travel with an English-speaking Israeli guide to a crusader castle, a Druze village, Jericho, Qumran, Ein Gedi, Masada, and the Dead Sea. We'll sample kibbutz life; visit the monastery of St. Catherine, where we'll climb Jabal Musa (Mt. Sinai); swim in the Gulf of Aqaba; and explore and enjoy Jerusalem. While on tour we'll stay overnight in hotels and kibbutzim, or camp out.

PACIFIC BASIN

[88535] Wander Down Under, New Zealand—February 24–March 18. *Leader, Vicky Hoover, 735 Geary Blvd., Apt. 501, San Francisco, CA 94109. Price: \$2,055, Dep: \$100.* The spectacular and varied scenery and friendly people of New Zealand make for thrilling, joyous traveling. Optimum value for your 24-day tour is provided by alternating the intensive experience of three separate, four-day segments of backpacking with extensive

the Volcanic Plateau and East Cape regions of North Island, features mountain lakes and seashores, hot springs, world-class trout fishing, and Maori culture. Comfortable motel accommodations, meals served in dining facilities, and a van to carry our luggage are included. Ample free time is also provided.

[88685] Australia's Northern Territory Wilderness—August 29–September 18. *Leader, Pete Nelson, 5906 Dirac St., San Diego, CA 92122. Price: \$2,160, Dep: \$100.*



Above: North Island, New Zealand

intervals of car camping. We'll visit both North and South islands in this faraway paradise of snowy mountains, deep-cut fjords and lakes, lush rainforests, unspoiled beaches, and unique native birds. The Milford Track will be one of our tramping ventures.

[88555] North Island Bike Tour, New Zealand—April 10–23. *Leader, Don Laskowski, 2483 Camino Venido, San Diego, CA 92107. Price: \$2,315, Dep: \$100.* This moderate bicycle tour of two of New Zealand's most scenic and historic areas,

This wildlife-oriented safari begins and ends at Alice Springs near the geographical center of Australia. Our travels take us from the desert outback to the ocean at Darwin, with emphasis on tropical river camps. We will explore Kakadu National Park, the Arnhem Land escarpment, the Tanami Desert, outback cattle stations, colorful gorges and chasms, waterfalls, aboriginal rock art sites, thermal springs, and eucalyptus forests. There will be time for wildlife viewing, swimming, and exploring. We will sleep under the stars, and enjoy country fare with Australian wines.

HAWAII

The Hawaiian archipelago offers a unique mid-Pacific setting for a number of interesting Sierra Club trips. Hawaii trips are designed to let participants enjoy the natural splendor of the islands as few other tourist groups do. Campsites are usually in county, state, national, or private parks, often within sight and sound of the Pacific. On most trips, travel from camp to camp is by car. All Hawaiian outings include day hikes, and although there are overnight hikes on some, none are mandatory. Whether you join a hiking trip, spend a day on the beach, or read a book in camp is up to you.

[88055] Spring in Hawaii—March 25–April 2. *Leaders, Ray and Lynne Simpson, 4275 N. River Way, Sacramento, CA 95864. Price: \$595, Dep: \$70.* The Big Island of Hawaii is the perfect location to celebrate the arrival of spring—in a land of tropical sunshine, balmy air, and warm, azure seas. Most of our campgrounds are within sight and sound of the Pacific, on private land or in state beach parks. Cooks on Hawaii trips take pride in featuring favorite foods of the Pacific Basin, and each participant has the opportunity to assist in preparation. Snorkeling, day hikes, and possibly one overnight hike will be planned for those interested, but they are optional. One may choose instead to sit each day under the palms and count the coconuts.

[88056] Kauai Family Camping Trip—April 1–9. *Leader, Ned Dodds, 19 Erin Ct., Pleasant Hill, CA 94523. Price: adult \$595, child \$395, Dep: \$70.* Come car camp with us on the Garden Isle, known for its lush vegetation, sheer cliffs, and some of the most beautiful beaches in the Hawaiian Island chain. We are currently contemplating three campsites around the island to allow exploration of all its major fea-

tures. A selection of leisurely activities suitable for both families and singles will be available at each campsite, including hiking, beach exploration, or just plain lounging.

[88057] Big Island Coasts, Hawaii—May 7–16. *Leaders, George Winsley and Lou Wilkinson, 241 Sequoia Dr., San Anselmo, CA 94960. Price: \$620, Dep: \$70.* Two backpack trips along the coasts of Hawaii's Big Island will allow us to visit both the wet windward side of the island and the dry leeward side. We will have the opportunity to swim under mountain waterfalls, frolic in the surf, and hike on remote, black sand beaches. Our second trip along the coast of Hawaii Volcanoes National Park is a unique experience in hiking across recent lava flows to remote bays and beaches. This trip may be combined with the Mauna Loa backpack trip (May 17–21), which will enable you to backpack from sea level to more than 13,000 feet. Leader approval required.

[88058] Mauna Loa Summit, Hawaii—May 17–21. *Leader, George Winsley, 241 Sequoia Dr., San Anselmo, CA 94960. Price: \$270, Dep: \$35.* The hike to the summit of

JUDITH KUPPLE



Above: Haleakala National Park, Maui, Right: Hanalei Falls, Maui

JUDITH KUPPLE



DAVID RUIZ



Mauna Loa volcano is a strenuous and challenging trip. From its base on the floor of the Pacific Ocean to its 13,000-foot summit, Mauna Loa is the largest single mountain mass in the world. Those who have made the hike remember the beauty of the shadow of the mountain on the clouds, the sense of accomplishment, and the hidden ice-cold water holes as some of the rewards. The ever-changing forms and colors of the lava flows we cross make this terrain unique. We will take time to acclimatize on the hike to the summit. Two nights at the summit cabin provide the opportunity to explore the rim of the caldera and some of the volcanic steam vents. This trip may be combined with the Big Island Coasts backpack (May 7–16). Leader approval required.

OUTINGS

[88190] Bicycle Tour of the Big Island, Hawaii—July 2–16. *Leader, Thelma Rubin, 899 Hillside, Albany, CA 94706. Price: \$745, Dep: \$70.* Our 300-mile cycling tour will circle this "continent in miniature." There will be seven travel days interspersed with seven layover days for hiking, swimming, and snorkeling. We will see the verdant Hamakua coast, the Ka'u Desert, and black and white sand beaches. The highlight of the trip will be Volcanoes National Park, which is at an altitude of 4,077 feet. This trip is ideal for the intermediate cyclist. A support vehicle will carry our dunnage.



[88191] Haleakala and Hana, Maui—July 24–31. *Leaders, Steve Griffiths and Suzanne Ortiz, 2 Sharon St., Apt. 3, San Francisco, CA 94114. Price: \$650, Dep: \$70.* Come explore two very special places on the island of Maui: Haleakala and Hana. Otherwise known as the House of the Sun, Haleakala is a 10,000-foot-high volcanic crater. Its landscape of cinder cones and colored sands is austere and beautiful. We'll backpack into Haleakala for three days before driving to Hana on the lush, windward side of the island. Here we'll stay in cabins at Wainapanapa State Park and relax by taking day hikes, snorkeling in calm bays, or swimming in cool streams scented with flowering ginger.

[88192] Hike and Camp on Kauai—August 27–September 4. *Leader, Joe Lee*

Braun, 1323 Brandy Lane, Carmichael, CA 95608. Price: \$630, Dep: \$70. Where else could one be at the wettest spot on Earth, walk through a 4,000-foot-high mountain swamp, and descend into what is known as the Grand Canyon of the Pacific, all within a 20-mile radius? During our first several days on Kauai we will do just that. Then we will drive our rented vehicles to the northwest side of the Garden Isle, where the more hardy of the group will hike the spectacular Na Pali coast to Ka-

STEVE GRIFFITHS



LINDA MALL

lalu Valley while the others take leisurely day hikes along deserted beaches and on tropical trails. Come to Kauai when everyone else is going home.

SPECIAL

[89315] Big Island Leisure Trip, Hawaii—September 30–October 9.



Eunice Dodds

Eunice Dodds has been involved with the National Outings Program since 1956. Since then she has been on 42 national outings, serving in a leadership capacity on 37 of them! Her travels with the Sierra Club have taken her to Hawaii, Micronesia, and Samoa. Eunice especially enjoys the role of commissary manager, and she has compiled a set of mouth-watering recipes for Hawaii trips. When she isn't traveling (most recently to France with the American Association of Retired Persons), Eunice likes reading and square dancing. This year she is leading a leisurely trip to Hawaii (#89315) that promises to be a delightful experience—and requires no camping.

Leader, Eunice Dodds, 2013 Skycrest Dr., Apt. 1, Walnut Creek, CA 94595. Price: \$690, Dep: \$70. All adults are welcome, especially those who want to explore the Big Island of Hawaii comfortably and leisurely and who are not interested in strenuous activities. The Big Island is awash with things to do and see, and we'll tour it in rental sedans. Jeep trips up Mauna Kea and into Waipio Valley are also possibilities. By staying in national and state park cabins, we won't need tents. The final day or two of our trip we'll spend in a Hilo hotel. Our own commissary chef will stress Pacific Island cuisine.

[89316] Holiday in Hawaii: Lava, Sand, Surf, and Snow—December 20, 1988–January 1, 1989. *Leader, Judy Nelson, 5906 Dirac St., San Diego, CA 93122. Price: \$960, Dep: \$70.* Spend your Christmas holiday on the Big Island of Hawaii and enjoy its incredibly diverse landscapes—lava fountains and flows, snow-capped mountains and sugarcane fields. We'll hike into deep valleys, swim in the surf, relax on black and white sand beaches and examine our 50th state's natural and cultural history. This trip is designed for participants of all ages and abilities.

HIGHLIGHT

Sierra Club highlight trips offer a flexible format for those who enjoy the wilderness but want to hike without a full pack. Packstock or motor vehicles carry each person's 20-pound duffel bag plus all the food and commissary equipment from camp to camp. On moving days participants are free to hike to the next camp at their own pace, provided travel is by trail. On some trips travel from camp to camp is by van, enabling participants to visit a wider range of environments.

Routes and mileages are usually within the ability of the average person who has done a reasonable amount of pretrip conditioning and acclimatization. Families with children nine or older are welcome.

Group sizes vary from 12 to 25 plus a small staff. Routes are chosen to provide maximum enjoyment with minimum wilderness impact. Travel between camps often provides unencumbered opportunities to fish, climb, hike to isolated viewpoints, or pursue other individual activities. Leaders emphasize conservation issues and interpret the natural history of the areas visited.

SPECIAL

[88195] Hells Canyon Llama Trek, Hells Canyon Recreation Area, Oregon—May 23–29. *Leader, Lois Snedden, 3595 Rosalinda, Reno, NV 89503. Price: \$870, Dep: \$70.* This leisurely to moderate loop explores a cross section of Hells Canyon National Recreation Area down to and along the Snake River. The deepest canyon in North America, Hells Canyon offers great diversity to the historian, geologist, or naturalist. The Nez Percé Indians wintered in the canyon, as did the miners and homesteaders who followed them. With the approach of summer's heat, the Nez Percé moved

away from the river, first onto the grassy benches and then into the high country. We can expect elk on the benches, snow still on the peaks towering 9,300 feet above us, and wildflowers, artifacts, and surprises at all levels. Few people enter this land on foot. We do so with gentle llamas to carry our gear while we enjoy Hells Canyon at its springtime best.

[88196] Steens Mountain High Desert Llama Trek, Oregon—June 5–11. *Leader, Madeleine Witters, P.O. Box 1233, Sisters, OR 97759. Price: \$840, Dep: \$70.* With gentle, inquisitive llamas carrying our gear, we will hike up two glacially

carved canyons of Steens Mountain, a 40-mile-long fault block rising from sweet-smelling sagebrush country to almost 10,000 feet. Flowing from the heart of this unique landscape are snow-fed streams that make the deep canyon bottoms lush with cottonwoods and the meadows green and filled with flowers. You will enjoy the beauty and remote feeling of these special BLM lands. In close proximity to



ROGER HAWKINS

Steens Mountain is Malheur Wildlife Refuge, one of the premier birding areas of North America.

[88197] Mineral King Leisure Highlight, Sequoia Park, Sierra—July 10–19. *Leader, Len Lewis, 140 Stacey Lane, Grass Valley, CA 95945. Price: \$795, Dep: \$70.* Are you tired of carrying that 40-pound pack? Would you like ten lovely days in the Sierra with no foot-killing 16-mile hikes? If so, then this trip is for you! Starting in fabled Mineral King, this highlight trip winds through subalpine country abounding with wildflowers, and lakes and streams for the fisherman. Four layover days will give us the chance to do some peakbagging, hike to a fantastic grove of redwoods, fish, or just kick back and enjoy being there. Five leisurely moving days make this trip enjoyable for beginners and young families.

[88198] Grand Tetons Leisure Ramble, Targhee Forest, Wyoming—July 28–August 4. *Leader, Sy Gelman, 1387 Seventh Ave., San Francisco, CA 94122. Price: \$715, Dep: \$70.* Experience the grandeur and magnificence of the Grand Tetons. Rugged mountains, glaciated valleys, and high granite basins are the backdrops as we ramble leisurely through what has been called a massive work of



Above: Grand Canyon, Arizona, **Right:** Three Sisters Wilderness, Oregon.

art. We will camp near beautiful lakes and streams offering many opportunities for the avid or part-time fishing enthusiast. Four layover days will allow us to rest, photograph, or do some peakbagging. This will be a wilderness experience to remember.

[88199] Clark Range, Yosemite Park/Ansel Adams Wilderness, Sierra—July 29–August 8. *Leader, Wilt Goggin, 18836 Lennox Ct., Castro Valley, CA 94546. Price: \$890, Dep: \$70.* An easy-paced loop of Sierra life zones will ascend from red fir forests at 6,500 feet to the alpine heights of Red Peak Pass, Yosemite's highest at 11,180 feet. Streams, lakes, mountains, and glacial land forms provide the setting in which trip participants may explore, photograph, fish, or sit quietly and observe. With alternating layover and moving days and mules carrying most of the burden, there should be time and energy available to become well acquainted with this lovely area.

[88200] Evolution Valley, Inyo Forest, Sierra—July 31–August 12. *Leader, Jerry Clegg, 9910 Mills College, Oakland, CA 94613. Price: \$795, Dep: \$70.* Evolution



RUTH THOETSCHEK

Valley is but the center of this classic high trip through the heart of the Sierra Nevada. Hiking starts from the roadhead at North Lake, off Highway 168 west of Bishop, and stops a few miles away at South Lake. Humphreys, Evolution, Ionian, Dusy, and Palisade basins are all explored, giving to the lover of peaks and cols an unsurpassed chance to become familiar with a marvelous mountain range. Five layover days are planned. The most strenuous mandatory hike will cover 11 miles and cross Muir Pass at 12,000 feet.

[88201] Monarch Divide, Kings Canyon, Sierra—August 7–19. *Leader, Bruce Gillies, 2950 Russell St., Berkeley, CA 94705. Price: \$685, Dep: \$70.* Starting at Cedar Grove in Kings Canyon (4,500 feet), we climb on trail for two strenuous

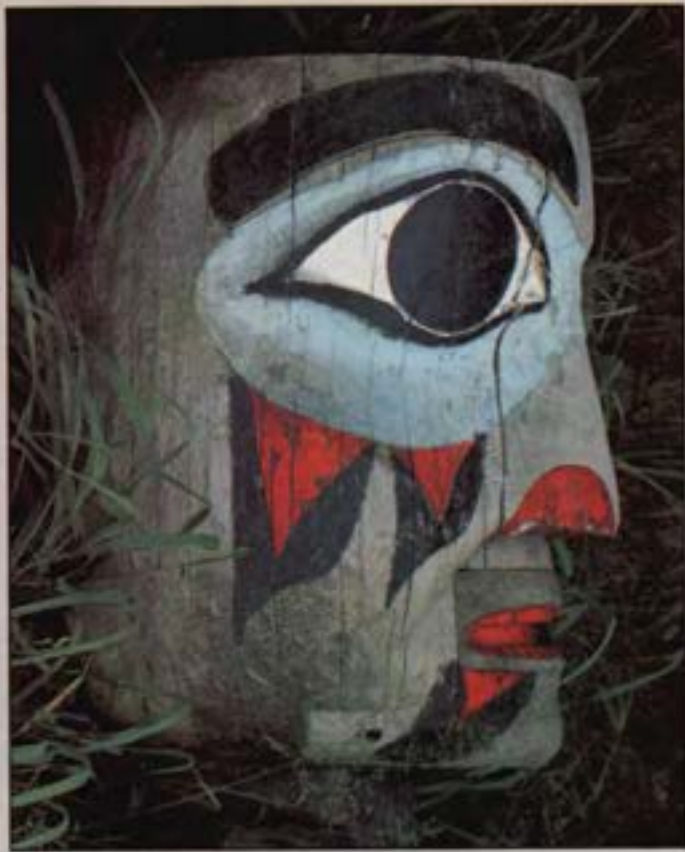
days to Kennedy Pass (10,800 feet), our spectacular gateway to the forests, streams, lakes, and granite peaks of the Monarch Divide, which runs east-west and separates the watersheds of the South and Middle Forks of the Kings River. This 12-day loop (six moving days and six layovers) will return to Cedar Grove via Granite Pass (10,700 feet). Families and hikers of all ages who are in good physical condition are welcome to join in this Sierra Nevada experience.

SPECIAL

[88202] The Grand Tetons West Slope, Targhee Forest, Wyoming—August 8–17. *Leader, David Horsley, 4285 Gilbert*

St., Oakland, CA 94611. Price: \$750, Dep: \$70. The rugged peaks of the Grand Tetons form the backdrop for this wonderful, leisurely paced hike through the Targhee National Forest, located just west of Grand Teton National Park. We will camp in glaciated valleys and high granite basins, spending our days hiking, peak climbing, fishing, and enjoying nature study. The wildflower display should be superb, and there should be plenty of wildlife to observe. The four layover days mixed with six days of moderate hiking make this trip easy for anyone in reasonably good condition.

[88203] To the Roof of the Sierra Around Four Gables, Sierra—August 21–28. *Leader, Bert E. Gibbs, P.O. Box*



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OUTINGS

1076, Jackson, CA 95642. Price: \$525, Dep: \$70. Four Gables Peak, located on the edge of the Sierra National Forest in the John Muir Wilderness, is the focal point of our outing. The hike over Piute Pass (11,423 feet) will take us through Humphreys Basin and into Hutchinson Meadow (9,439 feet). From there we will turn north into French Canyon and over Pine Creek Pass (11,150 feet). Our loop will end at Pine Creek, where there is a tungsten mill. During our eight-day highlight trip we will have four moving days with distances from six to ten miles. There will also be three layover days to enjoy the high country through day hikes, peak climbs, swimming, fishing, and ob-

GORDON WILTSIE



serving the flora and fauna. Novice hikers in good physical shape who can acclimatize to the high altitude should enjoy this hike.

[88204] Southern Yosemite, Sierra—September 10–17. Leader, Gus and Emily Benner, 155 Tamalpais Rd., Berkeley, CA 94708. Price: \$620, Dep: \$70. For those who can take a fall vacation, September in the Sierra means fewer people (and mosquitoes), less chance of rain, and excellent fishing. Our goal is the high country along the divide that separates the San Joaquin and Merced river drainages at the southern boundary of Yosemite National Park. Starting at the Granite Creek road-head east of Merced, we head right for the divide and stay high, camping at a series

of timberline lakes near 10,000 feet and crossing Isberg and Post Peak passes. We will enjoy views of the Clark Range to the west, the Cathedral Range to the north, and the Ritter Range to the east. The four moving days will be fairly vigorous, from 8 to 15 miles each. On the layover days we will have instruction in rock climbing and the opportunity to climb some high peaks.

[88205] Three Sisters Llama Trek, Oregon—September 12–17. Leader, Madeline Watters, P.O. Box 1233, Sisters, OR 97759. Price: \$790, Dep: \$70. The gem of Oregon's Cascades, the Three Sisters Wilderness, is an area of tremendous diversity. We will see lava flows, volcanic

REA HESS



peaks, glaciers, gushing springs, forests, and scenic meadows as we travel a leisurely six-day, 30-mile route. Intelligent, alert llamas follow quietly behind us as we hike along the trail, their soft feet and frugal eating habits making minimal impact upon delicate environments.

[88206] North Rim, Grand Canyon Arizona—September 21–30. Leader, Edith Reeves, 1739 E. San Miguel Ave., Phoenix, AZ 85016. Price: \$505, Dep: \$70. Pictures and words cannot adequately describe the Grand Canyon; it must be seen. Originating in Phoenix, this car camping and hiking trip will take us from Lee's Ferry (where the Grand Canyon begins) along the North Rim to Toroweap Overlook. Here we can look 3,000 feet straight down to the Colorado River. Frequent campsite changes and daily hiking will afford spectacular views for photographers. In the pine-covered high country of the North Kaibab Plateau we can expect to see the unique Kaibab squirrel and elk and

deer. On our way to Toroweap we will visit Pipe Springs, an early Mormon outpost.

[89300] Navajo Wildlands, Arizona—September 24–October 1. Leader, Lynn Krause, P.O. Box 398, Many Farms, AZ



Lois Snedden

Lois Snedden, a high-tech marketing consultant and freelance travel writer, has been a member of the Sierra Club for more than 20 years, and a national trip leader for 12 of them. What she likes most about leading trips is helping other people to enjoy the wilderness, preparing and planning good meals, and meeting people from different parts of the country. Her hobbies include cooking, fishing, and studying the history and literature of the West. In the spring she will lead a llama trek into Oregon's Hells Canyon National Recreation Area (#88195).

86538. Price: \$255, Dep: \$35. The Chuska Mountains of northeastern Arizona rise above red deserts of De Chelly sandstone. Located north of Canyon de Chelly, Boiling Over Wash and Hasbitibito Canyon also cut into the Chuska Range, making accessible the 8,000-foot-high, pine- and aspen-covered lava flows. Most of our hiking will be over slickrock, following Anasazi routes and Navajo sheep trails, making this a moderately strenuous trip appropriate for experienced hikers. A Navajo guide will help us find Basketmaker, Anasazi, and Navajo rock art as well as provide an orientation to Navajo history and customs. We will have a chance to watch a broiled fresh-lamb dinner being prepared, and then enjoy the results. Few visitors come to this area described by Philip Hyde in his *Navajo Wildlands*. Expect friendly curiosity from shepherd families we meet.

NOTE: See Foreign, Hawaii, and Base Camp trips for other highlight-type outings.

SERVICE

Combine the enjoyment of a backcountry outing with the satisfaction that comes from doing something positive for the environment. On most service trips, half the days are left free to enjoy the wilderness; half are work days to accomplish something worthwhile. Our trips are fun and spontaneous and the participants energetic and enthusiastic. You'll come back healthier and happier, having learned about the work that's necessary to keep the wilderness clean and healthy.

Pick a trip that's right for you. Our trips run through the spring, summer, and early fall, and take place in areas all across the country. Some cater to a particular clientele, such as families, beginning backpackers, or teens. Some are in backcountry base camps and some are at roadheads. Many are supported by pack animals to carry food and tools. Several are at cabins or lodges. Work experience is not necessary on any of the trips; we will train you.

Service trip fees are low because the program is subsidized by the Sierra Club and tax-deductible donations from corporations and individuals. All service trips require leader approval. Trip applicants will receive a questionnaire to fill out and send to the trip leader, who will let you know whether the particular trip is suitable for you. Members younger than 16 must contact the leader for special approval.

If you have been looking for a chance to contribute something to the wilderness, a service trip is surely the answer.

The Sierra Club's Service Trip Program wants Club members to know about river cleanup trips in the Pacific Northwest sponsored by Oregon River Experiences, Inc. (ORE).

Unfortunately, the Sierra Club can no longer obtain insurance for such trips, so we cannot sponsor or endorse these trips nor suggest that you attend, but we do

support the need for them, and ORE has been a long-time outfitter to us. For up-to-date information about their trips, contact ORE directly:

Oregon River Experiences, Inc.
30493 Lone Pine Dr.
Junction City, OR 97448
(503) 689-6198.



GRETCHEN MULLER

[88061] Superstition Wilderness Trail Maintenance, Arizona—April 3-10.

Leader, John Ricker, 2610 N. Third St., Phoenix, AZ 85004. Price: \$95, Dep: \$35. The Superstition Wilderness is a 450-square-mile area situated 40 miles east of Phoenix. It is made up of rugged mountains, streams, and desert vegetation to the west, turning to pinyon, juniper, and some ponderosa pine to the east. Our trip will take us to the southeast corner along the West Fork of Pinto Creek. There will be a short backpack to base camp at an elevation of 4,000 to 4,500 feet, where we will have time to explore the streams and climb a nearby peak.

[88210] Navajo Trail Maintenance, Kaibab Forest, Arizona—April 15-25.

Leader, Deborah Northcutt, 8441 Hillwood Lane, Tucson, AZ 85715. Cook, Rob Derival. Price: \$125, Dep: \$35. The Navajo Trail, an old Indian and sheepherding trail, is located in the northern section of the Kaibab National Forest. We'll work on the trail from the scenic pinyon and juniper of Houserock Valley up to the oak and pine of the Kaibab Plateau, overlooking the Paria Plateau and beautiful sculpted red rocks. Following the work project we'll either hike down Paria Canyon to near Lee's Ferry on the Colorado, or hike along the North Rim of the Grand Canyon. This trip will be strenuous.

[88062] Buffalo River Trail Building, Arkansas—April 17-23.

Leader, Ken Smith, 459 W. Cleburn St., Fayetteville, AR 72701. Price: \$120, Dep: \$35. Enjoy springtime in the Ozarks while building a hiking trail in the Ponca Wilderness Area of the Buffalo River. This is rugged hill country along the river with sheer bluffs 150 to 500 feet high. We will work from a



MONEL BLAICHWE

Above: Snowmass Lake, Colorado



KRYSTINE KJALUM

base camp situated a mile from the nearest road, and there will be time to hike, fish, and swim. The river, its side canyons, and the surrounding hardwood forest invite exploration and photography.

[88063] Red Rock Trail Maintenance, Munds Mountain Wilderness, Coconino Forest, Arizona—April 24–30.

Leader, Jim Rickett, 1532 47th St., Sacramento, CA 95819. Price: \$80, Dep: \$35. Located on the southern, eroding edge of the Colorado Plateau is this spectacular area of deep canyons, colorful rock formations, and pine-covered mountains. We will continue the trail started last year along the rim of Woods Canyon. Work consists of clearing brush, moving rocks, and building switchbacks. On alternate days there will be ample time for day hikes, photography, or just loafing. Elevations range from 5,000 to 6,500 feet. Expect warm days and cool nights.

[88211] North Canyon Trail Maintenance, Kaibab Forest, Arizona—June

2–12. *Leader, Tim Wernette, 7461 E. Calle Managua, Tucson, AZ 85710. Cook, Rob Morse. Price: \$125, Dep: \$35.* North Canyon is located in the eastern part of the North Rim of the Grand Canyon. We'll be working the upper section of the trail by East Rim Viewpoint, near pines, aspens, rock cliffs, a beautiful trout stream, and vistas of the Grand Canyon. Following the work project, we'll hike from Monument Point along the Thunder River Trail into the Grand Canyon. This trip will be strenuous.

[88212] Chell Canyon Trail Project, Apache Forest, Arizona—June 4–11.

Leader, Rod Rickett, P.O. Box 1357, Camp Verde, AZ 86322. Price: \$80, Dep: \$35. Near Hannagan Meadow in eastern Arizona is Bear Wallow Wilderness, a small, isolated canyon bounded on the south by the Mogollon Rim and on the west by the Ft. Apache Indian Reservation. The wilderness is home to elk, deer, bear, and many smaller animals and birds, and contains spruce, fir, and pine forest with

occasional meadows and parks. Starting near Reno Lookout (9,000 feet) in the north, we will backpack about four miles to our camp near the confluence of the North and South Forks of Bear Wallow Creek (7,600 feet) just below Chell Canyon on the South Fork. Our work will consist of building approximately two miles of trail along and partially in Chell Canyon to the top of the rim at 9,000 feet.

[88213] Glacier Bay Beach Cleanup, Glacier Bay Park, Alaska—June 5–15.

Leader, Tod Rubin, 26 Bishop Lane, Portola Valley, CA 94025. Cook, TBA. Price: \$275, Dep: \$35. A Park Service boat will take us from the Bartlett Cove Visitor Center to our base camp at a remote wilderness beach, where we will remove debris left by fishing boats that pass through nearby Icy Strait. Wildlife abounds; expect to see everything from whales to mountain goats, eagles to ice worms. At least one free day will probably be spent sailing up the bay to visit the tidewater glaciers. Except for the usual weather conditions, this will be a leisurely to moderate trip.

[88214] Whitewater Creek, Gila Wilderness, New Mexico—June 11–18.

Leaders, Linda and John Buchser, 606 Alto St., Santa Fe, NM 87501. Price: \$130, Dep:

OUTINGS

#35. Located in southwestern New Mexico, the Gila Wilderness is rugged and isolated. We will hike in about four miles to establish a base camp at 7,000 feet, then work to repair trail and improve the many stream crossings. We will be in the most mountainous part of the wilderness, with many loop trips available for day hikes. Whitewater Baldy (10,895 feet) and Center Baldy (10,533 feet) are nearby.

SPECIAL

[88215] Chaco Canyon Archeological Sites and Trail Maintenance, Chaco Culture Historical Park, New Mexico—June 11–18. *Leader, Bonnie Sharpe, 832 E. Bastanchury Rd., Placentia, CA 92670. Price: \$160, Dep: \$35.* Three hours north-



Bert Fingerhut

Although he lives in New York City, Bert Fingerhut generally spends two to three months each year hiking in northern Arizona/southern Utah canyon country (see trips #88068, #88090, #88260, and #89305). He is also actively involved in the major conservation issues of the Southwest, serving as vice-chair of the Southern Utah Wilderness Alliance and as a director of the Grand Canyon Trust. Bert has been a member of the Sierra Club since 1970, has participated in more than 20 national outings since 1974, and has been assisting and leading Southwest trips since 1985. He especially enjoys sharing with trip members the unique beauty of the Colorado Plateau. Establishing and maintaining friendships with other Sierra Club members is one of the main reasons he continues to lead Sierra Club outings. Bert currently serves as a trustee of the Sierra Club Foundation.

west of Albuquerque, Chaco Canyon contains hundreds of archeological sites, from tiny granaries to monumental pueblos. Our work project will include cleanup and maintenance in and around

the most imposing prehistoric ruins in the Southwest and on the Penasco Blanco Trail. To enhance our experience, demonstrations, training, and informal lectures will be provided. Free days will present opportunities for hiking, exploring, and photography in a spectacular setting.



LAURA CROSS

Hard work and a hot dry climate make this a moderately strenuous trip.

[88216] Clear Creek Trail Maintenance, Klamath Forest, California—June 21–July 1. *Leader, Mary Hess, 2033 Delaware St., Berkeley, CA 94709. Cook, Libby Hillhouse. Price: \$125, Dep: \$35.* Within the relatively untamed Siskiyou wilderness area, the Clear Creek watershed attracts numerous forest creatures. We will reach our base from Happy Camp, hiking through dense coniferous and broadleaf woodland. This year's work includes replacing waterbars and relocating trail, while fishing, hiking, and a swim at Wilderness Falls refresh our free days. This is a moderate trip.

[88217] Long Trail Maintenance, Green Mountains, Vermont—June 26–July 3. *Leaders, Mark Easter and Sally Daly, 100 Laurel St., Concord, MA 01742. Price: \$135, Dep: \$35.* We're teaming up with the Green Mountain Club for work on the Long Trail, which follows the crest of the Green Mountains from Massachusetts to Canada. The type of work and location will depend on winter damage and trail conditions. Highlights include day hikes up Camels Hump (4,083 feet) or

Mt. Mansfield (4,393 feet) in this rugged, challenging, unbelievably green terrain, with views of Lake Champlain, the Adirondacks, and the White Mountains.

[88218] Pocket Meadow Trail Maintenance, Sierra Forest, Sierra—June 26–July 6. *Leader, Stuart Swan, 310 La Mesa Dr., Menlo Park, CA 94025. Cook, Jean Ridone. Price: \$125, Dep: \$35.* East of Lake Thomas Edison near the John Muir Trail lies Pocket Meadow. We will be camping in an isolated valley in the shadow of 12,000-foot Mt. Isaak Walton. Our work project will involve rerouting and restoring nearby trails. At this time of year the high Sierra offers long, warm days and glistening snow-capped peaks, and the fishing in nearby lakes is excellent. This is a moderate trip.

[88219] Chub Pond, Adirondack Park, New York—July 3–9. *Leader, Richard Grayson, 134 Seacord Rd., New Rochelle, NY 10804. Price: \$125, Dep: \$35.* The largest state park in the continental Unit-



MICHAEL BLASCHKO

ed States, New York's Adirondack contains 6 million acres and hundreds of miles of trails. We will cut and clear downed trees and underbrush from a six-mile trail segment around Chub Pond north of Old Forge. Our campsite will be at a secluded pond. After work there will be time for swimming, fishing, and exploration.

OUTINGS

[88220] Cloud Peak Trail Maintenance, Bighorn Forest, Wyoming—July 5–15. *Leader, John Albrecht, 3550 Willamette, Eugene, OR 97405. Cook, Carla Moreno. Price: \$125, Dep: \$35.* We will be completing relocation of the trail between Gunboat Lake and Florence Pass. A six-mile hike in will take us above timberline to our base camp at 10,500 feet, where we will work up to 11,000-foot Florence Pass. Wildflowers abound and pika are constant companions. Fishing is excellent. Accessible Cloud Peak (13,174 feet) beckons all for a view of most of Wyoming. Weather at this altitude is unpredictable; previous groups have experienced frost at night, rain, six inches of snow in July, and days of warm cloudless skies. This will be a moderate trip.

[88221] Hancock Lake Trail Maintenance, Klamath Forest, California—July 6–16. *Leader, Didi Toaspem, 851 Lindo Lane, Chico, CA 95926. Cook, Karen Johnson. Price: \$125, Dep: \$35.* The Marble Mountain Wilderness lies in far northwestern California between the Oregon

Lower left and below: Snowmass, Colorado. Right: Ozark Trail, Missouri.



MICHAEL BLASCHKE

border and the Trinity Alps. On this trail rehabilitation project, we will clear and reroute trail, build rock wall, and construct rock or rock wall causeways. We will camp at Hancock Lake in the southern end of the wilderness, taking two days to hike the 12 miles in on the North Fork Trail. Our base camp is located within day hike distance of more than a dozen lakes

and approximately two miles from English Peak (7,316 feet), acclaimed as a view "without par" of any peak in the wilderness. Swimming, fishing, and hiking possibilities are limitless.

[88222] Meteor Lake Trail Maintenance, Klamath Forest, California—July 7–17. *Leader, Tom Gefell, 50 Park Terrace E., Apt. 6F, New York, NY 10034.*



LALINA CROSS

Cook, Gretchen Muller. Price: \$125, Dep: \$35. Meteor Lake, the site of this year's base camp in the Marble Mountains Wilderness, is one of numerous lakes within day hike distance. We will hike in seven miles along the Sandy Ridge Trail and work at about 6,000 feet, rerouting the trail from there to Meteor Lake. There will be plenty of free time to enjoy the

California sunshine, swim and/or fish in the nearby lakes, and eat freshly baked lasagna and Dutch Babies. This is a moderate trip.

[88223] El Rito Azul Trail Construction, Rio Grande Forest, Colorado—July 8–18. *Leader, Rob Dorival, Box 357, Empire, CO 80438. Cook, TBA. Price: \$125, Dep: \$35.* The Sierra Club's first service trip in the remote south San Juan Wilderness will complete the recently rerouted El Rito Azul Trail. We'll camp just below the Continental Divide near Blue Lake, where the water is frigid and the fishing excellent. The six-mile hike in and the work project at 11,000 feet make this a strenuous trip. Our days off can be spent hiking the Continental Divide Trail, which traverses high meadows on the way to Conejos Peak (13,172 feet) and several remote alpine lakes. Day hikes to Navajo River Canyon, former habitat of the state's last grizzly bear, are also possible.

[88224] Dark Divide and Mt. St. Helens Trail Reconstruction, Gifford Pinchot Forest, Washington—July 11–22. *Leader, Michael Blaschke, 8 Judith Place, Longview, WA 98632. Price: \$135, Dep: \$35.* The Dark Divide between Mt. St. Helens and Mt. Adams is the largest unprotected contiguous roadless area in Washington. Our work will involve relocating and reconstructing trail near deeply cirqued Blue Lake (5,000 feet) in alpine meadows with abundant wildflowers and views of Mt. Adams, Mt. St. Helens, and the largest expanse of solid virgin forest in Washington. Underfoot will be a good bit of gray ash—a reminder of the 1980 eruptions. At trip's end there will be time for an optional strenuous climb to Mt. St. Helens' rim as well as moderate day hikes in the volcanic blast area. This is a moderate trip.

[88225] Avalanche Peak Trail Maintenance, Yellowstone Park, Wyoming—July 13–23. *Leader, Conrad Smith, 838 Edlystone, Columbus, OH 43224. Cook, TBA. Price: \$125, Dep: \$35.* The view from 10,500-foot Avalanche Peak on Yellowstone's eastern boundary is one of the best in the park. Working from our base camp 1,000 feet below, we will widen, stabilize, and reroute portions of a popular, usually unmaintained trail to the summit while attempting to preserve its informal character. During free time we can choose to hike south along the trail-

OUTINGS

less crest of the Absaroka Mountains; climb Avalanche Peak by moonlight, watching for mountain sheep that inhabit its slopes; explore lakes north of the peak for swimming possibilities; or simply lounge among the wildflowers near our campsite. This is a moderate trip.

SPECIAL

[88226] Clair Tappaan Lodge Family Trip, Tahoe Forest, Sierra—July 16–24. *Leader, Marylouise and Vince White-Petteruti, 320 S. Maple, Oak Park, IL 60302. Price: adult, \$200; child, \$140, Dep: \$35.* Experiencing the wilderness with our children is a parent's joy; preserving it for them is our responsibility. In that spirit, the Sierra Club's Clair Tappaan Lodge will host this second family service trip. Adult participants will work on reconstructing the Pacific Crest Trail while the children plant flowers to help restore a meadow. Castle Peak, Sand Ridge Lake, and Warren Lake are nearby day hike destinations, and overnight hut stays are possible during free days. Limited to two children four years or older per family.

[88227] Appalachian Mountain Club Collaboration, White Mountains, New Hampshire—July 17–23. *Leader, Kenneth S. Limmer, 3817 Logan's Ferry Rd., Pittsburgh, PA 15239. Price: \$125, Dep: \$35.* We will return to the White Mountains of New Hampshire to continue our work on the Appalachian Trail where it passes near the Pemigewasset wilderness area. We'll be building bog bridges, laying step stones, and doing drainage work in the vicinity of Ethan Pond, where we will establish our base camp. Swimming and fishing at the pond will beckon when the day's work is done. At the end of the week we'll return to the Appalachian Mountain Club camp and take our choice of the many wonderful hikes in the Presidentials.

[88228] Piute Lake Trail Maintenance, Inyo Forest, Sierra—July 17–27. *Leader, Lee Bowen, Box 737, Front Royal, VA 22630. Cook, Debbie Northcutt. Price \$125, Dep: \$35.* Join us on the precipitous eastern slope of the Sierra as we repair meadow ruts and construct rock causeway near Piute Lake. On free days we can relax, investigate the fishing, botany, and geology of the area, or hike over the pass

into Humphreys Basin. The ambitious can climb the nearby 13,000-foot peaks. This will be a moderately strenuous trip.

[88229] Yampa River Trail Maintenance, Routt Forest, Colorado—July 18–28. *Leader, Jack Brantigan, 30943 NW 62nd St., Seattle, WA 98107. Cook, Johnna Tipton. Price: \$125, Dep: \$35.* The recently created Flat Top Wilderness just south of Steamboat Springs offers meadows of alpine wildflowers to wander, Rocky Mountain buttes to climb, and outstanding trout fishing. The area is shared by hikers and pack animals in addition to numerous elk, frequently sighted eagles, and

tunities abound: lake and stream fishing, boulder scrambling on the nearby peaks (7,000 to 9,000 feet) and spectacular wildflower viewing. This will be a moderate trip.

[88231] Lost Remuda Trail Maintenance, White River Forest, Colorado—July 20–30. *Leader, Scott Larson, 1200 27th Ave., Sacramento, CA 95822. Cook, Laurie-Ann Barbour. Price: \$125, Dep: \$35.* Our base camp in Lost Remuda Basin of the Maroon Bells-Snowmass Wilderness provides rare solitude and beautiful scenery. We'll do a variety of work projects: dismantling an unsafe bridge, recon-

OWEN FORUS



other wildlife. Our work will involve repairing trail tread, generally in the meadows, and building sections of raised trailbed. The entire trip will be at elevations in excess of 10,000 feet, so conditioning is important. This trip will be moderately strenuous.

[88230] Deer Creek Trail Maintenance, Shasta/Trinity Forests, California—July 18–28. *Leader, David Stern, 5501 Claremont Ave., Apt. D, Oakland, CA 94618. Cook, TBA. Price: \$125, Dep: \$35.* The Trinity Alps Wilderness, located 250 miles north of San Francisco, covers half a million acres. Our base camp will be in a glacial valley surrounded by granite peaks at the edge of a large, beautiful meadow. The work areas are spread over three and a half miles of trail and include brushing, widening tread, installing waterbars, and building causeways. Day hike oppor-



GREYHORN MILLER

OUTINGS

structing switchbacks, and relocating and revegetating an old trail. Peakbagging opportunities abound in the nearby 14,000-

ROCKY MOUNTAIN



Left: Selkirk Mountains, Idaho. Above: Marble Mountain Wilderness, California.

foot summits. Both the work and the ten-mile hike in (with 3,000 feet of elevation gain) make this a strenuous trip.

[88232] Grand Canyon Potpourri, Grand Canyon, Arizona—July 21–30. Leader, Peter Curtis, 1334 W Willetta, Phoenix, AZ 85007. Price: \$125, Dep: \$35. Our work will be on the more isolated North Rim in a coniferous-type forest. We will put finishing touches on the Ken Patrick Trail, clean out some fire pits at Sublime Point, and then build some bridges! Although the work is usually hard and demanding, there will be plenty of time to explore the area. This is a moderate trip.

SPECIAL

[88233] Teen's Trail Construction, Sierra Forest, Sierra—July 21–31. Leader, Brian Ilfeld, 45 Adler Circle, Sacramento, CA 95864. Cook, Gretchen Muller. Price: \$125, Dep: \$35. Join the Sierra Club's only service trip for teens ages 16 to 19 (exclusively). We will be constructing gravel causeways on the Goodale Pass Trail below Graveyard Lakes to protect two beautiful meadows against future damage by hikers. Our camp will be situated less than a mile from a group of 11 sparkling clear lakes. Free days will undoubtedly include swimming, fishing, relaxing, short

hikes, and peak climbs for those who desire a little physical challenge. This is a moderate trip.

[88234] Wonderland Trail Maintenance, Mt. Rainier Park, Washington—July 25–August 4. Leader, Ann Diamond, 574 Santa Clara Ave., Berkeley, CA 94707. Cooks, Carmen and Bruce Johnson, 4515 Perth Lane, Cincinnati, OH 45229. Price: \$125, Dep: \$35. Join us as we rebuild a two-mile stretch of the Wonderland Trail from Ipsut Creek Campground along the Carbon River toward the Carbon Glacier. The proximity of the campground and the low elevation make this a moderate trip, with many opportunities to explore one of the less-used sections of the park. Creeks, rivers, and waterfalls abound, while glaciers, lakes, and peaks are within easy day hike range.

[88235] Sixth Annual Beginning Campers' Trail Reconstruction and Wilderness Restoration, Washakie Wilderness, Wyoming—July 26–August 5. Leader, Ed Thomas, 1215 Cleveland St., Wilmette, IL 60091. Cook, Eric Therise. Price: \$125, Dep: \$35. Beginning and less-experienced backpackers are invited to develop new skills and sharpen old ones, do important work, and enjoy the unusual. The Brown Basin area ranges from low-lying moose habitat (9,000 feet) along the Wood River to fragile high meadow (11,000 feet). Work days will be divided between cleaning up nearby abandoned mining towns and reconstructing part of the Brown Basin Trail. Free days can be spent fishing; seeking elk, moose, antelope, or bighorn sheep; observing wildflowers; collecting mineral specimens; scrambling up nearby peaks; or just relaxing. Local conservation speakers will visit for special campfire sessions to provide insights into the environmental issues Wyoming is now facing. This is a moderately strenuous trip. Note: Although this is the only service trip offered specifically for beginning campers, most service trips welcome beginners in good physical condition.

[88236] Piute Pass Meadow Restoration and Trail Maintenance, Sierra Forest, Sierra—July 28–August 7. Leader, Anne Stork, 1304 Virginia Ave., Haverstown, PA 19083. Cook, Dave Frederick. Price: \$125, Dep: \$35. Enjoy the multitude of rocky peaks, crystal-clear lakes, and alpine meadows in the John Muir

Wilderness as we build causeways and eradicate multiple trails in an effort to preserve the fragile meadows of this area. On days off we will have opportunities to explore remote basins, climb spectacular peaks, or swim in invigorating lakes.

[88237] Northern Baxter Park Trail Maintenance, Maine—July 31–August 7. Leader, Steve Lachman, 6561 Rosemoor St., Pittsburgh, PA 15217. Price: \$125, Dep: \$35. We will spend our first few days clearing trail and building bog bridges in the more remote regions of the park. For the last two or three days we will put our tools down, put our backpacks on, and go

DOCTORS WANTED

Service trips attempt to include a doctor as a staff member on each trip. These are individuals who donate their time and skill for a waiver of the trip price. They are not required to work on the trip project, but many do so out of the same concern for wilderness shared by regular participants.

All trip leaders have the Advanced Red Cross First-Aid Card, and the Club provides a first-aid kit. Although our accident record with projects requiring the use of tools has been very good, we try to provide a staff doctor just in case.

What better way to spend ten days of your summer vacation than in the great outdoors, sharing companionship with environmentally concerned citizens and putting some work back into the wilderness in exchange for the joys received from it? If you feel you might be interested in this rewarding experience, please contact:

Dr. Bob Majors
3508 Williamsborough Ct.
Raleigh, NC 27609

hiking up Katahdin. Canoeing is available at Russell and South Branch ponds. We should see lots of moose and other wildlife. This is a moderate trip.

[88238] Naturalist Basin Trail Repair, High Uintas Mountains, Utah—August 3–13. Leader, John Fischer, 1312 Orange Ave., Menlo Park, CA 94025. Cook, Jane Warren. Price: \$125, Dep: \$35. East of Salt Lake City lie the High Uintas Mountains, the most prominent east-west range in the continental United States. We will hike about five miles in to our base camp at 10,500 feet. Nearby we will re-route a section of badly eroded trail in the Naturalist Basin, with plenty of free time

for day hikes, mountain climbing (Mt. Agassiz, 12,428 feet), fishing, swimming, or just relaxing. This will be a moderately strenuous trip.

[88239] Boundary Waters Canoe Trip, Boundary Waters Canoe Area, Minnesota—August 3–13. *Leader, Bob Wolf, 2145 Bonnie Lane, Minneapolis, MN 55422. Cook, Regina Rubin. Price: \$125, Dep: \$35.* The cries of loons will accompany us as we repair portages, build trail, and revegetate campsites. We'll canoe portions of the early trade routes used by voyageurs to transport furs. Come experience the Northwoods moving toward fall, and see and hear wildlife from the vantage point of clear, sky-blue lakes.

[88240] Rolling Creek Women's Trail Maintenance, Pike Forest, Colorado—August 5–15. *Leader, Janie Grassing, RR 1, La Otto, IN 46763. Cook, Elena Segen. Price: \$125, Dep: \$35.* Barely 50 miles southwest of Denver, the Lost Creek Wilderness supports a large variety of wildlife, including elk, mountain goats, and golden eagles. This year the fifth annual all-women's service trip will be in the flower-filled Rocky Mountains, surrounded by 11,000- to 12,000-foot peaks. Our five-mile hike in will climb 2,000 feet between Windy and Buffalo peaks to reach base camp in the saddle (approximately 9,600 feet). Our project consists of rebuilding sections of trail and installing rock wall and waterbars. There will be

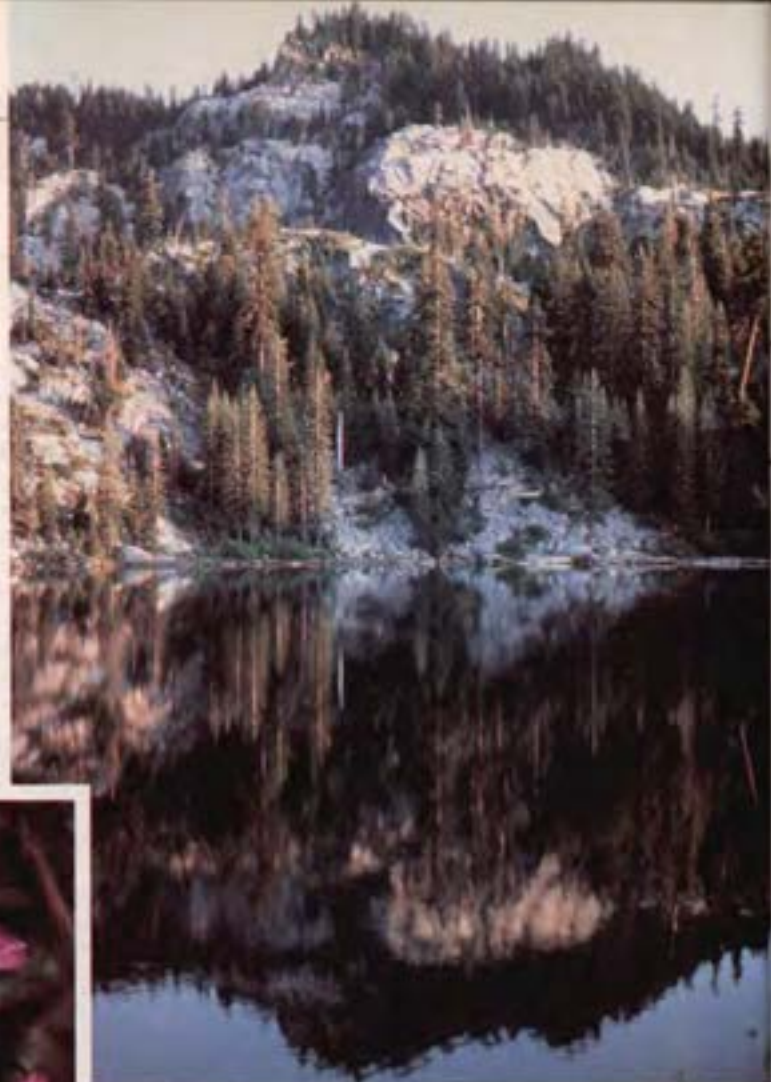
Right: Marble Mountain Wilderness, California



SUSAN HELLER

606 Alto St., Santa Fe, NM 87501. *Price: \$105, Dep: \$35.* We will reroute an old sheepherding trail connecting two drainage systems. After a four-mile backpack to a base camp at 10,000 feet, we will camp near a meadow, where our trail work begins. The new trail climbs rapidly uphill to a saddle at 11,600 feet, with views to nearby Truchas and Chimayosas peaks (13,000 feet). Free days can be spent day hiking, peakbagging (via walk-up routes), fishing the beaver ponds, or seeking bighorn sheep.

[88242] Parker Lake Trail Maintenance, Panhandle Forest, Idaho—August 6–16. *Leader, Tim Cronister, P.O. Box 429, New Hope, PA 18938. Cook, Gretchen Muller. Price: \$125, Dep: \$35.* We will base camp at the lake, nestled below Parker Peak, and repair the under-maintained trail by building rock walls,



GRETCHEN MULLER

clearing brush, and putting in new tread. Nearby lakes beckon for free-day enjoyment, as do local peaks or Parker Ridge, all of which offer panoramic views of the Selkirk Range as well as an overlook into Long Canyon, the region's proposed wilderness area. Because the work will be fairly difficult and the hiking moderately strenuous, we are looking for high-energy participants.

[88243] Lost Man Trail Construction, White River Forest, Colorado—August 9–19. *Leader, Dan Bittle, 3702 Pontiac St., Labor Crescenta, CA 91214. Cook, Jane Geddes. Price: \$125, Dep: \$35.* Most of this section of the Lost Man Trail in the Hunter-Frying Pan Wilderness has been relocated to bypass the boggy floor of this beautiful, high (12,000-foot) alpine valley. We will be reconstructing tread and building rock turnpikes through the rest of the wet areas. Day hike opportunities abound, and fishing is good at Lost Man and Independence lakes as well as in Lost Man Creek and the upper Roaring Fork River. A four-mile hike in from the 11,000-foot trailhead makes this trip moderately strenuous.



LAURIE-ANN BARBOUR

free days for day hikes, fishing, and photography. A moderate trip, acclimatization is advised due to the high altitude.

[88241] Santa Barbara-Trampas Lakes, Pecos Wilderness, New Mexico—August 6–13. *Leaders, Linda and John Buchser,*

MEMBERSHIP NO.

YOUR NAME

STREET ADDRESS

CITY STATE ZIP

PLEASE PRINT YOUR NAME AND THE NAMES OF OTHER PEOPLE IN YOUR PARTY

1.

2.

3.

4.

PER PERSON COST OF OUTING: TOTAL COST THIS APPLICATION:

I WOULD LIKE TO HELP THE SIERRA CLUB

\$15 \$25 \$50

PLEASE MAKE CHECKS
MAIL TO: SIERRA CLUB OUTING DEPARTMENT

OUTING REQUEST

MEMBERSHIP NO.

YOUR NAME

STREET ADDRESS

CITY STATE ZIP

PLEASE PRINT YOUR NAME AND THE NAMES OF OTHER PEOPLE IN YOUR PARTY

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\$15 \$25 \$50

PLEASE MAKE CHECKS
MAIL TO: SIERRA CLUB OUTING DEPARTMENT

Sierra Club Outing Dept.
Dept. #05618
San Francisco, CA 94139

AFFIX
STAMP
HERE

Important Information On Sierra Club Outings

Mail To:

**Sierra Club Outing Dept.
Dept. #05618
San Francisco, CA 94139**



1. Refer to the Reservation/Cancellation policy page for important payment information and instructions for filling out this application.
2. Deposits are nonrefundable, from a confirmed trip space.
3. All participants age 12 and over must be Sierra Club members to attend an outing.
4. Your address may be released to other trip participants for purposes of ride-sharing or other trip-related purposes.
5. Not all trips can accommodate special dietary needs or preferences. Contact the leader for this information before applying.
6. Applications for trip space will be accepted in the order that they are received at the following address:

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Dept. #05618
San Francisco, CA 94139

OUTINGS

[88244] Minam Lake Restoration, Wal-lowa-Whitman Forest, Oregon—August 9–19. *Leader, Laurie-Ann Barbour, 3131 Quintara St., San Francisco, CA 94116. Cook, Danny Rothberg. Price: \$125, Dep: \$35.* The Eagle Cap Wilderness rises from the desert of eastern Oregon like an oasis, with its lush vegetation and sparkling lakes. We will hike seven miles up glacially carved Lostine Canyon to our base camp below Minam Lake at 7,600 feet. For years the lakeshore has been trampled by campers and horses, so we will be doing revegetation with native plants to help restore it. We may also spend some time working on the trail to the lake, putting in waterbars. There are many possibilities for free-day activities; some may want to climb Eagle Cap Peak (9,600 feet), while the less energetic will enjoy fishing, swimming, and relaxing at the nearby lakes. This trip is moderately strenuous.

[88245] Minarets Avalanche Cleanup, Sierra Forest, Sierra—August 10–20. *Leader, Jon Nichols, 338 W. Elvira, Tucson, AZ 85706. Cook, TBA. Price: \$125, Dep: \$35.* The Ansel Adams Wilderness is generally known for its rugged eastern terrain, but our ten-mile hike in to base camp near Stevenson Meadow (8,800 feet) will place us on the more gently forested (and less peopled) western side. Above the meadow the trail was closed by an avalanche; we'll be cutting and hauling out the downed trees to reopen the trail. The nearby North Fork of the San Joaquin River provides good fishing and swimming opportunities. This will be a moderate trip.

[88246] Targhee Teton Trail Maintenance, Targhee Teton Forest, Wyoming—August 17–27. *Leader, Eric Bowman, P.O. Box 179, Rochester, VT 05767. Cook, Virginia Scott. Price: \$125, Dep: \$35.* We will be in the Jedediah Smith Wilderness on the western boundary of Grand Teton National Park, repairing and relocating damaged trails at between 9,000 and 10,000 feet, about a 2,000-foot gain from the trailhead. On our layover days there will be plenty of time to explore the area—in sight of the Teton crest—or to relax. This will be a moderate trip.

[88247] Boulder Basin Trail Maintenance, Shoshone Forest, Wyoming—August 18–28. *Leader, TBA. Cook, Warren Griffin. Price: \$125, Dep: \$35.* Forest



GRETCHEN MALLER

Service engineers carefully laid out and built the Boulder Basin Trail 15 years ago. Because of heavy use, the trail has deteriorated from its evenly graded route. We will hike in six miles to our base camp on the pass overlooking beautiful Boulder Basin, then regrade and relocate the trail. We will camp just below tree line (10,000 feet) so free days can be spent walking cross-country to the nearby peaks (11,000 to 12,000 feet) or exploring the basin while watching for elk, deer, and the occasional black bear. This will be a moderate trip.

[88248] Baxter Park Trail Improvement, Maine—August 20–28. *Leader, Scott Whitcomb, 21 Shirley Rd., Lynn, MA 01904. Price: \$135, Dep: \$35.* This 200,000-acre forest wilderness in north-central Maine is graced with clear streams and lakes, and is home to beaver, otter, fox, and lots of moose. We'll backpack in and camp at seldom-visited Russell Pond. Our work will include clearing brush, fixing eroded trails, and replacing bog bridges. There will be ample time for day hikes and canoeing. At trip's end we'll climb Katahdin, Maine's highest peak (5,267 feet) for a great view.

[88249] Wind River Trail Eradication, Pupo-Agie Wilderness, Wyoming—August 20–30. *Leader, Bob Hayes, 1891 Happy Lane, Eugene, OR 97401. Cook, David Simon. Price: \$125, Dep: \$35.* An 11-mile hike will take us to our base camp at 10,000 feet in the Wind River Range. Our work project will consist of eradicating an old trail through rock fill, installing waterbars, and seeding sections of the trail. Free days offer good fishing and swimming at nearby lakes or day hikes to the tops of ridges and peaks (12,000 feet) of-

fering panoramic views of the Continental Divide. Join us for this enjoyable, rewarding, strenuous trip.

[88250] Timberline Trail, Ramona Falls Wilderness Restoration, Mt. Hood, Oregon—August 21–31. *Leader, Rick Zenn, 1405 SW Park Ave., Suite 21, Portland, OR 97201. Price: \$135, Dep: \$35.* Mt. Hood, Oregon's highest peak (11,245 feet), is circled by the Timberline Trail—one of the premier hikes in the Pacific Northwest. We will backpack the entire 40-mile route and work several days at spectacular Ramona Falls doing trail construction, campsite improvement, and delicate revegetation. Due to heavy packs and climbs, this is a moderate to strenuous trip, but no previous service trip experience is required. The Timberline Trail offers a wilderness sampler of glaciers, alpine meadows, old-growth trees, deep canyons, and unsurpassed views of the volcanic high peaks of the Cascade Range.

[88251] Silver Pass Wilderness Maintenance, Sierra Forest, Sierra—August 22–September 1. *Leader/Cook, TBA. Price: \$125, Dep: \$35.* Join us in the John Muir Wilderness for the continuing work project near the Goodale Pass Trail,



Tina Welton

Tina's most memorable experience as a trip leader was seeing 13 women reach the top of Half Dome on a women's beginner backpack trip to Yosemite last summer. All were excited and pleased with their achievement. Tina served as an assistant leader on the trip, and she will be leading a similar trip this year (#88134). She enjoys building the confidence and skills of women who are experiencing the wilderness for the first time. In addition to backpacking, Tina enjoys running, bicycling, and sewing. She is a former Girl Scout leader and an active volunteer in her local Sierra Club chapter.

OUTINGS

adopted in 1981 by the Service Trips program. Our base camp will be near the Lake of the Lone Indian and we will work near the Silver Pass Trail, surveying campsites, eliminating and revegetating unnecessary ones, and spreading the word to our fellow backpackers. The pass (10,900 feet) and nearby peaks (12,000 feet) will satisfy those who enjoy climbing, while the many nearby lakes will satisfy the rest. This will be a moderately strenuous trip.

[88252] Tuolumne Meadows Trail Maintenance and Cleanup, Yosemite Park, Sierra—August 24–September 3. Leader, C. E. Vollum, Route 5, Box 66A, Albert Lea, MN 56007. Cook, TBA. Price: \$125, Dep: \$35. We'll rove the network of high-altitude trails through the more secluded parts of Yosemite's famed backcountry. Work days will consist of trail maintenance and lakeshore cleanup. Layover days offer relaxation and peak-bagging while pleasant lakes and streams await just beyond the next trail bend. This trip is rated moderately strenuous; all ages are welcome.

[88253] Toklat River Cleanup, Denali Park, Alaska—September 6–16. Leader, Laurie-Ann Barbour, 3131 Quintara St., San



GARY WENDT-BOGGER

Francisco, CA 94116. Cook, TBA. Price: \$275, Dep: \$35. Come work amidst the grandeur of the country's largest national park. Perhaps best known as the site of Mt. McKinley, the highest peak in North America at 20,320 feet, Denali also offers huge pristine vistas as well as a wide variety of wildlife from caribou to grizzly bear to ptarmigan. Our work will consist of cleaning up the timbers and debris from a washed-out bridge on the Toklat River. When the work is done we'll use our free days to explore the area's limitless and scenic wonders or relax. This will be a strenuous trip.

[88254] Mt. Whitney Trail Maintenance, Inyo Forest, Sierra—September 7–17. Leader, "Electric" Bill Weinberg, 1663 Oak St., San Francisco, CA 94117. Cook, TBA. Price: \$125, Dep: \$35. Work your way to the top . . . maintaining one of the most heavily used hiking trails in the world. We'll work at high altitude, rolling boulders, digging trail, and possibly constructing a stream crossing. Then we'll take off for a four-day backpack into the post-Labor Day solitude of Sequoia

— 3rd Annual Program —

Sierra Club Environmental Workshops for Educators [A Family Camping Experience]

- Field explorations
- Teaching techniques
- Special electives
- Outdoor recreation and crafts
- Seminars with key environmental leaders and educators

WEST COAST WORKSHOP

Clair Tappaan Lodge in the Sierra
at Norden, California

SAT July 16–SAT July 23, 1988

(Rustic lodge with hot tubs. Program
includes trips in Lake Tahoe Basin.)

COST*: Adults	\$200
Teens	185
Children (7–12)	150

*Cost includes room, board, tuition, insurance, trips, snacks and counselors for young people.

EAST COAST WORKSHOP

Watson Homestead Retreat in the Finger Lakes
Region at Painted Post, New York

SAT July 30–SAT Aug 6, 1988

(Retreat with indoor Olympic-size pool, lodge and cabins.
Program includes trips to Watkins Glen and Corning, NY,
and local wineries.)

COST*: Adults	\$250
Teens	210
Children (7–12)	190

PRE-REGISTRATION FORM

Participant Name _____

Workshop Choice _____

Address _____

Other family members attending _____

City, State _____

Phone _____

To register, send to: Sierra Club Educators Workshop, c/o Executive Office
Sierra Club, 730 Polk Street, San Francisco, CA 94109

Deposit (non-refundable)
\$50 Adults, \$10 Teens and children
\$10 Late fee after May 1.

For general information, call: Executive Office [415-776-2211]

West Coast Workshop: Michelle Perrault (past Sierra Club President) [415-283-6683]

East Coast Workshop: Pat Sailer (Chairman, Environmental Education Committee) [305-666-2906 (Day), 305-274-9259 (Eve)]

OUTINGS

National Park. We'll doubtless also find ourselves at 14,494 feet of elevation at the summit of Mt. Whitney. This will be a strenuous trip.

[88255] Five Ponds Wilderness Trail Maintenance, Adirondack Forest Preserve, New York—September 11–17. *Leader, John L. Kolp, 453 Warren St., Brooklyn, NY 11217. Price: \$130, Dep: \$35.* Designated a wilderness area in 1979, the Five Ponds contains 95,000 acres of magnificent Adirondack forest, numerous ponds and lakes, glacial eskers, and the main branch of the Oswegatchie River, protected as a Wild and Scenic river. Since Five Ponds was designated wilderness, only minimal maintenance has been performed on the 55 miles of hiking trails in the area. We will backpack into Sand

Lake, where we will cut a new connecting trail to Cage Lake under the supervision of forest rangers.

[88256] New Wood Trail Construction, Lincoln County, Wisconsin—September 15–25. *Leader, TBA. Cook, Sarah Gooding. Price: \$125, Dep: \$35.* The trail you'll build will delight others for years, while the people you'll meet will stay in your thoughts at least as long. Come join us in one of the most remote sections of Wisconsin as we complete a five-mile "golden spike" section of the 1,000-mile-long Ice Age Trail. The trees will be decked out in their early fall colors and we may be privileged to hear the wolf pack that the Wisconsin Department of Natural Resources is trying to sustain nearby. Local naturalists will visit our base camp to

lead layover day explorations of the area's geology. This will be a moderate trip.

[89318] Ozark Trail Maintenance, Mark Twain Forest, Missouri—October 23–29. *Leader, Rick Rice, 1100 N. Sycamore, Creston, IA 50801. Price: \$115, Dep: \$35.* Enjoy the fall colors of the Ozarks while building and upgrading trails in the ruggedly beautiful Mark Twain National Forest. We will be working along or near the Wild and Scenic Eleven Point River. This is a hilly, isolated area heavily forested with hardwoods. We will work from a base camp, with time for day hikes and exploration. Southern Missouri at this time of year offers a truly unique experience.

NOTE: Also see Foreign trip #88670.

SKI

Experience the unique winter wilderness in places even backpackers can't go. Our ski trips usually follow one of two formats. Participants may stay in a central camp and take day or overnight trips, or the trip may be a series of moves from camp to camp. Some trips combine both formats. Trips vary in difficulty from those suitable for beginners to those requiring some ski-touring experience.

[88365] Adirondack Wilderness Ski Tour, New York—January 30–February 5. *Leader, Larry White, RD #2, Tracy Creek Rd., Vestal, NY 13850. Price: \$495, Dep: \$35.* With an expert guide, we will traverse the Siamese Ponds Wilderness Area in five days. Our gear will be transported for us as we ski in one of the most remote sections of New York's Adirondack Park. Accommodations will vary

from local inns to remote wilderness log cabins. The route will take us through virgin timber, across frozen lakes, and over a low mountain range. Distances will be eight to ten miles a day. This is a wonderful and exciting opportunity for the intermediate skier.

NOTE: See Foreign trip #88540 for another ski outing.



GOPPOON WILFIRE

WATER

Traveling by water offers a very special way to explore the wilderness physically and mentally. To become part of a river, going where it flows on a moving pathway through time and space, is an unforgettable experience. Whether it's a whitewater adrenaline rush or a slackwater canoe trip, closeness to nature is a constant.

Some of the rivers we run belong to the Wild and Scenic River System; others are threatened by dams and the battle for their preservation continues. A trip down any of them will show you how important it is to save the free-flowing waters that remain.

Volunteer trip leaders and coordinators trained within the Sierra Club add a meaningful dimension often missing on commercial water trips.

RAFT

Raft trips combine the excitement of whitewater rapids with the natural wonder of wild river areas. Sierra Club leaders are carefully selected to provide safe equipment and great food. Through their background, training, and interest, they bring to the job a knowledge of conservation problems and a better understanding and appreciation of the wilderness. Sierra Club trips are oar-powered with relatively small rafts—no motor fumes, no noise.

On paddle-raft trips, participants power the rafts themselves under the guidance of experienced boatmen. Participants quickly learn to read the river and maneuver their raft through whitewater, experiencing the power and serenity of the river. Trip members also participate fully in the chores of a river camp (such as preparing and cooking meals) and feel the camaraderie and sense of teamwork that comes from playing and working together.

SPECIAL

[88068] San Juan River Paddle Raft Trip/Grand Gulch Backpack, Utah—April 24–May 5. *Leader, Bert Fingerhut, 225 W. 83rd St., New York, NY 10024. Price: \$1,315, Dep: \$70.* Our group of 14 experienced wilderness adventurers will paddle two 16-foot rafts approximately 70 miles down the San Juan River from Bluff, Utah, to the mouth of Grand Gulch. This will take five days and will give us ample time to explore side canyons and enjoy the river. We will then leave our rafts, hoist backpacks, and hike for seven days through the Grand Gulch drainage to the Kane Gulch ranger station (approximately 53 miles, excluding side canyons). The area is rich in Anasazi ruins and rock art, and the side canyons are spectacular. If you are comfortable in the water and are a reasonably good swimmer, no previous whitewater experience is

Right: Rogue River, Oregon



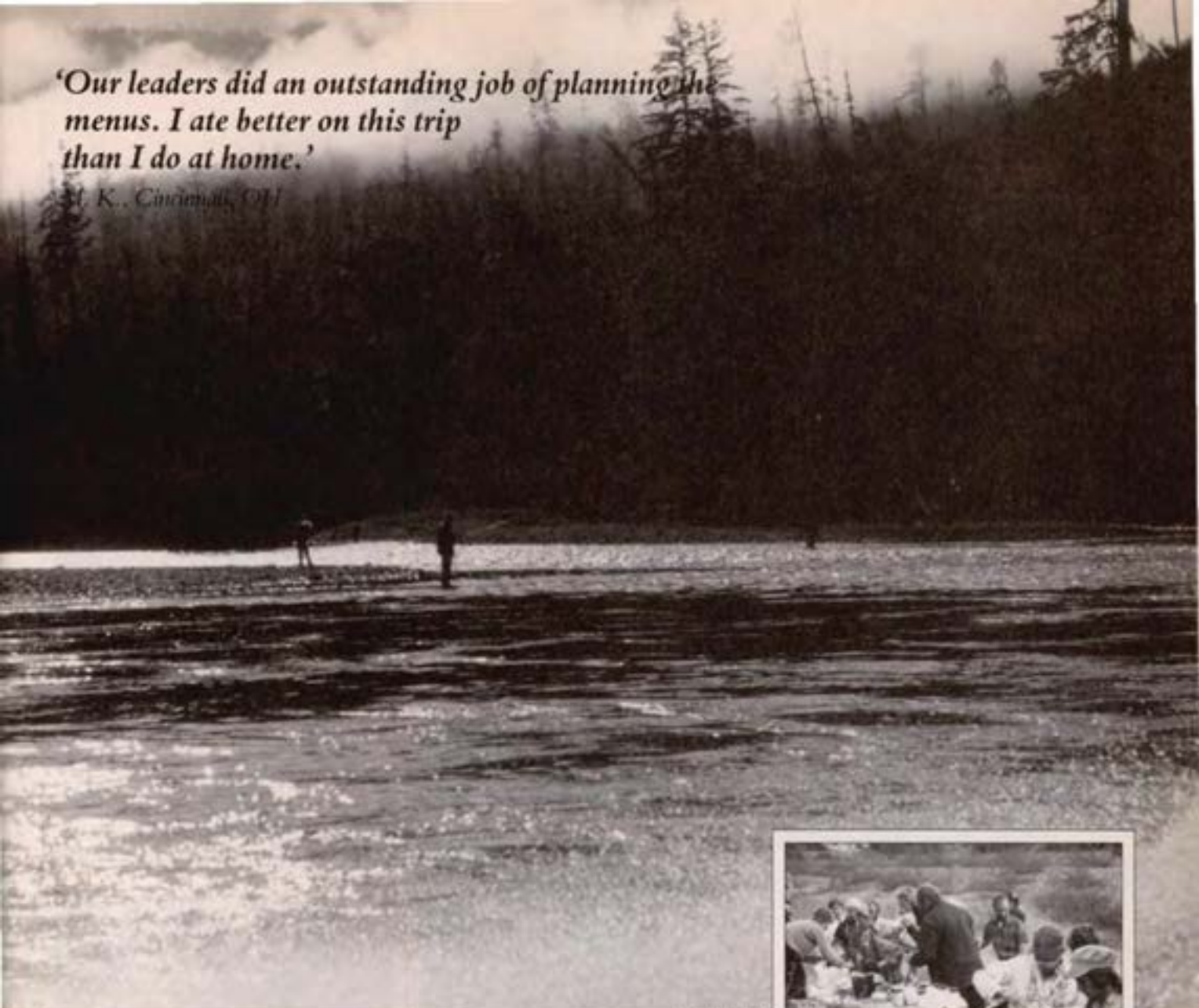
RANDY SILVER

necessary. The backpack portion of the trip is moderately strenuous.

[88260] San Juan River Paddle Raft, Utah—September 23–30. *Leader, Bert*

'Our leaders did an outstanding job of planning the menus. I ate better on this trip than I do at home.'

M. K., Cincinnati, OH



JAMES HALVERSON

Fingerhut, 225 W. 83th St., New York, NY 10024. Price: \$915, Dep: \$70. Our group of 15 river runners will steer our two 16-foot paddle rafts from Bluff, Utah, to Lake Powell on the San Juan River. A support raft will carry our food and camping gear, and we will have ample time to explore side canyons rich in Anasazi ruins and rock art. While previous whitewater rafting experience is not required, participants must be comfortable in deep water, have a love of canyon country, and be prepared to get wet.

SAILING

There is nothing to compare with the thrill of traveling under sail in a fresh breeze, the contentment of drifting in light winds with the sun on your face, the discovery of new anchorages and fresh opportunities for activity and leisure. Emphasis

will be on conservation issues and the natural history of the marine environment.

[88261] Queen Charlotte Island Wilderness, British Columbia—June 26–July 2. *Leader, Gary Dillon, 20244 Viewcrest Ct., San Jose, CA 95120. Price: \$1,450, Dep: \$70.* Situated 100 kilometers off the coast of British Columbia is the 138-island archipelago referred to as the Canadian Galapagos, recently designated a new Canadian national park. We will sail aboard a luxurious 68-foot sailboat in a region thought to contain the richest marine life along the North American coast. Our days will be filled with exploring virgin forests, lakes, and villages of the Haida Indians. We will visit sea lion rookeries, investigate tide pools, watch for the five species of whales that frequent these waters, and enjoy the rich variety of birdlife.



DAVID DENGER

Above: Klamath River, California

[88262] Totems, Sails, and Orca Whales—An Inland Passage Journey, British Columbia—July 14–20. *Trip Coordinator, Mary O'Connor, 2504 Webster St., Palo Alto, CA 94301. Price: \$1,265, Dep: \$70.*

OUTINGS

[88263] Totems, Sails, and Orca Whales—An Inland Passage Journey, British Columbia—August 24–September 1. Trip Coordinator, Wheaton Smith, 243 Ely Place, Palo Alto, CA 94306. Price: \$1,450, Dep: \$70. The world-famous Inland Passage houses the largest remaining number of Orca whale pods in the world, totems in an old Native American village site, and a fascinating variety of birds and intertidal flora and fauna. The recently designated marine ecological reserve in Johnstone Strait allows close observation and photography of the beautiful and intelligent Orca whales. A knowledgeable naturalist will help us appreciate our varied and unique opportunities for observation. Participatory sailing, hiking, swimming, and fishing will add to the round of available activities. Our

3261 Via Grande, Sacramento, CA 95825. Price: \$950, Dep: \$70. Come sail away with us! We will traverse the unique Gulf/San Juan Islands (situated between Vancouver and Victoria) aboard a beautiful 68-foot, eight-bedroom luxury sailboat. Along the way we can expect to see Orca and minke whales, porpoises, seals, sea lions, and many varieties of sea birds. Our skipper is a naturalist who loves to share his knowledge. September is an ideal time of year to visit this area—the weather is great and the summer crowds are gone. Our island stops will give us the opportunity to do some hiking and visit marine parks, coastal villages, a whale museum, and the city of Victoria with its world-class natural history museum and nearby Bouchart Gardens. All this is topped off with exceptionally delicious meals.

must be in good health and, except where otherwise noted in the trip supplement, capable of paddling, kneeling, lifting, and swimming. Participants are expected to share in camp chores. Leader approval is required.

Canoe trips are graded as follows.

Grade A: No canoeing experience required.

Grade B: Some canoeing experience required.

Grade C: Canoeing experience on moving water required.

Grade D: Canoeing experience on whitewater required.

Below: San Juan Islands, Washington



SUSAN HELLER

60-foot floating base has comfortable accommodations, a natural history library, and a fine galley offering excellent food.

[88264] The Great Pacific Northwest Sailing and Natural History Adventure, Gulf/San Juan Islands, British Columbia/Washington State—September 6–11. Leader, Sallee Menning, 997 Lakeshire Ct., San Jose, CA 95126. Price: \$950, Dep: \$70.

[88265] The Great Pacific Northwest Sailing and Natural History Adventure, Gulf/San Juan Islands, British Columbia/Washington State—September 12–17. Leader, Margie Tomenko,

CANOE

Experience a unique, do-it-yourself way to reach pristine wilderness. Canoe trips offer everything from the tranquility of paddling placid water to the exhilaration of running whitewater; add to this beach camping, side canyon exploring, swimming, and just plain relaxing, and you have the ingredients for a great wilderness experience. Trips are scheduled for most months of the year in many parts of the country and are planned to accommodate a wide range of skills. Food, river equipment, and some instruction are generally provided, but rental information will be supplied by the trip leader. Participants

SPECIAL

[88066] Okefenokee Swamp, Georgia—March 14–18. Leader, Marvin Hungate, 110 Koehler Ave., Apt. 5, Cincinnati, OH 45215. Price: \$285, Dep: \$35. Canoe a true blackwater swamp, and perhaps even one of its historic rivers. This is the "land of the trembling Earth." From the trailhead near Folkston we'll paddle among the cypresses and in and out of the prairies and lakes for approximately ten miles every day, camping at a different site most nights. Canoeing experience is required. (Grade B)

[88067] Dismal Swamp Canoe Base Camp, Virginia/North Carolina—April 17–23. Leaders, Cliff and Marilyn Ham, 3729 Parkview Ave., Pittsburgh, PA 15213. Price: \$280, Dep: \$35. Southward from Norfolk, Virginia, into North Carolina, the Great Dismal Swamp is an area of lowlands, lakes, and rivers fed by tributaries of swamp origin. The swamp isn't really "dismal," and we should see budding flora and hear spring warblers and other birds as well as frogs and snakes. We should also beat the mosquito season. Our base camp will be near the Northwest River, where exploratory day trips to tributaries and backwaters are planned, along with trips to Lake Drummond, Merchants Mill Pond (with moss-draped cypress and tupelo), and the Outer Banks. This is a flatwater trip, but the possibility of high winds on open stretches makes some previous canoe experience necessary. (Grade B)

[88069] Buffalo River, Arkansas—May 2–7. Leader, Peter Bengtson, 8009 Chesterfield Dr., Knoxville, TN 37909. Price:

OUTINGS

\$235, Dep: \$35. We will start our leisurely canoe trip as far upstream as possible to see the smaller, more intimate sections of the river. We will cover about 60 miles as the river cuts through the Boston Mountains, the most rugged part of the Ozarks. This section includes clear, dark pools separated by riffles and easy rapids. There are "fern falls," wildflowers, and an opportunity to see wildlife such as deer, bear, blue heron, green heron, and red-tailed hawk. There will be time for swimming, short hikes, fishing, and relaxing. (Grade A)

[88070] Ozark Spring Tour, Ozark National Scenic Riverways, Missouri—May 8–14. Leaders, Sarah Rust and Anne Knott, 1282 Reaney Ave., St. Paul, MN 55106. Price: \$335, Dep: \$35. Come paddle across the Ozark plateau through a land of bluffs, springs, and caves while spring wildflowers are still blooming and summer tourists are still hibernating. The Ozark Scenic Riverways will offer us a corridor of wildland through an otherwise cultivated countryside. We will paddle every day, allowing plenty of time for swimming and side hikes up spring branches. Try an Ozark gravel bar campsite and fall asleep (if you can!) to a whip-



CHUCK COOPER

poorwill lullaby. Ozark streams are generally forgiving to novices but can be temperamental; some canoeing experience is needed. (Grade B)

[88266] Green River, Canyonlands Park, Utah—June 19–28. Leader, Blaine LeCheminant, 1857 Via Barrett, San Lorenzo, CA 94580. Price: \$695, Dep: \$70.



J. MICHAEL LITVIN

Above: Adirondack Forest Preserve, New York

We will explore the scenic heart of Canyonlands by canoe, a land unchanged since French trapper Denis Julian first traveled here in 1836. Described by John Wesley Powell as a "curious ensemble of carved walls, royal arches, glens, alcove gulches, mounds, and monuments," this area later became part of the outlaw trail and the domain of the "Wild Bunch." The trip terminates below the confluence with the Colorado River, where we emerge by Jeep through the "you've got to see it to believe it" Needles area of Canyonlands National Park. (Grade A)

[88267] Canoeing and Backpacking the James River, Virginia—July 10–15. Leader, Connie Thomas, 128 Muriel St., Ithaca, NY 14850. Price: \$280, Dep: \$35. Three days of paddling, including Class I and II riffles and rapids, will take us down the wild upper James in western Virginia as it carves its passage into the famous Blue Ridge Mountains. After paddling we will be shuttled up to Petites Gap in the mountains to exercise our legs on a ten-mile overnight backpack on the Appalachian Trail in Jefferson National Forest. Our route follows the ridge above the James, allowing us spectacular views down to the river. After overnighting at a trail shelter, we complete the trip with a descent back to river level. (Grade C).

[88268] Adirondack Canoe Trip, New York—July 10–16. Leader, Walter Blank, RD 1, Ghent, NY 12075. Price: \$220, Dep: \$35. In the heart of the Adirondack Forest Preserve is a vast network of streams, lakes, and rivers that form a wilderness waterway waiting to be explored by the canoe enthusiast. Our trip begins on Blue Mountain Lake, traversing large lakes and sparkling ponds and paddling down gen-

tle rivers to our destination at Lows Lake. Portages are necessary at several waterfalls; canoes and gear will be trucked around the two longest ones. We'll camp on an island and on the shores of some of the most beautiful bodies of water in the East. The first few days we'll see frequent signs of habitation; the last half of the trip, however, is in a canoes-only wilderness. We'll return by paddling to Tupper Lake. (Grade B)

[88269] Boundary Waters Canoe Area, Minnesota—July 12–21. Leader, Tom Sitzman, 903 Mercer Blvd., Omaha, NE 68131. Price: \$390, Dep: \$35. Experience the silence of the Northwoods, hear the eerie laughter of the loon, sit under the northern lights, photograph Indian pictographs, stalk a wild moose, and paddle the crystal-clear waters of the Boundary Waters Canoe Area. On this ten-day trip through a land of interconnecting lakes and rivers shaped by the last glacier period, we will swim, fish, and enjoy blueberries as we portage, paddle, and camp. All participants must be strong, feel young, love adventure, and follow a serious conditioning plan prior to the trip. (Grade B)

[88270] The Wide Missouri, Montana—July 24–31. Leader, Chuck Schultz, 1024-C Los Gatos, San Rafael, CA 94903. Price: \$495, Dep: \$35. The Missouri River flows with the history of the Blackfeet and the Assiniboin, trappers and traders, Lewis and Clark, and steamboats opening the Northwest. Uncluttered by development, the upper Missouri still rolls and shoulders its way through the uplifted plains at the foot of the Rockies. Leaving Ft. Benton, we paddle through the portion of the historic Missouri designated a Wild and

OUTINGS

Scenic river. Our 150-mile trip allows time to explore and absorb the beauty of an area filled with surprises. Short hikes take us to natural bridges and arches as well as Indian camps that predate the coming of Europeans to North America. Canoes and lift back are included; beginners are welcome. (Grade A)

SPECIAL

[88271] The Broken Isles by Paddle, Barkley Sound, Vancouver Island, British Columbia—August 1–10. *Leader, Tris Coffin, 2010 Yampa Dr., Prescott, AZ 86301. Price: \$695, Dep: \$70.* A blue-water trek through the protected island channels of Pacific Rim National Park, Canada's first marine park, takes us past rugged, forested shorelines on western Vancouver Island. First we take a ferry ride down the long fjord from Port Alberni; then we paddle in double sea kayaks through some of the 100 islands in the Broken Group. Captain Cook first reported the remarkable art and culture of the North Coast natives. Today only the ghosts of Indian villages and old whaling

ports remain. Sea life is abundant and the tide pools are rich; you may fish for salmon and rockfish. An island naturalist will explain the history of the environment, the native people, and the early white settlers. Some canoe/foldboat experience is desirable. (Grade B)

[88272] Canoe Temagami Preserve, Ontario—August 1–11. *Leader, Gretchen Lindquist, 7335 Chestnut Ave., Melrose Park, PA 19126. Price: \$380, Dep: \$35.* The

through the unspoiled lakes and connecting streams of Maine. It's great country to perfect your skills in canoe camping and long-distance paddling while watching nature at its finest. On our layover day we will explore an intimate system of tiny lakes, small streams, and bogs with wild cranberries and high bush blueberries. We should see moose, bald eagles, loons, and blue herons—and be able to fish for small-mouth bass and perch. Our moderate pace will require some endurance as we will be carrying all our gear. (Grade B)



Above: Colorado River, California

SUSAN HELLER



STEVE WARELL

Temagami Preserve in northeastern Ontario is full of lakes and rivers. Outcroppings of the Canadian Shield make perfect campsites to swim, fish, listen for loons, and watch for the northern lights. We'll spend some time on Lady Evelyn River, possibly camping near a spectacular waterfall. The trip is rated moderately strenuous because of the number and difficulty of the portages. We plan to cover 8 to 12 miles each day with two layover days for relaxation. Canoe experience is helpful; leader approval is required. (Grade C)

[88273] Canoeing in the West Grand Lakes Chain, Maine—August 7–13. *Leader, Irwin Rosman, 293 Greve Dr., New Milford, NJ 07646. Price: \$285, Dep: \$35.* This trip includes flatwater canoeing in exceptionally beautiful rolling hills and deep forests. We will travel about 55 miles

[88274] Adirondack Waters, Adirondack Park, New York—August 14–20. *Leader, Edith Schell, 2671 Brown St., Collins, NY 14034. Price: \$255, Dep: \$35.* New York's Adirondack State Park, the largest in the Lower 48, includes both large lakes with views of surrounding mountains, and meandering rivers with a variety of wildlife. We will explore the Saranac Lakes and part of the Raquette River in our week of mostly easy paddling, staying in primitive campsites along the way. The trip is planned to avoid almost all portaging and to allow ample time for swimming and enjoying the scenery. The possibility of strong winds on the open lakes makes some prior canoe experience necessary. (Grade B)

NOTE: See Alaska, Foreign, and Service trips for other water-oriented outings.

OUTINGS

GEOGRAPHIC TRIP INDEX

TRIP NO.	TRIP TITLE	DATE	TYPE	PAGE	TRIP NO.	TRIP TITLE	DATE	TYPE	PAGE
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88072	Brooks Range Backpack, Arctic Wildlife Refuge	6/17-26	Backpack	49	88082	Yukon River, Yukon Territory	7/26-8/12	Canoe	51
88073	One Park, Four Alaskas, Lake Clark Park and Preserve	6/19-28	Backpack	49	88272	Canoe Temagami Preserve, Ontario	8/1-11	Canoe	108
88074	Glacier Bay Sea Kayaking	6/21-7/2	Kayak	50	88186	Gaspé Family Outing, Gaspé Peninsula, Quebec	7/17-24	Family	77
88075	Arctic Mountains and Coastal Plain, Arctic Wildlife Refuge	7/2-16	Backpack	50	88261	Queen Charlotte Island Wilderness, B.C.	6/26-7/2	Sailing	105
88076	Swan Lake and Kachemak Bay by Canoe and Kayak	7/3-16	Canoe/ Kayak	50	88262	Totems, Sails, and Orca Whales — An Inland Passage Journey, B.C.	7/14-20	Sailing	105
88077	Valley of the 10,000 Smokes, Katmai Park	7/3-16	Backpack	50	88271	The Broken Isles by Paddle, Barkley Sound, Vancouver Island, B.C.	8/1-10	Kayak	108
88078	Sea Kayaking, Prince William Sound	7/5-16	Kayak	51	88160	Canada's Coast Mountain Wilderness, Tweedsmuir Park, B.C.	8/8-14	Base Camp	70
88079	North Through the Sadelrochit Mountains, Arctic Wildlife Refuge	7/17-30	Backpack	51	88263	Totems, Sails, and Orca Whales — An Inland Passage Journey, B.C.	8/24-9/1	Sailing	106
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88083	Alaska Range, East of Denali	7/28-8/10	Backpack	52	88265	The Great Pacific Northwest Sailing and Natural History Adventure, Gulf/San Juan Islands, WA/B.C.	9/12-17	Sailing	106
88084	Noatak River Paddle Raft, Arctic Wildlife Refuge	8/1-12	Raft	52					
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88086	Skilak Glacier, Kenai	8/18-27	Backpack	52					
88253	Toklat River Cleanup, Denali Park	9/6-16	Service	102					

For More Details on Outings

Outings are described more fully in trip supplements, which are available from the Outing Department. Trips vary in size, cost, and 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

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Enclosed is \$_____ for extra supplements at 50 cents each. Please allow 2-4 weeks for delivery. **Please do not mail cash.**

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TRIP NO.	TRIP TITLE	DATE	TYPE	PAGE	TRIP NO.	TRIP TITLE	DATE	TYPE	PAGE
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88635	African Safari Spectacular: Tanzania	6/29-7/13		78	88533	Belize: Reef and Ruins, Central America	3/5-14		83
88660	Journey Through Time: Early Man and Wildlife Safari, Kenya and Tanzania	7/20-8/10		78	88550	Exotic Highland and Lowland Parks of Costa Rica	3/27-4/2		83
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88545	Rolwaling Trek, Nepal	3/20-4/10		80	88610	Tawantinsuyo: The Four Quarters of the World, Bolivia and Peru	6/4-27		84
88575	China, Tripping the Eastern Fantastic	4/28-5/17		80	88620	Peru-Bolivia Adventure	6/20-7/10		84
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88655	Batura Glacier, Nanga Parbat Hunza Trek, Pakistan	6/25-7/24		81	88685	Australia's Northern Territory Wilderness	8/29-9/18		87
88705	Tian Shan China Trek	9/11-30		81	HAWAII				
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88605	Walking in the West Country, England	6/12-28		85	88168	Vermont Bicycle Tour	6/5-11	Bicycle	72
88640	Ireland, Bike and Hike	7/9-23		86	88172	Acadia Bike and Hike, ME	6/19-25	Bicycle	73
88645	Hiking the Northern Basque Country, France	7/10-23		86	88217	Long Trail Maintenance, Green Mountains, VT	6/26-7/3	Service	96
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88175	Cape Cod and Islands Bicycle Tour, MA	9/12-18	Bicycle	73
88148	Mahoosuc Range, White Mountains, NH	9/18-23	Backpack	65
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88067	Dismal Swamp Canoe Base Camp, VA/NC	4/17-23	Canoe	106
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88052	Bicycling the Outer Banks, NC	5/29-6/4	Bicycle	72
88171	Cycling Colonial Virginia	6/26-7/3	Bicycle	73
88096	The Best of West Virginia	7/3-9	Backpack	57
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88176	Cycling through the Shenandoah Valley, VA	9/17-24	Bicycle	73
89310	Great Smoky Mountains Park, TN/NC	9/24-10/1	Base Camp	71
89304	Slickrock Wilderness, Nantahala/Cherokee Forests, TN/NC	10/8-15	Backpack	67

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88070	Ozark Spring Tour, Ozark National Scenic Riverways, MO	5/8-14	Canoe	107
88169	Wisconsin Hills and Valleys	6/5-12	Bicycle	72
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88269	Boundary Waters Canoe Area, MN	7/12-21	Canoe	107
88239	Boundary Waters Canoe Trip, MN	8/3-13	Canoe/ Service	100
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89318	Ozark Trail Maintenance, Mark Twain Forest, MO	10/23-29	Service	103

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88033	Galiuro Wilderness, Galiuro Mountains, AZ	4/10-16	Backpack	54	88042	Anza-Borrego Natural History, Anza-Borrego Park, CA	3/19-26	Base Camp	68
88210	Navajo Trail Maintenance, Kaibab Forest, AZ	4/15-25	Service	94	88043	East Mojave Scenic Area, CA	3/26-4/2	Base Camp	68
88034	Slickhorn Canyon, UT	4/16-23	Backpack	55	88035	Junipero Serra, Ventana Wilderness, Los Padres Forest, CA	4/22-30	Backpack	55
88036	Kanab Canyon/Thunder River, Grand Canyon, AZ	4/22-30	Backpack	55	88091	Pleasant Valley, Yosemite Park, Sierra	6/20-29	Backpack	56
88063	Red Rock Trail Maintenance, Munds Mountain Wilderness, Coconino Forest, AZ	4/24-30	Service	95	88216	Clear Creek Trail Maintenance, Klamath Forest, CA	6/21-7/1	Service	96
88068	San Juan River Paddle Raft/Grand Gulch Backpack, UT	4/24-5/5	Raft/Backpack	104	88183	Little Harbor, Santa Catalina, CA	6/25-7/1	Family	76
88037	Navajo Mountain—Rainbow Bridge, AZ	5/1-7	Backpack	55	88218	Pocket Meadow Trail Maintenance, Sierra Forest, Sierra	6/26-7/6	Service	96
88049	Habitat Studies, Gila Wilderness, NM	5/15-21	Base Camp	69	88094	Humphreys Basin, John Muir Wilderness, Sierra	6/29-7/6	Backpack	57
88090	Death Hollow/Sand Creek, Escalante Canyons, UT	5/28-6/4	Backpack	56	88095	Mono and Silver Divide Peakbagging, John Muir Wilderness, Sierra	6/30-7/9	Backpack	57
88211	North Canyon Trail Maintenance, Kaibab Forest, AZ	6/2-12	Service	95	88184	Clair Tappaan Family Week, Sierra	7/3-10	Family	76
88212	Chell Canyon Trail Project, Apache Forest, AZ	6/4-11	Service	95	88221	Hancock Lake Trail Maintenance, Klamath Forest, CA	7/6-16	Service	97
88214	Whitewater Creek, Gila Wilderness, NM	6/11-18	Service	95	88222	Meteor Lake Trail Maintenance, Klamath Forest, CA	7/7-17	Service	97
88215	Chaco Canyon Archeological Sites and Trail Maintenance, Chaco Culture Historical Park, NM	6/11-18	Service	96	88197	Mineral King Leisure Highlight, Sequoia Park, Sierra	7/10-19	Highlight	90
88266	Green River Canyonlands Park, UT	6/19-28	Canoe	107	88098	Mount Ritter Adventure, Ansel Adams Wilderness, Sierra	7/12-21	Backpack	57
88093	Skyline Trail, Pecos Wilderness, NM	6/26-7/2	Backpack	56	88099	Natural History In and Around the Clark Range, Yosemite Park, Sierra	7/16-23	Backpack	57
88232	Grand Canyon Potpourri, Grand Canyon, AZ	7/21-30	Service	99	88185	Joe Crane Lake, Ansel Adams Wilderness, Sierra	7/16-23	Family	76
					88226	Claire Tappaan Lodge Family Trip, Tahoe Forest, Sierra	7/16-24	Service	98
					88155	Historical Meadow Lake, Tahoe Forest, Sierra	7/17-23	Base Camp	69
					88187	Redwood Park Family Outing, CA	7/17-24	Family	77
					88228	Piute Lake Trail Maintenance, Inyo Forest, Sierra	7/17-27	Service	98
					88102	Sphinx Quest, Kings Canyon Park, Sierra	7/18-27	Backpack	58

OUTINGS

TRIP NO.	TRIP TITLE	DATE	TYPE	PAGE	TRIP NO.	TRIP TITLE	DATE	TYPE	PAGE
88230	Deer Creek Trail Maintenance, Shasta/Trinity Forests, CA	7/18-28	Service	98	88162	Midnight Lake, John Muir Wilderness, Sierra	8/10-18	Base Camp	70
88156	Palisade Mountaineering, John Muir Wilderness, Sierra	7/18-29	Base Camp	69	88245	Minarets Avalanche Cleanup, Sierra Forest, Sierra	8/10-20	Service	101
88103	Le Conte Divide, John Muir Wilderness, Sierra	7/19-28	Backpack	58	88150	Convict Canyon Junior Backpack, John Muir/Inyo Forests, Sierra	8/13-20	Junior Backpack	67
88233	Teen's Trail Construction Trip, Sierra Forest, Sierra	7/21-31	Service	99	88129	Cirque Crest, Kings Canyon, Sierra	8/13-21	Backpack	62
88104	Secret Meadow Leisure, Hoover Wilderness, Sierra	7/23-31	Backpack	58	88130	Post Peak Pass, Ansel Adams Wilderness, Sierra	8/14-20	Backpack	63
88105	Pacific Crest Trail—Donner Pass to Johnsville, Tahoe Forest, Sierra	7/23-31	Backpack	59	88180	Breeze Lake and the Buena Vista Crest Family Trip, Ansel Adams Wilderness/Yosemite, Sierra	8/14-21	Burro	75
88106	The Major General, Sequoia Park, Sierra	7/24-30	Backpack	59	88131	Devil's Punchbowl, John Muir Wilderness, Sierra	8/14-22	Backpack	63
88107	Mt. Brewer, Kings Canyon Park, Sierra	7/24-30	Backpack	59	88132	Behind Mt. Whitney, Sierra	8/19-27	Backpack	63
88178	Cora Lakes Family Trip, Ansel Adams Wilderness, Sierra	7/24-31	Burro	75	88133	Above the Roaring River, Sequoia/Kings Canyon Parks, Sierra	8/19-28	Backpack	63
88157	Donner-Tahoe Discovery and Photography, Sierra	7/24-31	Base Camp	70	88134	Women's Beginner Backpack, Yosemite Backcountry, Sierra	8/20-28	Backpack	63
88109	Moon Lake, John Muir Wilderness, Sierra	7/24-31	Backpack	59	88135	Mono Rendezvous, John Muir Wilderness, Sierra	8/20-28	Backpack	63
88111	Ritter Range Survey, Sierra Forest, Sierra	7/24-31	Backpack	59	88181	Heart of Yosemite Park, Sierra	8/21-28	Burro	75
88158	Golden Trout Lake, John Muir Wilderness, Sierra	7/27-8/4	Base Camp	70	88203	To the Roof of the Sierras Around Four Gables, Sierra	8/21-28	Highlight	91
88114	Yosemite Discovery Trek, Yosemite Park, Sierra	7/28-8/6	Backpack	60	88136	Alpine Lakes, Sequoia Park, Sierra	8/21-9/3	Backpack	64
88236	Piute Pass Meadow Restoration and Trail Maintenance, Sierra Forest, Sierra	7/28-8/7	Service	99	88251	Silver Pass Wilderness Maintenance, Sierra Forest, Sierra	8/22-9/1	Service	101
88115	Sequoia High Country, Sequoia Park, Sierra	7/29-8/7	Backpack	60	88137	Isberg Lake Beginner Leisure Backpack, Ansel Adams Wilderness, Sierra	8/22-30	Backpack	64
88199	Clark Range, Yosemite Park/Ansel Adams Wilderness, Sierra	7/29-8/8	Highlight	91	88138	White Divide, Sierra Forest and Kings Canyon Park, Sierra	8/24-9/2	Backpack	64
88117	Sixty Lakes, Kings Canyon Park, Sierra	7/30-8/7	Backpack	60	88252	Tuolumne Meadows Trail Maintenance and Cleanup, Yosemite Park, Sierra	8/24-9/3	Service	102
88119	Among Monarchs and Kings, Kings Canyon Park, Sierra	7/31-8/7	Backpack	61	88139	Granite Park, Sierra/Inyo Forests, Sierra	8/28-9/3	Backpack	64
88120	Evolution Basin and Darwin Canyon, Kings Canyon Park, Sierra	7/31-8/8	Backpack	61	88140	Mt. Whitney Grand Tour, Sierra	8/28-9/4	Backpack	64
88200	Evolution Valley, Inyo Forest, Sierra	7/31-8/12	Highlight	91	88141	McGee Lakes Peakbagging, Kings Canyon Park, Sierra	8/28-9/5	Backpack	64
88179	Around the Triple Divide, Ansel Adams Wilderness/Yosemite, Sierra	7/31-8/14	Burro	75	88142	Ruby Crest Trail, Humboldt Forest, NV	9/4-9	Backpack	65
88159	San Francisco Bay Discovery, CA	8/3-10	Base Camp	70	88143	Lake Reflection, Sequoia/Kings Canyon Parks, Sierra	9/7-14	Backpack	65
88122	High Mountain Basins, John Muir Wilderness, Sierra	8/4-13	Backpack	61	88144	Fish Creek Basin, John Muir Wilderness, Sierra	9/7-15	Backpack	65
88123	Women's Beginner Backpack, Ansel Adams Wilderness, Sierra	8/6-13	Backpack	61	88254	Mt. Whitney Trail Maintenance, Inyo Forest, Sierra	9/7-17	Service	102
88124	Yosemite's High Sierra Wilderness, Sierra	8/6-13	Backpack	62	88204	Southern Yosemite, Sierra	9/10-17	Highlight	93
88125	Center Basin Leisure, Kings Canyon Park, John Muir Wilderness, Sierra	8/6-14	Backpack	62	88145	Sachse Monument, Emigrant Wilderness, Sierra	9/10-18	Backpack	65
88126	Glacier Divide Loop, Kings Canyon Park, John Muir Wilderness, Sierra	8/7-14	Backpack	62	88147	Fishing the Golden Trout Wilderness, Sequoia Forest, Sierra	9/17-25	Backpack	65
88201	Monarch Divide, Kings Canyon, Sierra	8/7-19	Highlight	91	88164	Bodie Fall Photography Workshop, CA	9/18-25	Base Camp	71
88161	Foerster Lake, Sequoia Park, Sierra	8/8-18	Base Camp	70	89311	Geology of Death Valley, CA	12/24/88-1/1/89	Base Camp	71
88127	Golden Bear Lake, Kings Canyon Park, Sierra	8/8-18	Backpack	62					

RESERVATION



Eligibility: Our trips are open to Sierra Club members, applicants for membership, and members of organizations granting reciprocal privileges. You may include your membership application and fee with your reservation request.

Children must have their own memberships unless they are under 12 years of age.

Unless otherwise specified, a person under 18 years of age may join an outing only if accompanied by a parent or responsible adult or with the consent of the leader.

Applications: One reservation form should be filled out for each trip by each person; spouses and families (parents and children under 21) may use a single form. Mail your reservation together with the required deposit to the address below. No reservations will be accepted by telephone.

River-Raft, Sailing, & Whalewatching Cancellation Policy

In order to prevent loss to the Club of concessionaire cancellation fees, refunds on these trips might not be made until after the departure. On these trips, refunds will be made as follows:

No. of days prior to trip	Amount of trip cost refunded
45 or more	90% refunded
30-44	75% refunded*
14-29	50% refunded*
0-13	No refund*

*If the trip place can be filled by a full-paying member, then the cancellation fee shall amount to the nonrefundable deposit or 10% of the total trip cost, whichever is greater.

Reservations are confirmed on a first-come, first-served basis. However, when acceptance by the leader is required (based on applicant's experience, physical condition, etc.), the reservation is confirmed subject to the leader's approval, for which the member must apply promptly. When a trip is full, later applicants are put on a waitlist.

Give some thought to your real preferences. Some trips are moderate, some strenuous; a few are only for highly qualified participants. Be realistic about your physical condition and the degree of challenge you enjoy.

The Sierra Club reserves the right to conduct a lottery to determine priority for acceptance in the event that a trip is substantially oversubscribed shortly after publication.

Reservations are accepted subject to these general rules and to any specific conditions announced in the individual trip supplements.

Deposit: A deposit is required with every trip application. The amount of the deposit varies with the trip price, as follows:

Trip Price per person	Deposit per person
Up to \$499	\$35 per individual (with a maximum of \$100 per family on family trips)
\$500 and above (except Foreign Outings)	\$70 per individual
All Foreign Trips	\$100 per individual

The amount of a deposit is applied to the trip price when the reservation is confirmed. All deposits and payments should be in U.S. dollars.

Payments: Generally, adults and children pay the same price; some exceptions for family outings are noted. You will be billed upon receipt of your application. Full payment of trip fee is due 90 days prior to trip departure. Trips listed in the "Foreign" section require additional payment of \$200 per person six months before departure. Payments for trips requiring the leader's acceptance are also due at the above times, regardless of your status. If payment is not received on time, the reservation may be cancelled and the deposit forfeited.

No payment (other than the required

deposit) is necessary for those waitlisted. The applicant will be billed when placed on the trip.

The trip price does not include travel to and from the roadhead or specialized transportation on some trips (check trip supplement). Hawaii, Alaska, foreign, and sailing trip prices are all exclusive of airfare.

Transportation: Travel to and from the roadhead is your responsibility. To conserve resources, trip members are urged to form carpools on a shared-expense basis or to use public transportation. On North American trips the leader will try to match riders and drivers. On some overseas trips you may be asked to make your travel arrangements through a particular agency.

Infrequently, the Sierra Club finds it necessary to cancel trips. The Club's responsibility in such instances is limited in accordance with the Trip Cancellation Policy. Accordingly, the Sierra Club is not responsible for nonrefundable airline or other tickets or payments or any similar penalties that may be incurred as a result of any trip cancellation. You may protect yourself against such penalties by purchasing trip cancellation insurance as described in the brochure enclosed with your reservation confirmation, or you can check with your travel agent for other remedies.

Confirmation: A reservation is held for a trip applicant, if there is space available, when the appropriate deposit has been received by the Outing Department. A written confirmation is sent to the applicant. Where leader approval is not required, the confirmation is unconditional. Where leader approval is required, the reservation is confirmed, subject to the leader's approval. Where there is no space available when the application is received, the applicant is placed on the waitlist and the deposit is held pending an opening. When a leader-approval trip applicant is placed on the waitlist, the applicant should seek immediate leader approval, so that in the event of a vacancy the reservation can be confirmed. When a person with a confirmed reservation cancels, the person at the head of the waitlist will automatically be confirmed on the

OUTINGS

CANCELLATION POLICY

trip, subject to leader approval on leader-approval trips. The applicant will not be contacted prior to this automatic reservation confirmation, except in the three days before trip departure.

Refunds: You must notify the Outing Department directly during working hours (weekdays, 9-5; ph. 415-776-2211) of cancellation from either the trip or the waitlist. The amount of the refund is determined by the date that the notice of cancellation by a trip applicant is received at the Outing Department. The refund amount may be applied to an already confirmed reservation on another trip.

A cancellation from a leader-approval trip is treated exactly as a cancellation from any other type of trip, whether the leader has notified the applicant of approval or not.

The Cancellation Policy for River-Raft and Sailing Trips is separately stated.

The Outing Committee regrets that it cannot make exceptions to the Cancellation Policy for any reason, including personal emergencies.

Cancellations for medical and other reasons are often covered by traveler's insurance, and trip applicants will receive a brochure describing this type of coverage. You can also obtain information regarding other plans from your local travel or insurance agent. We encourage you to acquire such insurance.

Trip leaders have no authority to grant or promise refunds.

Transfers: For transfers from a confirmed reservation made 14 or more days prior to the trip departure date, a transfer fee of \$35 is charged per application.

Transfers made 1-13 days prior to the trip departure date will be treated as a cancellation, and the Cancellation Policy will apply. No transfer fee is charged if you transfer from a waitlist.

A complete transfer of funds from one confirmed reservation to another already-held confirmed reservation will be treated as a cancellation, and will be subject to cancellation fees.

Medical Precautions: On a few trips, a physician's statement of your physical fitness may be needed, and special inocula-

tions may be required for foreign travel. Check with a physician regarding immunization against tetanus.

Emergency Care: In case of accident, illness, or a missing trip member, the Sierra Club, through its leaders, will attempt to provide aid and arrange search and evacuation assistance when the leader determines it is necessary or desirable. Costs of specialized means of evacuation or search (helicopter, etc.) and of medical care beyond first aid are the financial responsibility of the ill or injured person. Since such costs are often great, medical and evacuation insurance is advised, as the Club does not provide this coverage for domestic trips. Participants on foreign outings are covered by limited medical, accident, and repatriation insurance. Professional medi-

cal assistance is not ordinarily available on trips. Be sure your insurance covers you in the countries involved.

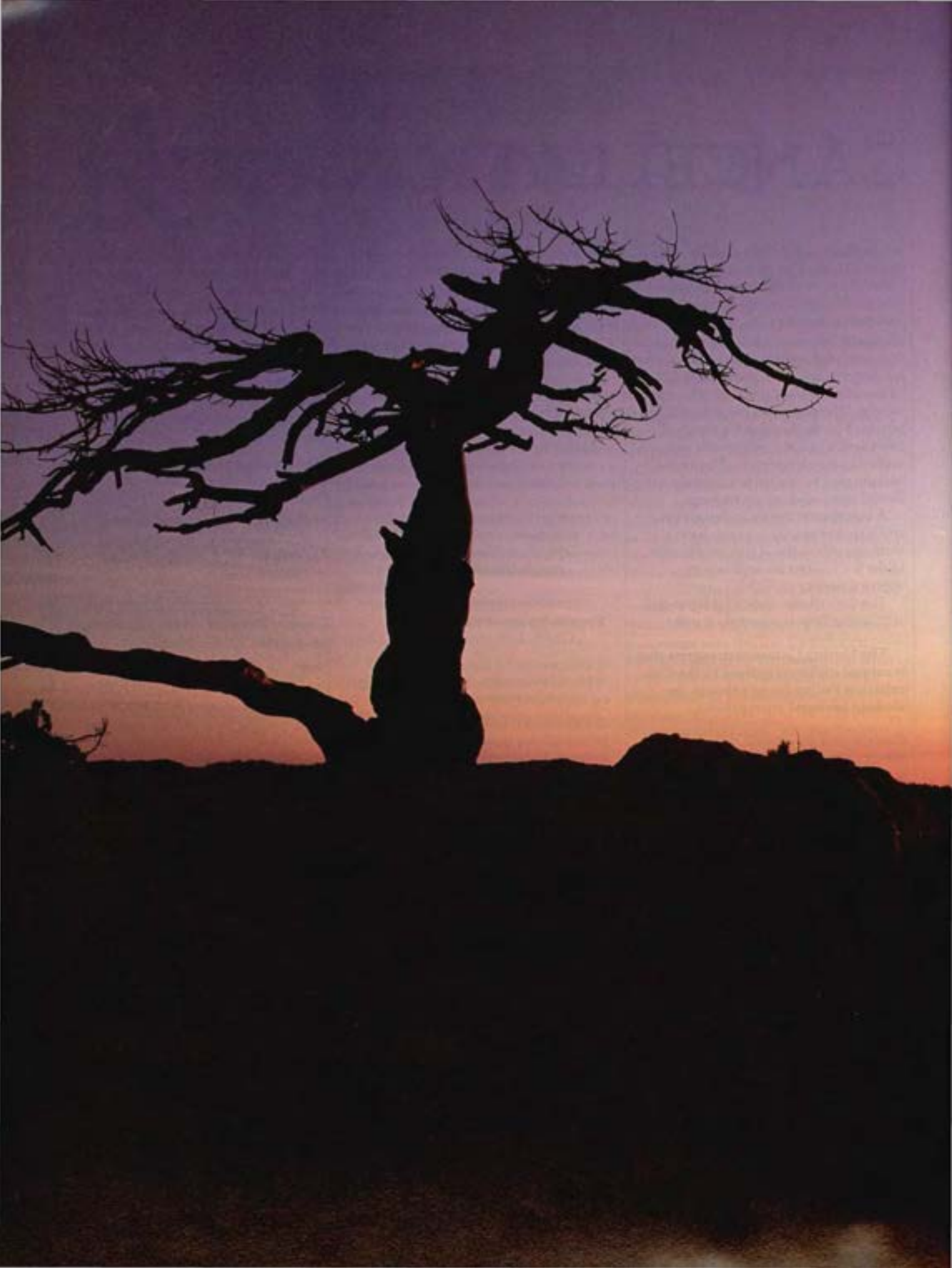
The Leader Is in Charge: At the leader's discretion, a member may be asked to leave the trip if the leader feels the person's further participation may be detrimental to the trip or to the individual.

Please Don't Bring These: Radios, sound equipment, firearms, and pets are not allowed on trips.

Mail checks and applications to: Sierra Club Outing Department
Dept. #05618, San Francisco, CA 94139

Mail all other correspondence to: Sierra Club Outing Department
730 Polk St., San Francisco, CA 94109
(415) 776-2211

Time or Event of Cancellation	Amount forfeited per person	Amount refunded per person
1) Disapproval by leader (once leader-approval information has been received) on leader-approval trips	None	All amounts paid toward trip price
2) Cancellation from waitlist, or the person has not been confirmed three days prior to trip departure	None	All amounts paid toward trip price
3) Trip cancelled by Sierra Club	None	All amounts paid toward trip price
4) Cancellation from confirmed position or confirmed position subject to leader approval		
a) 60 days or more prior to trip departure date	\$35	All amounts paid toward trip price exceeding forfeited amount
b) 14-59 days prior to trip departure date	10% of trip fee, but not less than \$35	As above
c) 4-13 days prior to trip departure date if replacement can be obtained from waitlist	10% of trip fee, plus \$35 processing fee, but in no event more than 50% of total trip fee	As above
d) 4-13 days prior to trip departure date if replacement <i>cannot</i> be obtained from waitlist (or if there is no waitlist at the time of cancellation processing)	40% of trip fee, plus \$35 processing fee, but in no event more than 50% of total trip fee	As above
e) 0-3 days prior to trip departure date	Trip fee	No refund
f) "No-show" at the roadhead, or if participant leaves during trip	Trip fee	No refund



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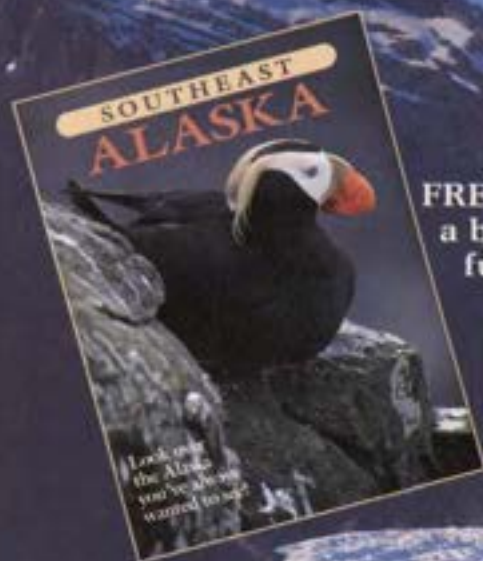
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THE HIGH, WILD



With more roadless acreage than almost any other state, this rugged land of salmon, wolves, and caribou will soon face judgment day in Congress.

IDAHO, a state best known for its potatoes, is somehow stuck with a flatland image. Nonwesterners frequently confuse it with Iowa. In reality, it is one of the nation's most mountainous states, with 81 named ranges. More than half of it lies between 5,000 and 10,000 feet in elevation. It is steep country and, with the exception of the northern panhandle, fairly dry.

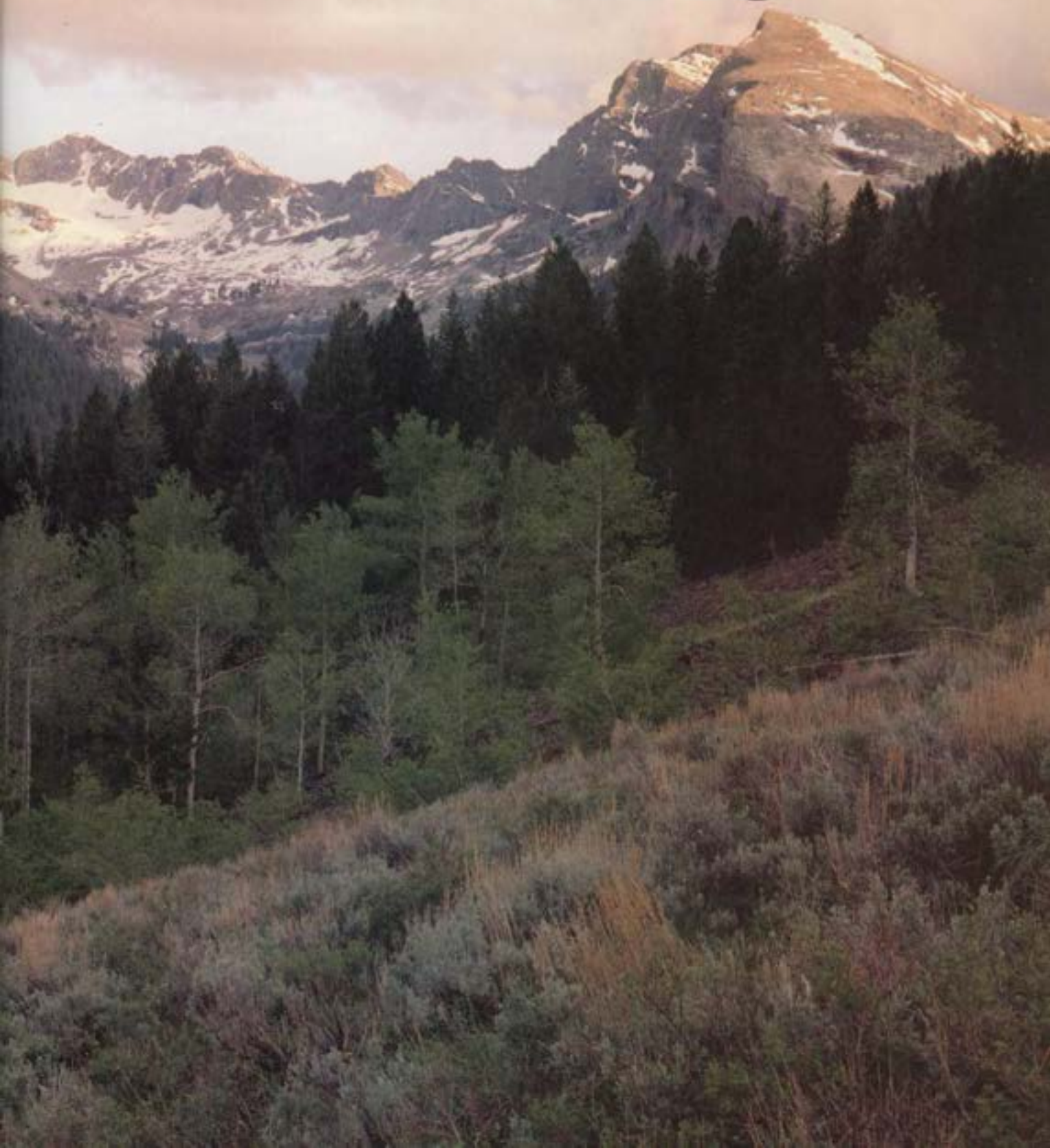
The state also contains the largest chunk of unprotected forest wildlands in the Lower 48—9.3 million acres of roadless lands managed by the U.S. Forest Service. The acreage offers tremendous variety, from the rainforest of the panhandle, to the 12,000-foot peaks of central Idaho, to grizzly habitat on the eastern border near Yellowstone National Park.

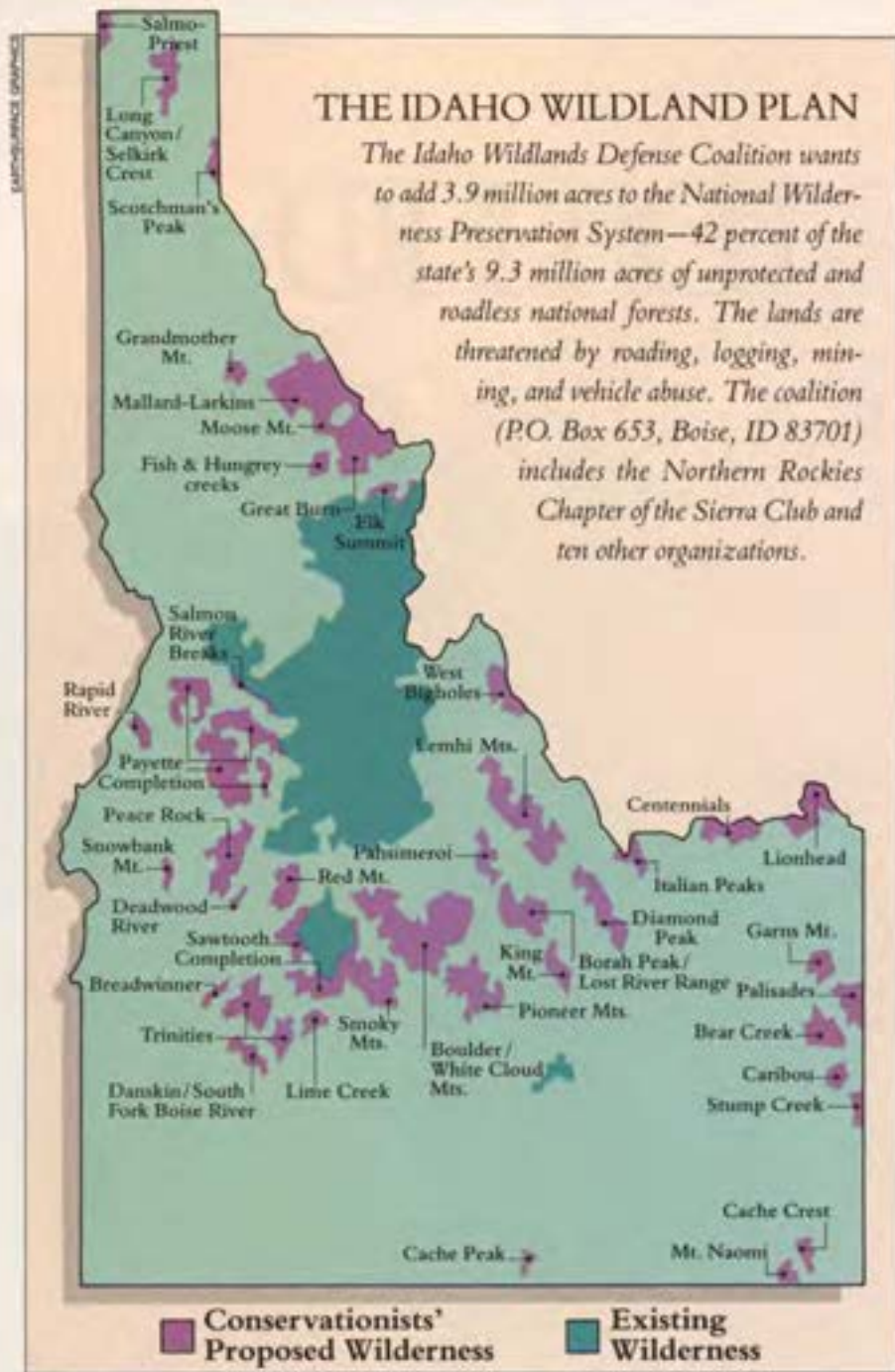
While Congress has passed statewide wilderness laws in most western states, Idaho's roadless lands have remained mired in controversy. Recently, however, Idaho wilderness politics have changed in ways that make congressional action on these lands seem likely in 1988. For one thing, the four-man Idaho delegation has a new member, Rep. Richard Stallings (D), who

BY GLENN OAKLEY
PHOTOGRAPHS BY JEFF GNASS

Conservationists want to set aside 182,000 acres of the Pioneer Mountains (right) as wilderness. Near Sun Valley, the range is a popular recreation area.

SIDE OF IDAHO





introduce to Congress early this year.

"Andrus views himself as the only person on the political scene capable of bridging the gap between conservationists and developers," says Pat Ford of the Idaho Conservation League.

Andrus has proven his ability to work with Republicans as well as Democrats, and his background as Interior Secretary under President Carter provides him with the savvy to move things in Congress. As Interior chief he earned respect among conservationists for his work on the Alaska National Interest Lands Conservation Act.

But Andrus is not the environmentalists' white knight. A former logger, Andrus is a pragmatist who is more than willing to compromise to get a job done. Following Carter's defeat, Andrus worked not only for The Wilderness Society and the National Wildlife Federation, but for various mineral industry interests. Quite simply, Andrus is a man who knows how to work both sides.

If Andrus is a moderate, he is negotiating with a man who has vehemently opposed conservationists' wilderness proposals in the past. In 1984, McClure called for even less wilderness than the Idaho Forest Industry Council had proposed. His bill, which would have set aside a mere 560,000 acres, was promptly killed in the House.

At presstime conservationists were still waiting for the final results of the McClure/Andrus discussions. Meanwhile, the Idaho Wildlands Defense Coalition, a group supported by the Northern Rockies Chapter of the Sierra Club as well as ten other groups, has made its objective clear: wilderness protection for 41 areas totaling 3.9 million acres. The proposal was incorporated in the Idaho wilderness bill introduced by Rep. Peter Kostmayer (D-Penn.) early last year.

Some conservationists have criticized McClure and Andrus for being so secretive about their negotiations; after all, they say, these lands belong to all Americans. But hearings and numerous congressional votes will ensure the public the last word in the debate. ■

GLENN OAKLEY is a Boise-based freelance writer. JEFF GNASS took these photographs for an upcoming book: *Idaho, Magnificent Wilderness* (Westliffe, 1989).

sits on a key wilderness panel: the House Forestry, Family Farms, and Energy Subcommittee. While not a card-carrying environmentalist, neither is Stallings philosophically opposed to wilderness, as was his predecessor.

"Stallings brings a calmness and a willingness to look at issues that have been missing in the delegation for a long time," says Bill Arthur, the Sierra Club's Northwest regional representative.

Another factor making action seem likely is state officials' growing frustration with indecision. A 1982 federal court decision, *California v. Block*, al-

lows all development on Forest Service roadless lands to be legally contested until Congress decides whether the acreage should be placed in the National Wilderness Preservation System. It is a situation that leaves state politicians and the timber industry ill at ease.

A third factor is the willingness of Idaho's Democratic governor, Cecil Andrus, to take a leadership role in the shaping of Idaho wilderness legislation. In recent months Andrus has toured the state's wilderness areas and met in private with Idaho Sen. James McClure (R) to try to come up with a draft bill to



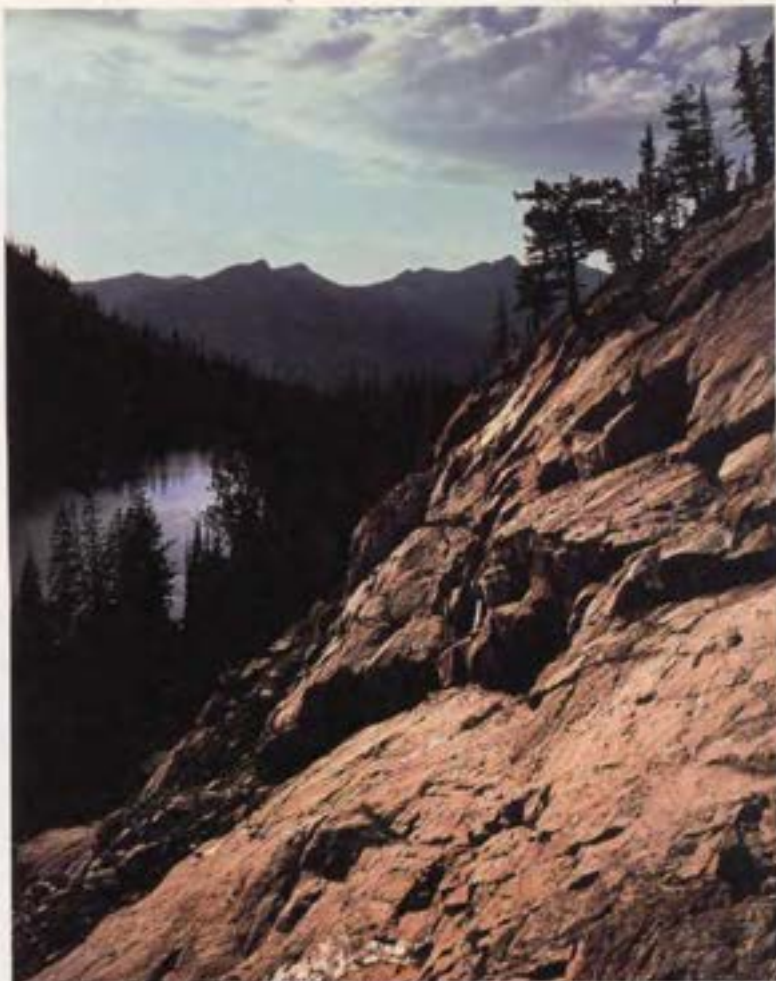
■ In central Idaho, Castle Peak and the Chamberlain Basin (above) are part of conservationists' Boulder/White Cloud Mountains Wilderness proposal. At 453,000 acres, the proposed area is the largest potential national-forest addition to the wilderness system in the Lower 48. Partly because of its size, the Boulder/White Cloud area is rich in wildlife, including mountain goats, bighorn sheep, black bear, elk, deer, fishers, and pronghorn. The east side of the mountains contains the area's best wildlife habitat, with important salmon and steelhead runs and critical winter range for big game.

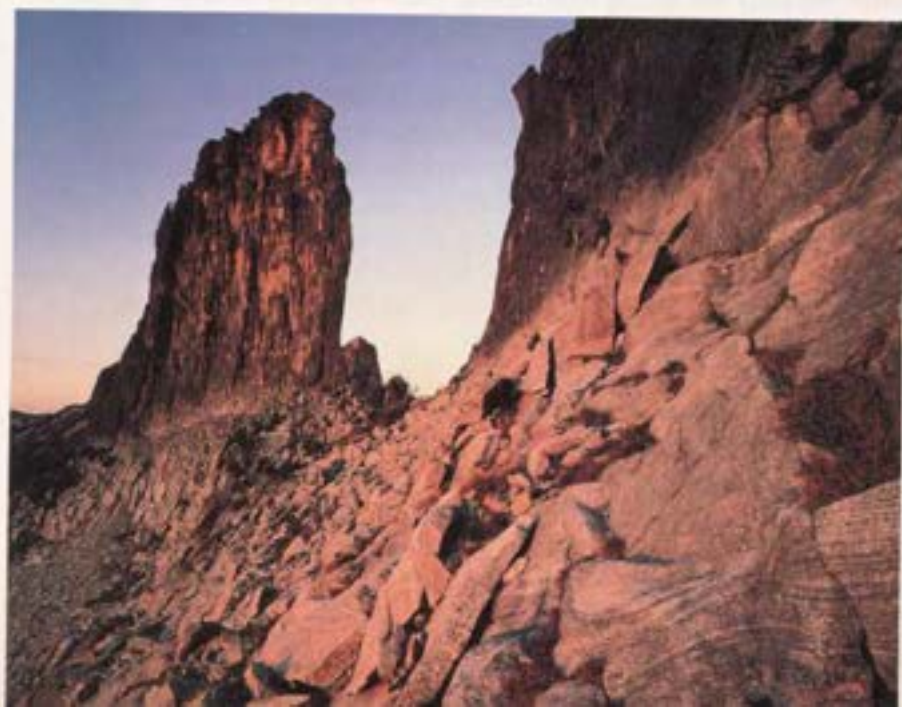
■ This whitebark pine relic (right) stands in the proposed Borah Peak/Lost River Range Wilderness. Here Idaho's highest peak, 12,655-foot Mt. Borah, and huge basins combine to offer visitors both solitude and spectacular scenery.



■ A granite wall looms above Snowslide Lake Basin (right) in the Needles—one of four areas in the proposed 450,000-acre Payette Completion Wilderness. The Completion includes the South Fork of the Salmon River and its tributaries, which provide important salmon and steelhead spawning areas. In fact, until 1965 the South Fork provided spawning beds for 55 percent of all the summer chinook salmon in the entire Columbia River system—more than 10,000 fish. But between 1950 and 1965 the Forest Service bulldozed 800 miles of roads in the South Fork drainage. In 1965 an early thaw and heavy rainstorms sent tons of loose soil into the river, covering spawning gravels with as much as four feet of sediment. In the process of harvesting \$14 million worth of timber, the agency had all but destroyed a fishery resource worth more than \$100 million. Now the Forest Service wants to go back into the drainage for more timber. Undamaged spawning areas, as well as those just beginning to recover from past abuses, are threatened. Conservationists hope to protect and aid restoration of the area's fishery through their wilderness proposal.

■ Upper Priest Falls (below) lies within the proposed Salmo-Priest Wilderness. In the northwestern corner of Idaho's panhandle, the area provides critical habitat for several species not faring well elsewhere, including the grizzly bear, gray wolf, and woodland caribou.





■ A brilliant June afternoon in Idaho's Bitterroot Mountains. Kelly Creek Canyon (above) is part of the 204,000-acre Great Burn Wilderness proposal. Kelly Creek and nearby Cayuse Creek are well known trout streams. The area is also a haven for elk. According to the state Fish and Game Department, the Great Burn and the Mallard-Larkins (another proposed wilderness) are the Idaho areas most in need of wilderness designation to protect wildlife.

■ Chimney Rock (left) in northern Idaho's Selkirk Mountains. Here conservationists have proposed a 46,000-acre Long Canyon/Selkirk Crest Wilderness that would include 24 alpine lakes and the last major unroaded drainage in the American Selkirk.

Mastering Winter

Students in a winter ecology course adapt to the harshest season by learning how animals behave when the temperature drops.

BY FRANK LOWENSTEIN

SYSTEMATICALLY MOST OF US EXCLUDE winter from our lives: We clear snow from streets and sidewalks, shop in enclosed malls, even patronize tanning salons. We pass through winter like tourists visiting a third world country, learning just enough of the language to get by. Then we retreat to the comfort of centrally heated homes, ski lodges, or, if we're adventurous, fiberfill sleeping bags.

For those who want to reach beyond their limited winter phrase books, the Teton Science School offers a course in the language of winter. For two weeks 20 adults take up residence in the school's wood-heated cabins on Ditch Creek, a small tributary of the Snake River in Wyoming. There they eat, speak, study, and live winter. They ski and snowshoe at the eastern edge of Grand Teton National Park, following trails of mice and weasels beneath the snow, examining willows cropped close by moose, and tracking muskrats and martens. By course's end, the students can converse adequately, if not fluently, with the native animals, who have learned to adapt to cold and snow.

Like a language teacher who won't allow English in the classroom, instructor Jim Halfpenny emphasizes his formula for understanding winter: "Think like an animal." Halfpenny is one of the premier animal trackers in the nation, and a founder of the National Outdoor Leadership School's (NOLS') winter program, which takes people into Yellowstone or Wyoming's Wind River Mountains for two-week stints.

While some animals avoid winter entirely by hibernating, flying south, or storing enough food to last until spring, others simply modify their behavior to suit winter's marginal conditions. "Winter is basically a time of starvation," explains Halfpenny. "The question is, does spring arrive before the animals starve to death?" While not seeking to trade places with a slowly starving moose, Halfpenny's students attempt to understand the



Instructor Jim Halfpenny shows how a moose lifts its legs to move in deep snow. Winter herds also pack down snow to facilitate movement.



JIMMY JOHNSON/OWS PHOTO



Clockwise from top: Bears try to avoid winter by adding up to 400 pounds of fat and holling up in a den; unable to reach snow-covered grasses, a young bull elk forages on exposed woody plants; a raccoon returns to its home at the base of a hollow maple; a bison finds limited shelter beneath a pine.

DAVID J. COOK



TED LEVIN/PHOTOS



instincts that help animals cope with the harshest season.

Each winter the glacier-honed hills and broad river terraces on either side of Ditch Creek metamorphose into a rounded landscape of soft and unpredictable whiteness. Animals that we consider purely terrestrial—coyotes, elk, porcupines, and weasels—must live in or atop three feet or more of snow. While this frozen blanket spells disaster for some species, it saves others from death by freezing or predation.

When snow first falls, its crystals range in shape from familiar six-sided flakes to needles, prisms, and indistinct granules. Protuberances and bumps prevent the crystals from collapsing when they collect on the ground, thus forming tiny air pockets within the snow cover. Ice crystals compose only about 10 percent of the volume of new-fallen snow; the other 90 percent is air.

These air spaces provide vital insulation and protection for small mammals. The meadows surrounding Teton Science School are crisscrossed with the tracks of bounding weasels. Periodically these tracks stop at neat holes in the snow, which lead to snow-covered networks of tunnels and nests used by the voles and mice that the weasels prey on.

These small animals have a large area of skin relative to their weight; they can't carry enough fur to prevent hypothermia. A mouse with fur as thick as that of an arctic fox would be an immobile

and vulnerable ball of fluff—tunnels beneath the snow are a small mammal's substitute for a down parka. In dry years, when these animals are deprived of the snow's insulating blanket, populations just drop, says Halfpenny.

While enabling small mammals to survive, new snow can cause problems for animals that live on the surface. Coyotes, foxes, and wolves that are lithe during other seasons move slowly

through deep powder, sinking up to their bellies with every bound, expending large amounts of energy in their struggles. Because high energy output requires massive food consumption, and because food is scarce in winter, these canines try to avoid moving through deep powder, often holing up until conditions improve.

Other animals, however, are able to move over or through even the fluffiest snow. Lynx and snowshoe hare sport large feet that spread their weight over a large area. Humans adopt the same strategy by using skis or snowshoes.

Large animals rely on long legs to carry them through the deep white stuff. In this regard the moose is the true champion. It can lift a leg up out of the snow to chest height, push it forward without dragging, and then place it down again, much like a high-stepping horse. Deer and elk, on the other hand, drag their hooves even in shallow snow. When surrounded by deep accumulations, they keep to trails, gradually packing the snow down to form easily negotiated highways. These anatomical differences show up in various animal trails: Moose tracks sink deep, but are separated by unbroken surfaces, while deer and elk tracks show the drag of a hoof even in much shallower snow.

As snow settles, winter's challenges change. The snowflakes' protuberances begin to break off, their shapes become steadily less recognizable, and the amount of air between crystals decreases. This reduces the snow's insulating properties, and movement across its surface becomes easier.

This is bad news for deer, elk, and even moose, which must now contend with an environment more favorable to their predators than to them. While they continue to sink into the compacting snow, coyotes, wolves, and cougars move quickly over it. Surface crust caused by wind or repeated melting and freezing can compound the problem for the big animals. They repeatedly break through the crust, an exhausting process that can mangle their forelegs, sometimes even exposing the bone.

Beneath the snow's surface, another set of changes may be under way. Because snow insulates the ground,



A coyote hunts and dives after its rodent prey (above); bighorn sheep search for exposed vegetation (right); students monitor air temperatures outside and in a quinzhee (below right); deer mice inhabit well-insulated tunnels. (below left).



ground temperatures typically stay warmer than air temperatures through much or even all of the winter. Consequently, the air between snow crystals near the bottom of the snowpack is warmer than the air between snow crystals near the top. The warmer bottom air tends to remove water from the surrounding ice crystals and then rises, carrying water out of the lower layers. Over time these lower layers form a type of snow known as depth hoar, which consists of large, loose crystals. This weak snow forms perfect highways for mice and weasels.

In addition to mimicking the strategies of lynx and hare for moving through snow, humans can adopt the strategy of mice for staying warm in it. One morning at the Teton Science School, the class troops outside to build quinzhees, a type of snow shelter that originated in North America's subarctic forests. There, as in much of the United States, snow depths are generally insufficient for building snow caves, and the snow isn't crusty enough for an efficient igloo constructed of icy snow blocks. To



experiment seems to prove that ground pads and face coverings, rather than thicker sleeping bags, are the keys to winter comfort.

The experiment raises a larger question. "Why do we care whether we're hot or cold?" muses instructor Roy Ozanne. Why should we become incoherent, weak, and sleepy when our temperature drops from 98.6 degrees to 88.6?



STEPHEN J. GOLDSMAN/LOWE PHOTO

The problem begins with the chemical bonds that hold our bodies together. Most of these bonds are covalent, which are difficult to break down except at high temperatures, as in a fire. Our bodies use enzymes to sever these bonds and to derive energy without high temperatures. This is the basic mechanism by which we convert sugars into mental or physical activity. In cold temperatures these covalent bonds become stronger, and enzymes have a harder time breaking them down. Moreover, many enzymes get their shape from what Ozanne calls "weak" bonds. Low temperatures disrupt these bonds, creating misshapen enzymes that may not work at all.

Not only enzymes are affected. At colder temperatures hemoglobin molecules are less able to release oxygen. Hence, when one's face gets cold the blood flowing through it remains oxygenated and therefore bright red. This accounts for the red cheeks and noses that many of us sport during winter.

build the quinzhees, the students shovel snow into two mounds about six feet high and nine feet across. Mixing the warmer lower layers with the colder upper layers causes the water vapor in the snow to freeze and harden in its new position. Later in the day, the students hollow out the mounds to form two dome-shaped shelters. The temperature inside the quinzhees may be 40 to 60 degrees Fahrenheit warmer than outside, and each sleeps three to four people.

The next night, student Shawn O'Brien becomes the guinea pig in a scientific experiment. He spends the night in a quinzhee with temperature probes on and in his sleeping bag, under his sleeping pads, and in his rectum. "I'll do anything for attention," he jokes. Although O'Brien sleeps on one open-cell foam and two ensolite pads, and doesn't use an exceptional sleeping bag, he loses more heat through the pads to the snow below than through the sleeping bag to the air above. Halfpenny suggests that heat losses from O'Brien's face, which is uncovered and therefore uninsulated, might double the loss. The

Then there are our cell membranes, which maintain the chemical levels that allow our nerves and muscles to work. When the membranes cool, their fat congeals, much like cooking oil left in a refrigerator. This, Ozanne explains, leaves "big holes like Swiss cheese right through the membrane." Our muscles and nerves, out of chemical equilibrium, their enzymes disrupted and energy levels low, quit working efficiently. The result? Weakness, disorientation, irrational decisions—the symptoms of hypothermia. All mammals and birds are similarly affected by cold.

To prevent this problem, mammals and birds try to maintain their body temperatures within a fairly narrow range. Large mammals accomplish this primarily by maintaining a steady intake of food; a moose will happily consume 50 pounds of willow twigs and sage each day during the winter months. Small mammals, which can neither generate as much metabolic heat as moose, nor carry enough insulation to retain the heat they do generate, regulate their temperatures more actively by using miniature snow caves.

Experimenting with transmitting thermometers implanted in mice, the course instructors discovered that a mouse forced to move across the snow will run until its body temperature drops from about 98.6 degrees to about 90 degrees, then burrow into the snow for a few minutes. Once its body temperature rises, it resurfaces and runs a few more meters before burrowing again.

Windchill also affects an organism's

TED MOORE



temperature. In a 15-mile-per-hour wind at a temperature of 20 degrees Fahrenheit, people lose about 1,150 kilocalories per square meter of exposed skin per hour. Most people expose only their faces outdoors, which cuts the loss to about 345 kilocalories, or, as Ozanne continues nonchalantly, nearly two candy bars per hour. He goes on to make a pitch for wearing facemasks—either that, or stocking an endless supply of candy bars.

After a week in the classroom, the students are ready to tackle field research full-time. Each student chooses a project. Al Nowicki, a graduate student at the University of Wisconsin, follows the myriad weasel tracks that crisscross the meadow. Where they disappear beneath the snow, he starts digging. Late afternoon finds him lying on his side, only his dark wool cap visible above the snow. He is peering into a one-inch-high hole, trying to figure out the weasel's next move without collapsing the tunnel. He points across the meadow to where a pile of snow marks an earlier effort. "That one got so complicated I gave up," he says.

Meanwhile, Joe Austin, a NOLS instructor, tromps through the woods examining porcupine feeding patterns and trying to determine how animals choose trees. Other students study insects in spruce galls, moose distribution along the creek, and acclimatization of human feet to cold.

One night a restlessness takes hold of the group, perhaps rebellion at a bit too much learning, perhaps inspired by the full moon and the clearing skies. "Sometimes," notes instructor Jim Ebersole, a botanist at Washington's Evergreen State College, "it's time to leave all the scientific equipment and go for a nice hike." Thus, a group of five takes off to ski up Cottonwood Creek.

Covered with snow and lit by the full moon, the spruce forest bordering the creek seems conjured up by a wizard. Speeding through it, looking for animal tracks, the five skiers gradually develop their own snow coats, hoar flakes forming on hats and hair. To the west, the mountains rise up in broken slabs, climbing toward a pinnacle that appears to lean out over the valley.

With each passing minute tempera-



An elk's death becomes a coyote's meal.

ture estimates drop. Some argue for ten above while others say ten below. After 20 minutes of hard skiing, the group puts on warmer clothes, and everyone agrees that it's well below zero. Trees crack in the frozen silence. When the tale reaches the breakfast table the next day the estimates hover at 30 below. The five skiers recount with mock pride their adaptation to the conditions: Ski like mad for two and a half hours, then beat a hasty retreat home. After this jaunt, it is easy to appreciate how animals deal with nature's cycles. While these skiers rely on Gore-Tex, polypropylene, and other technological crutches, underneath their garments they've all begun to think like animals. ■

FRANK LOWENSTEIN is a freelance writer in Burlington, Vermont.

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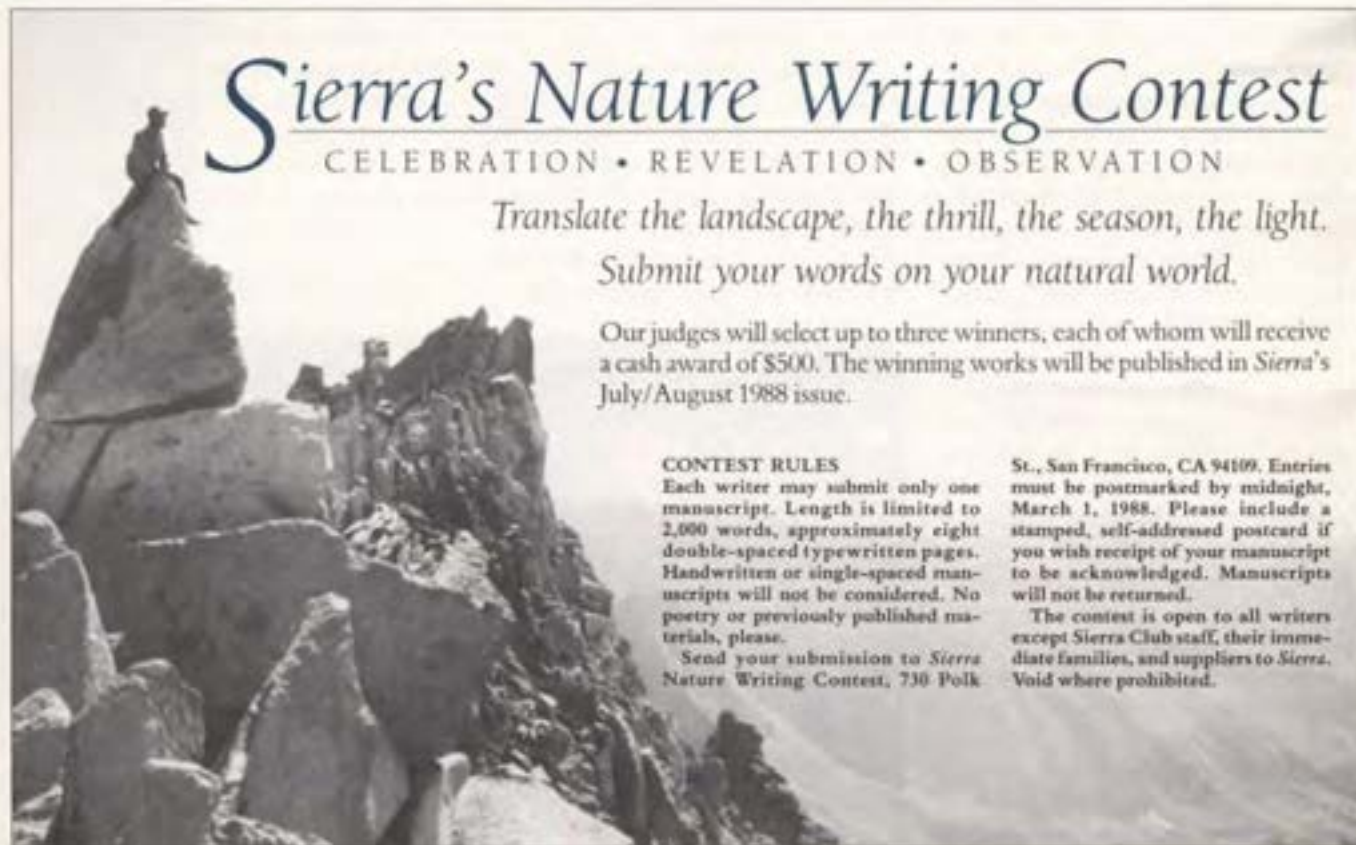
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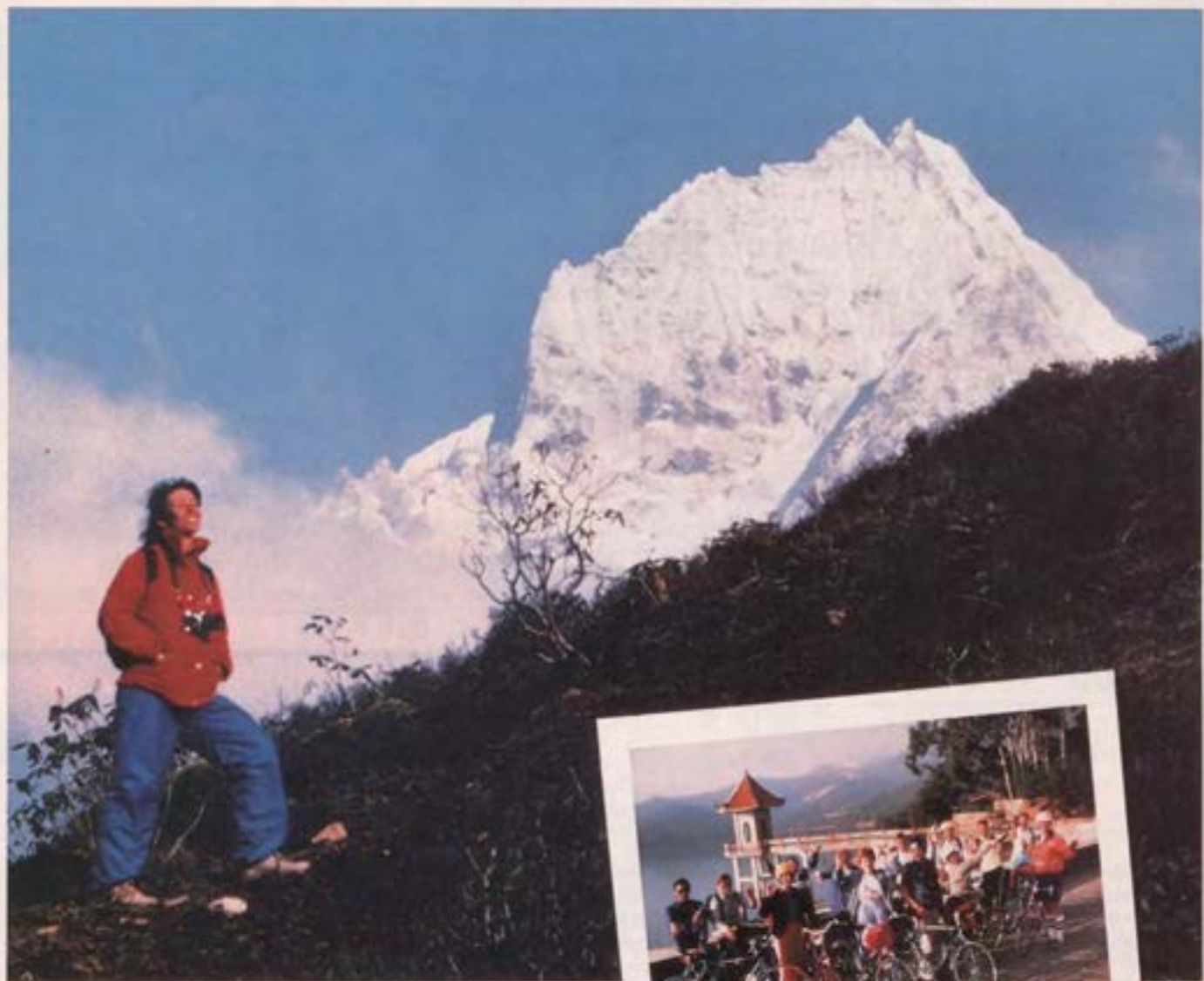
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The Gadfly Botanist of Plumas County

Jane Braxton Little

WAYNE DAKAN breaks away from a group hiking along Hungry Creek, a tributary of the Feather River in northeastern California. In five resolute strides, he crosses a clearing to an old Douglas fir. Straightening his back against its eight-foot girth, he fixes his steely blue stare on a man wearing a U.S. Forest Service uniform.

"Now you can't tell me you bureaucrats have thought of anything to do with this old boy that's any better than what he's already been doing for the last 400 years," Dakan says.

For more than half a century, Dakan, now 76, has stood between the forests of Feather River country and the human civilization whose meddling, he says, has gone to the point of destruction. He is Plumas County's unofficial botanist and patriarch of its environmental movement. During the 54 years he has lived near the North Fork of the Feather River, Dakan has expressed awe and despair while surveying its descent from pristine alpine meadows in Lassen National Park to rice fields in the Sacramento Valley.

"I've watched this river die in my lifetime," Dakan says. "It's a marvelously complex ecosystem that we've turned into a sewer. Everybody who's come along has dumped something into it."

Dakan is an outspoken champion of environmental causes ranging from nuclear disarmament and population control to protection of African grasslands, but he has reserved his most passionate polemics for environmental

preservation in Plumas County. He has vociferously attacked clearcutting in national forests, industrial dumping into streams, and herbicide spraying on forests, as well as hydroelectric dams on wilderness rivers and disruptive sonic booms over quiet valleys. He has also been thrown out of public hearings for cursing, evicted from a local sawmill for trespassing, and imprisoned—"for thinking," he thinks.

"There's no question that Wayne Dakan is the most unpopular person living in Plumas County," says environmentalist attorney Michael Jackson of Quincy, the county seat. "Some people love him, but many more hate him, and he couldn't care less. I don't think he ever gave a thought to how people react to what he says. He is here as a living witness to what has been destroyed."

Dakan has appeared at countless local, state, and federal hearings, shaking a gnarled fist at bureaucrats on behalf of the soil, the moss, the trees, and the insects that cannot speak for themselves. His complaints about tannin that was dumped into Mill Creek by an East Quincy sawmill forced the lumber company, under the threat of a cease-and-desist order filed by the California Water Quality Control Board, to redesign its settling-pond system.

His regular discourses on a local radio talk show range from poisonous jabs at the "Hollywood clown" now playing with the Washington circus, to attacks on Star Wars ("a relief program for the munitions industry"). Recently he has focused on commercial rafting on the Middle Fork of the Feather River, amassing an arsenal of facts to docu-



"Not very many people like to hear what I have to say, but I don't believe they've got the message yet."

—Wayne Dakan



Indian Creek—part of Wayne Dakan's Sierra territory.

ment the sport's potential damage to plants and fish. He aims the facts like darts at companies wanting to transport paying customers down a remote 32-mile stretch of the Middle Fork that was designated a wild and scenic river in 1968. The Forest Service has now banned the commercial ventures.

"This is a wonderful forest," Dakan says. "Just look at the soil! It's the placenta of all life. But mankind destroys everything he touches. We're like a bull in a china shop. What we haven't broken up, we've messed on."

Dakan's friendship with the mixed-conifer forest of Plumas County began in the mid-1930s. A native of Nebraska, he left home in 1927 before completing his senior year of high school. After several seasons "on the tramp," he hopped off a freight train and found a permanent home in Feather River country near Quincy.

Dakan first worked as a gold miner, establishing his diggings on Dixon Creek near the Middle Fork of the Feather River at the height of the Depression. He survived on 50 cents a day and lived in a crude log cabin that was a five-hour walk from the closest town. The few nuggets he found bought his grub, but the plant life nourished him.

"I'd always been interested in the woods," he says. "I asked a lot of questions that nobody could answer. That's how I got started: I bought a book and figured things out for myself."

The book was Willis Linn Jepson's *Manual of Flowering Plants of California*. "It was my bible for years and years," Dakan says, reverently removing the frayed volume from a narrow shelf that also holds Henry David Thoreau's *Walden*, Gary Snyder's *Riprap and Cold Mountain Poems*, *The Art of Andrew Wyeth*, and *More Joy of Sex*. It was Jepson's book that Dakan took to the woods with him until he learned to identify every plant he saw.

"He was very meticulous in his self-teaching," says Kingsley Stern, botany professor at California State University at Chico. "When you contact Wayne about local flora, you get the response of a formally trained person—someone who has dug into his material."

"Plumas County is Wayne's territory," says John Thomas Howell, cura-

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tor emeritus of botany at the California Academy of Sciences in San Francisco. "He is the outstanding local student of the flora there, and a spokesman for the area."

B Biologists on two continents know Dakan for his studies of three kinds of spiders that live in *Darlingtonia californica*, a rare species of pitcher plant abundant in Butterfly Valley near Quincy. During the summer of 1968, he took advantage of some time without a job (following "a little labor dispute" with his boss) to move to Butterfly Valley. There he set up his tent in a stand of Douglas fir and pine trees. By autumn, with his microscope on a cast-iron stove abandoned by loggers and his library in an unused oven, he became thoroughly familiar with the pitcher plant and its spiders. His efforts to protect the plant from roads and logging helped persuade the Forest Service to designate 500 acres of habitat as the Butterfly Valley Botanical Area.

Dakan has used both his reading and his instincts to find at least one plant that California botanists had presumed lost: *Boykinia ranunculifolia*, a small, rock-breaking herb in the saxifrage family. Rebecca Merritt Austin, Plumas County's pioneer botanist, first discovered the plant in California in 1877, but no one had seen it in California since then until Dakan rediscovered it.

"I got to thinking it over," Dakan says. "She gave the location as Spanish Peak, but I didn't believe that old girl ever got up on Spanish Peak. It was too steep, and without roads she would have had to hitch up her skirts just to walk. I'll betcha she was connected with a mining outfit at Silver Lake."

So he walked an abandoned ditch he found flowing into Silver Lake. "And there was that little saxifrage," Dakan says. "A real healthy patch of it growing just like it had been, without any help, since 1877."

"Wayne has a keen sense of observation," says the Academy of Sciences' Howell. "What he finds, he's able to communicate to both plant lover and scientist. One of his main joys and services is taking professional botanists, who maybe would never see them, to look at the rare plants he finds."

Almost all of Dakan's discoveries

have been made in solitude. When the winter of 1941 closed in on the Sierra Nevada, Dakan was alone in a friend's cabin near Lassen Peak. He passed the time with the Harvard Classics—Pepys, Voltaire, Rousseau—and reflected on the war blasting away in other parts of the world. One night he simply threw his draft card into the wood stove.

"I was probably the first person to ever burn my draft card," he says with a grin.

He spent the next four years building an irrigation project at a government camp in Colorado with other men who shared his objections to war. Dakan's pacifism was part of his emerging environmental philosophy.

"All life is hitched together, from the tiniest amoeba to the farthest star," Dakan says. "It didn't make sense for a boy trying to live off the Feather River

Feather River Canyon, and soon provided him his first exposure to herbicides and environmental protest. In the early 1950s both the railroad and Pacific Gas and Electric Company began to spray their rights-of-way with chemicals that killed the vegetation.

"We had to work in the stuff," recalls Dakan. "None of us knew exactly what it was doing to us, but I was conscious of the plants, and I knew it was no damn good. Whole mountainsides wilted overnight. The fishing was still good then, but we began seeing deformed fish after they sprayed. I started hollering about it, carrying on with every official I ever met. I never did see eye to eye with any one of them, and I told one road master he ought to be in jail."

That was a decade before the publication of Rachel Carson's *Silent Spring*. "When that came along," Dakan says, "she gave us the dope on all that stuff they were spraying. After that, we had some ammunition. Everybody up and down the Feather River Canyon was excited about it, but what could we do?"

Dakan made many of his co-workers realize the dangers of herbicides, and years later he convinced Friends of Plumas Wilderness, a group formed in 1970 to create a local wilderness area, to take a stand opposing the spraying. Still, it was another decade before he and fellow environmentalists had any real success halting herbicide use in the forest.

"Wayne knew what was going on, and he was very concerned about it," says Michael Yost, a Feather River College forestry instructor in Quincy. "But he didn't know what to do. He felt all alone."

When the community college was founded in 1969, it brought different people to Plumas County, "people not interested just in logging, but in what's really going on out there," Dakan says. He joined college students and instructors to form the nucleus of a community group that eventually convinced the Plumas County supervisors to ban the use of the herbicide 2,4-D on

county property, and forced the Forest Service to suspend spraying on national forest lands in California.

"I never thought much about being part of any movement," Dakan says. "I always just said what I thought. One day I found that some of the kids were listening."

If Dakan helped create a Plumas County environmental movement, it was more of an eruption than a founding, says environmentalist Jackson. And what Dakan's "kids" heard was less instruction than rage.

"He's more like a voice from the wilderness than a teacher," Jackson says. "I see no difference between Thoreau and Wayne except that Thoreau wrote and Wayne shouts. He's a big old red fir tree who happens to have a very loud voice and speaks in English."

Dakan's studies of rare and endangered plants helped Friends of Plumas Wilderness protect a national forest roadless area near Spanish Peak until 1984, when Congress designated 21,000 acres of the Plumas National Forest as the Bucks Lake Wilderness Area. More recently, the group has been involved in a fight against a Forest Service proposal to dramatically increase clearcutting throughout the agency's California lands during the next ten years.

"Wayne has been a conscience to us," says Lloyd Britton, who retired in 1987 after 15 years as Plumas Forest supervisor. "His rather extreme views as a preservationist represent a side of the community we have to look at. In some rare instances, we actually agreed."

Despite policy differences, the Forest Service recognizes Dakan's expertise as a plant taxonomist and in 1973 asked him to help establish a reference collection of vascular plants in Plumas County. Dakan contributed nearly 800 of the 1,400 keyed, carded, and classified local species housed at the Plumas Forest office in Quincy. He named the collection the Rebecca Merritt Austin Memorial Herbarium.

Dakan calls the slender, 69-page checklist of Plumas County plants that he has been assembling his life's work, and he continually adds to his "hay pile" of pressed plants still to be mounted and moved to the herbarium. But he is no longer as interested in individual species



Dakan collects a Sierra Nevada plant specimen for the Plumas County herbarium in Quincy.

system to go across the ocean to kill boys living off the Rhine River system. If I was going to kill someone, I had plenty of enemies right here."

After World War II he worked as a signal maintainer for Western Pacific Railroad Company between Oakland, California, and Salt Lake City. The job gave him a chance to botanize in the

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as in the broader ecological community.

"We can't just look at plants," he says. "We've got to look at the soil, the air, the water—the whole damn business. We've already lost the redwoods and the salmon, and now the California condor. When the environment gets so bad the buzzards are destroyed, you know we're in trouble."

Because he has studied Plumas County plants and animals for 50 years, witnessing their many changes, Dakan serves as a historian for the local environment. He can remember what specific places were like before they were degraded, says Yost. Aside from that, his primary role in the Plumas County environmental movement has been more as gadfly than mentor.

"His purity may be the reason we've done a better job here than some environmentalists have done elsewhere," Jackson says. "This man believes that agriculture was wrong in the beginning. He's not even talking about industrial man. He's trying to drag us all back 20,000 years—to make us a hunter-gatherer society."

Among some of his friends, Dakan is known as a raconteur whose stories are sprinkled with scatology, labor songs from the Wobbly era, and elaborate quotations from Rousseau, Shaw, Muir, and Toynbee. His Lone Pine Ranch is a one-acre lot in East Quincy graced by a two-and-half-room travel trailer with a tacked-on, enclosed porch. Sheltered there are his plant presses, microscope, glass gallon jars of home-dried fruits and mushrooms, and back issues of the *The Progressive* and *Mother Jones*.

To his critics, Dakan is a tiresome old man whose public diatribes are predictable down to the fist-shaking that always accompanies them. But critics' jeers have never bothered Dakan.

"I'm not an ordinary sort of character," Dakan says. "Not very many people like to hear what I have to say, but I don't believe they've got the message yet. They don't understand what the hell's going on. They don't think anything's important about the environment—they think it doesn't matter if we lose the spotted owl or the pitcher plant. I think it does."

JANE BRAXTON LITTLE is a freelance writer living in Plumas County, California.

Keeping a Prime Wetland Wet

CACHE BASIN SWAMP, ILLINOIS

THE CACHE BASIN SWAMP once covered more than a quarter million acres of southern Illinois near the lower Ohio River. When John James Audubon visited it in 1810, he saw passenger pigeons, ivory-billed woodpeckers, wolves, cougars, and black bears. Indians gathered pecans and hunted wild turkeys, swans, and deer.

Today nearly all of the swamp is gone—drained, ditched, logged, and filled in with sediment. Only "a wetland literally on the brink" remains, according to Ann Phillippi, an environmental activist and zoologist at Southern Illinois University. "There is potential for recovery," she says, "but an equal chance we may lose the Cache Basin Swamp completely."

The 3,000-acre remnant contains several record-size specimens of green hawthorn, water locust, bald cypress, and water tupelo trees. Some of the bald cypress trees are more than a thousand years old.

A number of endangered or threatened plants and animals also inhabit the swamp. "We recently rediscovered two species—the eastern ribbon snake and the cypress darter—that had been presumed extinct in Illinois," says Phillippi.



Water from the Cache River creates this swamp, a threatened remnant of a once-extensive wetland.

The state of Illinois and The Nature Conservancy have acquired some 1,800 acres of the wetland and designated it an Illinois Nature Preserve. But Big Creek Drainage District No. 2, which is empowered by state law to enter and drain the property to aid agriculture, wants to get rid of the wetland. Some nearby farmers blame the remnant swamp for floods that inundate their land every year or two.

In 1986, Big Creek workers tried to remove a small check dam that activists had built on state land in 1982 to keep water in the swamp. They also attempted to clear current-obstructing brush and logs from the Cache River.

The state tried in court to stop the intrusions and was joined by the Citizens Committee to Save the Cache River. So far, county and state courts have declared the drainage attempts illegal, based on a state code that requires districts to consider environmental impacts before they can take such actions. The drainage district has appealed the decisions.

According to Citizens Committee President Neal Needham, drainage isn't the only problem. "We've got to stop the sedimentation that is resulting from land abuses all around the swamp," he says. That may mean acquiring land surrounding the swamp as a buffer. Toward that end, The Nature Conservancy and the state are trying to acquire more land, perhaps enough to bring the total protected area to 10,000 acres, says Conservancy spokesperson Paul Dye.

To gain public support for the swamp's preservation, the Southern Illinois Audubon Society and the Sierra Club's Shawnee Group of the Great Lakes Chapter have sponsored educational programs that convey both the area's eco-



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logical importance and its beauty.

Needham also hopes the U.S. Fish and Wildlife Service will offer federal protection. "It's the northernmost ex-

tension of the classic southern swamp—a prime area for waterfowl," he says. "It would make a very fine wildlife refuge."

—James M. Glover

Wildlife Refuge Stirs an Unusual Suit

SABINE RIVER, TEXAS

In a topsy-turvy challenge to the integrity of the National Environmental Policy Act, the U.S. Fish and Wildlife Service is being sued for creating a wildlife refuge without filing an environmental impact statement (EIS).

"This is an attempt to use the act to challenge something protective of the environment," says Wendy Dinner, a Sierra Club Legal Defense Fund attorney involved in the case.

The agency carved the refuge out of 4,000 acres of Sabine River bottomland—mostly mixed hardwood forest with oak and water elm along the stream—that belongs to the Little Sandy Hunting and Fishing Club. White-tailed deer and other wildlife are abundant. According to Mark McClaine, chair of the Sierra Club's Dallas Group, the Fish and Wildlife Service has identified this type of hardwood forest as one of the most threatened ecosystems in the entire state.

The agency considered the land a primary candidate for its conservation easement program. Under the program, a landowner retains title to the property but promises never to develop it and grants permanent access to FWS managers. As part of the National Wildlife Refuge System the land is not only protected from development, it's also insulated from seizure through condemnation by government agencies, includ-

ing water-development agencies.

Hunting-club members first considered donating a conservation easement on their land to the FWS in 1984. As negotiations proceeded, however, the Sabine River Authority, a local water-development agency, investigated the feasibility of flooding the land to create a reservoir. In December 1986, hunting-club members agreed to grant a conservation easement on 3,800 acres.

The Sabine River Authority promptly sued the FWS. The grounds: preserving the land eliminates the possibility of a reservoir in the area, a loss with an "environmental impact" on water users that the agency should have examined in an EIS.

The Sierra Club and the National Audubon Society have joined the case on the side of the FWS.

The National Environmental Policy Act requires an EIS on any federal action that would significantly affect the environment. An EIS is not required when an agency can show that its action would have no significant environmental impacts, something that is often a matter of debate.

"We're in an unusual—and somewhat awkward—situation," Dinner says. "Usually our claim is that the government has not gone far enough in applying NEPA, but in this case we think the Fish and Wildlife Service applied the law correctly."

—Tom Turner,

Sierra Club Legal Defense Fund

Denver Dam Builders Think Big

SOUTH PLATTE RIVER, COLORADO

Everything about the proposed Two Forks Dam on the South Platte River 25 miles southwest of Denver is big, including the destructive impact it could have on the environment. The \$500-million-plus price tag for construction,

mitigation, environmental studies, and other expenses dwarfs the costs of all other water projects in Colorado—past, present, or proposed. If built, the 555-foot-high dam would create a 7,300-acre reservoir 28 miles long—bigger than any other in the state.

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Greenpeace—one of the world's largest environmental organizations—is leading the international battle to stop this senseless killing. You can be an enormous help in the campaign. Here are facts you should know about the issue:

- Driftnets now kill thousands of dolphins and hundreds of thousands of sea birds every year.
- The monofilament in driftnets is so sheer that the nets are virtually invisible, even to the "sonar" of dolphins.
- Every year, Japan sends 129 boats of its salmon fleet into the waters off Alaska. Each of these "catcher" boats sets 10 miles of driftnets per day.

Japan sends its gigantic salmon fleet into U.S. coastal waters under the terms of a permit issued by the Department of Commerce and regulated by the Marine Mammal Protection Act. Commercial fisheries can apply for allowable quotas of mammal kills "incidental" to fishing operations. Japan's latest permit renewal allows 6,039 such dolphin deaths over the next three years. But the MMPA stipulates that these death quotas must eventually be reduced to zero. And the Administration in Washington is doing nothing to reduce the killing to that level.

Here's what Greenpeace is doing—

We're spearheading a body of environmental groups suing the Department of Commerce to assure that the quota of mammals killed in commercial fishing operations is strictly enforced and that it is ultimately reduced to zero.

We're putting our strong resources behind legislation now in Congress which will help solve the driftnet problem.

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Backing the dam are Denver development interests, municipal water utilities, and the dam's prospective builder, the Denver Board of Water Commissioners. The board argues that the dam is necessary to meet the demands of Denver's growing population.

To fight the proposal, environmental activists, fishing enthusiasts, and local residents have formed the Colorado Environmental Caucus. Member organizations include the Rocky Mountain Chapter of the Sierra Club, the National Audubon Society, the Environmental Defense Fund, and Trout Unlimited.

Dam opponents have already held rallies, led trips into the area, and pinpointed weaknesses in the dam proposal. In January, at public hearings across the state, they will try to convince the U.S. Army Corps of Engineers and the U.S. Forest Service not to issue permits for the dam.

Trout are at the center of the controversy. The reservoir would inundate 13.6 miles of "gold medal" trout waters, so called by the Colorado Division of Wildlife because they bring nationally recognized good fortune to fly-fishing enthusiasts.

Below the dam, decreased flows could be disastrous for the endangered whooping crane, which depends on the riparian habitat downstream in Nebraska. Low flows would prevent the Platte's waters from naturally scouring its banks and sandbars of vegetation, which provides cover for the whooping crane's predators. To

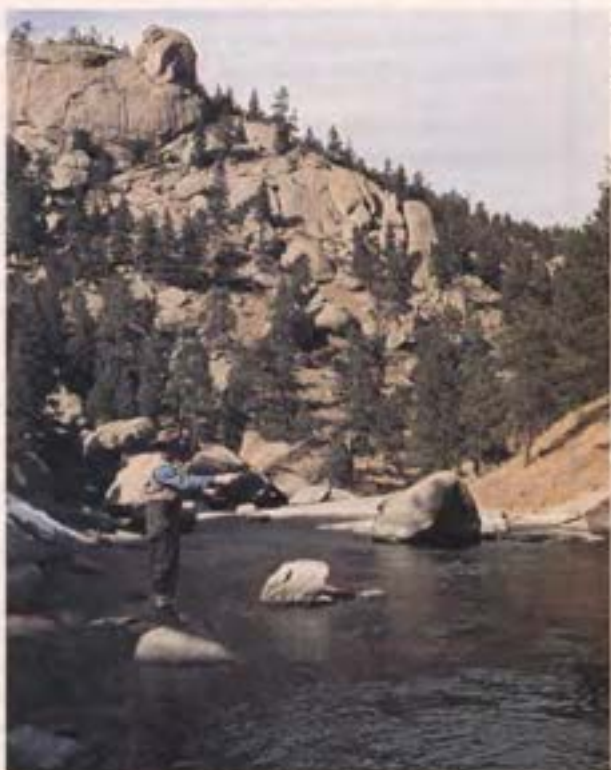
make up for this impact, the Denver water board has agreed to purchase 220 acres of land along the Platte in Nebraska and clear it of riparian vegetation. The U.S. Fish and Wildlife Service approved this plan, causing dam critics to cry foul.

"Denver says it will clear 220 acres within a 60-mile stretch of whooping crane habitat along the Platte. How can that be called an adequate mitigation plan?" asks Doug Robotham, who works for the Sierra Club's Rocky Mountain Chapter. "What Denver is being allowed to do by Fish and Wildlife violates the Endangered Species Act. It will not compensate for the loss."

A final environmental impact statement to be issued by the Army Corps before the hearings should bolster anti-dam efforts. It's expected to show that the water board's future population estimates for Denver and its suburbs—the cornerstone in the dam proponents' case—are severely inflated.

"Fights over big dams are battles of yesteryear," says the Environmental Defense Fund's Dan Luecke. "But here we are in 1987, fighting one in Colorado."

—Tom Graf



Near the Two Forks confluence, proposed as a major dam site, an angler tries the South Platte's renowned trout waters.

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SIERRA NOTES

The annual election of the Sierra Club Board of Directors will be April 9, 1988. Five directors will be elected for three-year terms. All Sierra Club members in good standing as of January 31, 1988, will be eligible to vote.

Last November the Club's Nominating Committee chose seven candidates: Dolph Amster; Freeman Allen; Richard Fiddler; Marlene Fuharty; Hank Graddy; Susan Merrow; and Denny Shaffer. Other Club members may earn a place on the ballot by submitting petitions with the signatures of at least 215 members. The petition deadline is 5 p.m. December 30, 1987.

A ballot, election information, and return envelope will be mailed to each eligible member. Members who do not receive a ballot by mid-March should write to the Inspectors of the Election, Sierra Club Executive Office, 730 Polk St., San Francisco, CA 94109. Every effort will be made to send a ballot in time for voting.

Completed ballots must be received by April 9, 1988.

Sierra Club Books has launched a children's book division in conjunction with Little, Brown and Company of Boston. Sierra Club Books will acquire and edit the books, and Little, Brown will produce and market them. Titles will include fiction and nonfiction, how-to, and picture books for preschool children through young adults.

In another new enterprise, Sierra Club Books will begin publishing a series called the John Muir Library this spring. All of John Muir's classics will be reproduced, with introductions by distinguished writers including David Brower, Frederick Turner, and Colin Fletcher. Woodcuts by award-winning artist Michael McCurdy will illustrate the new series.

The Sierra Club Award for Distinguished Nature Writing, newly established by the Club's Board of Directors, will be given annually to a book-length work of notable literary distinction in the field of nature writing.

The author of the best original manuscript will receive a \$20,000 guarantee against royalties as part of a contract to publish the work under the Sierra Club imprint.

The award is intended to foster publication of writers following in the tradition of John Muir, Henry David Thoreau, Joseph Wood Krutch, Loren Eiseley, Aldo Leopold, Annie Dillard, Wendell Berry, David Rains Wallace, and Barry Lopez. Authors Paul Brooks, Wallace Stegner, and Gary Snyder will judge 1988 competition finalists. Sierra Club Books will accept manuscripts for the first award through March 15, 1988, and announce the winner April 21, 1988—on John Muir's 150th birthday. The award-winning book will be published in the fall.

Guidelines for the competition are available from James Cohee, Senior Editor, Sierra Club Books, 730 Polk St., San Francisco, CA 94109.

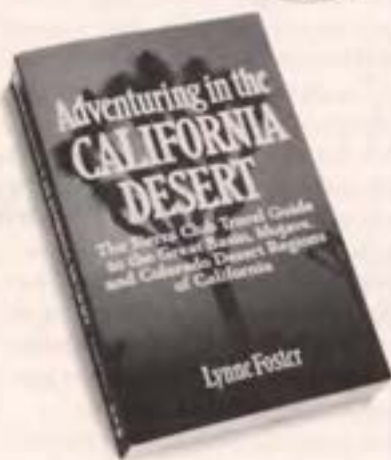
Sierra Club "Rescue Cards," prepared by the Sierra Club Mountaineering Committee, are now available in an updated version. These brochures fold into wallet-size cards that contain information on mountaineering first aid, nonaccident first aid, rescue organization, rescue help, emergency assistance, avalanches, reporting accidents, evacuating helicopters, and tracking lost persons.

To obtain a card, send a self-addressed, stamped envelope to Sierra Club Mountaineering Committee, Box 262, La Canada, CA 91011. For bulk orders, enclose five cents per card.

Your favorite walk may be worth a prize if you hurry to enter the "America's Best Walks" contest. Prizes will be awarded for the best city, country, wilderness, and beach walks—and for the most unusual walk—in various sections of the country. Selected nominations will be included in one of seven regional "walking atlases" to be published by McGraw-Hill beginning in the fall of 1988.

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Sierra Club Books

California, New England, and the Midwest may be submitted between now and February 15, 1988. To obtain a nomination form and further information, send a self-addressed, stamped envelope to "America's Best Walks," *Walking World*, P.O. Box K, Gracie Station, New York, NY 10028.

The Climate Protection Network's premise is that citizens need information that will enable them to respond intelligently to the long-range threat of the greenhouse effect—global warming caused by increased industrial gas emissions. The network provides digests of the latest scientific reports on the subject, as well as citizen action bulletins. It is preparing materials for loan to individuals or groups wishing to conduct workshops in their communities. To get on the mailing list, write to the Climate Protection Network, 159 Thomas Paine Ave., New Rochelle, NY 10804.

The 1987 Sierra index, alphabetically listing the year's articles by subject, will be available in February. Send a stamped, self-addressed envelope to Sierra Club Public Affairs, 730 Polk St., San Francisco, CA 94109.

Statement required by the Act of Congress of August 24, 1912, amended by the Acts of March 3, 1933, July 2, 1946, June 11, 1960 (74STAT.208), and October 23, 1962, showing the OWNERSHIP, MANAGEMENT AND CIRCULATION of *Sierra*, published six times yearly at San Francisco, California—for September/October 1987.

1. The names and addresses of the publisher, editor and executive director are: Executive Director/Publisher: Michael L. Fischer, 730 Polk Street, San Francisco, California; Editor-in-Chief: Jonathan F. King; Managing Editor: Joan Hamilton.

2. The owner is the Sierra Club, an incorporated nonprofit membership organization, not issuing stock; Lawrence Downing, President, 630 Fifth Street NW, Lake Shady, Oronoco, MN 55960; Denny Shaffer, Treasurer, 2910 Skye Drive, Fayetteville, NC 28303.

3. The known bondholders, mortgagees and other security holders owning or holding one percent or more of total amounts of bonds, mortgages or other securities are: NONE.

4. The average number of copies of each issue of the publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown was 329,131.

(signed) Jonathan F. King

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BOOKS

The Bomb Is Still Ticking

The Birth Dearth

by Ben J. Wattenberg

Pharos Books, 1987

\$16.95, cloth.

Judith Kunofsky

TWENTY YEARS AGO Paul Ehrlich's book *The Population Bomb* was published—and the "zero population growth" movement was born. Within a few years a presidential commission called for population stabilization, Congress authorized the first funds for family planning, the Supreme Court legalized abortion nationwide, and family size plummeted. Now, Ben J. Wattenberg hopes that his new book, *The Birth Dearth*, will "have a similar fate, as it makes an opposite case."

In *The Birth Dearth* (subtitled *What Happens When People in Free Countries Don't Have Enough Babies?*), Wattenberg argues that the population of the United States will soon begin to shrink, posing grave problems for this country's economic well-being and for the power and influence of democracies and democratic values throughout the world. He urges Americans to have more babies and supports making it easier for them to do so.

Because the nation's population currently increases by more than 2 million people per year, the case for population stabilization is as strong as ever. Still, Wattenberg has not been dismissed as a crackpot. Instead, his book has received serious attention in newspapers and magazines across the country.

The first debatable point made in the book is that continuing current trends would decrease the number of Americans within the relatively near future. He assumes that the U.S. population would increase from today's 244 million to 261 million in the year 2000 and to 291 million in the year 2030, but then it would begin to decrease. By 2100, more than 110 years from now, it would be back "down" to 261 million.

Some demographers have responded to the book by dealing exclusively with Wattenberg's projections, pointing out that his assumption of fertility and immigration rates lower than current trends may be unreasonable. Yet a more important issue is whether a decrease in the U.S. population would be a cause for alarm.

For Wattenberg, the core population issues are economic strength and national defense. He suggests that there may be a cause-and-effect relationship between rapid domestic population growth and economic success. According to Wattenberg, the U.S. economy may be in for desperate times if the population starts decreasing.

But even many traditional capitalist economists reject these worries. A review of *The Birth Dearth* in *The Wall Street Journal*, for example, quotes James Howell, chief economist for Bank of Boston, as saying, "There is no reason, as birthrates fall, why productivity and economic growth can't be maintained or even accelerated by the substitution of capital for labor."

A slow-growing or decreasing population is always older than a rapidly growing one, and Wattenberg believes this future, "older" population would mean a change in attitude within the United States, one less suitable to economic progress. "The spirit of innovation," he writes, "would almost surely suffer at least somewhat as population stops growing." Using words such as "graying" and "dispirited," he worries about the loss of "dynamism" in a culture with fewer "young, energetic, creative and on the make" people. But Wattenberg ignores such countries as Sweden, which is generally regarded as having an innovative culture—even with its relatively old population. Such counterexamples simply do not appear in the book.

Wattenberg is convinced that an industrial democracy must have large numbers of people in order to be militarily and politically strong. A larger

United States (and therefore a richer one, according to Wattenberg) could afford huge military expansion. Wattenberg claims that military power is also a function of a nation's "spirit." If democratic countries abandon "their youth and vigor," and if their decreasing populations adversely affect their "cultural potency," then their military and political power will be threatened.

Large numbers of people, says Wattenberg, are also necessary to spread democratic ideals in the world. "Will our [democratic] values continue to dominate in a world where our population shrinks?" he asks.

Wattenberg's arguments are unconvincing. Dictatorships may be spread by the gun; democracy certainly isn't. A small democratic country like Sweden can easily inspire more emulation than a large dictatorship can.

The Population Bomb, published during the Johnson administration, stressed the adverse effect of population growth on the environment, on the lives of the poor, on the well-being of children, and on employment levels and salaries.

The Birth Dearth, published after more than six years of the Reagan administration, focuses, by contrast, on the growth of the economy and "geopolitics," meaning the power and influence of the United States relative to that of the Soviet bloc countries and the Third World.

The environment is a minor matter for Wattenberg, who denies in a sentence of two that population increases hurt environmental quality. Considering his affiliation with the American Enterprise Institute, a conservative think tank, this is not surprising. What is surprising is that none of the major reviews of the book, except for one by Andy Rooney, even mentions environmental issues—despite two decades of major environmental successes, overwhelming public support, and an environmental constituency visible everywhere from the schools to the polls.

Ben Wattenberg, frightened by the scenario of "only" 261 million U.S. residents in the year 2100, argues for an average of 2.1 to 2.3 children per woman in the United States; the actual has been between 1.8 and 1.9 since 1972. He also advocates greatly increased legal immi-



Denise & Debbie Miller


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gration, although he regards this as an unlikely possibility because of public opposition. An average family size of 2.3 children per woman and a net immigration of 750,000 (well within the range proposed by some people wishing to expand immigration for reasons other than population growth) would yield more than half a billion U.S. residents by the year 2080, with the population still growing. Now that's a frightening scenario.

Clearly, the less populated United States would be a better place to live. In a world with already-diminished resources, there would be more clean air, water, and open space; less pressure to build dams and nuclear power plants; and better-protected habitats for other species. People would enjoy a less regimented life and a less desperate scramble for jobs and security. Salaries would likely be higher. More investment could be devoted to improving the standard of living and to making the transition to a sustainable economy, rather than simply to meeting the demands of a growing population.

Why is Wattenberg so disturbed by the idea of an end to population growth that he has proposed such radical measures as paying women \$2,000 per year per child for 16 years from the Social Security fund? His concerns are, at their

root, psychological and sociological. Perhaps humans are prone to a primal fear of another tribe becoming bigger than their own. We seem to be programmed to equate decreased size with declined power. Perhaps hostility to population decrease is related to love of "cultural potency" in the same way that hostility to contraception is related to machismo.

Every nation in the world is likely to be better off when it reaches population stabilization. In terms of the environment, an end to growth in numbers of the world's biggest consumers—U.S. residents—would be a real plus. Other nations' residents would also benefit from moderation of U.S. consumption, whether from greater conservation or from zero population growth—ideally from both.

There is a risk that people now deciding how many babies to have may take the message of this book seriously. Unless we counter Wattenberg's mistaken assumptions, perspectives, and conclusions, a future generation may once again have to learn the lessons of *The Population Bomb*, this time on a much more impoverished planet, and in a much more overpopulated nation.

JUDITH KUNOFSKY, a former president of Zero Population Growth, chairs the Sierra Club's Population Committee.

Selling Contraband Creatures

The Animal Smugglers

by John Nichol
Facts on File, 1987
\$23.95, cloth.

Peter Wild

FOR GOD'S SAKE don't ever mention this to my boss. He is a very dangerous man," an Argentine informant told author John Nichol.

The exaggeration of a skittish employee, perhaps. But another man successfully led a raid on traffickers in Calcutta and ended up with a price on his head. In a third case, a U.S. investigative reporter learned too late that she had probed beyond her depth. Establishing a contact in a tropical country, one night

she found herself lured into an isolated part of the capital. Two men appeared from the shadows. They threw her down and pinned her to the road, while a third man drove a car over her legs.

We're not talking about illegal drug traffic or any of the other sleazy aspects of the underworld that glow in darkened rooms across the United States each night and serve as standard grist for television programming. We're talking about a subject almost as prevalent in reality, but one that, until this book and the documentary films it's based on appeared, was almost ignored by the public. We're talking about illegal trade in animals, both dead and alive. In this country alone, it's a thriving, multi-million-dollar business.



JOHN NICHOLS

A Fragile Beauty:
John Nichols' Milagro Country
 Text and photographs by John Nichols
 Gibbs M. Smith, Inc., 1987
 \$34.95, cloth.

"I love it. Every last fatal, traumatic, and bewitching moment of my time on the Rio Grande," writes John Nichols, whose books, including his most famous novel, *The Milagro Beanfield War*, helped immortalize the distinctive character of northern New Mexico's land and people. "Always, I expect some rare treasure to be revealed: of weather, mood, the animal kingdom."

Want the skin of a snow leopard to throw over the divan? How about a live cheetah to chain in the backyard and impress the guests at cocktail parties? Of course, snow leopards are rare almost to nonexistence on our plundered planet, and cheetah numbers are fast dwindling. Sorry, that will make the price a bit steep, but if you have the greenbacks, we can deliver.

As Nichol makes clear in this thoughtful exposé, the problem lies in attitudes both on the procuring and the receiving ends. Collectors are an appreciative but avid lot. For them, to possess a golden python or a black-necked swan is something like having one's very own Rembrandt to hang in the living room. As one connoisseur recently told me: "I was a collector of reptiles when I was in my early teens. Collectors get greedy and inevitably want more and more animals—the more exotic the better. They'll pay exorbitant prices for them

just so they can show them off to other collectors. It's an obsession."

An obsession, indeed. The problem is that some of their desired objects are now as scarce as Rembrandts.

Smugglers stuff squirrels into plastic tubes, the better to conceal them. They pack the less expensive varieties of birds so tightly into cages for their traumatic flights that only a few out of every hundred may survive, dazed and be-draggled among their stiffening fellows. Nichol writes matter-of-factly; the cruelty he describes is hard to stomach.

However, it's a cruelty hardly even recognized in many countries of origin. As Britisher Nichol puts it, in some Asian countries "they think of wild animals in the same way as we do, say, of empty potato crisp packets."

Nichol is no bleeding heart. He is himself a collector, and he hastens to add at book's end that not all of his colleagues are of the back-alley sort. And

while he's at it, he makes the case that conscientiously run zoos "do a great job of education and breeding, and take very little out of the wild." Despite this, he's forced to admit that, as is true of all contraband goods, where there's a buyer, there will always be a seller.

The solution, he concludes, will come not from attempts to stamp out the inhumane and illegal trade entirely (because such attempts don't work), but from a heightened awareness of responsible animal keeping. More generally, much of the public is becoming so aware of its obligations to fellow creatures that it scowls at someone wearing the skin of a spotted cat—a sign that abuses to the animal kingdom, at long last, may be falling out of fashion. In the long run, social pressure may succeed where difficult-to-enforce laws have failed. ■

PETER WILD, a frequent contributor to *Sierra*, is working on a book tentatively titled *Lost in Hawaii*.

Featherless Flight

Although they lack flapping wings and feathers, these animals can take to the sky.

NICK BERGKESSEL / PHOTO RESEARCHERS



THERE ARE 40 SPECIES of flying squirrels in the world. Some will fit in your hand, while others are more than 18 inches long. Flying squirrels inhabit the warm, humid rainforests of Asia and the snowy deciduous forests of North America and northern Europe. The largest, Southeast Asia's giant flying squirrel, can glide up to 1,200 feet. Flying squirrels are the only gliding mammals found in the United States (above and right). Some can fly more than 160 feet, using the membranes, or patagia, between their front and back legs as rectangular "wings." When a squirrel is threatened by a horned owl, or spots tasty nuts or fruit in another tree, it leaps from its branch, spreads its "wings," and sails to a soft landing.

KIM TAYLOR / BRUCE COLEMAN INC.



WHEN WE THINK OF ANIMALS that move through the air, we imagine brightly feathered birds gliding and darting, or insects flitting from plant to plant. Rarely do we think of frogs, snakes, lizards, or fish. But some of these animals can cheat gravity for distances up to 1,200 feet. They do not actually fly, however, as birds and bats do—they have no feathers to hold air, hollow bones to reduce their weight, or strong chest and shoulder muscles to support flapping wings. Their air travel is limited to what is called controlled descent. In most cases, these animals stretch flaps of skin, called patagia, between their limbs, creating a sort of parachute that allows them to sail gently from a treetop to another tree or to the ground. By gliding into the blue, these small creatures can escape most predators. (Most gliding animals are also nocturnal, or active only at night, which makes them even harder for predators to see and catch.)



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MOST FROGS ARE TERRESTRIAL, living on the ground and along ponds. But in tropical rainforests, some frogs are arboreal, or tree dwellers. They find rainwater in bromeliads, a family of water-grabbing plants high in the tropical forest that have tightly packed, upward-pointing leaves. The frogs also find water that collects temporarily in large leaves. Rather than wait for dinner to arrive, a gliding tree frog might sail 20 to 40 feet after its prey by pulling in its stomach and spreading its toes to expose the webbing between them (below left). By arching its back and sucking in its stomach, the flying frog forms a hollow area that provides extra buoyancy and control over its descent. Gliding helps the amphibian escape its predators while it hunts for food. Some tree frogs have developed feet that form disks that look like suction cups (right). It is not unusual to see a tree frog "sitting" on the bottom of a leaf or a smooth tree trunk.



THE SOUTHEAST ASIAN LEMUR (right), a mammal the size of a rabbit, is surrounded from neck to tail by a sheath of skin resembling a fur cloak.

This membrane, which even stretches between its hind legs and its tail, gives the lemur the largest gliding surface of any gliding mammal. When the lemur takes to the air, its large "parachute" billows around it.



C. B. & D. W. P. PHOTO: BRUCE COLEMAN INC.



DAILY RAIN MAKES THE FORESTS of Indonesia wet and humid. But that's not why some lizards carry "umbrellas." The flying dragon is an arboreal reptile that needs a quick way to get from tree to tree. The dragon's long ribs, which extend outward from its body behind its front legs, are covered with a tight-fitting membrane (below). When not gliding, the lizard folds its ribs in close, which makes it look like a folded umbrella (left). The flying gecko (another



type of lizard) tilts its body to steer and lifts its tail to break a fall. This raises the front of its body, enabling it to grab a tree trunk on landing (right).



TOM MUKASHI PHOTO RESEARCHERS

AVARIETY of tree snakes inhabit the rainforests of Indonesia, Malaysia, and Borneo. Camouflage coloration enables these expert climbers to vanish into the foliage. Among them are the golden tree snake, sometimes called the paradise tree snake (right). As the three-foot-long snake searches for skinks, geckos, and other lizards ▶



HANS REINHARD PHOTO: BRUCE COLEMAN INC.



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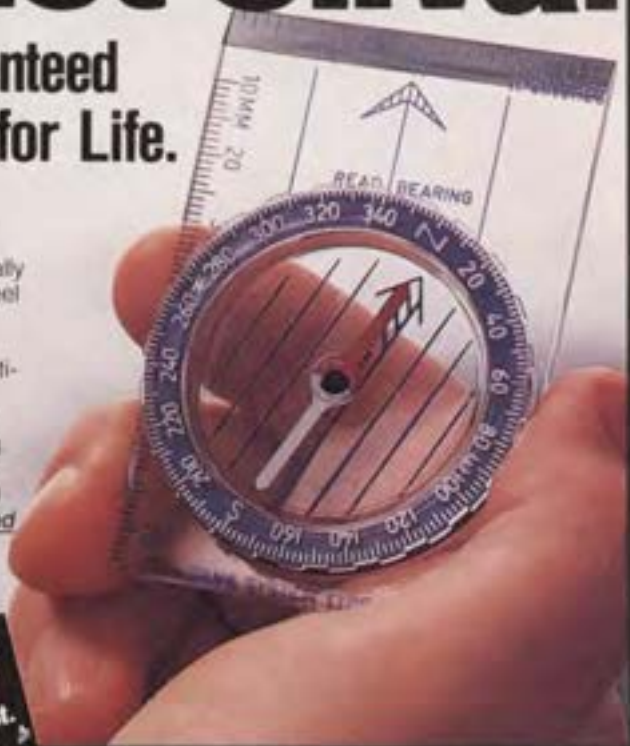
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to eat, it moves from tree to tree by gliding. Whereas other gliding animals have winglike membranes, the flying snake does not. Instead, it spreads its rib cage so that its body widens and flattens like a ribbon. The snake draws up its belly (its entire underside) to form a hollow cavity that catches air like a parachute. This is facilitated by pairs of hinges, or keels, that line the snake's belly scales. When the rigid reptile falls to the branches below, its flexible ribs absorb the impact.

NOT ALL GLIDERS live in trees. Forty-three species of fish have developed winglike fins. Some have two large pectoral fins (near the head) behind each gill; others have four pelvic fins (toward the belly)—two in front of the tail and two behind the pectoral fins. Unlike treetop-gliding animals, flying fish must build up enough momentum to leap out of the water and into the air. Once there, they cannot change direction and must return quickly to the water to breathe. When they burst through the surface of the water, these fish extend and hold their fins rigid to glide. Only the South American hatchet fish can flap its fins and fly somewhat like a bird.



THE SIX- TO EIGHTEEN-INCH-LONG California flying fish (above) inhabits the deep waters off the Oregon, California, and Baja California coasts. At night its silvery body and brightly colored fins create a spectacular sight as the fish leaps and skims over the ocean for as long as 30 seconds. This fish has long pectoral fins for gliding and a strong tail fin to push it out of the water. When the fish hits the water at the end of its glide, it kicks its tail and becomes airborne again. ■

DANIEL ALBERS is a freelance writer in Hastings, Nebraska.

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A Backpacker's Guide to Winter Camping

Experienced summer campers can adapt their skills to the white wilderness.

David Weintraub

SUMMER BACKPACKERS, day skiers, and mountaineers are tugged at one time or another by the idea of winter camping trips. All too often, however, thoughts of short days, freezing nights, and unpredictable weather stop them cold.

While winter is unforgiving, it is also unforgettable. Winter reshapes summer's landscape, softening jagged peaks and replacing abundant water with solid snow and ice. In most cases you can enter this snowy wilderness by traveling only a short distance from paved roads.

Snow camping doesn't require extensive training or a lot of special equipment. But your margin for error in the winter is very slim. While your summer supplies may be adequate for weathering a thunderstorm or freak snowfall, winter will quickly exhaust them—as well as your knowledge of the outdoors—if you aren't prepared for the season's harsh conditions.

Prudent winter campers plan their first winter treks into terrain they've become familiar with on summer trips. Even so, good orientation skills are essential: Winter snow will obscure most trail markers, and a storm can obliterate landmarks that are obvious in summer.

If you've never

snow camped before, ease yourself in with a spring trip. The weather is warm, the days are long, and the snowpack is generally firm and easy to travel across. And instead of tackling a multiday expedition carrying fully laden packs, set up a base camp a few miles from the road. You'll be able to ski or snowshoe unencumbered, and you'll have more time to relax and prepare meals.

If you aren't ready to plunge in on your own, join a class or outing. A good guide or instructor can explain winter routefinding, hypothermia, frostbite, and avalanche hazards. If you aren't a skier, consider a snowshoe trip. Skiers

can cover more ground, but learning skiing skills while balancing a pack (even a body-hugging internal-frame pack designed for skiing) is frustrating.

If you're comfortable traveling on snow, you can move to the snow camper's biggest concerns: melting snow for drinking water and staying warm. Frozen water, no matter how plentiful, does no good unless you have a large pot and a fire or camp stove to transform it into drinking water. (About ten cups of snow makes one cup of water.)

Staying warm and comfortable under roller-coaster conditions is a major topic of conversation on any winter outing.

Whether you're exerting yourself skiing or resting at day's end, nonabsorbent, quick-drying underwear earns its keep by drawing moisture away from your skin. On top of this layer, wear wool or synthetics that insulate even when wet, and carry waterproof outer garments made of fabrics that allow perspiration and condensation to escape. Leave all cotton clothing at home. Wear layers so you can take off or put on clothing as the temperature changes and your body warms or cools. When you stop moving, add insulation to conserve body heat, and snack on high-energy foods.

At night you'll lose heat in two ways: conduction downward to the snow; and radia-



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tion outward to the cold air, especially from your head, neck, and shoulders. To prevent heat loss, be sure you're warm before you get into your bag by indulging in one last round of hot drinks and snacks. Make sure the clothing you wear to bed is dry and add insulation beneath your bag—clothing or a second or double-thick closed-cell foam pad. Finally, wear booties and a close-fitting cap (a full-face mask is ideal), and cinch the bag's hood.

If your sleeping bag isn't up to winter's harshness, a liner can add 10 to 20 degrees Fahrenheit of warmth. Another option is to add a synthetic over-bag, which will keep you warmer and help keep your sleeping bag dry. While a wet synthetic bag continues to insulate, a wet down bag is useless.

The shelter you choose depends on snow and weather conditions and the amount of free time you have. Generally, a sturdy mountain tent with a waterproof floor and rain fly works well, unless you encounter severe winds or heavy snowfall. With these tents you'll have to periodically knock away snow that builds up during a storm, and you'll need a whisk broom or sponge to keep the inside of the tent dry. A winter tent sheds snow better and includes such expedition niceties as snow tunnels.

More permanent shelters—igloos and snow caves—are also more difficult to construct. (See "For Younger Readers," *Sierra*, January/February 1987.) Inside, these havens can be much warmer than the outside air. An igloo is ideal, but it takes time and talent to build. A snow cave can be shoveled out of a snowbank in a few hours, but you can get wet and exhausted while digging, and you often get wet once inside.

With only a little extra equipment and a lot more precaution, summer backpackers can enjoy wilderness treks year-round. Winter camping is not without its challenges: You'll expend a lot of time and energy performing basic tasks such as setting up camp and cooking meals, and your clothes may stay damp. But when you wake up one crystal-clear morning and stare out at miles of snow-covered wilderness, chances are you'll consider the work worth the effort. ■

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

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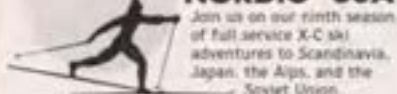
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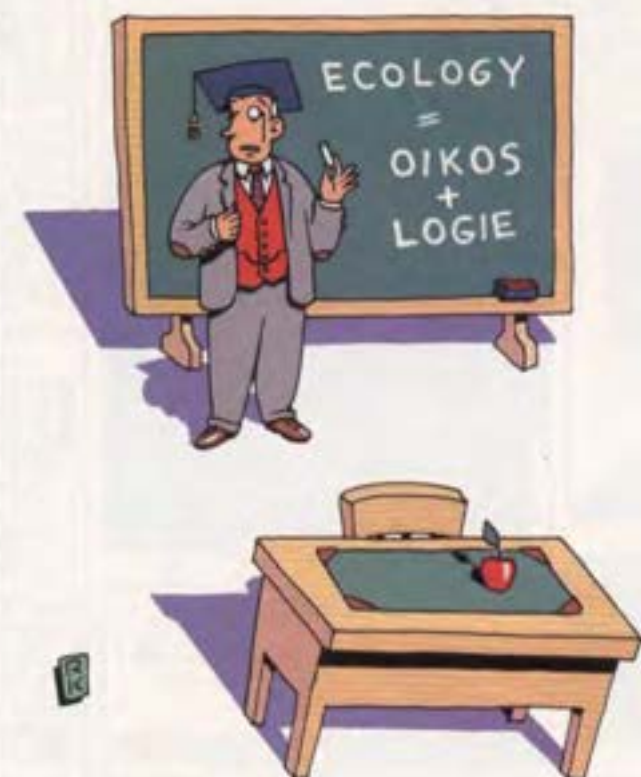
What is the history of the word "ecology"? (Victoria Young, Mobile, Ala.)

Ecology became a household word in the late 1960s and early '70s, but it was first coined in 1866 by Ernst Haeckel, a German biologist and natural philosopher. Haeckel combined *oikos* (meaning household) and *logie* (meaning the science, theory, or study of) and used the term to describe the relationship of an animal to both its organic and its inorganic environments. The word first appeared in Haeckel's *General Morphology*, a classic work in the field of Darwinian biology.

Because of an error in transcribing one of Henry David Thoreau's letters (a forgivable mistake, considering the naturalist's handwriting), scholars believed for years that Thoreau coined the word in 1858, thereby pre-dating Haeckel by eight years. In fact, the transcriber had mistaken the word *geology* for *ecology*. He acknowledged the mistake in the August 13, 1965, edition of *Science*.

In the 1970s the word *ecology* became strongly identified with the environmental movement. But as Edmund Schofield, editor of Harvard University's botanical magazine, *Arnoldia*, points out, "While the science of ecology and the environmental movement are not incompatible, they certainly are not synonymous. Indeed, there are some ecologists who would not call themselves environmentalists."

The 1981 edition of the *American Heritage Dictionary* defines *ecology* as the science



of the relationships between organisms and their environments. Though more than a century has passed since Haeckel first coined the term, he probably wouldn't argue with that.

Have the black-footed ferrets recently removed from the wild been able to reproduce in captivity? (Vicki Landon, Denver, Colo.)

Yes—eight pups were born in captivity last spring and seven of them survived, bringing the number of known black-footed ferrets in the world to 25.

In 1985 the last known ferret population lived on a sagebrush plain near Meeteetse, Wyoming. When an outbreak of canine distemper threatened to obliterate the colony, the Wyoming Game and Fish Department decided to take all its members to a

captive-breeding facility.

According to Tom Thorne, a state wildlife veterinarian, the ferrets were too few to ensure their survival in the wild. Over the next year and a half, department researchers captured a total of 18 ferrets.

The species has had breeding problems in captivity, however. While nine females bred in 1987, only two had litters.

Meanwhile, the Wyoming Game and Fish Department is doing all it can to ensure the health of these rare predators while they slowly build their numbers. No one can visit the ferrets without first taking a shower and putting on thick coveralls. In addition, all humans must wear facemasks to protect the ferrets from the danger of colds and flu.

"Our goal," says Thorne,

"is to have 200 breeding animals in captivity before reintroducing them back to the wild." The tentative reintroduction date is 1991, but Thorne adds that "there are no guarantees."

What size water filter is needed to remove Giardia cysts? (B.H. Fleming, Sacramento, Calif.)

In the microscopic world, *Giardia lamblia* is a giant among microbes at a whopping 7 microns (most microbes are less than 0.75 microns). Consequently, most of the filtering devices on the market will screen out this gastrically disruptive protozoan.

Although other potentially harmful organisms require a 0.25-micron filter, says EPA spokesperson Bill Thurston, *Giardia* is the microbe that should be of most concern to hikers in U.S. mountain ranges.

The life cycle of *Giardia* includes trophozoite and cyst forms. The trophozoite, the active form of the parasite in humans, perishes rapidly outside the body. The cyst form is much more adaptable, however. With a casing as firm as a watermelon seed's, it can survive for long periods of time outside the body, especially when it is in cold water.

Which water? *Giardia* is most common in mountain streams of areas heavily used by people, where it's also found in wildlife and livestock. But in recent years the protozoan has appeared even in very remote, lightly used areas. So the safest course for travelers is to filter all mountain water. ■

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