

High Country News

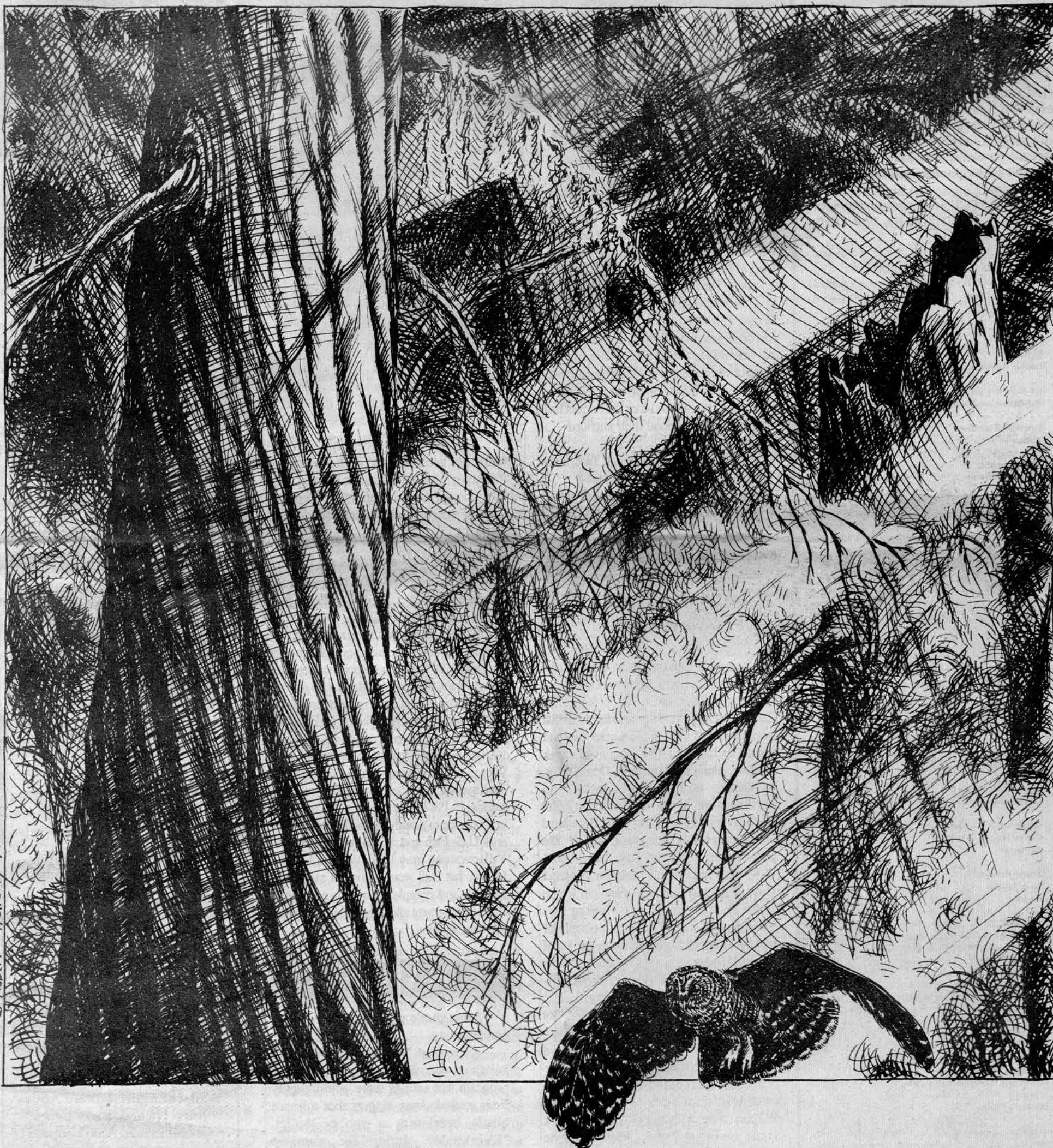
November 19, 1990

Vol. 22 No. 22

A Paper for People who Care about the West

Three dollars

'You don't know what you've got till it's gone ...'



**The Northwest rediscovers
its ancient forests**

Dear friends,

Our Colorado delegate

Betsy Marston, *HCN's* editor on leave, will be a Colorado delegate to the White House Conference on Library and Information Services, which will be held in Washington, D.C., July 9-13, 1991. She was selected at the Colorado Governor's Conference on Library and Information Services held in Vail recently. Colorado will send eight delegates and four alternates to the White House conference.

Visitors

Adam Barcroft and friend Jennifer Holliday stopped by on their way from Vermont to Ecuador — by bus. They plan to travel for three months, backpacking and writing. Adam is the son of Erin Williams of nearby Redlands Mesa. While here the duo and Erin joined the editor, deputy editor, her children Olivia and Sophy Miles, Dick Guadagno of Paonia and Charlie Bradley of Cedaredge on a leisurely one-day float down the Gunnison River. The canoe-kayak-foldboat armada put in on Roubideau Creek a few miles west of Delta and took out at the mouth of Escalante Canyon some 10 miles downriver. The biggest challenge was finding a suitable luncheon site. The editor lost considerable credibility by conducting the wee navy to a mud bog. Adam and Jennifer saved the day by leading everyone to a landing farther west on the opposite bank, but then confided that the current had swept them way beyond their intended destination. Oh well.

Bob Stewart of Ranchos de Taos, New Mexico, popped in to talk about the bioregion concept he is promoting. Bob also is involved in the San Luis Valley's gold-

mining issue, the Rio Grande corridor and timber allocation. Shaun Green of Fort Collins, Colo., also came by with Scott Ferguson of Denver. They were between jobs and on their way west to Utah's Canyonlands and on to Nevada "to escape."

Karen Hamilton, who works for the Environmental Protection Agency in Denver, stopped off to say she sends the *HCN* on to Washington, D.C., "to make sure they see it!" Karen works on non-point source pollution control recommendations her agency is making. Karen was optimistic about EPA's four-year program under the Clean Water Act's 1987 amendments to coordinate non-point source control improvements by the state, landowners and environmental groups. She reported that 18 parties had already signed on to a plan for Badger Creek, a tributary of the Arkansas River. She had just attended the Colorado Riparian Association's annual meeting in Glenwood Springs.

Confessions we appreciate

"I tried to wean myself from my subscription to *High Country News*," writes David Stupin of Santa Fe, New Mexico. "I seldom have time to read more than a few issues per year. But your Aug. 27 issue about the irrigation system on the Wind River was so interesting that I read it 'cover-to-cover.' Here's my renewal for three years."

No cheers for "Tushies"

Our local paper reports that nearby Delta has gotten the nod as the home of a "Tushies" disposable-diaper factory. The story hailed the new diapers as "state-of-the-art" because they are stuffed with

cotton instead of wood fiber. But we're not cheering. A letter from Jean Gillette of Sunnyvale, Calif., reminds us that no one has yet invented a biodegradable throwaway diaper. We'll save our cheers for the eight states that she says may ban disposable diapers altogether.

Ancient forest(s)

Publishing a special issue at the *High Country News* editorial headquarters deep in downtown Paonia has always been an exciting exercise, and this issue proved to be no exception. The production crew — Cindy Wehling, Diane Sylvain and Ann Ulrich — got a chance to show how juggling 32 pages in an enlarged closet is no less a caper than dealing with the usual 16. The business side — Linda Bacigalupi and Gretchen Nicholoff — got a chance to show up the editors with their invaluable checking, and the editors — all three of us — got a chance to argue endlessly over such incalculably important questions as when the plural of forest (as in ancient) takes an s at the end. We also debated whether we should keep the words *chrematistics* and *oikonomia* and send everyone to their Greek dictionary.

What saved us all, however, was the insightful editorial direction Pat Ford gave this effort from Boise, Idaho, and the perceptive articles written by the authors Pat collected. We hope our readers will agree that this special issue does what credible journalism should do — shed light on dark issues to make them more understandable. Knowledge is still our best tool to save what's left of the Pacific Northwest's ancient forest.

— Larry Mosher and Mary Jarrett
for the staff

HIGH COUNTRY NEWS

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HOTLINE

Forest primeval ... in Indiana

Reasoning that the West shouldn't be alone in facing economic ruin at the hands of environmentalists, U.S. Rep. Jim Hansen, R-Utah, is co-sponsoring a bill that would create a 1.3-million-acre "ancient forest" in Indiana. The tongue-in-cheek measure, introduced by Rep. Don Young, R-Alaska, targets 14 counties in northwestern Indiana, including the southern suburbs of Gary and Hammond and the cities of Kokomo and Marion. The area is in the district of Rep. James Jontz, D, who has sponsored legislation to protect some of the last remaining ancient forests in the Pacific Northwest. Hansen says Young's bill would give the people of Indiana "an opportunity to share the joy of unemployment, abuse of their rights as property owners and environmental-harassment lawsuits. Westerners presently enjoy," reports *The Salt Lake Tribune*. "By recreating an ancient forest in the heavily industrialized area of northwestern Indiana," Hansen says, "we can reverse the problems associated with the area's manufacturing and agricultural activities. We can create thousands of real good jobs in the tourism industry. Why should the folks out West be the only ones to have the fun of facing economic ruin at the hands of a few narrow-minded extremists?"

Ski Yellowstone permit revoked

Ski Yellowstone, a proposed ski resort near West Yellowstone, Mont., will not be built any time in the near future. Dale Robertson, chief of the U.S. Forest Service, recently upheld Regional Forester John

Mumma's decision to revoke a special-use permit for the resort. According to the *West Yellowstone News*, Mumma revoked the permit in January, stating that the developer, John Hall, breached the terms of the permit by failing to respond to repeated requests for information about the resort's funding and effects on grizzly bear habitat. Environmentalists have been fighting the proposal since its conception in the early 1970s, claiming that development in the West Yellowstone area would be detrimental to its grizzly bears and bald eagles. In 1987 these claims were seconded in a cooperative study by the Forest Service and U.S. Fish and Wildlife Service. Ski Yellowstone may be developed in the future, but Hall would have to start from scratch and complete an Environmental Impact Statement allowing public comment and participation.

BARBS

Now, that's what we call aversive conditioning.

As part of Yellowstone National Park's six-year-old "aversive conditioning" program that aims to scare wildlife away from roadside areas, rangers shot a female black bear with a rubber bullet. "Regrettably, during the aversive conditioning, the black bear was injured and later died," park spokesperson Joan Anzelmo told *The Jackson Hole Guide*.

Lost tribe, lost art.

After touring the Church Universal and Triumphant fallout shelters in Montana, Rep. Pat Williams, D-Mont., said, "It is an extraordinary operation. I feel certain that there is nothing like it in America. They have developed the art of fallout sheltering," reports *The Billings Gazette*.

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WESTERN ROUNDUP

The ballot box serves up a thin environmental stew

This November's elections did not necessarily bring a greener West. Oregon's Sen. Mark Hatfield, for example, perhaps the one politician most supportive of the timber industry's drive to gobble up all the Northwest's remaining ancient forest, kept his seat. But there also were encouraging results, such as South Dakota's decision to control the waste industry's plans to locate huge national landfills there. In short, the ballot box produced a mixed bag, environmentally speaking. Here are the critical results:

Arizona: Proposition 202, a broad waste-control measure sponsored by the waste industry and labeled a hoax by environmentalists, was roundly dumped. Phoenix three-term Democratic Mayor Terry Goddard narrowly lost the gubernatorial race to millionaire developer Fife Symington.

Colorado: Republican Rep. Hank Brown easily overcame Democrat Josie Heath's bid for the seat vacated by Republican Sen. William Armstrong. Democratic Gov. Roy Romer put down his Republican challenger, John Andrews, 580,687 to 327,629.

Idaho: Attempts to elect anti-wilderness candidates fizzled in most of the state's key races. Democratic Gov. Cecil Andrus walked away from his Republican opponent, Roger Fairchild. In the congressional 1st District vacated by Republican Rep. Larry Craig, Democrat Larry LaRocco, who has

endorsed the 1.5 million-acre wilderness bill proposed by retiring Sen. James McClure and Gov. Andrus, beat Republican Skip Smyser. In the attorney general race, Democrat Larry EchoHawk defeated Pat Kole, who opposes further wilderness designation. Craig was elected to replace Sen. McClure.

Montana: Republican hopes to dislodge incumbent Democratic Sen. Max Baucus over the wilderness issue failed decisively as Baucus defeated Allen Kolstad, 215,216 to 93,603. Incumbent Reps. Pat Williams, D, and Ron Marlenee, R, also kept their seats.

Nevada: Pro-environmental campaigns appeared to work in the main state contests. Democratic Gov. Bob Miller, appointed in 1988, won handily by a 2-to-1 ratio over Republican candidate Jim Gallaway. Miller had campaigned hard against the Energy Department's proposed nuclear waste dump near Hanford. Voters also approved a \$47 million parks and wildlife initiative (Question 5), 206,790 to 106,720.

New Mexico: Green smear campaigns against Democrat Jim Baca — he was labeled a "green puppet" — failed to keep him from winning the state land commissioner post. Similar efforts by Republicans to discredit their Democratic rivals as environmental extremists also failed in two other key contests: Bruce King defeated Frank Bond for governor, and Tom Udall beat state Sen. William Davis for attorney general. The Democratic

sweep represents a victory for environmentalists fighting the Waste Isolation Pilot Plant nuclear waste project.

Oregon: Although the ancient-forest issue has polarized Oregon's politics, key election results were mixed. Democrat Barbara Roberts, who favors preserving old growth, won the gubernatorial contest, narrowly defeating Republican Dave Frohnmayr, a timber industry supporter. But incumbent Republican Sen. Mark Hatfield, who has backed high timber cuts for decades, won over challenger Harry Lonsdale. Incumbent Republican Rep. Denny Smith, no friend to the environment, was unseated by Democrat Mike Kopetski. But two environmental initiatives, Measures 4 and 6, were defeated. They called for closing the state's only nuclear power plant until a federal waste repository is opened, and subjecting all packaging to three recycling standards by 1993.

South Dakota: A strong initiative to control landfills (HCN, 9/10/90) was approved, but another environmental initiative to restrict surface mining impacts was turned down. Incumbent Republican Gov. George Mickelson won a second term against challenger Bob Samuelson, a cattle rancher, who was considered the more pro-environment candidate. Republican Sen. Larry Pressler won a third term against Ted Muenster. Muenster was backed by the Sierra Club.

Utah: Democratic Rep. Wayne Owens easily defeated Republican challenger Genevieve Atwood for the 2nd District.

Environmentalists supported Owens. Democratic candidate Kensley Brunsdale, however, a self-styled environmentalist, failed to dislodge Republican Rep. Jim Hansen in the 1st District. Republican state Rep. Dave Adams overwhelmed environmentalist Ken Sleight. In the San Juan County elections, only Democratic incumbent commissioner Mark Maryboy succeeded. The other five Navajo office seekers lost in the races for treasurer, clerk/auditor, recorder, assessor and sheriff.

Washington: Environmentalist-backed Initiative 547, which called for strong, statewide growth control, went down to a decisive 3-to-1 defeat. The measure also would have restricted the conversion of private forestland to urban uses. But Democratic Rep. Jolene Unsoeld defeated Republican contender Bob Williams in the 3rd District. Williams had campaigned to win logger votes in the heavily timbered district.

Wyoming: Incumbent Democratic Gov. Mike Sullivan handily defeated wealthy rancher Mary Mead. Incumbent Republican Sen. Alan Simpson, who helped weaken the 1990 Clean Air Act Amendments' visibility standards for national parks, stomped challenger Kathy Helling 100,800 to 56,692. Incumbent Republican Rep. Craig Thomas nosed out Pete Maxfield, the slightly more pro-environment candidate.

—Lawrence Mosher
and Diane Grauer

A new road to ruins?

The road that leads to Chaco Culture National Historic Park in northwestern New Mexico is a dusty, bumpy stretch of washboard that can rattle cars mercilessly in good weather and stop them cold when it rains.

That's just fine with some visitors, who say the timeless quality of the park's Indian ruins is enhanced by their inaccessibility. But it's not fine with the National Park Service, which says ruins are being shaken apart by traffic on the road, State Highway 57. The road bisects the park.

"Two nights ago we had a semi stuck on the hill. We had to call a wrecker to get him out," notes park superintendent Larry Belli, adding that the Park Service has been trying to close the road for 30 years.

The New Mexico State Highway and Transportation Department has considered 33 routes since it started studying the problem two years ago. The department's six-person commission recently authorized the expenditure of \$200,000 to study the impacts of connecting a spur road to the eastern boundary of the park with a new road between Pueblo Pintado and Nageezi.

"The route was selected primarily because it avoids many of the archaeological sites outside the park," said Norman Nelson, the department's public involvement coordinator.

Although no formal recommendation has been made on the type of surface the proposed road would have, "the coffee-shop talk is an all-weather gravel road," said Robert Ringer, director of the department's design division.

Park aficionados note that the rough road works as a filter that has helped preserve the natural state of the park, which embraces over 3,000 archaeological sites built by the Anasazi and other groups. "They're everywhere," said Belli. "You can't take a step without being on a site."

An *Albuquerque Tribune* editorial pointed with relish to the "certain sense of adventure" required to make the 24-mile, 40-minute trip into the park. The remoteness, the dust and the quiet add up to an experience not available in "hyper-visited, paved tourist meccas" like Mesa Verde, it said.

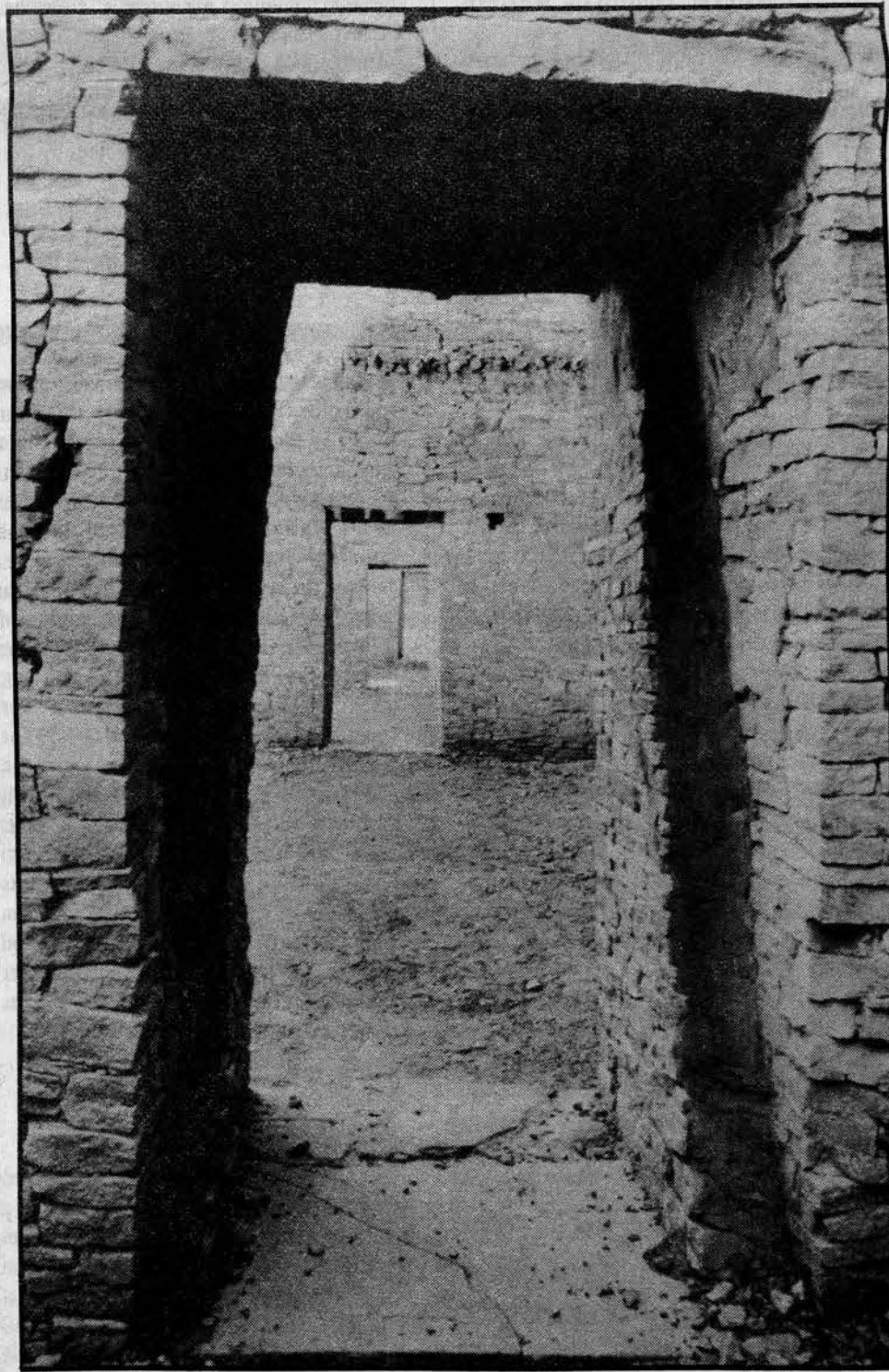
But Jean Fisher, the executive vice president of the chamber of commerce in nearby Grants, says that "everybody should be able to have easy access to the parks and not have to worry about the weather or washboard road. It's terrible, especially if you're in a motorhome or a vehicle that isn't four-wheel-drive."

Belli approves of the proposal, which solves two of the park's major problems. The current road is a state highway open 24 hours a day to everyone from truckers to pottery thieves, and seismic studies have shown that traffic is shaking at least two of the "great house" ruins — buildings more than 800 years old containing dozens of rooms. "This would put us on a spur road and put the through road 15 miles away," Belli said. "We'd be able to close down the canyon ruins at night."

He expressed concern, however, that the already swelling number of visitors to the park will accelerate if access is made easier. The park had 91,000 visitors in 1989 — 28 percent more than the previous year — and this promises to strain the park's budget. "We've been cut back, like all the federal agencies," Belli said. "It's really tight, but the park is becoming very well known. People are more interested in archaeology, and Chaco Canyon is one of the primary sites."

Public comments on the road proposal should be mailed to Norman Nelson, Room 115, New Mexico State Highway and Transportation Department, P.O. Box 1149, Santa Fe, NM 87504.

—Lisa Jones



Pueblo Bonito in New Mexico's Chaco Canyon

Stephen R. Wenger

Clean Air Act amendments will not help much of the West

Although scientists have known for years that acid rain causes damage in Europe and the northeastern United States, it was only recently that some disturbing evidence emerged concerning the West. John Harte, a scientist at the Rocky Mountain Biological Laboratory, found that a population of tiger salamanders living above 10,000 feet had declined 65 percent during the 1980s.

Harte attributes the population's decline to pollution from coal-burning power plants, copper smelters and autos. "The salamander is a kind of early warning signal," he said. "If it disappears, we can expect that other populations, such as trout, will be affected down the line."

Harte and others studying the effects of pollution in the high country had looked to this year's landmark clean air legislation to stem acid-causing emissions in the East. But with the final passage of the Clean Air Act in late October, it is now clear that acid precipitation in the West won't subside any time soon. In fact, while the legislation will clean Eastern skies, it will allow the West's air to become dirtier.

After nearly a year of grueling negotiations in Congress, Western senators led by Alan Simpson, R-Wyo., and Max Baucus, D-Mont., succeeded in obtaining a number of regulatory exemptions for industries and utilities in the West, and in wiping out language that would have protected air quality in pristine areas such as national parks.

"In general, control on Western sources of pollution is somewhat less than we'd hoped," says Marchant Wentworth, a lobbyist for the Izaak Walton League. "I don't think we'll see a massive increase in emissions, but the West won't be as clean as we'd like."

The sweeping legislation, a reauthorization of the 1970 Clean Air Act, calls for a national reduction in acid



Steve Hinchman

The tiger salamander population is declining

rain-causing pollutants. By the end of this decade, sulfur dioxide and nitrogen oxide emissions are to be cut by half. Most of those reductions will occur in the Northeast and Midwest, where coal-burning utilities must cut 10 million tons off total emissions each year.

But in the West, where utilities burn cleaner low-sulfur coal, the Environmental Protection Agency still estimates that emissions will increase by 25 percent from 1985-87 levels over the next 20 years. This is because of expected growth and a regulation technicality that will allow some utilities to raise their emissions by up to 40 percent.

In addition, six "clean" states, including New Mexico, Utah, Wyoming and Montana, will receive an extra 125,000 "pollution allowances" from the EPA. One allowance equals one ton of sulfur dioxide or nitrogen oxide per year. Altogether, the West will probably see pollutants increase by 200,000 to 300,000 tons, or about 24 percent, by the end of the decade, according to Robert Yuhnke, a Boulder-based scientist with the Environmental Defense Fund.

These increases do not bode well for

the West's high-altitude lakes and streams, which are particularly sensitive to acid rain and snow. "In the high elevations, we're dealing with systems with very thin or no soils to neutralize acidity," explains Jim Gibson, director of the government-funded National Atmospheric Deposition Program.

John Turk, a Forest Service hydrologist who samples lakes in Colorado's Flattops Wilderness Area, warns that if pollution continues to increase, these lakes could be damaged. "We know we don't have a widespread acid rain problem here," says Turk, "but we do know we have the potential for one. We also know that lakes respond very rapidly to acid. If emissions go up rapidly here, you may have an acid rain problem in lakes and streams within a year."

The West can also expect its visibility to worsen under this year's legislation. Environmentalists had hoped that an amendment authored by Sen. Ron Wyden, D-Ore., would become law (HCN, 7/2/90). That amendment would have required the Environmental Protection Agency to draft regulations controlling regional haze over national

parks. It also would have designated national parks and wilderness areas created since 1977 as "class I," or pristine-air, zones.

But in the pre-dawn hours of the final negotiations Oct. 27, Western senators led by Jake Garn, R-Utah, and James McClure, R-Idaho, threatened a filibuster if Wyden's language remained intact. "In the eleventh hour, it was the good guys who broke down first," explains Yuhnke.

In place of regulatory language, the legislation authorizes EPA, the National Park Service and other federal agencies to conduct a five-year, \$40 million study identifying sources of pollution near national parks. The act also enables EPA to set up regional commissions, which lack regulatory power, to address interstate pollution. Finally, the act reauthorizes the powers granted to EPA in 1977 amendments to the original Clean Air Act.

Those provisions, which have gone largely unused, allow EPA to issue regulations to ensure "reasonable progress" toward improving visibility in national parks and wilderness areas.

"I'm very disappointed that [Wyden's] visibility language was dropped," says Libby Fayad, an attorney with the National Parks and Conservation Association. "The EPA has shown its unwillingness to develop regional haze regulations, so I don't think the current language is effective."

Western environmentalists who are disappointed with the congressional path toward better air will probably turn to the courts next. "We're not going to wait another 10 years [for the next congressional reauthorization]," warns the Environmental Defense Fund's Yuhnke. He says he expects to see a cascade of citizen suits against polluters, as well as against the sluggish EPA.

— Florence Williams

HOTLINE

Hazardous Tucson water will get treated

Cleanup of contaminated groundwater near Tucson, Ariz., is slated to begin, nine years after high levels of trichloroethylene, or TCE, a suspected carcinogen, were found in drinking-water wells. TCE and other solvents that aircraft and electronic industries had dumped since the early 1950s seeped into surrounding aquifers, reaching some 20,000 people before all contaminated wells were closed in 1983 (HCN, 5/25/87). In September, the Tucson Airport Authority, the U.S. Air Force, Hughes Aircraft Co. and McDonnell Douglas Corp. agreed to build and operate a treatment plant to remove industrial pollutants. The organizations responsible for contamination will be paying the bills as part of the Superfund program. Dan Opalski, an engineer for the Environmental Protection Agency, estimates that it will take up to 25 years and \$15 million before the water is drinkable.

Forest Service chief rejects Bridger-Teton appeals

U.S. Forest Service Chief Dale Robertson recently rejected all appeals to the oil and gas drilling regulations in the Bridger-Teton National Forest

management plan (HCN, 12/5/88). These regulations, established early this year under Regional Forester Stan Tixier's Land and Resource Management Plan, were appealed by nine environmental organizations and by two groups representing the mineral industry. Robertson upheld Tixier's decisions in all regards, including the availability of 94 percent of non-wilderness lands in the forest for oil and gas leasing. According to Scott Garland, public lands director for the Jackson Hole Alliance for Responsible Planning, one of the appellants of the plan, this decision will have no immediate detrimental effects, but it will allow the Forest Service to continue issuing leases according to its previous schedule. The Bridger-Teton National Forest provides a large portion of the grizzly bear habitat and elk winter range and is one of the most scenic areas in the Greater Yellowstone ecosystem.

Timber sale stalled in grizzly habitat

A 320-acre slice of Idaho's Targhee National Forest was on the block in a timber sale when an appeal from environmentalists put the proceedings on hold. The environmentalists contend that the Yellowjacket timber sale is one of 10 in the area that violate the Endangered Species Act. They say the sales threaten grizzly habitat in an area where the bears' numbers apparently lag behind the

rest of the greater Yellowstone ecosystem, reports the Idaho Falls *Post Register*. The appeal was brought by a coalition of groups led by The Wilderness Society. Don Whitmore, director of American Wildlands, a member of the coalition, said he doubted that Regional Forester Stan Tixier would halt the sale outright, but he thinks it may get sent back to the Targhee National Forest for additional environmental study. The Forest Service originally considered opening 1,100 acres for the timber sale, but reduced the area to 320 acres after studying the potential cumulative effects of the area's 10 timber sales.

Preserves for predators proposed in Utah

The Non-Consumptive Wildlife Group of Utah has proposed two wildlife preserves that would protect even predators. The preserves would be managed to encourage biodiversity and natural predator-prey relationships. They would be located in City Creek Canyon, a riparian area east of Salt Lake City, and in the former High Uintas Primitive Area, an alpine/subalpine region of the High Uintas Wilderness in northern Utah. Both the U.S. Forest Service and the state Division of Wildlife Resources must approve the proposal, but so far neither agency has commented. According to

George Nickas at the Utah Wilderness Association, the state agency has acknowledged the positive ecological aspects of the proposal, but is reluctant to approve a non-game activity since hunting-license fees provide 90 percent of its income. Nickas says, however, that there is widespread public support for the proposal.

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COW CARE

The "Western States Livestock Health and Nutrition Alternatives Conference" in Bozeman, Mont., Dec. 6-8, will explore new methods for the care and feeding of cattle and sheep. Organized by the Alternative Energy Resource Organization (AERO), the event will feature a keynote address by Dr. Frank Baker of the Winrock International Institute for Agricultural Development. The conference will also include presentations on disease, parasite and fly control, and management practices to prevent disease. Registration for the conference is \$50. For more information contact AERO at 44 North Last Chance Gulch, Helena, MT 59601, or call 406/443-7272.

CONFERENCE ON RANGELAND

A conference on the benefits of coordinated land management will be presented in Sparks, Nev., on Dec. 3-4 by the U.S. Forest Service, the Bureau of Land Management, the Experimental Stewardship Program and the California Coordinated Resource Management Planning Committee. Speakers including John Lacey, president of the National Cattlemen's Association, Ed Marston, publisher of *High Country News*, and Rex Cleary, president of the Society for Range Management, will address such topics as the evolution of change on the range, resolution of natural resource conflicts, and the future of the range. For registration forms contact ESP/CRMP, 3830 U St., Sacramento, CA 95817 or call 916/739-6251. Registration is \$55. The conference will be held at the John Ascuaga's Nugget Hotel, where participants can stay for \$58 per night. The Nugget's number is 1-800/648-1177.

ANCIENT FOREST CALENDAR

A small glimpse of the beauty of the national forests of Oregon is provided by the photographs in a new wall calendar for 1991. Each monthly calendar page features a quotation from a famous conservationist such as Aldo Leopold, John Muir, Edward Abbey or Henry David Thoreau. Profits from the sale of this calendar will be given to nonprofit organizations for their use in the protection of native forests and other unspoiled areas in Oregon and elsewhere. For a copy send \$10.50 to Wild Oregon Images, 65095 Swalley Road, Bend, OR 97701 or call 503/382-8794.



A NEW VOICE FOR FORESTS

A new coalition, Save America's Forests, is working for the preservation of forests on public lands. The Washington, D.C.-based organization, formed last May, hopes to bring together grassroots activists from around the nation and represent their concerns in Congress. The coalition is lobbying to introduce and pass a Native Forest Protection Act in the 102nd Congress that would end clearcutting and road building in national forests and give aid to logging communities in economic transition. The organization also deals with issues of recycling, global warming, wildlife habitat, and water, air and soil quality. For more information write Save America's Forests, 1742 18th St. NW, Washington, DC 20009, or call 202/667-5150.



ON THE WILD SIDE

The American Wilderness Alliance has a new name and a new mission. The 2,500-member, Colorado-based alliance formerly focused on legislative designations of wilderness and rivers. Under the new name American Wildlands (AWL), the group has broadened its focus to include timber policy and reform, riparian habitat, rangeland restoration and economic analysis. In recent years, AWL has appealed 60 timber-sale projects; 95 percent of those appealed have been either settled by negotiation or withdrawn by the Forest Service. The first issue of AWL's new quarterly journal, *On the Wild Side*, features a profile of the Lolo National Forest in Montana, and updates on legislative and administrative decisions regarding national forests. To become a member of AWL and receive this 20-page journal, send \$25 to: American Wildlands, 7500 E. Arapahoe Road, Suite 355, Englewood, CO 80112.



YOSEMITE'S FATE

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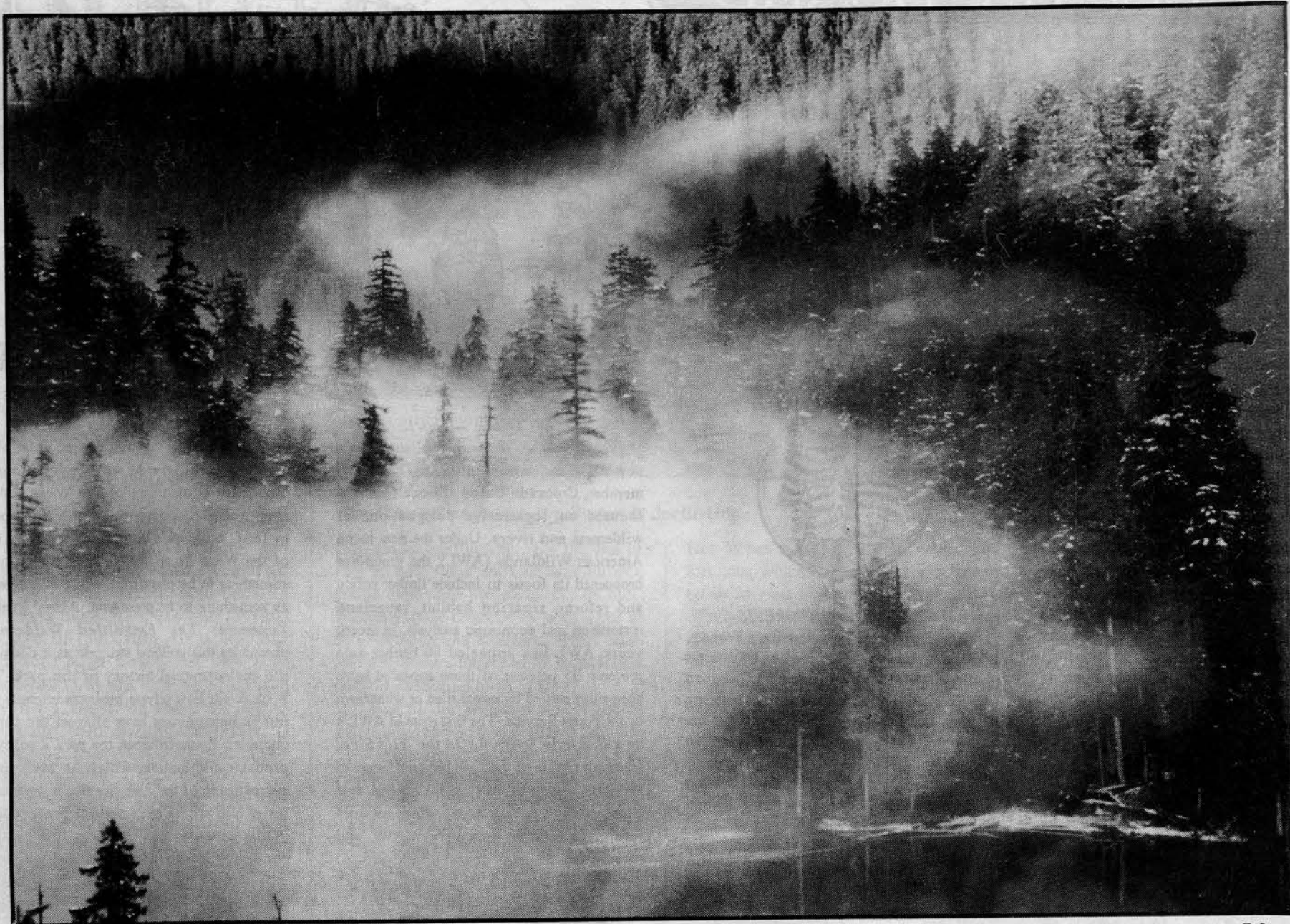
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Mist hangs over Oregon's Opal Lake

T. Steen

Trees and dreams: a preface

by Pat Ford

I catch glimpses of old growth as my car passes through the coastal strip of Olympic National Park. From there, it's another 170 miles to Seattle, and there isn't an old-growth tree to be seen. I marvel at how quickly the landscape has changed in just one century. Where there once was mile upon mile of proud, magnificent forest, there are now second-growth trees with only brown duff underneath, pastures, homes, taverns, schools and ball fields.

Joni Mitchell's song keeps running through my mind:

*Don't it always seem to go
That you don't know what
you've got till it's gone?
They paved paradise
And put up a parking lot.*

— Keith Ervin, *Fragile Majesty*

I read these words in Keith Ervin's book months ago, when the *High Country News* special edition you now hold was just a paragraph's promise to produce it. Only much later — after trips through Washington and Oregon, after conversations, the daily reading of Northwest newspapers and my first look at the stories that follow — did I realize how right Joni Mitchell's lyric is for the Northwest's passionate town-meeting-in-progress over its native forests.

From the outside, the "ancient forest issue" must seem to have popped up suddenly in 1988 and then to have kept exploding. From the inside, for

Northwesterners themselves, it was less sudden but every bit as explosive. There was a long buildup beneath the surface, some of it documented here. But when the issue finally broke through, it exploded like the Yellowstone crown fires, achieving a dynamic that no one could control and that has gone on to engulf everyone.

The resultant heat and pressure is like no other conservation firestorm I've ever watched. Everyone near the flames has been seared. During the first two years, all the main actors — the Forest Service, the states, conservation groups, the timber industry, timber towns and forest scientists — not only went after each other but were riven by internal disputes. Northwest politicians mirrored their electors by splintering and by cobbling up contradictory short-term fixes that hurried their own loss of control over events.

Nor was this just a Northwest fever. The Bush Administration has reacted the same way. As I write, three contradictory policies for spotted owl protection have come forth from the White House, Forest Service and Bureau of Land Management.

That little owl's flight, from anonymity to the cover of *Time* via the Endangered Species Act, was the presumed cause of all this smoke and flame. The real cause, however, is everyone's belated discovery of the ancient forest.

"You don't know what you've got till it's gone" is a moral for all — conservationists, loggers and mill workers, timber towns, scientists, land managers, elected officials, Portland and Puget Sound immigrants, the media, and anyone else you want to list. Each may see different things going or gone —

owls, jobs, dollars, ways of life, landscapes, careers, power bases, images of their new Eden — but all suddenly face loss, confusion and fear for the same basic reason. The old forests are nearly gone. The inheritance is down to the penny bank.

Why this matters

This is no new story; variations of it are chronicled in this newspaper all the time. But the Northwest old-growth story is up a gear from those for several reasons:

Scale. This particular natural inheritance, stretching from northern California through southeast Alaska, was one of the very richest — arguably the most productive terrestrial ecosystem, acre for acre — on earth. It has supported tens of thousands of jobs, hundreds of communities, a vast managerial structure and academic and technical enterprise, and an enduring political edifice. And it has been able to absorb enormous accumulating injury that would have obliterated the Rocky Mountain forest long ago.

Location. Because the West Coast forest was on the far side of the continent, its destruction started later. So something is still left, in this time of second thoughts, to have second thoughts about. Also, today's Northwest is vibrant with human expansion — not great for the forest, but it definitely ratchets up the action. The Northwest forest is a national issue today partly because the Northwest has the energy to make it one.

Context. The issue is a major product of its times. Big ecology/economy knots get noticed now. Northwest forests feed planetary

problems: global warming, loss of biodiversity, tropical rainforest destruction. Three forest researchers recently calculated that 2 percent of this century's total carbon releases may have come from Northwest deforestation.

Emotion. Hearts and dreams are on the line. As Oregonian Steve Forrester suggests in his article, this issue is about more than forests. It's about the Northwest's soul and self-definition. For woods and mill families, the jobs at stake are emblems of a way of life that they love and a place they built and are proud of.

For other natives and newcomers, the forest issue is bound up with their dreams — serious or shallow, noble or selfish — for a potential Northwest. Ernest Callenbach called it "Ecotopia," which is useful shorthand if you remember it means different things in different hearts. Measured by what is really happening in the region — the flood of people and their works even more than the cutting of forests — Ecotopia is receding, not emerging. For many, saving the forests has to do with not letting go of a dream that is already fading.

There are several sides of the ancient-forest story that this 28-page special issue barely touches. You won't find here the latest news from Washington, D.C., about timber harvests, spotted owls and corrective legislation, nor will you read much about chaos and revolt in the Forest Service and Bureau of Land Management. The Northwest forest and the fights over it extend south to California and north to Canada and Alaska, but these contests are not included here. The spotted owl, object of so much attention, gets less here so that we may focus on other

imperiled species and the future of endangered-species politics. Finally, the vanishing jobs and fading fortunes of timber-dependent communities are touched on but never given flesh. In retrospect I regret these omissions very much.

What is reported is the character of these unmatched forests and the drama that now surrounds them. I hope our non-Northwest readers will be able to better appreciate this region, which is part of the West but also its own very different place. I hope our Rocky Mountain readers will gain a sense of why this newly discovered entity, the old-growth forest, is arousing such passion in the Northwest and why it may soon do so in their neck of the woods, too.

But our major theme — sustainability — permeates every story and is significant for every reader. Sustainability is the major challenge of our time and for all our places. The ancient-forest conflict frames it with special force. We are practicing, in and on the Northwest forests, what Chris Maser calls an economics of extinction. In any possible enduring future for these forests and for their people, we must practice an economics of sustainability. The problem is that we don't have one.

Over 2,000 years ago, Aristotle defined two distinct kinds of economics. One kind he called *chrematistics* — the manipulation of property and wealth to maximize short-term return to the owner. The other he called *oikonomia* — management of the household to increase its value to all its members over the long run. The 10,000-year-old household of the Northwest native forest is one of the most elegant, enduring, productive and inspiring examples of *oikonomia* on Earth. The liquidation of that same forest over the last century — especially the last 45 years — is one of the most single-minded, profligate and dispiriting examples of *chrematistics* on record.

If anything, the chasm between these two kinds of economies is widening in the Northwest today. The world economy — *chrematistics* on a global scale — is part of the reason, as is the sheer multiplication of people and their products. The dilemma for Northwesterners, of course, is that they are straddling the chasm.

While the fighting has focused on the national forests and the public's choices, this deep gulf between nature's economy and our own is most obvious on the private forestlands. (See Roy

Keene's dissection of it.) Things would be simple if the problem were confined to timber workers and towns. But the new Puget Sound emigrant and the Portland commuter are as embedded in the just-passing-through economy as the Sweet Home logger.

As I thought about this Northwest forests special issue, a keystone story took shape in my mind. First, trace the web of *chrematistics*: the bones and flesh of private forest liquidation, buyouts and takeovers, log export consortia and 40-year forestry, rising profits and declining jobs. I would show the interlinked company-community-Forest Service web driving money-first management of state and national forests.

Then I would contrast this tale of economic vandalism with the ancient forest's intricate, patient replenishing cycle: how to live at home in the Northwest. Finally, I would face the questions: How do we bridge the chasm? How do we stretch the short, fast, single-minded straight lines of our human Northwest economy out toward the long, slow, many-minded cycles of nature's Northwest economy?

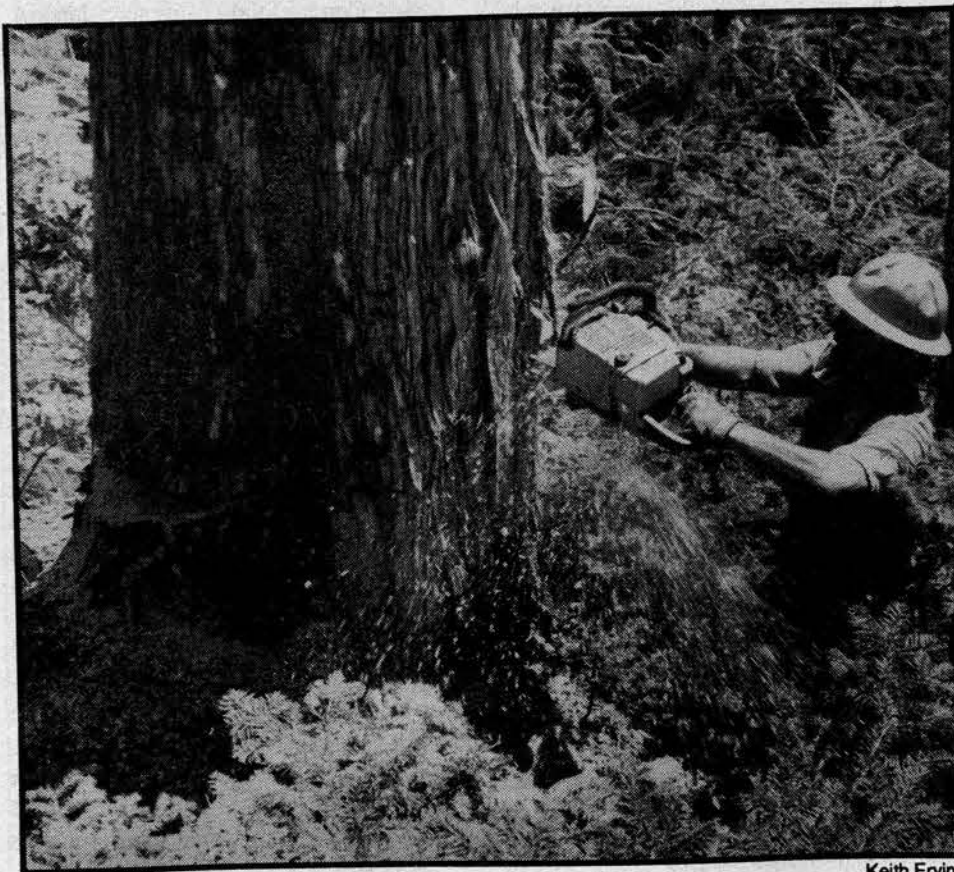
That story isn't here. I didn't know how to write it, and I couldn't find anyone else who did. But this is where I end, asking what arms negotiator Paul Nitze calls the fundamental question: "How do we get from where we are to where we want to be without being struck by disaster along the way?"

The writers in this HCN special issue largely agree that one requisite for avoiding disaster along the way is preserving the Northwest ancient forest that remains. The question — what to preserve and what to cut — dominates the debate today. Let's call it, simplistically, the "museum strategy."

It is essential in order to avoid disaster, but it is not enough to get us to where we want to be. In one story here, Peter Morrison speaks of saving the remnant seeds of the ancient-forest-that-was so we may someday inoculate the rest of the region and in time restore what once was. But how do we save the seed-ground?

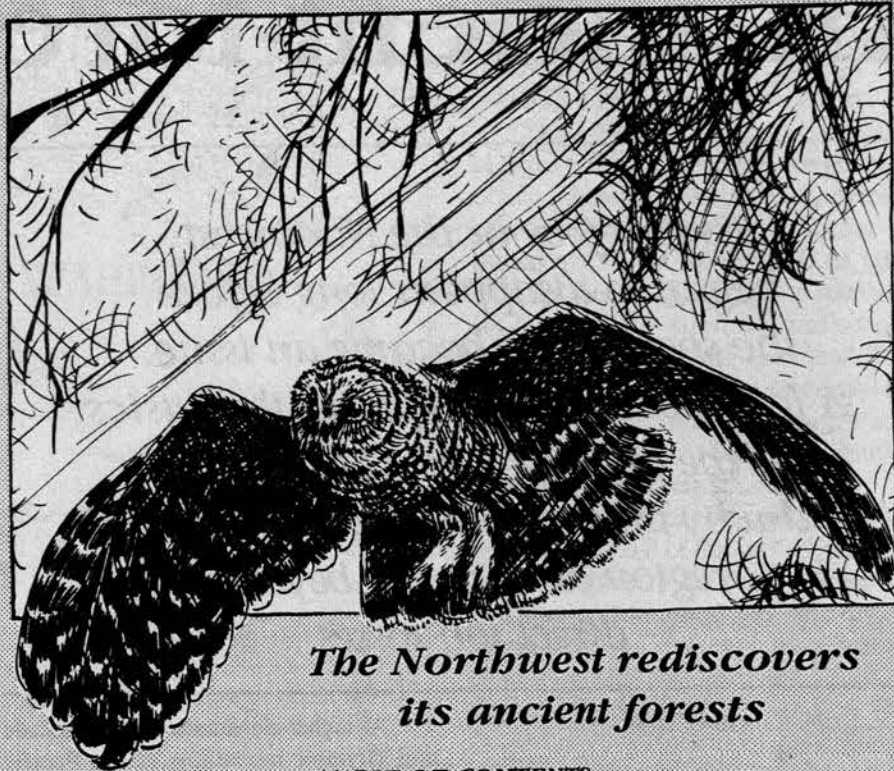
There are hints in the pages that follow, and a few solid suggestions. But the materials and tool kit for building the bridge remain to be assembled. How do we get from *chrematistics* to *oikonomia* in the Northwest household? How do we get from just passing through to being at home?

■



The cutting of an Alaska yellow cedar

Keith Ervin



The Northwest rediscovers its ancient forests

TABLE OF CONTENTS

Trees and dreams: a preface by Pat Ford	6
An ancient-forest primer by Randal O'Toole	8
Olympic Peninsula nightmare by Tim McNulty	10
Raping the private forests by Roy Keene	13
The politics of compromise by Keith Ervin	15
Oregon's Opal Creek dilemma by Jim Stiak	17
The spotted owl as a canary by Jeff Marti	19
Ancient-forest animals are hard to know by Jeff Marti	20
Consider the yew — for cancer's sake by Jeff Marti	21
'Holding on to the seeds' by Pat Ford	23
Defending Oregon's Siskiyou by Jim Stiak	25
'New perspectives' to limit clearcutting by Roy Keene	26
Old growth on the dry side by John Daniel	27
A vision for our future forestry by Robert Michael Pyle	29
Why the timber war is so bitter by Steve Forrester	31
'Rambles in a Ravaged Land' book review by Pat Ford	32

BOOK EXCERPTS

The World's largest conifers grow in the Northwest	9
adapted from <i>Ancient Forests of the Pacific Northwest</i> , by Elliot Norse	
How 'Dutch Fred' set up old growth's 'big cut'	16
excerpted from <i>Fragile Majesty</i> , by Keith Ervin	
Our ancient forests remember so many things	18
excerpted from <i>Forest Primeval</i> , by Chris Maser	
Intensive forestry has cut the cycle of soil renewal	22
excerpted from <i>The Redesigned Forest</i> , by Chris Maser	
The ancient forest already has lost its giants	24
excerpted from <i>Ancient Forests of the Pacific Northwest</i> , by Elliot Norse	
Why senescence (rot) is not a dirty word	28
excerpted from <i>Wintergreen</i> , by Robert Michael Pyle	

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An ancient-forest primer

Timber jobs in the Northwest began to disappear long before the spotted owl became an issue. A forest economist explains the basics of the ancient forest controversy and why the economic challenge to the region extends far beyond direct job losses.

by Randal O'Toole

Two centuries ago, three-fourths of western Washington, western Oregon and northwest California — about 30 million acres — was covered with dense stands of some of the largest trees on earth.

Most of these forestlands are in one of four broad mountain ranges: the Olympics, the Cascades, the Coast Range and the Klamaths. The Cascades, by far the largest, run from British Columbia to northern California. Many crests top 6,000 feet, including the giants like Rainier, Hood, Shasta, Adams and St. Helens. The Puget Trough, the Willamette Valley and other river valleys contained some forests that also included premier big-tree stands.

The coniferous trees in these forests typically grew to six or more feet in diameter and 200 to 300 feet tall. Many species lived to be 500 to 1,000 years old. Forest fires occurred as rarely as every 1,000 years because of the high rainfall.

The Northwest forests are divided into three major types, according to their climax species. The low-elevation forests — from sea level up to 3,000 or 3,500 feet, depending on latitude — make up the western hemlock zone in western Washington and northwest Oregon. Dominant trees include Douglas-fir, western red cedar, western hemlock and, in a band along the Pacific Ocean, Sitka spruce. This zone is the largest and most valuable, both economically and ecologically. It contained most of the classic highly productive "ancient forest." But because it also held the biggest trees, most of it has been logged.

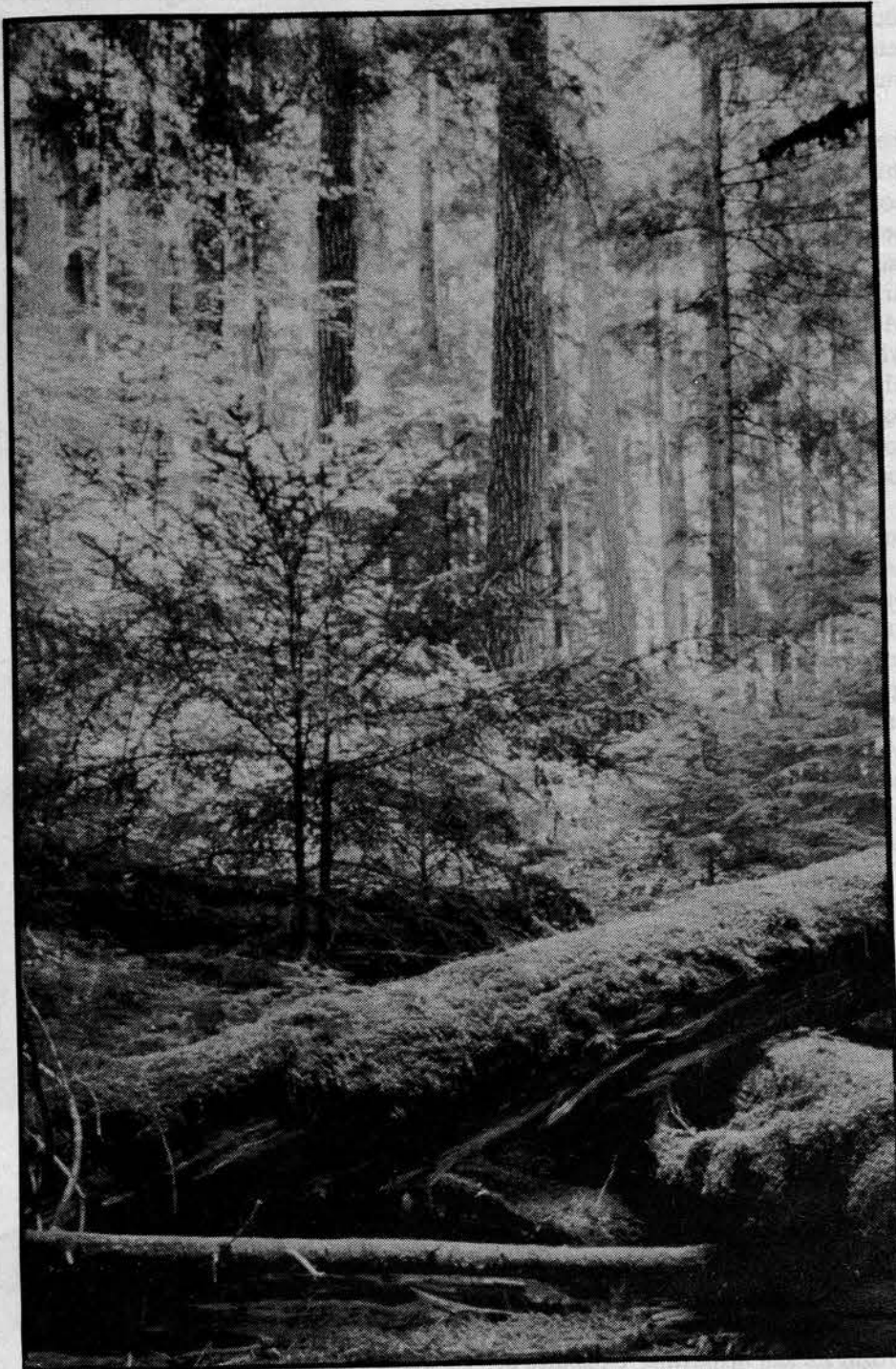
At higher elevations in the Cascade and Olympic mountains is the Pacific silver fir/mountain hemlock zone. This zone also includes Douglas-fir, noble fir and, at higher elevations, subalpine fir and Alaska yellow-cedar. Because of the short growing season, trees here do not grow as large as in the lower forests.

The third zone is found exclusively in the Klamath Mountains of southwest Oregon and northwest California. The Klamaths are hotter and drier than the rest of the region. Douglas-fir forms a climax forest with ponderosa pine, which is otherwise found only east of the Cascades. Other major trees include sugar pine, incense-cedar, white fir and hardwoods like live oak, tank oak and madrone. The growing season is long, but moisture limitations keep trees smaller than in the western hemlock zone.

In all three zones, the forests' ecological succession typically proceeded from a 50-to-75-year shrub-hardwood stage, through a long period of dominance by Douglas-fir, to a shorter climax stage often dominated by hemlocks or cedars. Because the Douglas-fir can live as long as 750 years, it, more than any other tree, dominated the Pacific Northwest.

As recently as 20 years ago old-growth forests were called "biological deserts." The towering closed canopies let in so little light that few plants or animals could survive below. However, that typifies only 75- to 150-year-old forests. This view has been radically revised for older forests as scientists have identified dozens of animals and plants that depend primarily on old growth.

When stands reach an age of 200 to 250 years, they begin producing the



T. Steen

A classic old-growth forest

large trees, craggy bark, broken tops and other characteristics now identified with ancient forests. These forests, now called "biological old growth," are considered necessary for the spotted owl and many other species. The large limbs forming the lower branches of forest giants are habitat for the California tree vole, a major prey of the spotted owl. Spaces under the bark are home for the little brown Myotis and other bats. And the broken tops, surrounded by side branches that have turned upward to the light, are the safest locations for the spotted owl, protecting its nest from the great horned owl.

The old forests also affect water quality and quantity, fish habitat, forest productivity and air quality.

How much old growth is left on the "Westside" — the area between the Cascade crest and the Pacific coast — is in dispute. But the argument is narrowing as a biological definition of old growth begins to be accepted. In recent testimony to Congress, Forest Service Chief Dale Robertson agreed

with conservationists that only about 10 percent of the native Northwest old-growth forest remains.

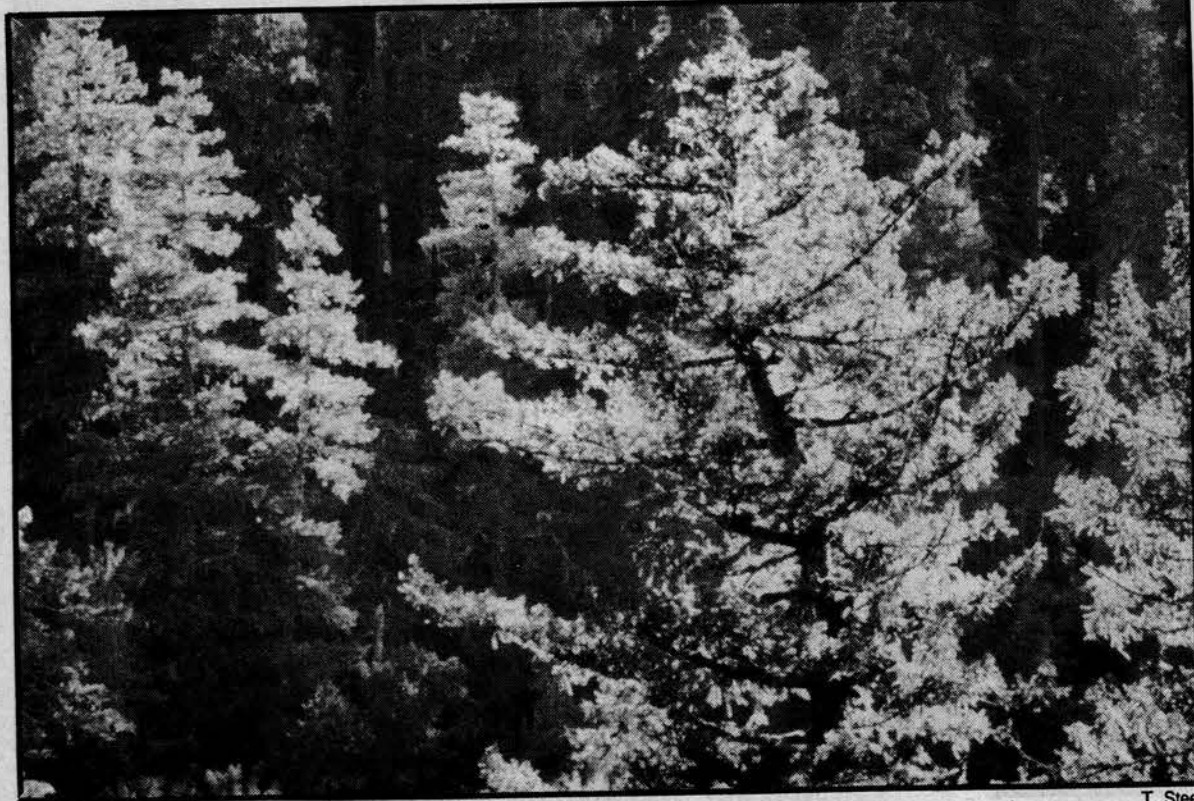
The commercial forest

Intensive and rapid harvesting of that old growth has dominated the Northwest's economy until just recently. The large scale of that logging has generated tremendous wealth, but it has also precipitated a crisis.

Understanding the problem begins with understanding who owns the forests. Commercial-quality forestland in the United States, especially in the South, is controlled mostly by non-industrial private owners in small woodlots not managed for timber production. However, in the Pacific Northwest, federal and state agencies and large industrial timber firms dominate.

There are major differences in the Northwest's public and industrial forests. About 80 percent of the remaining large sawtimber (stands with most trees greater than 21 inches in diameter) is in federal ownership, virtually all on national forests. The state forest managers and industrial timber firms have about 12 percent of the large sawtimber; the bulk of their lands is in seedlings or small sawtimber.

However, 42 percent of the Westside's most productive sites — those capable of producing more than 120 cubic feet per acre per year — are owned by the industry, accounting for two-thirds of their total land. Only 21 percent of the national forests are as productive.



T. Steen

The multilayered canopy of an old-growth forest

These numbers tell a story. Private owners and state forest managers have converted their lands to second-growth forest, clearing out the big trees that once dominated. The conversion has progressed from the lower, most productive forests upward to the mountains, where the national forests are found. These lands are less productive and are harder and more expensive to log. This is where nearly all the remnant old growth is found.

The numbers also hint at a painful revolution under way in the Northwest wood products industry: the transition from an old-growth to a second-growth economy.

The typical old-growth sawmill is small, labor-intensive (requiring nearly 10 person-years of work per million board feet of wood processed) and resource-intensive (converting as little as half the wood in each tree to valuable lumber). These mills were once scattered throughout the Westside landscape in small towns like Myrtle Point, Forks and Marcola.

When the industry began building mills for second-growth timber, technology had improved and labor had become more expensive. The uniform sizes of second-growth trees also made more automation possible. So second-growth mills tend to be large, capital-intensive (five person-years per million board feet), and resource-efficient (turning 80 percent or more of a log to valuable products).

The old-growth-to-second-growth transition has a pattern. Every few years during economic slowdowns, many old-growth mills closed. A few second-growth mills were then built to replace them. However, total output remained the same. But the newer mills, concentrated in larger towns like Roseburg, Medford and Aberdeen, employed fewer people. Between 1977 and 1987, timber jobs declined by 15 percent while timber production increased by 5 percent.

One implication is that many of the jobs that the spotted owl will "cost" are going to disappear in a few years anyway. At current harvest rates, most Westside old growth will be cut in one or two decades. The choice is not between the owl and thousands of permanent jobs, but between old-growth

forests with their wildlife and a few thousand jobs that are mostly temporary.

A new economy

Changes in the timber industry are occurring within a Northwest economy that is growing rapidly. Of the three states, Oregon is most dependent on the timber industry, yet its economy is growing by more than 15,000 jobs a year even as timber declines. About 6 percent of Oregon jobs

directly depend on timber, and the percentage is much smaller in Washington and California.

Most of the Northwest's population, as in the West generally, is found in urban areas. But the urban momentum in Washington and Oregon is much stronger than in the Rockies. The Puget Sound and Portland areas are among the fastest-growing in the nation, and very few of the new people have any connection with the wood products industry except as consumers. This same

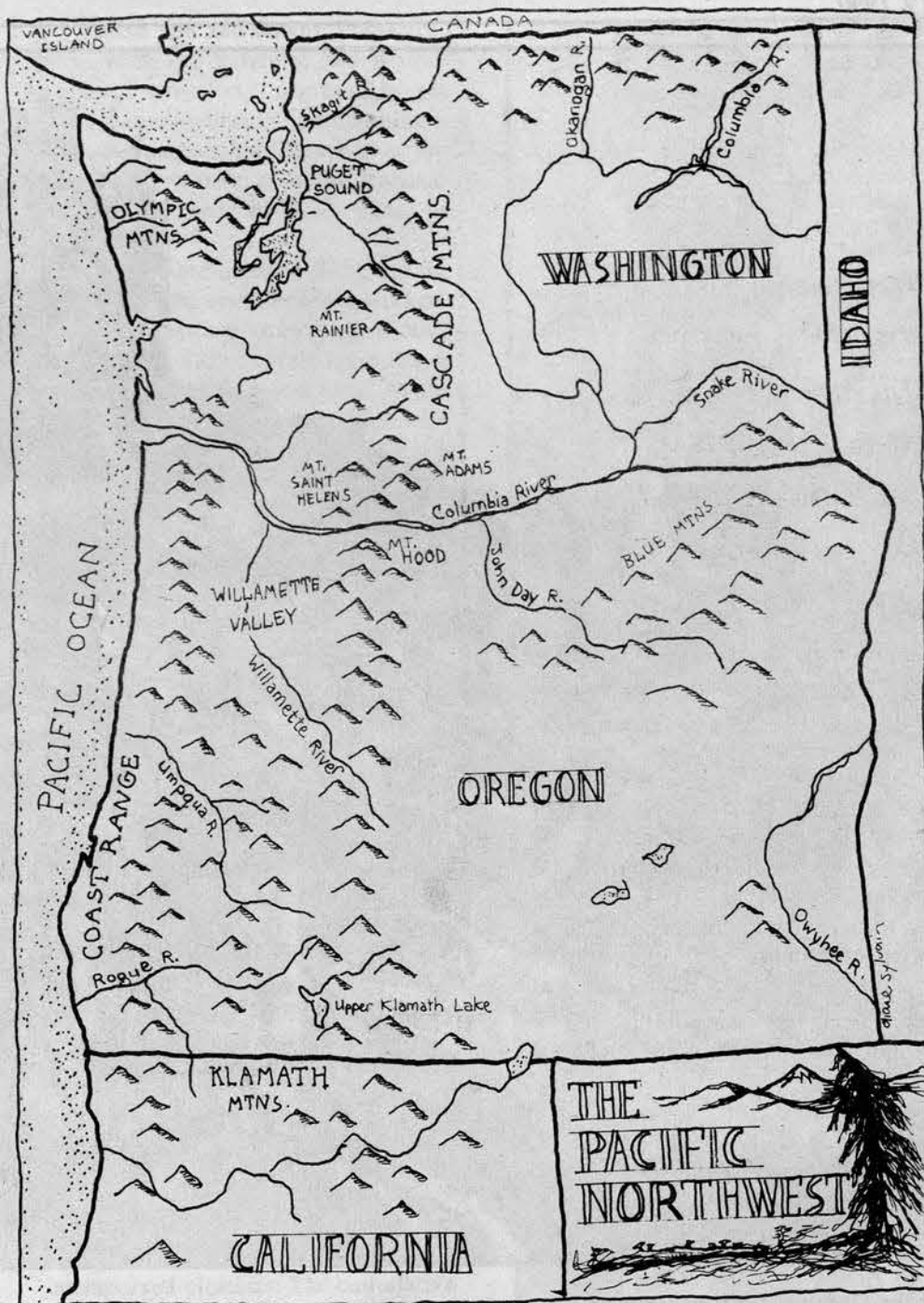
growth has rapidly transformed some former timber towns, like Bend, Ore., into high-tech and retirement centers.

These economic and demographic changes are having the expected political effect. Recent polls show that 52 percent of Washingtonians support protection of the spotted owl at the expense of jobs, with 38 percent opposed. The numbers in Oregon are similar, and, most importantly, the trends are clear. The timber industry is losing political power, and the yellow-ribbon campaigns and rallies in the polarized rural communities are not going to change that.

Whether it occurs suddenly or gradually, the end of old-growth harvests on public lands presents a substantial economic challenge to the rural Northwest. That challenge goes beyond direct job loss. The valuable Westside forests have been the Forest Service's "cash cow." As the remnant old-growth stands are either reserved or cut, Forest Service returns to the federal treasury may drop by half a billion dollars a year.

That will deeply affect the entire national forest system, which loses money on timber sales nearly everywhere else. But Washington and Oregon will have to deal with a more immediate effect — a sharp reduction in timber dollars returned under various laws to local schools, road and bridge crews, and county treasuries. There may be some short-term federal help, but timber-dependent rural areas will have to look to their fellow Washingtonians and Oregonians in the cities for ways to offset these potentially crippling losses.

Today's rural, timber-dependent Northwest will be much different in any foreseeable future. But some future paths are better than others. If those communities, aided by government and their urban neighbors, accept the need for change and plan wisely, they could link up with the broader economic expansion that is under way in the Northwest, ease the pain of transition and achieve a stable future. If they try to hold rigidly to their present, fading economy and keep themselves separate from the greater Northwest, they may find themselves separate indeed in 10 years, and much the worse for it.



The world's largest conifers grow in the Northwest

Adapted from *Ancient Forests of the Pacific Northwest*, by Elliot Norse. Island Press, 1990.

To one accustomed to forests anywhere else, Westside forests are so big, lush and diverse that it is difficult not to use superlatives. The trees are exceptionally long-lived; one species can reach 3,500 years. These forests support the largest or second largest accumulations of living matter anywhere and store more carbon than any other terrestrial ecosystem thus far measured.

These coniferous forests reach their zenith of glory from northwestern California through western Oregon, Washington, British Columbia and southeast Alaska. The Pacific Northwest is home to the world's largest species in every conifer genus that occurs there except for the junipers. Among these ancient giants, dinosaurs would probably feel at home.

Douglas-firs are the most valuable trees in world timber commerce, the trees that built the Northwest, the world's third tallest trees. Exceptional Douglas-firs reach 330 feet (one reportedly reached 385 feet) and attain diameters of 16 feet. (Maximum sizes for the trees in this section are from historic records; today's largest trees are almost always smaller because the biggest ones were logged first.) Douglas-firs occur in more kinds of ecosystems than any other Northwest tree and dominate forests from California to British Columbia. While most giant conifers begin life in serene shadow, Douglas-firs are conceived by fire and grow best in sunlit openings. And on the best sites they grow rapidly; one attained 170 feet in seventy-two years. The strong wood of old trees makes superb framing lumber and plywood.

Western redcedars occur throughout moister parts of the Pacific Northwest, typically scattered among other conifers but occasionally forming pure stands in low spots where the roots of other conifers would drown. This shade-tolerant species reaches 200 feet tall and 20 feet in diameter, yet it is fairly slow-growing. Once the most important tree to the Westside's Native Americans, large redcedars bring the highest prices of any widespread Northwest species because their easily split, decay-resistant wood is unsurpassed for making shingles.

Western hemlock, another moisture-loving species, is probably the most abundant conifer from coastal Oregon to southeast Alaska. Hemlocks reach up to 215 feet tall but attain 10-foot diameters at the very most. Faster-growing than redcedars and far more prolific, their delicately beautiful seedlings often blanket old nurse logs on the forest floor. Hemlocks are very shade-tolerant, and individuals that persist long enough beneath the canopy can form extensive pure stands when dominant trees succumb. They are cut extensively for lumber and paper pulp.

Sitka spruce towers over the redcedars and hemlocks in many foggy coastal forests from California to southeast Alaska that are too wet to favor Douglas-fir. The second tallest Westside tree, exceptional spruce reach 300 feet and 17 feet in diameter. Unlike most fast-growing trees, spruce can reproduce in forest shade; like western hemlocks, many get their start on fallen nurse logs. Their light wood is one of the strongest in the world for its weight and was essential for building World War I fighter planes.

Sugar pine reaches heights to 250 feet and diameters to 18 feet, the giant among the world's 120 or so pines. Like Douglas-firs, sugar pines are not very tolerant of shading and cannot readily replace themselves under closed canopies.

Noble fir, reaching up to 260 feet and 9 feet in diameter occurs mainly in higher elevations of the Washington and Oregon Cascades. Unlike most firs, noble fir fares poorly when shaded but grows rapidly when conditions are suitable. Its wood is light and strong, like that of Sitka spruce.

Pacific silver fir, which reaches 245 feet in diameter, occurs in the higher-elevation forests inhabited by Douglas-firs, hemlocks and redcedars, and in still higher areas that accumulate deep snow. Shade-tolerant and relatively slow-growing, silver firs are cut for lumber and plywood but are an especially valuable source of paper pulp.

Incense cedar reaches up to 225 feet and 12 feet in diameter. An inhabitant of dry sites, it occurs from the southern Oregon Cascades to the Sierra Nevada. Its fragrant, rot-resistant wood is used for making cedar chests, fence posts, and billions and billions of pencils.

Port Orford cedar, found only within a small area along the southwest Oregon and northwest California coasts, reaches a maximum of 240 feet and 11 feet in diameter. Its wood — light, strong, rot-resistant, shrinking and swelling little when dried or soaked — is used to make arrow shafts in the United States and as top-quality construction lumber in Japan. A large Port Orford cedar can bring a higher price than any other Westside conifer.



Tom Reese/Seattle Times

A truck hauls logs from a clearcut area of the Olympic National Forest

Olympic Peninsula nightmare

*A forest worker tells how
this rain-soaked mountainous paradise
has become a tragic microcosm
of the old-growth conflict.*

by Tim McNulty

Valley forests receded into morning fog as our crew bus climbed a steep logging road in Washington's Olympic Mountains. The freshly burned clearcuts we had planted earlier that month fell away into deep, glacier-carved valleys, and patches of old-growth forest shaded the road. After nearly an hour we stopped at the end of a spur road that traced a high broken ridge. As we stumbled out to the edge of the landing to look over the day's work, our stomachs took a turn. Bare, eroded cliffs and rock faces dropped steeply to a rubble of boulders, scree and logging slash. Stumps from large Douglas-firs and hemlocks held rooted to the cliff walls, and dry, ragged scraps of moss still clung to the rocks. From far below, the sound of a creek rose and fell with the mountain wind.

That was nearly 15 years ago, but the image comes back to me clear and stark. I'd had a few seasons of tree planting under my belt by that time, and I thought I'd seen something of logging on the Olympic Peninsula. I'd heard the term "timber mining" used to describe the heavily logged Shelton District of Olympic National Forest, and I thought I knew what it meant. But this exceeded anything I had encountered. This was

more than insensitive management. It was devastation.

Sights like this became altogether too common on the Olympic Peninsula as in the late 1970s and 1980s cutting on the national forest accelerated and lower, more accessible timber stands diminished. Today, that same clearcut, although planted a second time, is still 40 to 60 percent bare of new trees. What I didn't know then was that in little more than a decade this type of forestry would precipitate a crisis from which the timber industry and the land itself might not be able to recover.

On June 22, 1990, the U.S. Fish and Wildlife Service officially listed the northern spotted owl as a threatened species. The listing confirmed conservationists' contentions that the old-growth ecosystem of the Pacific Northwest was itself in jeopardy. The news hit hard on the Olympic Peninsula. It was, in a sense, the closing argument in a long, ongoing debate about public land use here, a debate engulfing forests and forest communities throughout the region.

A microcosm of the Northwest

The dense, rain-saturated forests of the mountainous Olympic Peninsula in the northwest corner

of Washington state are among the richest, most diverse and biologically productive in the Pacific Northwest. Consequently, they're also among the most heavily cut. Port Angeles alone ships as much as 350 million board feet of timber overseas annually. Lumber and pulp mills dot the landscape; the small town of Forks on the peninsula's west end touts itself as "the logging capital of the world." With more than 2 billion board feet coming off peninsula forestlands each year, few people challenge that claim.

Just inland from the broad, logged-over coastal lowlands that surround the community of Forks, the scene changes abruptly. One-fourth of the peninsula — nearly a million acres of its mountainous heart — has been preserved as the Olympic National Park. The park and adjacent national forest wilderness areas make up the largest temperate old-growth forest preserve in the country. The world's scientific community has twice affirmed the planetary significance of Olympic National Park, designating it both a Biosphere Reserve and a World Heritage site. Its glacier-capped mountains, virgin rainforest valleys and wild ocean coast attract more than 4 million visitors annually. With over 95 percent of the park in the National Wilderness System, Olympic is North America's premier wilderness park outside Alaska.

The Olympic Peninsula is thus caught between these two poles — logging capital of the world and World Heritage wilderness — and the seemingly irreconcilable attitudes and political pressures that accompany them. As such it is a microcosm of the greater Pacific Northwest. Here the century-long debate between preservation and

utilization, symbolized by John Muir and Gifford Pinchot, has reached its climax. If a genuine solution to this dichotomy is to work anywhere, it must be made to work here.

For the past 18 years I have lived on the Olympic Peninsula, and for most of that time I earned my livelihood from forestry-related work. I've planted, thinned and selectively logged in the forests. I've worked on watershed rehabilitation and timber-stand management, salvaged cedar, fought fires and cleared trails. It's good work; it kept me in shape and gave me the sense that I was helping put something back into the land. There was time off in the winter to write, and the seasonal rhythm suited me.

Forestry, fishing and other resource-related work are the mainstays of the peninsula's economy. I became involved in conservation politics early on because of my interest in a sustainable economy and my experiences in the woods. I served on citizen committees for the Forest Service, did grassroots organizing on wilderness, wildlife and forestry, testified at hearings and wrote articles. Two firm beliefs guided me in these efforts. One was the need to see the Olympic Peninsula as one place: a single unified ecosystem functioning in splendid disregard for arbitrary jurisdictional boundaries. The other was the need to manage our resources in a truly self-sustaining manner. What I encountered at the agencies and in the political processes, however, was an institutional unwillingness to consider or act on these basic principles.

The primary cause is a complex pattern of ownership that divides the Olympic Peninsula's indivisible ecosystem. The National Park Service

manages the mountainous interior of the peninsula. Surrounding it are forests managed by the Forest Service. Then come large and small scattered chunks of state land managed by the Washington Department of Natural Resources. Then, on the lower and most productive lands, come private industrial forests. Finally there are tribal forestlands on several Indian reservations. Every time a boundary line is crossed, the management history, practice and law change.

The Forest Service, Park Service and Washington Department of Natural Resources refuse to look beyond their jurisdictional boundaries when making decisions and are loath to take positions affecting neighboring lands. Even the conservation community frames its agendas along the boundary lines of public lands.

Most abused, however, are the private and industry-held forestlands. These are the most productive lower-elevation timberlands on the peninsula. They are critical year-round habitat for wildlife and fish, yet have been traditionally excluded from any public planning. These lands, which virtually surround public lands on the peninsula, are managed not to maximize wildlife habitat, watershed, fishery or recreational opportunities, or even to insure a non-declining sustained yield of timber.

Toeing the party line

Instability has been a fact of life in logging country. Aside from breakdowns and seasonal slowdowns (summer fire season and winter snow), there's the market. When housing starts are up or export prices high, activity accelerates; when prices fall, the woods shut down. It's difficult for someone accustomed to a regular work schedule to understand the personal and family stress that accompanies a slump in the woods or to imagine the anxiety when a winter's work hinges on winning a single logging bid.

These ups and downs, however, come with the territory, and woods workers have always managed to get through them without much complaint. But other factors have arisen over the past several years to make the seasonal slumps of the past look pale in comparison.

Today more timber is being cut on the Olympic Peninsula by fewer workers than ever before. Automation and mechanized harvest techniques have drastically cut into the work force. At the same time, many timber companies with long histories on the peninsula have fallen victim to the takeovers and leveraged buyouts of the Reagan years. Many timber companies have had to liquidate their timber reserves and sell their mills to pay off massive debts. They also have cut back intensive management of younger stands on their lands, which has meant less replanting, thinning and vegetative control.

These trends have been compounded by the inflationary rise in demand from Asian buyers for logs cut from private and state lands. Larger and larger blocks of younger and younger stands are being cut for export. Last year 40 percent of the trees felled in Washington forests were loaded onto ships bound for foreign ports.

The result bodes ill for the future of forestry on the peninsula. Mature second-growth forests are disappearing faster than they can be replaced. Even the younger stands that would reach maturity over the next few decades are being cut for export. Mile after mile of shorn landscape is replacing the former mosaic of mixed-age stands and interspersed clearcuts. The cumulative impact this frenzy of cutting is having on fish and wildlife can only be guessed.

How badly will this affect the peninsula's future forest economy? A 1988 study by the Port of Port Angeles predicts that the average annual cut on the north Olympic Peninsula will drop to half its current rate by the year 2000. That means roughly half the timber jobs on the peninsula will disappear. It may



Daniel Dancer

Trees in the diverse and biologically productive Olympic National Forest

take 40 years of intensive management for the harvest rate to return to recent levels.

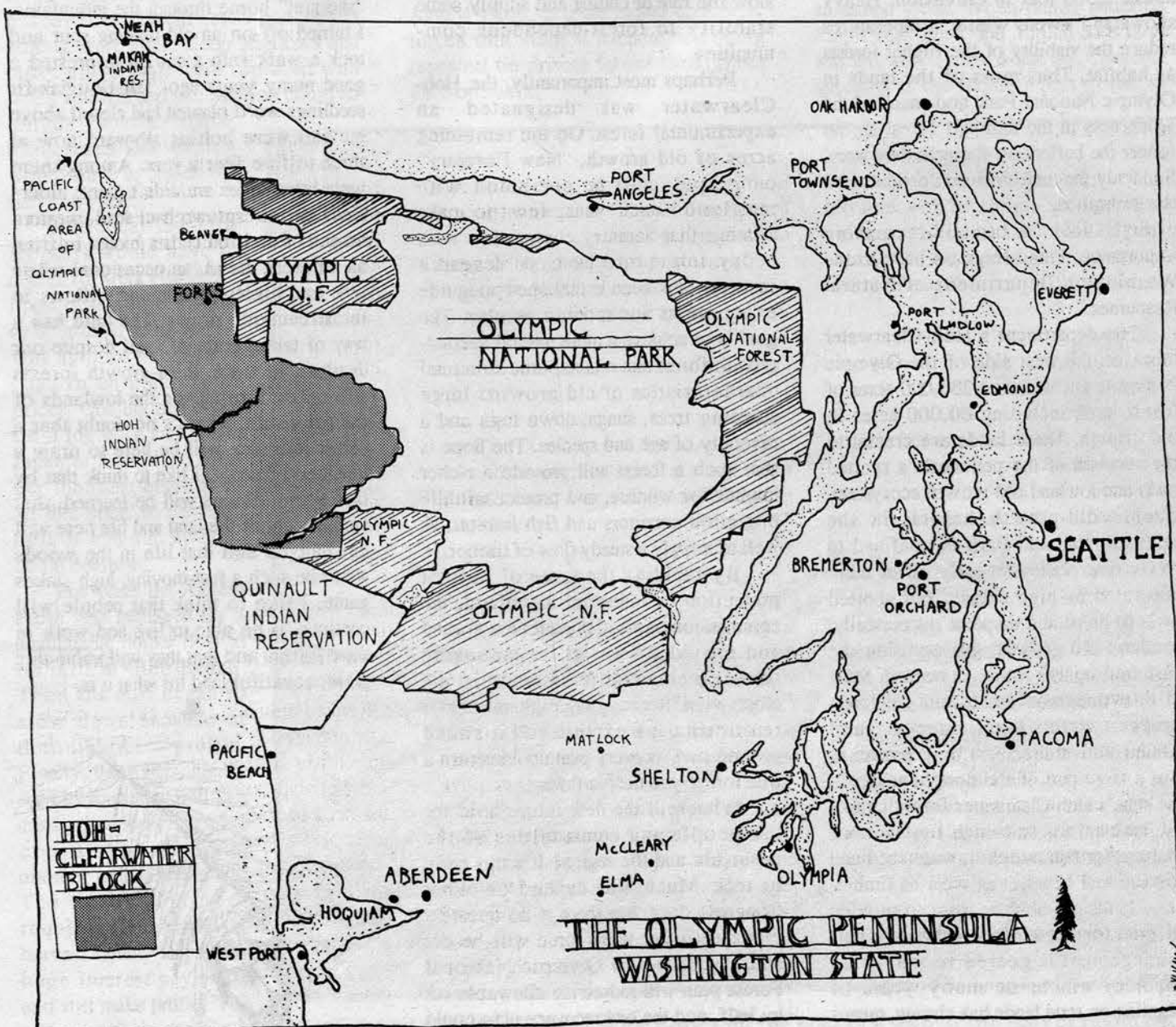
Does this bother the timber industry or its dependent communities? Judging by their silence, it's hard to know.

Log exports have been the Northwest timber industry's sacred cow. By keying into foreign markets and shipping unprocessed logs, large timber companies maximize profits from their holdings, then keep their own mills supplied with logs from the national forests. Although no logs can be shipped overseas from federal lands, the Washington Department of Natural Resources last year exported almost 70 percent of its cut. State and county coffers benefitted handsomely from these exports; longshoremen, loggers and truckers depended on them to maintain their incomes.

Conservationists and some small mill owners have long argued that our forests would supply more jobs and promote more stable local economies if logs were milled into boards at home. They point out that only one in five forestry-related jobs involves logging and trucking timber to mills and ports. The other four depend on milling. Further, the annual volume of timber exported from Northwest ports in the late 1980s exceeds the amount Forest Service biologists say must be left standing to provide habitat for the spotted owl. Efforts through the past decade to regulate log exports were soundly trounced. Only the clamor over the spotted owl finally led Congress this year to curb exports.

Ironically, logging communities like Forks, Aberdeen and Hoquiam, whose mills are closing for lack of logs, still hold religiously to the timber industry's party line. It's not exports, modernization or overcutting that's threatening the future of the Northwest's timber communities, the industry insists; it's the spotted owl.

(Continued on page 12)



Olympic ...

(Continued from page 11)

Revising the forest

On Columbus Day in 1962, a violent windstorm swept onto the Olympic coast, leveling millions of board feet of trees. There were no domestic markets for all that wood, and local mills were clogged. Washington's Natural Resources Department, which has extensive holdings on the coastal plain, explored the idea of exporting some surplus logs to Japan. Private companies joined in. What began as a supplemental program has become a primary market for Northwest logs.

In the 1960s, former Forks logger Bert Cole was Washington public lands commissioner in charge of the Department of Natural Resources. He saw a golden opportunity in exports. But there was a problem. State-owned forestlands were managed strictly on a sustained-yield basis. No more volume could be cut in each of the department's local areas than could be grown in any given year.

Cole's solution was to redefine sustained yield by lumping all the state forests together to form one working base from which to compute allowable annual cuts. This, in effect, allows his department to cut more old growth in the Olympic Peninsula state forest than would have been allowed under the old system of separate-forest, sustained-yield accounting. This sleight-of-hand is turning some of Cole's former logging associates into millionaires. But the price will be paid by the peninsula's west-end timber towns, which will be out of jobs and reduced to welfare status by the end of the century when the old growth is gone.

This is due to another fallacy in Cole's maneuver. When the state's Olympic Peninsula old-growth stands are gone, the second-growth forests there won't have reached maturity yet. The state will then have to shift its harvests to its already overcut forests in the Puget Sound basin and the lowland Cascades, leaving the peninsula to wallow in unemployment for decades. This prospect seems to have gone unnoticed by the logging town of Forks, the mill towns of Aberdeen and Hoquiam and the shipping ports Grays Harbor and Port Angeles. Yet they continue to protest over the spotted owl.

Ancient forests and the Northwest's future

The media, with help from industry publicists, have done much to reduce a complicated issue to bite-sized headlines: owls vs. jobs; city environmentalists vs. rural communities. But the owl is not the issue. The issue is one of the earth's most complex forest ecosystems, now whittled down to remnants that may not be sufficient for its survival. And here, once again, the Olympic Peninsula is an acute example of the region's problem.

The forests of the Olympic Peninsula are cut off from the forests of the Cascades, separated from the mainland by tide-water on three sides and miles of heavily logged lowlands to the south. The peninsula, like the larger old-growth community itself, is an isolated eco-system. But this wasn't always the case.

The coniferous forests of the Pacific Northwest have a unique history. The north-south axis of our western mountain ranges allowed whole forest systems

to migrate with the advance and retreat of the great Pleistocene glaciers. Unlike Europe and Asia, where east-west ranges blocked the southern migration of temperate forests, Northwest forests were able to ride out this epoch of profound climatic change virtually intact. The wisdom of those millions of years of adaptation and change is written into the genetic material of the old-growth ecosystem more securely than if it were stored in the Library of Congress. It isn't just the trees that are old in the ancient forest; it's the whole complex interacting community.

As we face the uncertainties of global warming and climatic change, our existing old-growth preserves can be crucial for the future restoration of altered and devastated landscapes. But as Aldo Leopold cautioned years ago, the first rule of intelligent tinkering is to save all the pieces. If the ecosystem is fragmented, if the habitat islands are too small to adapt, if the complex web of species is short-circuited, we may face our uncertain future with only half our world.

For many of us on the peninsula, the deep forest wildlands at its heart offer a place of hope to preserve while we work among the cuts and bruises of the commercial forestlands. But biologists investigating owl populations report sobering news. Viable owl habitat, the most biologically important part of the ancient forest, tapers off on the peninsula above 2,500 feet in elevation. Heavy snows and severe winter temperatures reduce the viability of the higher forests as habitat. Thus most of the lands in Olympic National Park and much of the wilderness in the national forest are no longer the buffers we thought they were. Suddenly the narrow river corridors and the remaining stands of lowland old growth have assumed increasing importance. This brings us back to the Washington Department of Natural Resources.

The department's Hoh-Clearwater block on the west side of the Olympic Peninsula encompasses 230,000 acres of forest land, including 60,000 acres in old growth. These lands are crucial to the survival of the peninsula's spotted owls and lowland old-growth ecosystem. Usable old-growth habitat in the Olympic National Park is confined to lower river valleys, nearly all of them separated by high ridges. For spotted owls to breed and disperse successfully, lowland old growth, surrounding the park in doughnut shape, is needed. Most of this "doughnut" is on national forest lands where legal action and administrative directives may protect it. But a large part of the doughnut lies in the state's Hoh-Clearwater forest. Unlike the national forest, which by law must manage for fish, wildlife, watershed and recreational benefits as well as timber, state lands are held in trust to provide income for Washington schools. Their management is geared to maximize income, which, as many years of planting on state lands has shown, means cutting trees.



T. Steen/Lighthawk

Clearcuts in the Shelton District of the Olympic National Forest

Brian Boyle is Bert Cole's successor as commissioner of public lands. In 1988 Boyle appointed a 33-member Commission on Old Growth to recommend alternatives for managing the Department of Natural Resources' remaining ancient forest. I served on the commission along with representatives from environmental groups, the timber industry and Indian tribes, and with educators, legislators and various experts on economics, forestry and law.

To everyone's surprise, after a year we agreed on a course of action. Our recommendations included deferring logging in some crucial owl-nesting areas, as well as providing economic development assistance for local communities. The entire 230,000-acre Hoh-Clearwater forest was returned to non-declining sustained yield, which will slow the rate of cutting and supply some stability to forest-dependent communities.

Perhaps most importantly, the Hoh-Clearwater was designated an experimental forest. On the remaining acres of old growth, "New Forestry" techniques will be combined with integrated habitat management to make commercial forestry compatible with ecosystem protection. A research institute has been established to guide experiments and monitor results. The goal is to achieve a more natural second-growth forest that retains some structural characteristics of old growth: large standing trees, snags, down logs and a diversity of age and species. The hope is that such a forest will provide a richer habitat for wildlife, and protect wildlife migration corridors and fish habitat, as well as supply a steady flow of timber.

By tackling the issue of habitat protection on industrial forestland, the commission broke important new ground and provided a model for managing other commercial forestlands in the Northwest. Recent congressional action restricting log exports and a sound spotted owl recovery plan could return a true forestry to the Northwest.

What will the near future hold for the people and communities of the peninsula and the region? It's too early to tell. Much will depend on what Congress does. But there is no question that the timber work force will be cut sharply. The new Olympic National Forest plan will reduce the allowable cut by half, and the owl recovery plan could cause further reductions.

Even with retraining programs and community development grants, there is no way to avert a blow to forest workers. Many are without marketable skills or education, and logging is the only work they know. The promise of service jobs in a new tourism-centered economy is a joke to these people. The kinds of restoration work I've been involved in — tree planting, pre-commercial thinning and watershed and habitat repair — will provide jobs for some, if there are government dollars to fund them. But this line of work is a young man's game. The sad fact is that for many the future here is a corridor of narrowing opportunities. Even the industry's demand for unrestricted logging of the last old-growth stands can't change that.

A few weeks ago, taking a long "shortcut" home through the mountains, I turned off on an old logging spur and took a walk into a cut I'd reforested a good many years ago. The Douglas-fir seedlings we'd planted had closed above me and were bolting skyward now at three to five feet a year. Among them were other trees we didn't plant: alders along the overgrown haul road, western hemlocks and red cedars blown in from an adjacent stand, an occasional white pine and bigleaf maple and willows in the streamside draws. The land has a way of taking care of itself despite our designs. In time, third-growth forests will once more mantle the lowlands of the peninsula. There's no doubt that a forest industry will be here to draw a livelihood from it. I like to think that by then some lessons will be learned, that attitudes about the land and life here will be changed and that life in the woods won't be such a fast-moving, high-stakes game. I like to think that people will continue to be able to live and work in these forests and that they will value this green, bountiful land for what it is.



Raping the private forests

Profitable export markets and a cut-and-run mentality are leveling the Northwest's vast privately owned forests.

This assault on the sustained-yield principle will drastically worsen an already critical future log shortage.

by Roy Keene

Salmon have fought for millennia to reach the shadowed, hidden headwaters of the Pistol River in southern Oregon. The warmest summer sun cannot penetrate the deep canopy of centuries-old firs and cedars that cover the water. In cold, undisturbed gravel beds native salmon and trout replenish their kind.

Osprey and eagles roost in tall tree crowns. Owls haunt the layers below, searching out voles and flying squirrels. Early nomadic hunters migrated from the ocean to Siskiyou ridgetops over secret river trails. Modern man followed these trails to find precious metals, fish or just escape from a hot day.

Two years ago I meandered these river trails to inspect the largest privately owned old growth left in this part of Oregon. This was big, high-quality timber: trees at least 200 years old, over 200 feet tall and five feet in diameter — big enough to run 100,000 board feet to the acre. The 58,000-acre Agnew Tree Farm was for sale, and I had been hired as a consulting forester to review the tract for a potential buyer.

A year and a half later, I was flying over the Pistol River en route to Gold Beach. I saw a huge clearcut on the horizon and asked the pilot to fly over it. A thousand acres on both sides of the river lay barren and baking in the midday heat. The old trees I had walked among were gone. Deep shadows and clean gravel beds were replaced with harsh sunlight and silt. Salmon could no longer spawn there. Fishermen and osprey would have to search for fish elsewhere.

And local saw-mill workers would have to search for work elsewhere. Most of this timber — 70 to 80 million board feet — was shipped overseas to cash in on high export prices. One big tree could fill a log truck and sell in Japan or Korea for \$2,200 per thousand board feet. At that price, no domestic mill or long-run investor could compete.

For years the Agnew Farm was managed for a sustainable timber flow to its mill in Gold Beach. Then the mill began to slow down because of diminished profits. Finally, the Agnew family sold its forest and mill to a consortium including a log export company and another mill to the south. The \$63 million price required the buyer to harvest rapidly to pay the huge interest payments and still make profits. The old growth in the river

drainages was clearcut, hauled north to Coos Bay and exported. The smaller sawtimber, called "domestic falldown," went south to Brookings.

Gold Beach timber operators looked to nearby national forests to fill the gap, but by then the fight to preserve the remaining old growth on public land had started. While the loggers hotly contested harvest reductions on public land and blamed the loss of their jobs on environmentalists and national forest rangers, thousands of private logs passed by, en route to Asia or the Brookings mill.

Felling the private forests

While the fight over the Northwest's federal forests is more publicized and controversial, the fate of the area's economy and ecology also depends on what happens to private forests like the Agnew Tree Farm. Over half of the coastal Northwest's 23 million acres of commercial forestlands are privately owned, and industrial timber companies own two-thirds of that.

All Northwest timberlands, public and private, must be viewed as an interrelated forest ecosystem, the health of which directly affects the health of our timber economy. In the wider view, intact and vital private forests are necessary. But what happened to the Agnew Farm, and the global economic forces that made it happen, are being repeated on private forests throughout the Northwest.

Just up the coast, Weyerhaeuser operated a modern mill near Coos Bay until a year ago. They shut down, laid off the workers and now export the timber from their adjoining lands. An ex-employee sits in his front room and watches logs that supported his job pass by on their way to port.

Georgia Pacific had a mill in Springfield, Ore. It sold its local timberlands to Weyerhaeuser and tried to compete for public timber, but found it couldn't make a profit. So it closed its mill, laid off its employees and blamed conservationists and environmental restrictions. But in nearby Toledo and Coquille, the company began exporting timber from its private lands. Meanwhile, another group bought the Springfield mill, retooled, and now operates profitably using small, lower-priced private timber.

Gilchrist Lumber Company runs a pine mill in Gilchrist, Ore. The town and mill are one economic entity. Their 110,000-acre tree farm has some of the finest old-growth ponderosa pine left in eastern Oregon. But the mill is being shut down and the forest prepared for sale. The Gilchrist forest, managed selectively for decades, will probably be quickly cut by the new owner. The mill and town will then fade away with the timber.

Roseburg Lumber Company, the largest private mill in Oregon, has recently offered all of its vast holdings for sale. The transaction is rumored to involve a half-million acres as well as several mills. One strong contender is financed by an Asian export firm. The timber-dependent community of Roseburg will suffer the consequences if the logs leave.

Other tree farms that have been standards of good forestry are changing hands and methods. The Hull Tree Farm in western Oregon was meticulously managed for a selective harvest and sustained yield. When family patriarch Ralph Hull died, the 15,000-acre farm was left with a huge estate tax. Clearcuts appeared as the family fought to stay in

business. Then they sold to a nearby mill for almost \$40 million. To pay off the purchase loan, the mill's new owner will have to cut more than three times the sustainable annual harvest. Portions of the forest are being resold to ease the debt, but the higher-quality timber may end up aboard ship.

And there are more examples. Plum Creek, Burlington Northern's timber arm, is cutting its Washington forests at three times sustained yield. Since its lands are often checkerboarded with national forests, this clearcutting further fragments our public forests. ITT Rayonier is liquidating sawtimber from its Northwest lands while cutting deeper into growing stock each year. Scott Paper sold 200,000 acres scattered throughout western Washington to a consortium; the land is being stripped and most logs exported. Southern Pacific's 730,000-acre tree farm in northern California, once managed for sustained yield, sold to Sierra Pacific for almost \$500 million. It will be rapidly cut to feed exports and mills, pay loans and avoid environmental restrictions. The interest payment alone, about \$5 million a month, would buy 180 million board feet annually.

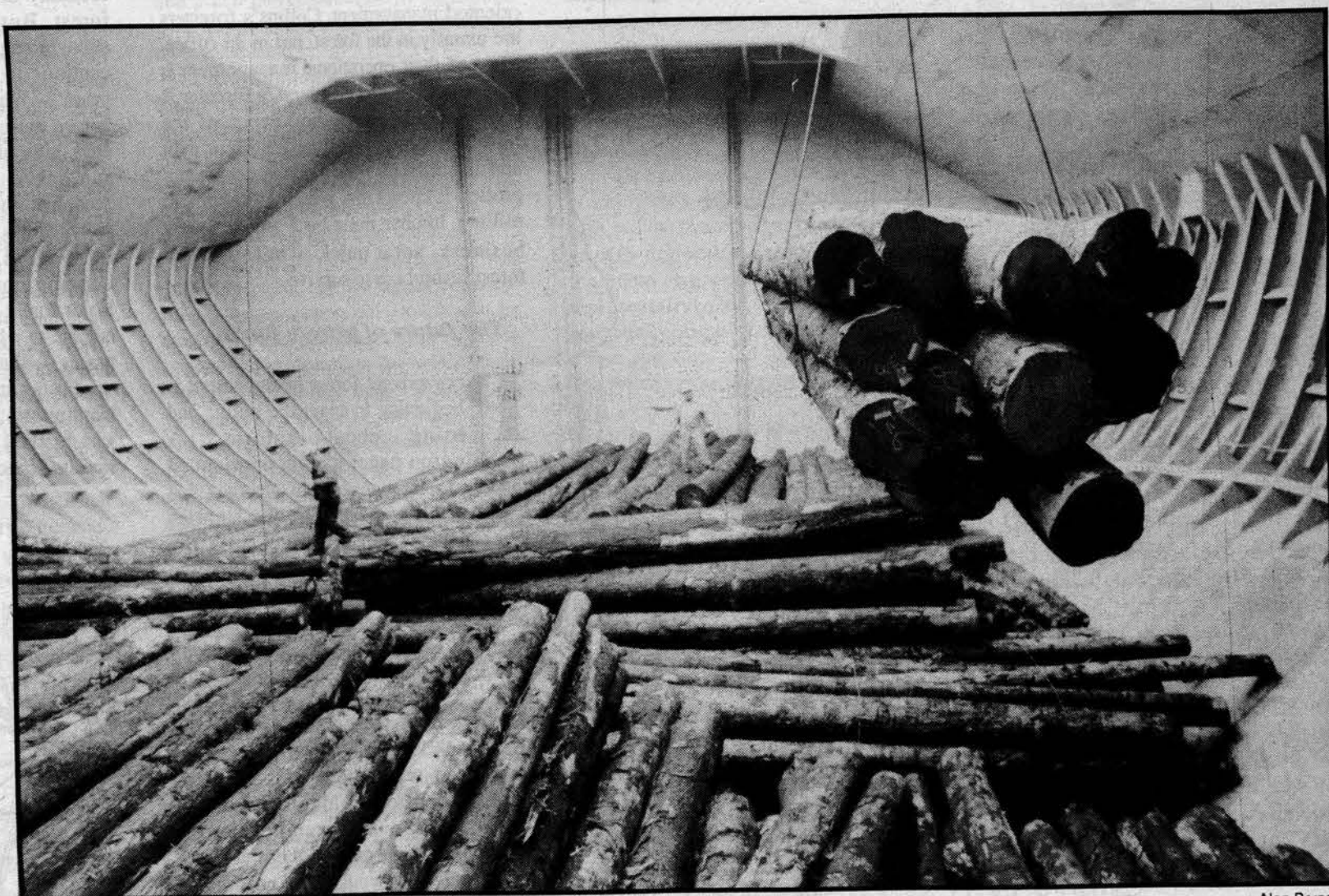
The driving forces

Today's burgeoning export market is the primary force driving the Northwest's private timberlands toward wholesale depletion. As the price of trees has skyrocketed, more and more companies have abandoned their old conservative harvest rates and shut down their mills, shipping their logs overseas to reap tremendous profits.

The export frenzy has turned smaller timber companies into sitting ducks, spawning corporate takeovers and junk-bond buyouts. Such buyouts make for quick and easy profits, but they have a devastating effect on the forest.

This is how the buyout phenomenon works. Most tree farms are undervalued,

(Continued on page 14)



Alan Berner

Hemlock and Douglas-fir headed for Korea fill the hold of a ship at the port of Hoquiam, Washington

Raping ...

(Continued from page 13)

since a sustained-yield private forest generates modest profits. But with today's export markets, that forest represents a tremendous asset and an ideal target for junk-bond specialists. They float high-interest loans to buy the company at inflated prices and then must strip their newly acquired forest to pay the interest as well as make a profit. Generally, the specialists engineering such buyouts find willing partners in bankers who gladly loan large sums of money at high interest rates because the asset — timber — is easily liquidated in the current global market.

Congress recently restricted raw-log exports from state lands in Washington and Oregon, but until private exports also are restricted, overcutting and domestic mill shutdowns will continue. There is just too much money to be made.

These forces are leading us to an environmental and economic dead end. A 1975 Forest Service inventory estimated that only half the Northwest's private timberlands were fully stocked, meaning fully replanted. With today's higher harvests, the unplanted backlog is growing yearly. Years ago the Forest Service predicted a drastic regional sawlog shortage before the year 2010. An updated report predicts a 74 percent harvest decline from western Oregon industrial lands by the year 2000.

These surveys don't account for public timber reductions caused by revised national forest plans and spotted owl set-asides. Nor do they account for recently growing stock depletion as immature sawtimber is sold to Asian countries. This critical log shortage may be just the beginning. Sawmills are responding to today's "harvest fever" by buying timber as fast as they can at very



T. Steen

Collins Pine Co. selectively cuts trees from the 87,000 acres surrounding its mill

high prices. In the rugged Northwest, where replanting can easily cost \$400 an acre, minimal profit margins will mean more unplanted clearcuts and fewer expensive new plantations.

Successful private forestry

"Good forestry is not a lucrative business. It never was, it never will be," says Gordon Robinson, a leading selective-harvest forester. The yearly return on commercial timberland is only about 3 percent. Any well-managed tree farm will always be a target for short-sighted

buyers looking for 15-percent annual returns. But it is possible to have a sustainable industrial forest and make modest but consistent profits. A successful example of this kind of forestry in the Northwest is the Collins Pine Company in northern California.

Thirty million board feet a year is selected, tree by tree, from the Collins forest. Yet there is as much timber on its 87,000 acres today as a half-century ago. The growth rate has almost tripled because of the company's management practices. Collins does not clearcut or use herbicides and has no need to replant or burn. There is little environmental impact and no political conflict. At the nearby sawmill, high-quality lumber is meticulously manufactured by machinery powered by boilers that use surplus wood chips. Collins is the ideal of a healthy, sustained forest that supports a stable community.

Forest Service managers visiting Collins are impressed with its field-oriented management. Collins's foresters are usually in the forest, not in an office. Most of their operational management is taught on-site. Once trained, a forester is solely and literally the keeper of the forest. The company does not incur debt and is satisfied with modest, consistent profits. It knows that growing timber and milling lumber must be a slow, steady business, not a quick windfall, if its forest resource is to survive.

The future of private forestry

Poor private forest management is beginning to anger the public and bring about reform. A Washington panel has recommended modest forest management changes that would limit harvests, provide riparian protection and reduce clearcut sizes. But the recommendations will be difficult to enforce and will have a limited impact on the ground.

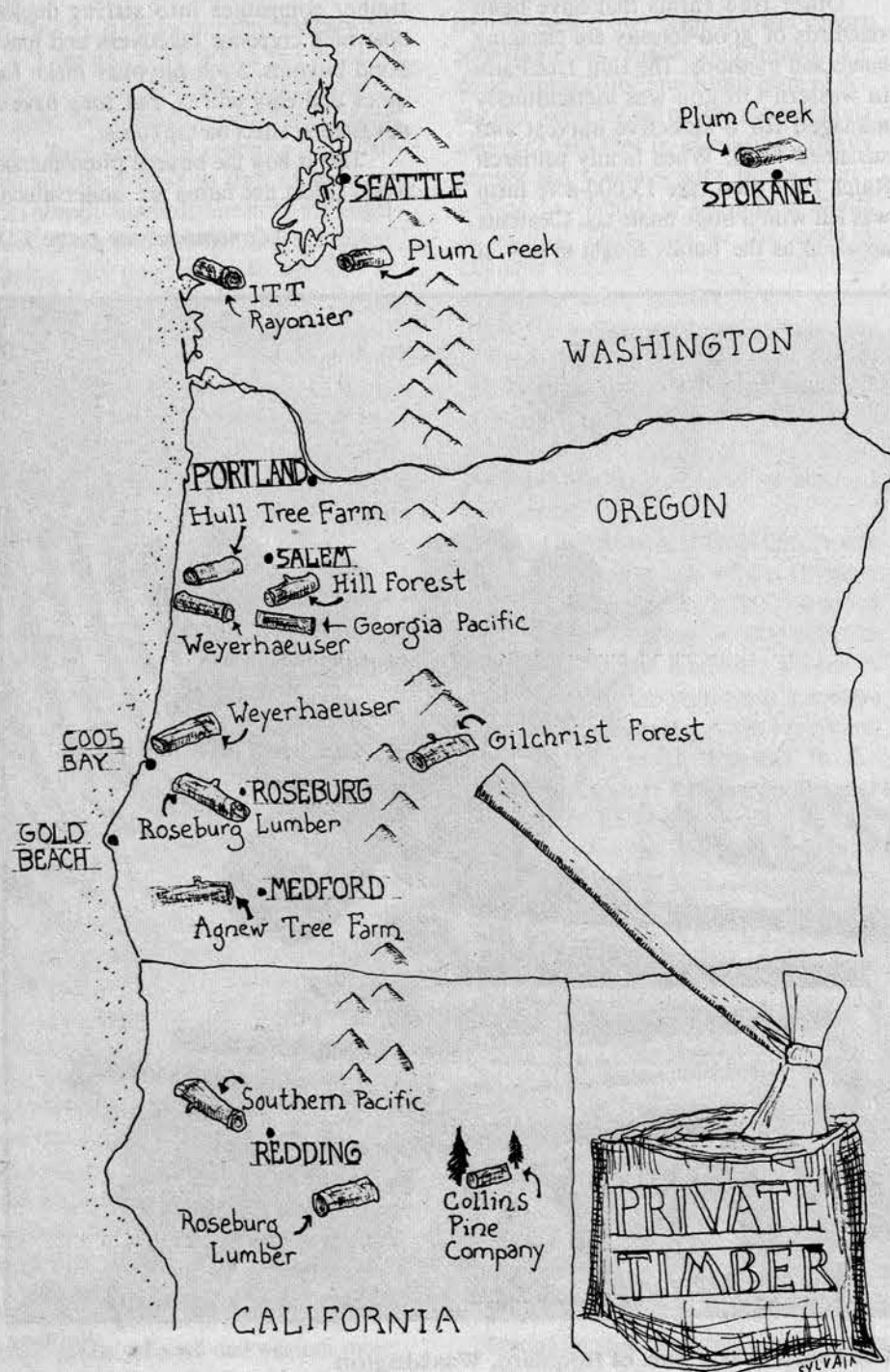
California's "Forest Forever" ballot initiative, which failed, represented a stronger approach. It would have mandated sustained yield, severely restricted clearcutting, reduced burning, protected watersheds and required erosion control on logging roads. It would, however, exempt smaller ownerships from parts of these controls. Nevertheless, it would have encouraged procedures that foresters at Collins Pine have been profitably using for years.

The timber industry and many woodlot owners bitterly oppose this regulation. The industry wanted the public to believe that cutting mature timber rapidly and replacing it with fragile seedlings constitutes renewable forestry. By extension of that logic, even coal and oil could be renewable — but the question is when, and what will we do while we wait?

To see an industrial version of "renewable forestry" for the Northwest, visit the Northeast. The native forests and much of the timber industry are gone, and only fiber-producing plantations are left. At the present harvest rate the Northwest will be stripped in the same way. The fiber plantations we get as replacement will not be competitive with those in the South, where pulpwood grows more quickly. By depleting our quality timber, we will lose our market edge.

In the end, the health of our timber economy depends on a whole, healthy forest. But without a depression or stronger regulation, private forests will continue to fall. There will be a long pause — what experts call "the gap" — before mature sawtimber grows back. Dark hills of big trees will give way to sun-baked plantations, scattered seedlings and brush. Many of our cold watersheds and native fish, already endangered, will disappear entirely. Logging communities will dwindle. Major forest companies will continue to migrate to where they already send their money — the South and overseas.

For a time, perhaps a long time, the Northwest's big timber and the people who worked in it will become another vanished species.





Keith Ervin

This Douglas-fir snapped two metal cables while being yarded

The politics of compromise

In Washington state, environmentalists and the timber industry are beginning to reach compromises. A new vehicle, the Sustainable Forestry Roundtable, is helping the process.

by Keith Ervin

When neighbors of Washington's Tiger Mountain State Forest east of Seattle met with state foresters to talk about plans for a portion of the forest, they were prepared to do battle. But on hearing that the area was to be logged, they let out a collective sigh of relief. That was, in their opinion, a far more desirable fate than the alternative: residential or retail development.

Environmentalists and other Northwesterners are realizing that, when it comes to the fate of state and private forestlands, they have much in common with loggers and mill workers. Neither side benefits from loss of the world's best timber-growing land to urban sprawl. In Puget Sound's largest county, King County, urban growth is so frenetic that 80,000 acres of timberland could be lost this decade.

"If you ask, 'Would you prefer to have harvesting and reforestation or would you rather have new houses across from you?' I think they will opt for the forest," says Brian Boyle, Washington state's commissioner of public lands.

This common interest is significant at a time when the environmental and logging communities are locked in a desperate struggle over the fate of the last unprotected old-growth forests. What happens to second-growth timberlands managed by private owners

and state governments will influence what happens to remnant ancient forests on federal land.

Environmentalists have come to realize that slowing the loss of industrial timberlands to urban sprawl and curbing the export of raw logs offer ways to cushion log shortages and job losses that will follow significant protection of old growth. But it is a delicate balance.

Second-growth forests are important, too, for ecological reasons. All of the remaining old growth can be preserved, but unless a "kinder, gentler forestry" is instituted on the much larger commercial timber base, says forest ecologist Jerry Franklin, "we're going to lose the war for biologic diversity."

While battling to save this continent's last virgin forests on public lands, environmentalists have mounted a quieter campaign to redefine "business as usual" on state and private timberlands. The campaign has produced impressive results:

- President Bush signed a bill last August requiring state governments to reserve most of their timber for domestic processors in preference to foreign buyers. Championed by environmentalists and small-mill owners, the law will save thousands of mill workers' jobs when the federal government gets serious about protecting ancient forests. A similar but much tougher effort is now under way to restrict log exports from private land.

- Washington conservationists and timberland owners have agreed on a package of penalties and incentives to encourage commercial forestry on the edges of suburbs. A separate growth-control initiative on Washington's ballot this month failed. It would have mandated tough zoning laws to restrict residential growth in the working forest zone.

- Public outrage over the breakneck pace of clearcut logging of private forests has forced landowners in Washington and California to acknowledge that they must accept some limits on the amount of clearcutting they may do. Representatives of Washington's largest timber companies have reluctantly agreed to state regulation of the rate at which they may cut their timber.

- One million acres, or one-tenth of Washington's private and state timber base, will be preserved as habitat for old-growth-dependent wildlife under a tentative agreement reached by representatives of the environmental community, timberland owners, Indian tribes, and state and local government. The Washington Department of Wildlife will oversee the selection of these protected acres, most of which will be in riparian zones. Once selected, the forests on the million acres will be allowed to grow old.

"Private industry is going to be creating old growth," proclaimed Bill Jacobs, executive director of the Washington Forest Protection Association, which represents large timberland owners.

Boyle's roundtable

Changes in state and private forest practices have come the farthest in Washington state, thanks to a decade of steady pressure from environmentalists and consensus-building by Washington Public Lands Commissioner Brian Boyle.

The Sustainable Forestry Roundtable, which developed the "10 percent for wildlife" proposal, was begun by Boyle last year to address two highly visible issues: erosion of the commercial timber base and the unsustainable rate at which private forests were being harvested. But the roundtable might have gone nowhere without a decade of more modest agreements that taught timber executives and environmentalists the art of compromise.

Shortly after Boyle took office in 1981, he organized broad-based advisory groups to tell his Department of Natural Resources how it should manage its forests on Tiger Mountain and the San Juan Islands — part of the 2.5 million acres of state forestland Boyle's department manages. After those discussions resolved long-standing conflicts, the consensus-building process became statewide. A 1986 agreement called "Timber/Fish/Wildlife" modified Washington's Forest Practices Act, allowing landowners to devise their own management plans rather than following the rulebook.

Last year the Commission on Old-Growth Alternatives hammered out a plan for managing the last large block of state-owned ancient forest on the Olympic Peninsula. The plan was a mixed blessing for environmentalists, who agreed to sacrifice two-thirds of the old growth in exchange for creation of a 260,000-acre experimental forest. The purpose of the experiment is to create a model for producing more biological diversity on commercial timberland.

Boyle again employed the consensus-building process to form the Sustainable Forestry Roundtable last year. A professional mediator led timberland owners, environmentalists, tribal leaders, and local and state officials through an intense series of

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Compromise ...

(Continued from page 15)

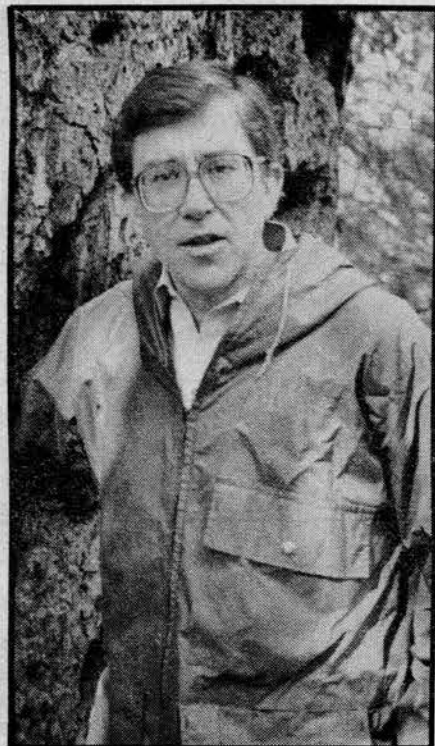
bargaining sessions, punctuated by consultations with their constituencies.

The roundtable readily came up with a package of regulations and tax signals aimed at making commercial forestry more viable on the edges of suburbs. But the talks stalemated for months over the thornier issue that had brought environmentalists to the table in the first place: the pace of logging.

As in California, where redwoods are being cut two-and-a-half times faster than new trees can grow to replace them, private landowners in Washington are stripping their forests at a frenzied pace. Plum Creek Timber, the last private landowner with a significant amount of old growth, took advantage of a robust export market last year by cutting its forests nearly three times as fast as the growth rate. U.S. Rep. Rod Chandler, R-Wash., called Plum Creek "the Darth Vader" of Washington timber companies.

Other companies began liquidating their timber assets for a variety of reasons: to reap handsome profits, to shield management from the threat of hostile takeover or to finance a leveraged buyout.

Even the more responsible timberland owners, such as Weyerhaeuser, resisted conservationists'



Washington Dept. of Natural Resources
Brian Boyle

pressure for a fixed limit on how many acres or board feet of timber they could cut in a year. Landowners, they insisted, must have flexibility to respond to market demand. And they asked what good it would do to forbid heavy logging in a watershed of 80-year-old trees if that resulted in the logging of immature 30-year-old trees elsewhere.

But the Washington timber industry recognized the need to accept some sort of compromise. California served as an object lesson on the cost of intransigence. After California's timber industry beat back modest legislative proposals to correct the worst abuses of overcutting, conservationists responded with two sweeping ballot initiatives, "Big Green" and "Forests Forever," both of which failed. Both called for state purchase of ancient redwood stands now in private hands. Forests Forever would have enacted the nation's toughest logging standards for private lands. The initiative would have forbidden logging more than 60 percent of trees on a site, mandated longer rotations and limited harvests to the rate of growth.

Concerned that collapse of the roundtable could result in an equally strict initiative in Washington, the timber industry last August came to terms with environmentalists on the basic outline of an agreement. The agreement avoids any direct limit on how many trees a landowner may cut in a year, but it calls for establishing new sediment thresholds to control erosion, setting forest cover thresholds to prevent flooding, saving a certain amount of live trees and snags, and accepting the 10-percent-for-wildlife proposal.

The roundtable also adopted an "early warning system" that requires a special

state review if any landowner cuts more than 4 percent of his land in a watershed in one year. That harvest rate, higher than environmentalists had sought, is roughly twice the sustainable level.

After considerable debate, the environmentalists finally accepted the package. "They'd be stupid if they walked away from a deal that gives them a million acres for wildlife," one state forestry official commented. Washington wildlife director Curt Smith called the deal "a major conceptual shift from monoculture to landscape ecology."

Some environmentalists still complain that the agreement will not lower harvest rates enough to protect forest and river ecosystems. But supporters argue that it represents the biggest step yet taken in the United States to extend ancient-forest values into private timberlands while also assuring a supply of second-growth logs to mills that must wean themselves away from old-growth timber.

Politically, the Sustainable Forestry Roundtable and its predecessors represent the most comprehensive effort in the West to open up the management of state and private forestlands to public concerns. Supporters of this consensus-building process say it can now be extended to the national forests, where the politics of confrontation still prevail.

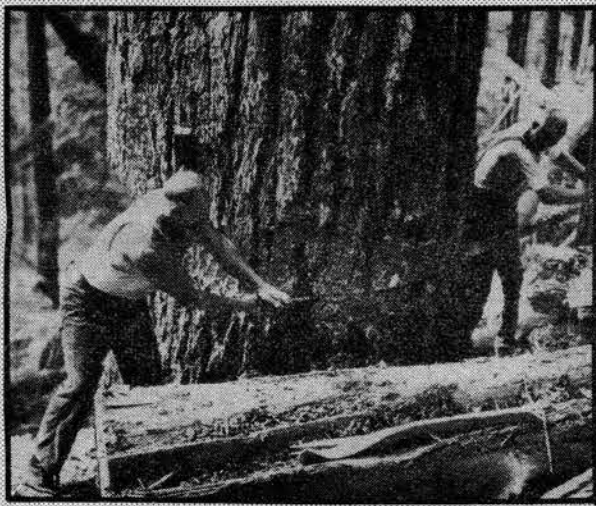
How 'Dutch Fred' set up old growth's 'big cut'

From *Fragile Majesty*, by Keith Ervin. The Mountaineers, 1989.

The mill owners and the rough breed of men who worked for them moved across the continent in two waves. It wasn't until the second wave that they reached the coast. First they migrated westward from Bangor, Maine, where they had built the greatest concentration of sawmills ever seen. Many, like lumberman Thomas Merrill, made a beeline from Maine's Penobscot River to the new timber frontier in the woods around Saginaw, Michigan. The loggers continued to push the frontier across the Lake states until the end of that forest was in sight. Then they made for the Pacific Coast and the tallest trees of all. A few, like Andrew Pope and William Talbot, didn't bother to stop off at the Great Lakes. From East Machias, Maine, they made their way to Washington, where their Puget Mill Company built sawmills on both sides of the Hood Canal. Catering primarily to the lucrative California market, their sawmills and their shipping fleet comprised the largest lumber operation in the Northwest from the 1850s into the early 1900s.

But the dominance of the transplanted New Englanders who settled around Puget Sound and Hood Canal wasn't to last long. In the 1880s, San Franciscan A.M. Simpson brought high-volume lumber production to Grays Harbor, Washington — a port snuggled into spruce- and fir-clad hills that may have held the very richest woods of the Northwest. He was quickly followed by the likes of Cy Blackwell, who came by way of Maine, Minnesota, Wisconsin, and California. A few Canadians — Sol Simpson from Quebec and Alex and Robert Polson of Nova Scotia among them — would make their way to Douglas-fir country as well. But in the end, the biggest landholder and mill owner of them all proved to be another Lake states lumber baron: Frederick Weyerhaeuser.

Known to his employees as "Dutch Fred" because of the thick accent he brought with him to America, the young Weyerhaeuser had gotten his start as manager of a sawmill in Rock Island, Illinois. In partnership with his brother-in-law Frederick Denkmann, he bought the mill when the financial panic of 1857 threw its owners into financial difficulties. Under its aggressive new ownership, the mill was tremendously successful. Denkmann ran the shop while Weyerhaeuser handled the business of buying logs and selling lumber. It wasn't long, though, before the partners took the first step toward putting together the largest privately owned timberland empire in the world. Weyerhaeuser, determined to shake his reliance on independent loggers, began acquiring timberland in the pine forests of Wisconsin's Chippewa River region. He kept buying land and mills until companies under his control dominated the industry in six states. By the end of the century, he



controlled twenty lumber and railroad companies, managing his affairs from the German-American Bank of St. Paul, Minnesota, known popularly as "the Weyerhaeuser bank." His biggest deal was yet to come.

After moving to St. Paul, Weyerhaeuser began to do business with his next-door neighbor on Summit Street. The neighbor was railroad tycoon James J. Hill, who sold pine-covered land in Wisconsin and Minnesota to the Weyerhaeuser interests. Both men benefited from the largesse of a federal government eager to encourage the westward extension of rail lines. The Northern Pacific Railroad — of which Hill later took control — was granted twenty square miles of land for every mile of track it laid between Duluth, Minnesota, and Portland, Oregon. In all, the Northern Pacific received a 39-million-acre land grant. Some of the most valuable land was old-growth forest on the west side of the Cascade Mountains. And who could make better use of the timber than Hill's friend and neighbor, Frederick Weyerhaeuser?

The value of the property had been boosted considerably by Congress' willingness to write a most accommodating provision into the Organic Administration Act of 1897. That provision allowed trades of private land within the new forest reserves for other public land. Hill used the law to exchange worthless land covered by rocks and glaciers around Mount Rainier for coastal property with gigantic Douglas-firs. The federal deal done, it was up to Weyerhaeuser and his fellow investors to come to terms with Hill. "Dutch Fred" and several business partners traveled to southwest Washington in November 1899 to take a look at timberlands and mills. After some dickering with Hill, the Weyerhaeuser interests bought 900,000 acres from the Northern Pacific at \$6 an acre — a deal that electrified the timber industry. In one bold stroke, the new Weyerhaeuser Timber Company became the second largest timber landowner in the United States.

Some observers thought Weyerhaeuser paid a lot for the land and stumpage. But one historian has noted the \$5.4 million deal worked out to 30 cents per thousand board feet of old-growth timber. (A board foot is a measure equal to a piece of wood one foot square and one inch thick.) In a few short years, the value of the wood rose to \$2.50. Today, Weyerhaeuser is logging the last of its old growth and is exporting much of it as raw logs for hundreds of dollars per thousand board feet.

Weyerhaeuser Timber did not immediately begin logging its lands in a big way. Instead, the company manager, George S. Long, promptly moved from Wisconsin to Tacoma and began adding to Weyerhaeuser's real estate portfolio. The company bought more land from the Northern Pacific, southern Oregon property from the Southern Pacific Railroad, and other virgin timberland from other owners. Today, Weyerhaeuser is the largest timber landowner in the world, with six million acres in the United States and long-term leases on more than seven million acres of Crown land in Canada.

Frederick Weyerhaeuser's bold and sudden move to the coast served notice that the timber industry's center of gravity was shifting rapidly to the Pacific Northwest. And that the big investors from the Great Lakes, backed by big capital, would play the tune to which others would dance. The industry already had been moving into wealthier and wealthier hands. The big trees close enough to the mills to be hauled by ox or horse teams down a skid road had already been cut. So, too, had the woods adjacent to waterways large enough to float the logs to mills. From now on, timber would be cut by those with enough capital to lay railroad track and build trestles into the woods.

Cut the timber they did. One thirty-six-square-mile township on the southwest corner of Washington's Olympic Peninsula produced an immense amount of wood. The big cut began in 1909, three years before timber cruisers for Chehalis County walked through "Twenty-one-nine" (Township 21 North, Range 9 West) to inventory the merchantable timber for tax purposes. The Douglas-fir were so closely packed and so thick (up to fourteen feet in diameter) that it proved difficult to count the trees, much less estimate the volume of timber. The county government socked landowners with heavy property taxes on the woodlands, and the owners responded by leveling the woods as fast as they could. The harder they worked, the lower their taxes. By the time the stock market crashed in 1929, Washington had become the nation's top lumber producer. Much of that cut was from Grays Harbor, where at least two dozen sawmills were working around the clock, seven days a week, to saw the big trees from Twenty-one-nine and the townships around it. Grays Harbor shipped out more lumber in those days than any other port before or since.

Oregon's Opal Creek dilemma

Decades of overcutting on the private forests have turned the fights over the remnant old-growth stands on the national forests into pitched battles of mounting intensity. One of the fiercest is over the 6,800-acre Opal Creek forest in northern Oregon.

by Jim Stiak

Born into the third generation of an Oregon logging family, George Atiyeh was an unlikely prospect to become a relentless environmentalist. But when at the age of 12 he wandered into the majestic forests of the Opal Creek basin, Atiyeh made up his mind that they wouldn't be logged. So when he returned from Vietnam in 1968 and found the Forest Service laying out a logging road there, he followed the engineers, pulling out their survey stakes. "I wasn't very mellow about it," Atiyeh recalls.

Not much has changed. The road has not been built, the forests of Opal Creek still stand, the Forest Service still plans to log them, and Atiyeh, who now runs a silver and zinc mine in the area, is still fighting. "If the district ranger even thinks about cutting Opal Creek," he says, "I appeal his thoughts."

Opposing Atiyeh is Tom Hiron, who moved to the Santiam Valley near Opal Creek in 1968 because he didn't want his kids to grow up in the city. "There's a feeling of community here," he says. "It's a place where rural American values are still important."

Since then, Hiron has made his living as a logger. Lately, however, he's had to travel farther and farther from his home in Mill City to find work. With the movement to save the old growth

intensifying, Hiron worries about the future and spends his spare time working with a community support group called Communities for a Greater Oregon. "I wonder if I'll be able to keep paying my mortgage and stay here," he says. "It looks less likely all the time."

Opal Creek spills out of a sparkling lake 3,500 feet high in the Oregon Cascades, plunges over a spectacular waterfall and then ripples down four miles over a dozen more waterfalls to meet the Little North Fork Santiam River. Above its mossy banks grow cedars, firs and yews up to 1,000 years old. While hiking through the area, Dr. Jerry Franklin, the Forest Service's pre-eminent authority on old growth, remarked that he'd seen bigger trees and older trees, but never so many big old trees in one spot.

Although the Opal Creek basin covers only 6,800 acres, it's connected to other groves of comparable acreage along the Little North Fork Santiam watershed. There are larger unroaded forests in the Oregon Cascades, but they're at higher elevations and, consequently, are thinner. The Opal Creek area is the largest low-elevation old-growth forest in the Oregon Cascades still unfragmented by roads — a vestige of the hundreds of virgin groves that once graced the Northwest. "This is my cathedral," says Atiyeh, "and I don't want to see it trashed."

His cathedral, however, is in the Detroit Ranger District, one of the biggest timber-producing districts in the biggest timber-producing national forest in the United States, the Willamette. It is a district where groves of old growth lie scattered among naked clearcuts and grid-like patterns of recently planted second growth. The Forest Service plans to preserve a few hundred acres of the basin — the lower portion around the mining community of Jawbone Flats and the upper part around Opal Lake — to protect riparian corridors and scenic and recreational values. But the rest of Opal Creek is up for grabs. The current Willamette forest plan calls for 180 acres of clearcuts a year and 11 miles of roads in the basin.

In the late 1980s, Atiyeh teamed up with the Oregon Natural Resources Council and other conservation groups to try to preserve Opal Creek. Their plan was to create a 31,000-acre state park that would encompass the Opal Creek basin and surrounding forests. Atiyeh points out that there is very little low-elevation old-growth forest in the state park system. In fact, very little old-growth Douglas-fir forest is officially preserved in all of Oregon.

Five hundred timber workers turned



T. Steen

Old-growth fir in the Opal Creek area

out at a rally in nearby Salem, the state capital, to oppose the park. The proposal died in committee. "The bill was a sham," says Hiron. "Most people think of a state park as a place to take the family to picnic, play softball and pitch some horseshoes. There aren't even many places there level enough to set a picnic table. It was just planned as a de facto addition to the Bull of the Woods Wilderness."

The adjacent Bull of the Woods Wilderness was created in 1984. Opal Creek was supposed to be included, but Oregon Sen. Mark Hatfield kept it out. The timber industry hoped that logging would then commence. Instead, they're still fighting over the area.

"There's no certainty about our timber supply," argues Hiron. "It makes it hard for a small businessman to plan ahead. What we'd like to see most is some finality in the planning process."

There's not an immense amount of timber in Opal Creek. The estimated 3.5 million board feet of timber represents less than 4 percent of the Detroit district's annual cut. But it all adds up and it all means jobs, says Hiron. "In the best-case scenario, we stand to lose one-third of the local jobs. There's a collective fear in this community that's hard to describe. We don't want to give up one more stick of timber than we have to."

A two-year reprieve

Spotted owl protection plans may not preserve Opal Creek's forests, and the Jack Ward Thomas

scientific panel did not recommend the area for protection. But two bills in Congress, introduced by Reps. Jim Jontz of Indiana and Bruce Vento of Minnesota, may. The Forest Service has deferred logging for up to two years to give these bills time to be considered.

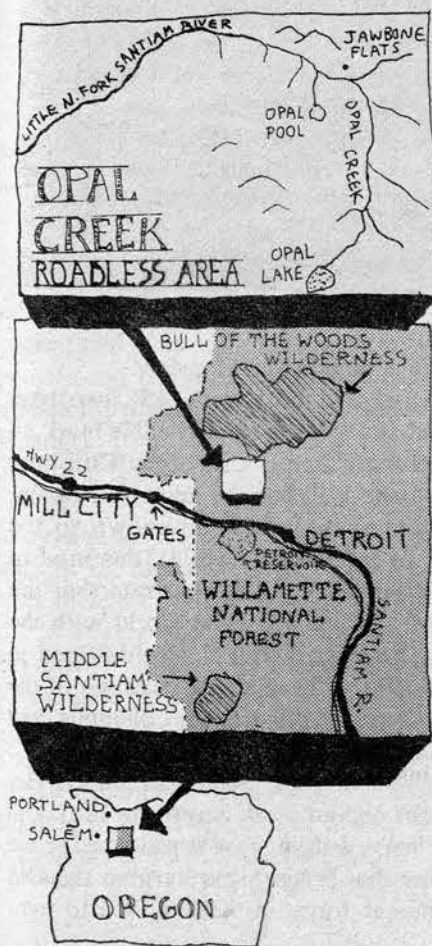
The Forest Service also realizes that logging Opal Creek now would be poor public relations. Atiyeh's successful battle against the road, the state park bill, stories in major newspapers and an Audubon special on Ted Turner's network that gained more notice after timber supporters pressured several sponsors to pull out — all have given Opal Creek a high profile.

"It's absurd to cut these trees down," says Atiyeh. "You can't replace them for all the money in the world, and we're just trading them for green paper. If we keep cutting the old growth, in 10 years the whole party will be over. What are we going to leave our children?"

"If we lock up our natural resources, where are we going to get our timber?" counters Hiron. "The second growth is 20 to 30 years from being ready, and if we start logging them now, we'll really be stealing from our children. You know, we're trying to publicize our side of the story, too. But as long as the media shows pictures of me in a clearcut and George Atiyeh in a forest with an owl on his shoulder, we're gonna lose."

"We're getting a lot of lip service from politicians," Hiron continues. "They talk about job retraining, but I'm

(Continued on page 18)



Opal Creek ...*(Continued from page 17)*

50 years old. What am I going to be retrained for? They talk about

secondary manufacturing, but rail rates are so high that we can't ship goods to the East Coast as cheaply as they can from British Columbia. And economic development? Well, there's no destination resort here to attract people,

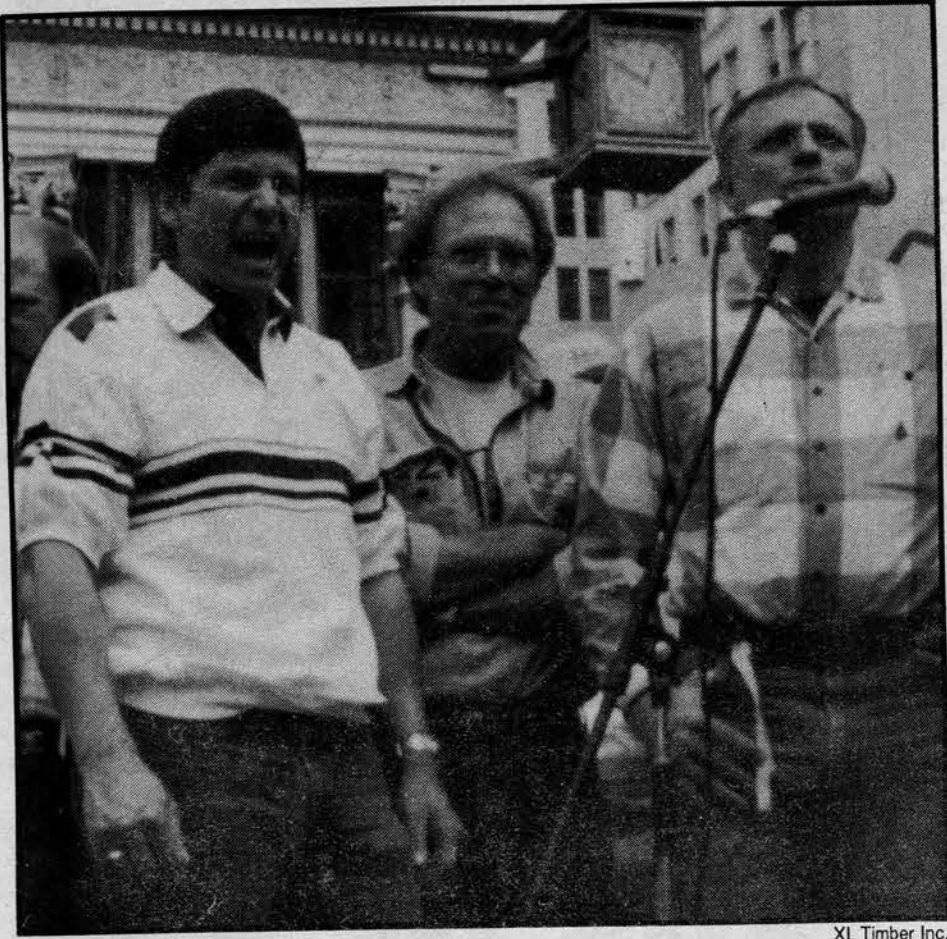
and the state is widening the highway so people can drive through even faster."

Along state highway 22, which runs through Mill City, signs show the local attempts to corral the passing tourist dollars: antiques, art galleries and breakfast specials. But in the driveways along the side roads, "For Sale" signs are sprouting.

The Detroit Ranger District is making overtures for the tourist and recreation dollar. They're replacing an aging bridge with a rustic wooden span — the first new wooden bridge the Forest Service has built in the Northwest in 35 years. They're evaluating Opal Creek to see if it's suitable for designation by Congress as a Wild and Scenic River. But the three mills and a handful of logging companies in Mill City are facing hard choices.

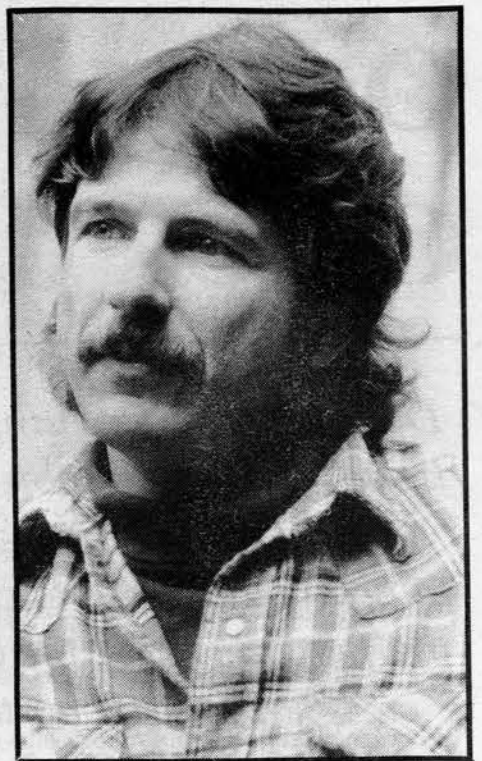
"Even if I wanted to retire," says Hirons, "my damn equipment is only worth 20 cents on the dollar. A used yarder is like a used combine if you don't have a wheat field to harvest. A lot of people are leaving. Oh, Mill City will survive, but maybe just as a retirement and bedroom community for Salem."

Jobs may be leaving, but for the next couple of years at least, Opal Creek's old growth will remain. "I feel good about it being saved," says Wendell Wood of the Oregon Natural Resources Council. "But I say that cautiously. There's still a big fight



XL Timber Inc.

Tom Hirons, center, with members of the Oregon Lands Coalition at a pro-timber rally in Portland



David J. Cross

George Atiyeh

ahead."

George Atiyeh is ready. "When I first started logging as a kid, I stood on the landing in my new hard hat, looking down at all those massive trees. I turned to the hooktender, this big grizzly fellow, and asked him what should I do. 'Lead, follow, or get out of the way,' he said.

"And that's what we have to do."

Our ancient forests remember so many things

From *Forest Primeval*, by Chris Maser. Sierra Club Books, 1989.

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It has been a dry winter, and what snow has fallen contains little moisture. April arrives, then May, and most of the snow is already gone. The avalanche lilies, following the retreat of winter, bloom along the edge of the melting snow. The meadow above the old burn is already resplendent in color because the flowers are blooming early this year.

The 18th of May dawns clear and warm, and the rising sun casts its light on a man and his 15-year-old son as they follow the game trail along the upper edge of the forest and into the meadow. The trail takes them past an isolated clump of subalpine fir into the upper northern quarter of the meadow. They turn aside into the clump of trees and sit down, thanking the Great Spirit for the warmth of the sun on this most perfect of days. Above them, deeper in the clump of trees, is a fire circle of stones in which are the remains of many campfires of those who went before. Signs of the old campfires are dim now because elk have been scarce in this part of the mountains for many summers, and the last hunting party camped here 199 summers ago in the year 1252.

The man and his son make their camp, ever mindful of those who went before. They treat the campsite with deep respect, and to themselves they wonder about the Ancient Ones, their ancestors, and how the hunting had been, for now there is little sign of elk anywhere in the vicinity.

Camp ready, they leave to search for elk. They spend 10 days exploring the meadows, ridges, and upper areas of the forest. They kill a yearling deer and five blue grouse. And the youth catches trout in the stream flowing through the meadow; although the stream is different now, the youth catches the trout in the same way as did two boys on their first trip to this meadow 431 years ago.

Having found little sign of elk, the man and boy leave this meadow in the early morning on the 29th of May. They travel northward for three days and then head back toward the village.

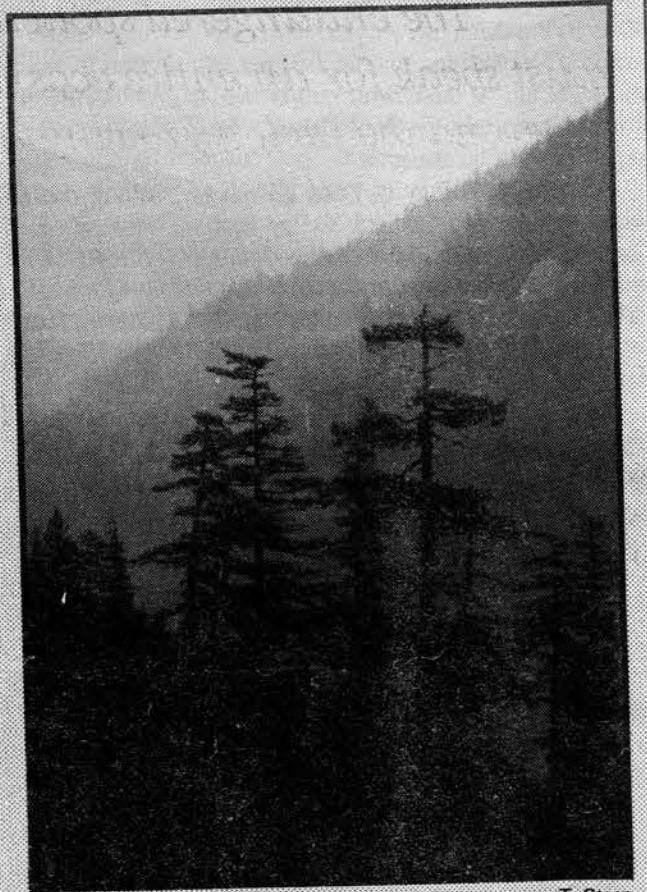
June is hot, and by July the forest is dry as tinder. Dry lightning storms ignite fires in the grass- and shrublands east of the mountains, and hot, east winds blow the smoke toward the coast. By the 1st of August, fires are sweeping through the forests on the southern horizon. As the smoke builds, the sun hangs red above the smoke, and the sky is empty of clouds.

Small, fluffy clouds begin to appear on the 17th of August, and the heat becomes oppressive, the air still. The meadow and the forest seem to hang limply in the heat that shimmers upward from the soil and the rocks. Even the grasshoppers are silent. By noon the clouds tower upward with great canyons dividing the cloud peaks, which have ever-darkening bases. The air begins to stir and the breeze to blow. In the distance, clouds are illuminated within as though neighboring gods are warring with swords of lightning. The breeze is replaced by wind as the sky darkens, lightning flashes inside the clouds, and thunder rumbles. It gets darker and darker, and the wind grows ever stronger. The storm, gathering its power, unleashes its fury in the late afternoon, and the crescendo of Nature's symphony engulfs the land as lightning slashes the gray-black sky and the thunder rolls. Lightning comes in tongues and sheets, here and there and here again. Small wisps of smoke begin to rise from the forest. The wisps become columns, and the columns begin to spread into broadening fronts of flame that are continually whipped by the wind.

A fire starts half a mile north of the spring and, fanned by southerly winds, spreads eastward to the high meadows and ridgetops and westward to the big river. Fires start to the south of the high ridge by the spring and seem to be spreading in all directions as the wind shifts.

The storm is over by late evening, leaving in its wake a red glow in the gathering night sky from fires seemingly burning everywhere at once. The flames reach the tops of the trees and race wildly through the darkness. The whole world seems aflame.

Dawn finds a pall hanging over the scorched, apparently lifeless land. Here and there the charred carcasses of deer that died in a running position attest to the speed of the shooting flames and intensity of the heat that kindled their panic and overtook them in their flight. Many of the old, fallen, rotting trees retain their moisture and living organisms in spite of the fire and act as refugia from which these organisms can reestablish themselves in the renewed forest. In the distance, fires still roar and smoke still billows before hot winds. But just below the meadow, in the old burn of 987, the fire is spent. And just north of the spring, 3,000 acres of the now 463-year-old Douglas-fir forest survive, but not untouched by the flames. The fire skips some areas; in others, half the trees are killed, and still others lose only the fire-sensitive understory western hemlock and western redcedar. The climax western hemlock-western redcedar forest survives in the basin between the spring and the high ridge, as



T. Steen

does the clump of subalpine fir in the meadow.

Meanwhile, in Italy, in this year of 1451, two boys are born, each of whom will leave his indelible mark on an unknown continent. One is Cristoforo Colombo (Cristóbal Colón as he will become known in Spain, Christopher Columbus as he will be known to the English-speaking peoples of the world), destined to become the navigator who will demonstrate that the world is round and will unite the Old World with the New. The other is Amerigo Vespucci, also destined to become a navigator. He will explore the coastline of the New World after its reported discovery by Columbus, and this new continent will be named America in his honor.

Again, in this year of 1451, Nature has altered Her forest canvas. Again human youth issues into life. And again the universe must wait in timeless patience for the unfolding of destiny that brings humanity from the Old World and the ancient forest in the New World ever closer together.



A spotted owl swoops for a mouse

T. Steen

The spotted owl as a canary

The endangered spotted owl must speak for an entire ecosystem at risk. Beyond the owl, a growing list of other animals and plants may also join the Northwest's vanishing ancient forests.

by Jeff Marti

For most Americans, center stage in the battle over Northwest forests is held by a small nocturnal bird weighing little more than a pound — the northern spotted owl.

But there is more to this issue than the owl, according to Northwest conservation groups and forest scientists. Plants and other animals also are imperiled by logging and road-building in the remaining ancient forests of northern California, Oregon and Washington.

Since 1987, when conservation groups filed a petition to list the spotted owl as a threatened or endangered species, two more of the ancient forest's animals and one of its trees also have prompted petitions for listing under the Endangered Species Act. More petitions are sure to follow.

The Northwest old-growth ecosystem is "like a shirt with a lot of holes in it," says Jim Pissot. "The more holes there are, the less it functions as a shirt. Pretty soon it's not a shirt anymore." Pissot, who directs the Washington state office of the Audubon Society, says this is the message of Endangered Species Act petitions: The steady destruction of native plants and animals in Northwest ancient forests is placing the entire ecosystem in peril.

"We don't have an endangered ecosystems act," says Andy Kerr, conservation director for the Oregon

Natural Resources Council. "We do have an Endangered Species Act." So the council and Audubon chapters, among others, are using it. One or both groups have written or signed every old-growth-related endangered species petition filed to date.

The Endangered Species Act allows citizens to petition the U.S. Fish and Wildlife Service to list plants and animals as threatened or endangered. It is illegal to jeopardize a listed species' survival by destroying its critical habitat. Last summer the northern spotted owl was declared a threatened species, and a scientific team led by Forest Service biologist Jack Ward Thomas proposed a recovery plan that would reduce Northwest public land logging by one-third. It incensed timber communities because thousands of people would lose their jobs, and it handed Congress and President Bush a hot potato they are still juggling.

While the spotted owl controversy rages, the Oregon Natural Resources Council, Audubon and others have petitioned to list two other old-growth animals — a robin-size seabird called the marbled murrelet and the weasel-like fisher. They most recently petitioned to list a tree, the Pacific yew (see related story). The Fish and Wildlife Service has rejected the fisher petition and has yet to act on the other two.

The council's Kerr is convinced more petitions will be filed. His organization has a "hot list" of some 10 old-growth inhabitants it believes to be

most at risk. Both Kerr and Audubon's Pissot say that as soon as they can gather enough scientific information, they will petition.

They are not waiting for agency scientists to bring forward the evidence. The Portland Audubon Society, a member of the national society, has hired David Marshall, a retired Fish and Wildlife Service biologist with experience in its endangered species program, to inventory imperiled species in Oregon forests. Marshall is preparing status reports on species found on the Oregon Department of Fish and Wildlife's "sensitive species" list.

"Implementation of the Thomas report on the spotted owl will not solve other species' problems," Marshall says. "The ranges or habitats of many of them do not overlap the spotted owl's, and in other cases only partially overlap."

"Our goal," Pissot adds, "is to have the principles of the Thomas report applied to every species at risk."

Attacking the Act

All of this infuriates the timber industry and its allies in Congress. Critics charge that the Endangered Species Act was never intended to lead to such widespread economic disruption.

"The problem is that the Endangered Species Act was just written for project-level activity," argues Chris West, vice president of the Northwest Forestry Association. "But when we talk about the spotted owl and old growth, we're talking about an entire timber program."

The same point is now being raised by hydropower interests, after last May's petitions to list four salmon stocks in Idaho's Snake River. Those potential listings could have wide regional economic impact and fan hostility to the Endangered Species Act itself.

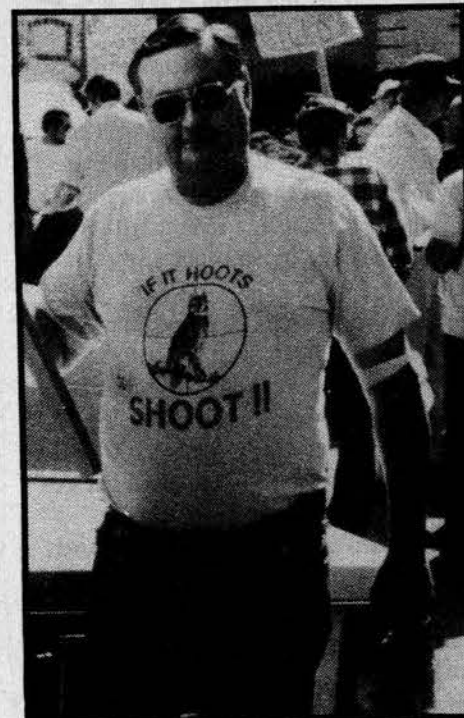
In October the Washington Contract Loggers Association submitted a petition under the act to be listed as threatened

itself. Bill Pickell, manager of the 600-member group, argued that there was "no reason why the concerns of men, women and children are relegated to secondary status when compared to the needs of the northern spotted owl." The Interior Department, however, has already ruled that the act applies only to species, not occupations.

"The more the act is used on these types of things, the more people are going to think, 'Wait a minute, we can't keep doing this,'" says Rita Kaley, vice chairperson of the Oregon Lands Coalition. "The act is being manipulated by preservationists to stop Americans from using our resources and lands."

Kaley says it's time Northwest loggers joined hands with others whose livelihoods are threatened by endangered-species protections. These include Southwest miners and developers affected by the desert tortoise, and Louisiana shrimpers

(Continued on page 20)



David J. Cross

A pro-logging demonstrator in Grants Pass, Oregon

Spotted owl ...*(Continued from page 19)*

prohibited from harming sea turtles. She says three strategy summits for people adversely affected by endangered-species actions are being planned for this winter in Seattle, Denver and Atlanta.

The Audubon's Pissot denies that environmentalists are combing the woods for imperiled species. "We've been accused of pushing and fudging on the act," he says. "That's just not true. Basically, these critters are coming out of the woods and screaming for help."

The environmental groups do not deny, however, that they are systematically reviewing endangered species petition possibilities. And, while conscious of building resentment toward the act, they say they can't let that deter them from using it.

"Am I worried about backlash?" asks Kerr of the Oregon council. "Sure, but I'm more worried about nature's backlash." Adds Melanie Rowland of The Wilderness Society's Seattle office,

"If you don't use the act, it's as good as not there."

There was substantial disagreement among conservation groups over filing the first ancient-forest endangered-species petition, for the spotted owl. Activists worried that it might jeopardize congressional reauthorization of the Endangered Species Act in 1988 and reduce public debate over the ancient forests to "owls vs. jobs" — which has since happened. But when a now-defunct eastern group called GreenWorld submitted a one-page spotted owl petition in 1987, the long-suppressed issue "was out the door," recounts The Wilderness Society's Rowland. Seven months later, 27 groups filed a scientifically detailed petition of their own.

In Washington, D.C., there are stirrings of an Endangered Species Act backlash, but despite some talk within the Bush administration, no bills have been introduced to amend the act itself. The act comes up for renewal in 1992.

"It is very unlikely the act will be weakened," says Bob Irvin, a National

Wildlife Federation attorney in Washington, D.C. In 1988, the act was reauthorized by overwhelming House and Senate majorities, and "even Manuel Lujan voted for it," he said. Lujan was then a New Mexico congressman.

There are other ways to defeat the act, however. A bill sponsored by Sen. Mark Hatfield and Reps. Les AuCoin and Bob Smith, all of Oregon, and Washington Rep. Sid Morrison would place a 2.5 percent limit on the rate national forest timber harvests could drop per year. The measure would also require any agency or court rulings affecting harvest rates to be adopted through the lengthy forest plan amendment process. Parts of the bill are getting serious attention as Congress moves toward some short-term spotted owl/timber harvest fix for 1991.

"This would make it very difficult to put an endangered species-based protection plan in place," says Fran Hunt of the National Wildlife Federation. "It runs counter to the intent of the law, which is that once we realize a species is endangered we need to act immediately to save it."

The Bush administration, of course, retains an option used effectively in the Reagan years — underfunding and manipulating the Fish and Wildlife Service's endangered species program. Sen. Hatfield is using another strategy with the Snake River salmon petitions — jumping the gun on the act by developing a negotiated "pre-decisional recovery plan" through a process involving economic interests rather than scientists. Hatfield can then seek congressional adoption of the negotiated plan as the official endangered species recovery plan.

Deliberate, systematic use of the Endangered Species Act to protect Northwest old-growth forests has spawned opposing efforts to avoid application of the act. It isn't clear yet what will happen, or whether the strong national support for the act will be eroded. But the scientific legitimacy of endangered-species petitions will be crucial. Provided they are sound, they could shift the public focus to the ecosystem.



Tom Harner

A fledgling marbled murrelet nesting on the limb of an old-growth Western hemlock

Ancient-forest animals are hard to know

by Jeff Marti

For biologists studying the marbled murrelet, 1990 has been a big year. But the events making it big also show that, for all the political glare now focused on them, rare animals of the Northwest ancient forests still live and die largely beyond our sight and ken.

This year, for the first time, marbled murrelet nests have been discovered in Washington and Oregon. The nests are little more than slight depressions in the moss that covers thick branches 100 feet or more above ground. They are about as noticeable as needles in haystacks.

Oregon Department of Fish and Wildlife researcher Kim Nelson discovered two nests. One was 20 miles inland from the ocean, in a forest managed by the Bureau of Land Management's Salem District. The other was 11 miles inland, on the Siuslaw National Forest.

In Washington, two were discovered 300 feet from each other in a research area on the Mount Baker-Snoqualmie National Forest. A third was found last September 155 feet up in an ancient Douglas-fir on the Olympic Peninsula.

The murrelet, a chunky little shorebird ranging from northern California to Alaska, had long been known to fish the Pacific Ocean surf by day. But no one knew where it nested until 1974, when a tree surgeon, high up a northern California Douglas-fir, found the first. The murrelet likes to nest well inland — up to 45 miles — commuting each day to the ocean and back.

When only 16 nests of a bird have ever been found, chances are that not much is known about it, including how it will react to logging in or near its nesting areas. David Marshall, a former Fish and Wildlife Service biologist now under contract to the Portland Audubon Society, says the murrelet appears to need trees at least 150 years old, which

grow branches thick and flat enough to provide a mossy nest. But these are the trees that are the first to be felled and sent to mills or shipped overseas. The plantation-like commercial stands that replace them produce smaller trees because they are cut every 60 to 80 years.

In his report for Audubon, Marshall says the murrelet could be reaching a "critical status" in Washington. In Oregon, he says, the population is "not secure." California's population has been broken into two segments, "each of which is likely to become so small that it could be eliminated by other factors such as oil pollution and gill-net fishing."

More than 20 conservation groups petitioned the U.S. Fish and Wildlife Service in January 1988 to list the murrelet as threatened or endangered. The service has yet to act on the petition, saying not enough is known about the bird to judge. "That lack of knowledge is, in itself, a threat to the species," says

Marshall. Thanks to the old-growth controversy and the petition, more money is going to murrelet research.

Kim Nelson of Oregon Fish and Wildlife says the spotted owl habitat conservation areas recommended by the Jack Ward Thomas committee would protect only 20 of 51 potential murrelet nesting sites in Oregon. On national forest land, she says, the owl habitat areas "are pushed so far away from the coast that they would only protect those nesting sites where the density of murrelets is lowest."

"Murrelet concentrations are highest outside owl habitat areas," Nelson says. "That's where they really need protection. They should be listed as threatened. Then the land management agencies will have to do something about them. They're really in trouble, and there aren't many options left for them."

The low level of knowledge is much the same for the fisher. Forest Service

research ecologist Keith Aubry is studying the small carnivore's status in Washington. It's a challenging task, because so far he has collected little more than second-hand reports based on fleeting glimpses.

Fishers belong to the weasel family. Once common throughout the low-elevation old-growth conifer forests of the Pacific states, the Rocky Mountains and much of the East, they have been largely killed off. The fisher was overtrapped in the Northwest early in this century because of its much-prized dark brown and black fur. Trapping stopped in Washington in the 1930s, but the population never rebounded. The last unequivocal evidence of fishers in Washington came in 1969, when one was trapped on the Olympic Peninsula.

"They're not coming back now because we've eliminated their habitat," Aubry says. Almost all known fisher maternity dens have been located high above the ground in trees and snags thick enough for large cavities — features not found in clearcuts or managed forests. Fishers also need the dense cover of old-growth canopies that keep snow depths low. Unlike martens and weasels, fishers do not hunt beneath the snow. Rocky Mountain research indicates they are vulnerable to stand fragmentation; they prefer large stands of suitable habitat, connected to other such stands.

The likelihood is low that healthy, breeding fisher populations remain in Washington. They need lots of land, perhaps 10 to 15 square miles per pair. The few remaining parcels of low-elevation old growth that size are isolated from one another.

"It's possible they are extinct in Washington," Aubry says. In Oregon and northern California, they are considered very rare and declining.

Finding the species

Last June, a petition to list the fisher as threatened or endangered was filed by Audubon, the Klamath Forest Alliance, Greater Ecosystem Alliance, Oregon Natural Resources Council and California's Northcoast Environmental Center. The Fish and Wildlife Service earlier this month declined to consider the petition because of insufficient information.

For other old-growth species that could draw endangered species petitions, it's the same story: Knowledge is spotty and research is limited.

Aubry's fisher research is part of the Forest Service's "Wildlife Habitat

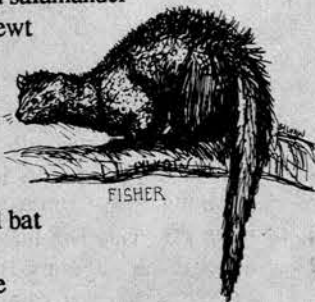
Interim List of Species Closely Associated with Mature and Old-Growth Douglas-Fir Forests in Western Washington and Oregon

Amphibians

Olympic salamander
Northwestern salamander
Roughskin newt
Tailed frog

Mammals

Silver-haired bat
Shrew-mole
Red tree vole
Fisher



Birds

Marbled murrelet
Spotted owl
Vaux's swift
Red-breasted sapsucker

Vascular Plants and Lichens

Pacific yew
Three-leaved coolwort
lobaria oregana



This interim list, compiled by the Forest Service's Wildlife Habitat Relationships in Western Washington and Oregon Research Project, is not final or comprehensive. Nor does it indicate population status (abundant, rare, etc.)

Relationships in Western Washington and Oregon" project, which began in 1982. The project seeks to solve a major puzzle: Which species are dependent upon mature and old-growth forests? The answers could shape future old-growth management, and commercial forest management as well. (Mature forests are 100 to 200 years old; old-growth forests, 200 years old at least.)

The work so far indicates that old-growth species fit into three categories, Aubry says. Certain species, like the spotted owl, murrelet and fisher, are classified as "closely associated" with old growth. They are found in far higher numbers in old-growth and mature forests.

The second category — "associated" with old growth — includes species like the pileated woodpecker and the northern flying squirrel. Their highest numbers are in old-growth and mature forests, but they are abundant as well in young natural (as opposed to commercial) forests. Young natural forests contain some old-growth features, notably biological legacies like tall snags and down logs, that such species require.

Species in the last category are called "opportunists." They seem to have no dependence on old-growth forests. Examples are the brown-headed cowbird and the Pacific tree frog; they can succeed just about anywhere.

The "closely associated" species are getting the most attention from agency researchers and conservation scientists like Marshall. The Wildlife Project has prepared an interim list of such species [see chart]. These animals "are responding to and require the old-growth ecosystem itself," Aubry says. "We

predict they would require some level of preservation of old-growth forests to ensure long-term viability."

There's more flexibility for species in the "associated" category. The pileated woodpecker, for instance, isn't so much dependent on the old-growth ecosystem as it is on trees with cavities. Such features are found most often in old growth, but they can be found and even deliberately managed in young forests.

Maintaining healthy old-growth wildlife populations could require a kind of two-track forestry, Aubry says. Some could thrive in managed forests if biological legacies are perpetuated, rotations adjusted and single-species management avoided. But other creatures have very broad and complex

needs that humans just can't satisfy in managed forests. For these "closely associated" species, the wisest route is to reserve sufficient intact old growth.

This poses a very tough question for research biologists, which is made even tougher by time pressures imposed by endangered-species petitions and politics. The question is: What is sufficient habitat to maintain viable populations? "Defining an exact minimum is impossible," says Martin Raphael, leader of the Wildlife Project. Defining an approximate minimum is possible, but it takes more information than scientists now have.

Nor is Raphael completely comfortable with the "indicator species" concept, which manages for reasonably well-studied animals like spotted owls and assumes that other closely associated old-growth species will benefit.

"There's no guarantee that will account for attributes other species may require," he says. "[Managing for] the spotted owl, for example, doesn't account for species that require cool headwater streams," like the Olympic salamander or the tailed frog.

What is really needed, say many preservationists, is an Endangered Ecosystem Act that could protect all the species at risk. "As it is now," says David Marshall, "the wood products industry, the Forest Service and the Bureau of Land Management are headed for a repeat of the spotted owl episode if they don't properly plan for the other declining wildlife species, too."



Newt

T. Steen

Consider the yew — for cancer's sake

by Jeff Marti

Two trees of the Northwest old-growth forest, one of them medically important, face uncertain futures: the Pacific yew and the Port-Orford-cedar.

In September, 10 environmental groups and two cancer researchers petitioned the Secretary of Interior to list the Pacific yew as a threatened species. Long regarded by loggers and foresters as a weed, the tree is now the subject of intensive medical study. Its thin purplish bark contains a substance with promising anti-cancer properties.

Pacific yew is an understory tree that grows in older forests from southeast Alaska to northern California and in parts of the Northern Rockies. It is rare because it prefers moist upland sites or riparian habitats within dwindling ancient forests. The yew

occurs in two major concentrations: the Willamette and Umpqua national forests in Oregon and an isolated 40,000 acres on the Nez Perce National Forest in northern Idaho.

In 1967 a National Cancer Institute plant screening program found that an extract from yew bark was effective in treating leukemia in mice. Clinical trials since have shown the extract, taxol, to reduce tumors in melanoma, non-small-cell lung cancer, cancers of the head and neck, and, most significantly, ovarian cancer.

It's the ovarian cancer promise that Jerry Rust finds most exciting — and upsetting. Rust, a county commissioner from Eugene, Ore., co-authored a book tracing the yew through myth, poetry and song. He also has seen the yew heaped on slash piles and set aflame.

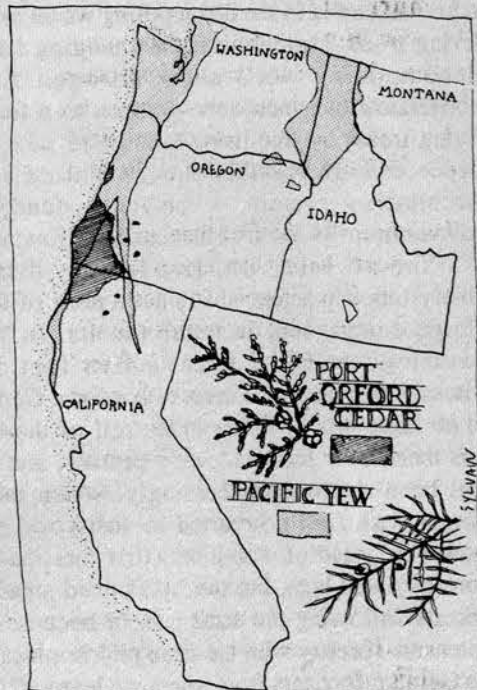
"When I go out to these slash piles," Rust says, "I see women dead." Ovarian

cancer kills 12,400 women annually in the United States.

Although the Forest Service recently issued instructions that yews harvested in the course of other logging should be salvaged, the pace of clearcutting and lack of records showing where the species grows hamper such salvage. There is no overall yew conservation plan on public, state or private forest land.

The tree's medical promise has generated a demand that it cannot yet fulfill. It takes 20,000 pounds of yew bark to yield one kilogram of taxol, which is only enough to treat 500 patients. Since the bark is very thin, at least 36,000 trees will be needed yearly, according to the National Cancer Institute. There isn't enough taxol now to supply clinical trials.

(Continued on page 22)



Consider the yew ...

(Continued from page 21)

Because yews grow slowly — as little as one inch in diameter every 50 years — they need hundreds of years of growth to provide much bark. Only in old-growth forests can yews grow this old. "I would say a prudent person would think the yew is a good reason to save old growth," says Elliot Norse, author of *Ancient Forests of the Pacific Northwest*. Norse is a chief scientist with the Center for Marine Conservation, one of the groups that is petitioning to list the tree as threatened.

The American Cancer Society, not a party to the petition, wrote to Interior Secretary Manuel Lujan urging him to "take any and all actions to protect the Pacific yew tree as a 'threatened species.' ... This will ensure that women diagnosed with ovarian cancer in the years ahead will have access to a promising drug treatment."

But not all the experts agree on the solution. "I'd hate to see the yew used as ammunition" in the political battle over old growth, says Don Minore, a Forest Service plant ecologist whose research was cited in the petition. "It's not the same as the owl. It doesn't require old growth. You can grow it in your back yard."

Minore does agree that it is important to protect the last wild stands of yews for their high genetic variation. The yew has the ability to survive across 18 latitudes at a wide range of elevations and in two major climatic zones. Variations in growth rate and taxol production may influence the success of two long-term solutions to taxol supply: plantation production of yews and the chemical synthesis of taxol. Work on both is under way, but results are still far off.

A difficult issue

The timber industry has reacted angrily to the petition to list the yew as threatened. Kevin Brett, vice president of the American Forest Resource Alliance, said the yew is "just another proposed addition to the 'species



Yew bark

of the month club.' These groups have absolutely no shame. In this case, they are utilizing the legitimate fight against ovarian cancer to mask their real objective, and that is locking up millions of acres of forest land."

The petition does raise complicated issues. The yew faces two somewhat contradictory threats: destruction through ancient-forest logging and the increasing pace of cutting for taxol production.

The threat to the yew is not species extinction. Rather, what is threatened by the disappearance of old-growth forests is the wild yew's genetic variability and large size. The petition explicitly asks for "threatened" instead of "endangered" status so yews can continue to be cut for taxol.

The petition may lead to an overall yew conservation strategy, which researchers, bark collectors and cancer groups have been urging for some time. That strategy's short-term challenge will be how to combine yew harvest with conservation of vital yew characteristics. The effects on current ancient forest logging, therefore, may not necessarily favor the conservationists.

The Port-Orford-cedar faces a different threat. A deadly root-rot fungus, spread primarily by logging

operations, has severely reduced its numbers.

Port-Orford-cedar is found only in southern Oregon and northern California coastal forests. It can reach 240 feet in height and 11 feet in diameter. Thom Lawson, a consulting plant pathologist in El Cerrito, Calif., says the fungus, *Phytophthora lateralis*, may have entered the cedar's natural range from infected nursery stock before 1950. The fungus kills by attaching itself to roots, preventing water and nutrients from reaching the tree.

What began as isolated infections has become a widespread epidemic as timber operations enter more watersheds, Lawson says. Spores of the fungus are spread by trucks and other machinery, as well as by animals. Extensive roading greatly speeds dispersion.

There is no cure for the fungus. Lawson says the only way to protect the last healthy stands is to prevent logging of old growth. "Old-growth stands are important for several reasons," Lawson says, "but one is that they are a repository of the gene pool of tree species. It would be prudent to retain stands containing Port-Orford-cedar in old-growth forests, so that if varieties thought to be resistant are planted and

then fail, we still have a gene pool to use to keep trying."

Most of the harvest goes to Japan, where the cedar is revered for its resemblance to hinoki cypress, a tree with important spiritual value; the Japanese have depleted the cypress. In 1987, Port-Orford-cedar brought \$1,500 per thousand board feet on the export market. At times it has brought \$2,200 per thousand. By comparison, Douglas-fir brings about \$400.

With a species of such high value, "you'd think forest managers would take measures to ensure it doesn't become extinct," says Lawson. "But the prevailing attitude is to get what you can now and not worry about the future."

Will wild Port-Orford-cedar vanish? "It could," says Lawson. "You might be able to continue present management and still have some remaining 20 or 100 years from now. But we know that infections by this fungus are almost always fatal to the tree. So wouldn't you want to restrict the chances of the two coming in contact with each other? I know I do, but the Forest Service doesn't seem to share my concern."

Mel Greenup, coordinator of a two-year-old Forest Service program on the cedar, draws a different picture. Greenup places his bets on a variety of strategies to stop dispersal of the waterborne fungus spores: steam-cleaning trucks and equipment, confining operations to dry seasons, chlorinating streams, eradicating infected stands, placing new roads downstream of healthy stands, and harvesting trees by helicopter.

"Set-asides are not the answer," Greenup says. "They are part of a broader possible strategy. And we already have a very large gene pool in protected forest." He also is optimistic that resistant varieties of the cedar will be found and then bred within the next few years. Trees in the northern part of the range, which have been exposed to the fungus the longest, may already have evolved some resistance, he says. "I don't believe the cedar is doomed at all."

Intensive forestry has cut the cycle of soil renewal

Excerpted from *The Redesign Forest*, by Chris Maser. R&E Miles, 1988.

The forest we see aboveground is, in large measure, a reflection of the soil's ability to grow that stand of trees. This is a critical relationship. The original old-growth forest has three prominent characteristics: large live trees, large snags, and large fallen trees. The large snags and large fallen trees become part of the forest floor and eventually are incorporated into the forest soil, where a myriad of organisms and processes make the nutrients stored in the decomposing wood available to the living trees. Furthermore, the changing habitats of the decomposing wood allow nitrogen fixation (the conversion of atmospheric nitrogen to a form usable by living trees) by free-living bacteria to take place. These processes are possible through Nature's "roll over" accounting system — the large dead trees are a reinvestment of forest capital into the growing forest.

The advent of intensive forestry disallowed this finely tuned practice: the reinvestment of forest capital (large dead wood) in future forests. In May 1985, I examined soil pits three to five feet deep in the intensively managed forests of southern Germany. There is no large woody debris in the soil of those forests nor has there been for well over a century, and productivity has been declining accordingly. When the hardwood forest was first converted to softwood plantations, however, yield of woodfiber (first rotation of intensive forestry) was high, but then it declined steadily. Are our forests following the same pattern because we practice intensive forestry with the same philosophical foundation as German foresters from whom we learned?

The apparent success of the first rotation on which intensive short-rotation management is grounded is deceiving. The rest of the story lies belowground. There appears to be unlimited energy and intact processes for sustained high production of woodfiber when the stored available nutrients and processes from the liquidated old-growth forest are available for the first rotation. Without balancing withdrawals, investments and reinvestments, however, both interest and principal are spent and productivity declines.

Do not mistake planting seedlings (reforestation or aforestation) or fertilization as reinvestments; they patently are not reinvestments in the forest! Except for liquidating the inherited old-growth trees, planting seedlings on cutover acres and fertilizing the young stand is the *initial economic investment*. A forest does not run on dollars; it runs on such things as decomposing wood — large fallen trees — that Nature reinvested in Her forest. As we redesign the forest, we will be wise to acknowledge Nature's blueprint. After all, She created the forest and only She understands the whole story. ...

Nature designed a forest to be self-sustaining, self-repairing. We are designing a forest to require increasing external subsidies — fertilizers, herbicides, pesticides.

That Nature designed a forest to be self-sustaining, self-repairing is evident from the exceedingly rich forests we inherited in the Pacific Northwest. It is also evident that Nature designed a dynamic, timeless forest. Indeed, Nature burned Her forests, ravaged them with insects, froze them with glaciers, and changed them with time, but she always allowed them to heal and to replenish themselves.

We, on the other hand, view forests as a commodity and do not allow them to repair themselves. We seek to exploit, and we thereby miss the lesson Nature tries to teach us:

"When someone is seeking," said Siddhartha, "it happens quite easily that he only sees the thing that he is seeking; that he is unable to find anything, unable to absorb anything, because he is only thinking of the thing he is seeking, because he has a goal, because he is obsessed with his goal... ..in striving towards your goal, you do not see many things that are under your nose."

And so it is with our management; we see only trees, or big game, or whatever our vested interest is. When we think of Nature's forest as a commodity, we treat it like one. Because we treat it like a commodity, we are trying to redesign it to become one. We take a system designed by Nature to run in 400-year to 1,200-year cycles and attempt to replace it with recurring cycles of only the first 80 to 120 years. We do not see the forest. We are so obsessed with our small goals that we neither see nor understand that Nature is warning us about gross simplification by means of outbreaks of the Douglas-fir tussock moth, western spruce budworm, barkbeetles, laminate root rot, blackstain root rot, red ring rot, and other signs. So long as we view the forest as a commodity, we are blind to the gift Nature gave us. And in our blindness, we redesign the forest with an instability that cannot be repaired with fertilizers, herbicides, or pesticides. Our forests can only be healed with humility, love, understanding and patience.

'Holding on to the seeds'

Arguing over how much old growth is left is almost beside the point, says ecologist Peter Morrison. The problem is the swiftness of its demise, and what can now be done to restore it.

by Pat Ford

The simplest questions in the Northwest old-growth debate are the hardest to answer: What is old growth and how much is left? Both have been asked repeatedly in recent years by congressmen, reporters and citizens. It is revealing that the most authoritative combined answer today comes not from the U.S. Forest Service but from a quiet, intense, computer-agile ecologist surrounded by terminals, maps, scanners and a maze of wiring in a back room of The Wilderness Society's eighth-floor office in downtown Seattle.

Peter Morrison has the distracted air of someone suddenly too much in demand to get any work done. But he and a few helpers get enough done to know more than anyone else about how much old growth, and what kind, remains. So far Morrison's project has produced a 1988 old-growth status report on Westside national forests (those west of the Cascade crest), a 1990 update covering all Westside public lands, and an accumulating series of individual forest reports and maps. In the process he has developed the most sophisticated system for mapping present and potential old growth by kind, trend, stand size, elevation and ownership.

What is old growth?

For years foresters have used the term old growth to mean trees that have reached or passed their maximum annual increase in volume. Loggers see old growth as the big trees that bring the most money. Conservationists see old growth as towering cathedral-like stands to be revered in silent awe. To avoid confusing the issues, they came up with their own term — ancient forests.

But scientists, after years of research, view old growth as a specific ecological stage in a forest's life cycle, associated with certain structures, composition and functions. These characteristics vary, as forests vary, by latitude, elevation, aspect, climate, etc. So there are many kinds of old-growth forest.

The imperatives of management amid conflict spawned the need for at least a working definition. In 1986, the Forest Service's Old Growth Definition Task Group, which included many pioneering researchers, published interim definitions for the Pacific Northwest in a seven-page Forest Service research report called PNW-447. "Interim" is a standard scientific caution meaning "until more research leads to something better."

The group wrote four definitions, one for each of the basic forest types found within the Northwest Douglas-fir region. All four focus on the Douglas-fir because it dominates each of the forest

types, although their climax species differ. What varies among the four definitions is the number and characteristics of live trees, snags, canopies and down logs. The definition of the most prevalent of the four types — "Douglas-fir on western hemlock sites" — is as follows:

- at least eight live Douglas-fir trees per acre that exceed 32 inches in diameter or 200 years in age; at least two tree species with a wide range of ages and sizes, including shade-tolerant associates (western hemlock, western red-cedar, Pacific silver fir, silver fir, grand fir, or bigleaf maple) at a density of at least 12 trees per acre that are at least 16 inches in diameter;
- a deep, multi-layered canopy (the top or upper level of the forest stand);
- conifer snags (standing dead trees) over 20 inches in diameter and 15 feet tall at a density of at least four per acre;
- at least 15 tons of logs per acre, including four pieces per acre exceeding 50 feet in length and at least 24 inches in diameter.

The definition is forest-based, not timber-based — meaning it doesn't just

focus on big standing trees. It is largely quantitative and thus readily measurable. Finally, it is flexible and is a minimum, not an average. The most important ecological omission is a minimum stand size. The authors were aware that a small stand has less ecological value than a large one, but in the end they couldn't reach consensus on how to build that into the definition.

From its beginning, Morrison's Wilderness Society project used the PNW-447 old-growth definitions. But the U.S. Forest Service, in its forest management plans for Northwest national forests, used instead an earlier definition from its regional guide.

"The big difference is that it's more a timber-based definition, which talks about species and size of standing trees," explains Al Burkhardt, head of timber-management planning for the Forest Service's Region Six, which includes Oregon and Washington. "The PNW-447 definition is more vegetation-based."

The forest plans use the early definition for two reasons. First, much work had already been done under it before PNW-447 was published. Secondly, the early definition links more easily to each forest's timber inventory data, which also is timber-based. The Mt. Baker-Snoqualmie Forest plan, for instance, defined old growth as mature large sawtimber greater than 21 inches in diameter at breast height.

Burkhardt says a satellite mapping project now under way "will soon give us vegetation-based information, consistent across all forests, on older stands west of the Cascades. So we're on the brink of being able to use an ecologically based definition."

How much old growth is left?

Western Washington and Oregon together total 35 million acres. Estimates of the portion that was old-growth forest before white settlement range from 15 million to 24 million acres. In *Ancient Forests of the Pacific Northwest*, Elliot Norse adopts 19 million acres as a working base.

Discussion of what's left properly focuses on public lands. Though some old growth remains on private lands, it isn't much, and it is quickly vanishing under current economic conditions — a situation largely beyond public control or influence.

The Wilderness Society estimates that 957,000 acres of old-growth forest remain in national and state parks, Bureau of Land Management forests in southern Oregon, and Washington state forests. Of that, 514,000 acres are protected because they are inside national and state parks. There is some dispute about these non-national forest public land estimates, but there is general agreement that the numbers are in the ballpark.

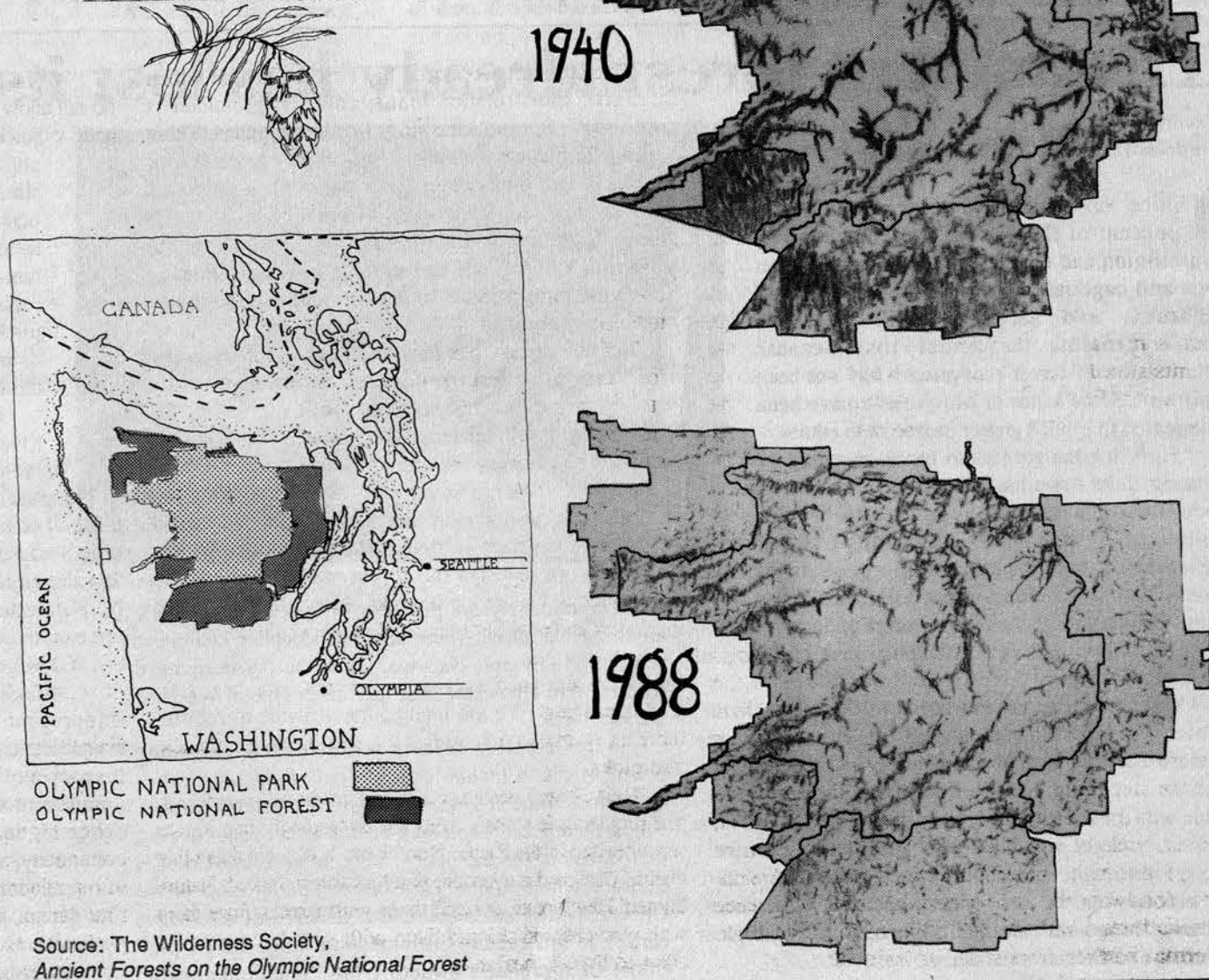
There is no consensus, however, concerning the national forests. Morrison estimates that just under 1.4 million acres of old growth remain on the nine Westside national forests in Oregon and Washington, with 409,000 acres protected as wilderness or research natural areas. The Forest Service estimates that 4 million acres remain.

Why the large difference? "Morrison used definitions in a way that predictably made for fewer acres by emphasizing ecological characteristics,"

(Continued on page 24)

OLD GROWTH ON THE OLYMPIC NATIONAL PARK AND OLYMPIC NATIONAL FOREST

1940 era and 1988



The seeds ...

(Continued from page 23)

says the Forest Service's Burkhardt. That seems to imply that Forest Service estimates will come down as it also moves to vegetation-based data.

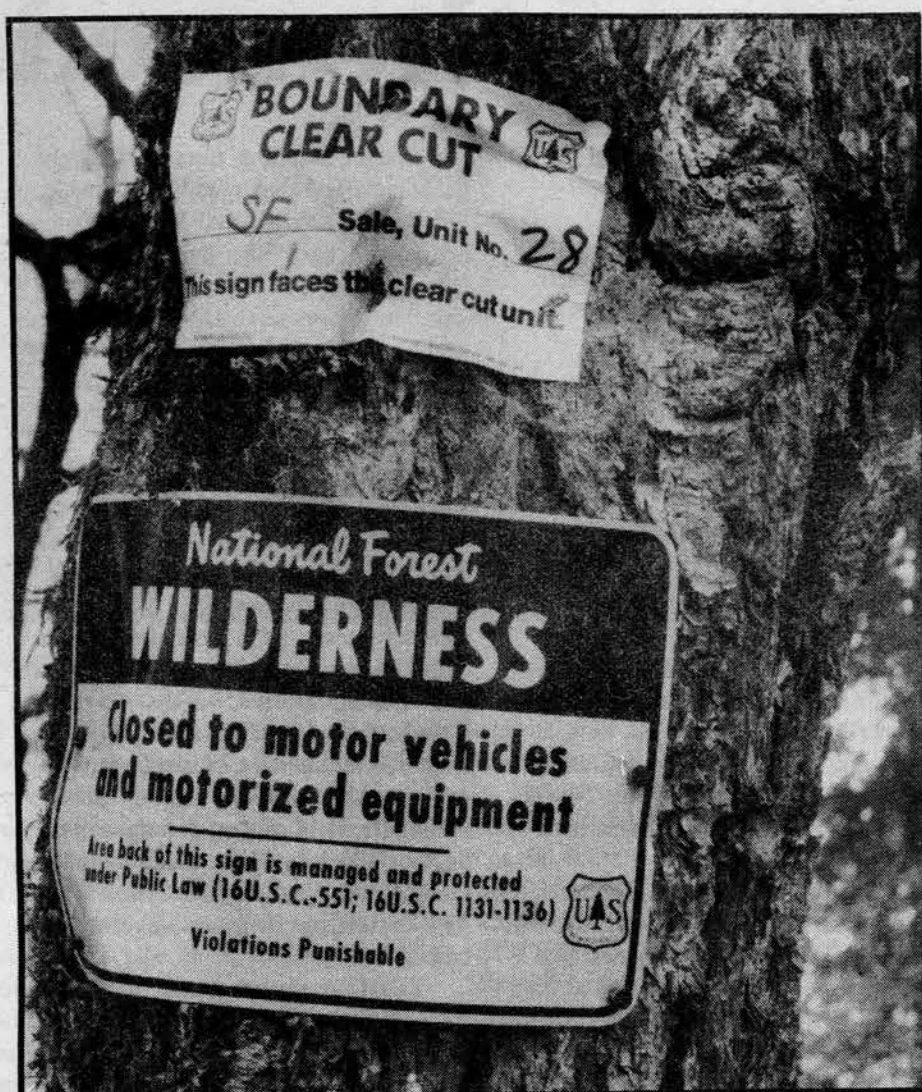
How fast this happens is critical politically. "The big questions facing Congress are how much old growth should be protected and where," says Mike Anderson, a Wilderness Society colleague of Morrison's. "If the Forest Service says there's 5 million acres, that starts the debate out very differently than if there's only 2.3 million. Our basic conclusion is that all of it needs protection because there's so little left. But we think when Congress looks closely at whose numbers are most accurate, they'll choose ours."

The Olympic National Forest

A closer look at one forest makes the importance of the differences clearer. The Wilderness Society has published a stylish, large-format report by Morrison, complete with color maps, titled *Ancient Forests on the Olympic National Forest: Analysis from a Historic and Landscape Perspective*. Morrison developed a computerized geographic information system combining timber inventories, forest ecology surveys, road maps, past and present aerial photos and satellite imagery, all checked by aerial reconnaissance and field sampling.

The report estimates that 94,400 acres of old growth, as defined by PNW-447, remained in 1988 on the 632,000-acre Olympic National Forest. Morrison also mapped another 94,000 acres in four other "older forest" categories that meet some but not all of PNW-447's criteria. For instance, "mature forests with residual old trees" lack enough old trees or don't meet canopy or down-log criteria.

The Olympic National Forest Plan, by contrast, estimates that 244,000 acres of old growth remain. The plan uses a timber-based definition and counts stands 160 years old or older. That probably swept up most of Morrison's other "older forest" acres into its estimate and, Morrison believes, much mature forest as well.



Boundary signs for clearcut and wilderness

David J. Cross

Differences between "old growth" and other categories like "mature forest with residual old trees" and "mature forest" are not trivial. Plants and wildlife that require old-growth forest have lost 80 percent or more of their habitat in this century. Mature forests won't offer them much for many years, if ever. But lumping this category with old growth creates a gross number with the political effect, Morrison argues, of maintaining old-growth harvests that reduce remnant habitat even further.

"From the viewpoint of managing shredded habitat," Morrison says, "you need the kind of differentiations our project uses. But the Forest Service and the timber industry keep trying to pool it all in one big mass, as if it's all the same."

For those who quibble with the numbers, Morrison makes four

arguments: First, the trend is clearly downward. Of the 390,000 acres of old growth on the Olympic Forest in 1940, only 90,000 acres remain, and the cutting is still going on.

Second, of the 165,000 acres of old growth below 1,500 feet elevation — with the best remnant habitat for imperiled creatures — only 29,300 acres remain today.

Third is the amount of old growth next to roads, clearcuts, forest openings and young forest. This edge effect reduces the biological value of old growth by increasing poaching and blowdowns and by encouraging plants and animals that compete with old-growth species. About 20 percent of the Olympic Forest's old growth lies within this 374-foot-wide zone.

Fourth is the fragmentation of the

Olympic Peninsula's old growth. The Olympic National Park contains 247,000 acres of old-growth forest. But, as the map shows, most is in long valley fingers that radiate downward, separated by precipitous mountain ridges that most old-growth species cannot cross. In 1940, many of the fingers were connected by continuous old-growth stands on the surrounding national forest. Today these corridors are gone, and the forest's old growth is scattered in many small patches. In 1940 there were six patches of 10,000 acres or more that totalled 339,000. Today a single 11,200-acre patch is the only large stand left.

Below the Olympic National Forest lie the low-elevation private lands that were once one of the richest forests on earth. As Tim McNulty's story on the Olympic Peninsula elsewhere in this issue points out, now they are tree farms with no old growth at all.

"Less than 20 percent of the peninsula's original old growth is left," Morrison says, "most of it within the park. Most of what's left outside, in the national forest, has been fragmented and substantially degraded. It's an ecological alteration unmatched since the ice age, and it's happened incredibly fast."

And, he concludes, it's happened all over the Westside. "The problem is not that we have a small amount of old growth left but that we have a small amount left and we had a tremendous amount not long ago. The reason all these species are in trouble is because of this dramatic, abrupt change."

So the goal driving Morrison today is not to save the old-growth forest. The old-growth forest that he defines to himself is gone. His information system shows him what disappeared over 50 years, and his forest savvy tells him what happened during the 50 before that.

Now he's flipped his compass needle around the other way. He's looking a century ahead, identifying areas — corridors, linkages, the richest fragments — needed to restore the old-growth forest at the landscape level. And he's trying to do it quickly, for inclusion in legislative proposals. "We need to hold on to the seeds, the inoculum, for restoring this ecosystem," he says. "That's what we're trying to locate."

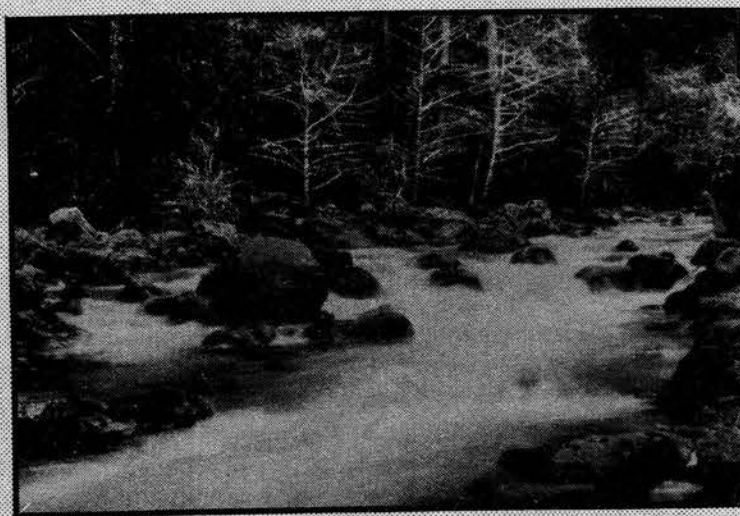
The ancient forest already has lost its giants

Excerpted from *Ancient Forests of the Pacific Northwest*, by Elliot Norse. Island Press, 1990.

Timber operations have destroyed all but 13 percent of the ancient forest in western Washington and Oregon. The rest has been cut over and converted to housing, roads, croplands, clearcuts and second-growth. Yet this underrepresents the actual loss because elimination of forest ecosystems has not been uniform. Some kinds of old-growth have been eliminated to a much greater degree than others.

Early loggers got logs to processing sites by floating them down large rivers. Understandably, they eliminated the nearby giant trees in riparian forests along rivers first. Then they plugged hundreds of smaller streams with splash dams, from which they released raging torrents to move logs. These activities radically altered the streams and riparian forests, erasing a rich component of biological diversity.

What were riparian forests like? In the deep, fertile, moist soils of floodplains and stream terraces, tree diversity was high, shrub and herb layers were very lush, and the risk of fire was much lower than in drier forests. Riparian forests were probably dominated by western redcedars larger than those currently existing, along with huge Sitka spruce (near the coast), Douglas-firs, western hemlocks, black cottonwoods, and, in some places, smaller broadleaf trees including red alders, bigleaf maples, and Oregon white ash.



Barbara Ullian

Unfortunately, we probably will never again know anything like them. A few ancient floodplain rainforests remain in Olympic National Park, but more riparian forests were eliminated than any other type of Westside ancient forest.

After riparian forests were logged, the same economic and technological forces shifted timber operations to other kinds of lower elevation old growth. Trees there were larger and easier to cut and transport than those in the mountains; loggers maximized profits by taking the best first. For example, Larry Harris of the University of Florida points out that Westside foresters earlier in this century distinguished "large old growth" (most of it privately owned) from "small old growth"

(mostly in the national forests). Foresters have since dropped use of the symbols for the best-stocked categories of Douglas-fir stands with the biggest trees, apparently because they are no longer needed. Similarly, we are not likely to see 385-foot-tall or 16-foot-wide Douglas-firs again. As old records and photographs indicate, the ancient forests that remain — the small old-growth forests — must be a pale reminder of those logged earlier this century.

On public lands, the same economic forces have driven logging patterns. Destruction has been greatest at lower elevations; outside Olympic National Park little remains below 2,500 feet. The national forests are now eliminating old growth in the highlands, where regeneration and regrowth are much slower. For example, as Harris notes, in Willamette National Forest only 10 percent of the

cut in the first three decades of this century was above 4,000 feet, while 65 percent was by the 1970s.

Besides having ecosystems with the highest tree (especially broadleaf) diversity, biomass, and productivity, the low-elevation stands were also richest in vertebrates. In the Oregon Cascades, elevation is the most important variable determining diversity of amphibians, reptiles and mammals. Birds are also more diverse in lower elevation forests, possibly in response to the greater diversity of broadleaf trees, which provide seeds and fruits uncommon in the pure conifer stands at higher elevations. Lower elevation forests also have larger populations.

Defending Oregon's Siskiyou

The fight over the Siskiyou's North Kalmiopsis Roadless Area involves one of the largest and most ecologically valuable old-growth seed banks in the region. The Forest Service's "new perspectives," however, may help protect it.

by Jim Stiak

The Bald Mountain trail, a salmon's leap from the Pacific Ocean and the California state line, climbs into the largest old-growth forest left in Oregon. It's a land of vertical canyons, wild rivers and some of the richest fisheries in the continental United States. Untouched by the ice age glaciers that carved the Cascades, the Siskiyou Mountains support a flora that's survived more than 10 million years — more than 1,400 species, including more rare plants than anywhere else in Oregon.

Bald Mountain now faces a precarious future. To its south is the Kalmiopsis Wilderness, 281 square miles of forests and meadows. On its other side is the 140-square-mile North Kalmiopsis Roadless Area, whose virgin forest, according to the Siskiyou National Forest plan, is slated for logging in the coming century. Local mills, communities and wage earners have long depended on federal timber, and as the supply from other areas dwindles, the North Kalmiopsis becomes more precious.

The Siskiyou's fate, however, is still not sealed. Protests, lawsuits, a forest fire and congressional action have so far stopped the Bald Mountain Road and its network of logging roads from opening up the heart of the North Kalmiopsis. Trees have been spiked and people have sprawled in the middle of roads to stall timber sales. Pending congressional legislation would preserve much of the North Kalmiopsis. A nearby experimental project by the Forest Service could eventually protect the area from clearcuts. And some people want to turn the area into a national park.

Lou Gold knows the Bald Mountain trail well. He first hiked it in 1983, intending to stay five days. Two months later he hiked out. Since then he's returned every summer.

Ten years ago Gold was a professor of urban politics at the University of Illinois. "I was giving a very '60s-style lecture," he recalls, "the punchline of which was, 'Why don't you drop out of the university and join the real world?' Well, I must have given that lecture once too often, because I took my advice."

He came West and was in southern Oregon in 1983 when Earth First! founder Dave Foreman made local news from the underside of a logger's pickup truck. A group of protesters had been sitting in the path of the crew working

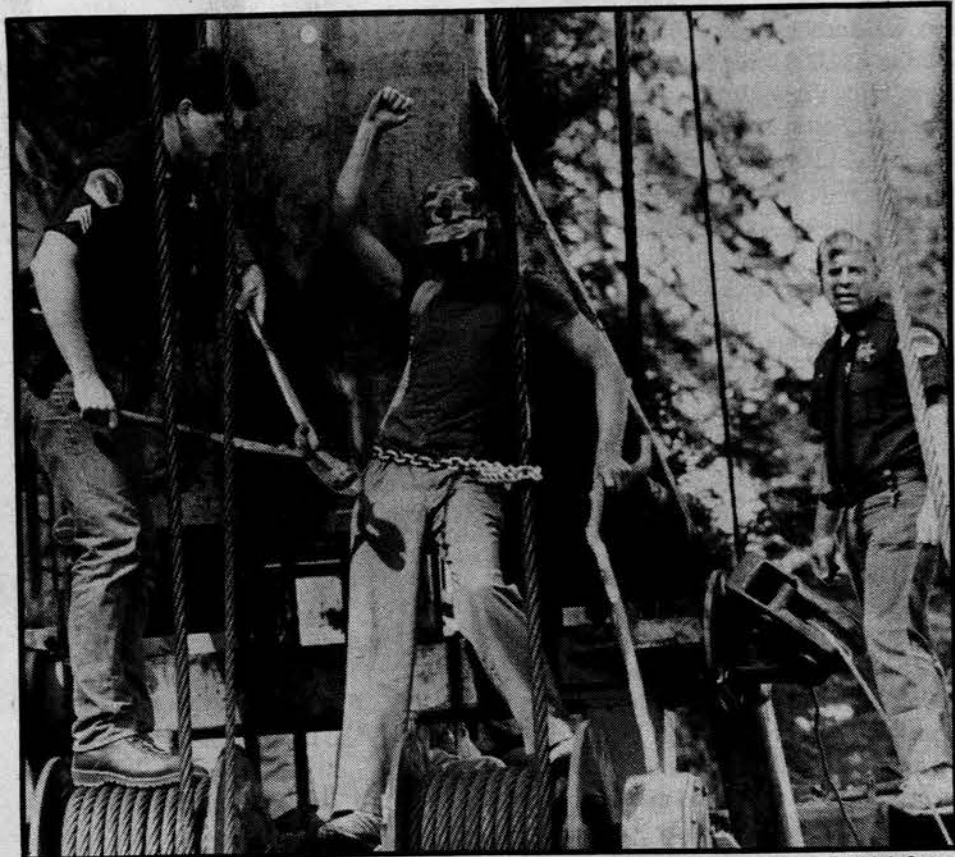
on the Bald Mountain Road. Foreman was dragged 60 feet when he refused to move.

"The Forest Service was planning to cut the road," Gold explains, "when an anonymous Forest Service employee wrote a letter to Earth First!, which at that time was three guys sitting around a campfire in Wyoming. That was the start of the fight on the ground for what was left of the ancient forest."

Gold joined the protesters, who were all jailed for chaining themselves to a bulldozer. Released on the condition that he not return to the area for a year, Gold returned immediately to take his first hike to Bald Mountain. When he came back down in the fall, he was rewarded with five more days in jail. But the next summer he returned again, and the weary authorities offered him a deal that still stands: He could stay as an official volunteer if he helped maintain the place.

Gold borrowed from Native American practices to guard Bald Mountain. He fashioned a prayer circle with flagpoles marking the four directions at the top of the ridge. He began carving walking sticks, giving them to his frequent visitors. It was one of these creations, he claims, that inspired his next move to protect the mountain. "There I was in the wilderness, having a heart-to-stick talk," he says, "and the stick asked me, 'Why don't you ever take me to fascinating places like Cincinnati and Houston?'"

Now Gold crosses the country with his bushy gray beard, ponytail and red bandanna, presenting a traveling old-growth road show with music, monologue and slides. "The Siskiyou don't meet the classic definition of old growth," he told 125 audiences last year.



David J. Cross

An Earth First! demonstrator gets cut from a yarder in the Siskiyou

"They run east-west, so the glaciers from the Cascades flowed around, and the Siskiyou became the seed bank for the Northwest, like the Great Smokies did in the East. It's where the southern and northern forests meet to create probably the most diverse conifer forest in the world, a jigsaw puzzle of species."

"Old growth is the original Mr. Coffee filter," his talk goes on. "If you go to a stream in a city park during a rainstorm, the water runs muddy. In a forest creek it runs clear because the organic debris strains out dirt. Old growth also is nature's ideal of zero population growth — the amount of decay is equal to the amount of growth." But old growth is disappearing, says Gold. "We took a line of log trucks 20,000 miles long from the Northwest last year."

Gold was on the mountain in the summer of 1987 when the Siskiyou National Forest released its draft management plan. It called for more than 200 miles of new roads in the North Kalmiopsis, including the Bald Mountain Road that both the Sierra Club and Earth First! had unsuccessfully tried to stop. It also called for a 15 percent reduction in logging from levels of previous years. Neither environmentalists nor the timber industry were happy. Then, as Gold says, "God stepped in."

On August 30, a lightning bolt started a fire in the middle of the battleground. For two months the Silver Fire burned, blackening 100,000 acres, until rains finally doused it. Newly planted trees in logged areas were hit the hardest. Much of the thick-barked old growth was spared.

To get to the damaged trees, the Forest Service proposed 20 miles of

logging roads. The battle lines were redrawn. Environmentalists compared logging after a fire to "mugging a burn victim," saying it would lead to erosion and muddy streams. The timber industry saw dead and dying trees going to waste.

It took an act of Congress to settle the debate. Under the Silver Fire Recovery Project, 43,000 acres of the Kalmiopsis roadless area were logged, mostly by helicopter. The Bald Mountain Road was extended only a mile. Logging damage was kept to a minimum.

But the rest of the Kalmiopsis roadless area still faces the chainsaw. The final version of the Siskiyou forest plan, released in the spring of 1989, calls for 212 miles of new logging roads in the first decade and removal of most unprotected old growth by 2089. Although appeals from both timber and conservation groups were dismissed, the plan is nevertheless likely to change.

The Jack Ward Thomas committee, the blue-ribbon federal scientific panel that recommended ways to protect the northern spotted owl, left most of the area open to logging. But both Indiana Rep. Jim Jontz and Minnesota Rep. Bruce F. Vento have introduced bills that would protect most of it.

Meanwhile, Bald Mountain Road is still on the drawing board, the largest old-growth forest in Oregon is still scheduled to be leveled, and some environmentalists have come up with another way of preserving the North Kalmiopsis: to turn it into the Siskiyou National Park.

Federal protection for the area dates to 1946, when it was named the Kalmiopsis Wild Area for a rare wildflower that thrives in its arid soil and was once thought to be extinct. In 1978,



T. Steen

Lou Gold in a prayer circle on Bald Mountain

the wilderness was expanded to its current 180,000 acres. Four other smaller areas bring the wilderness acreage on the Siskiyou Forest to 232,495 acres (out of a total of 1,092,302 acres). Designation of five Wild and Scenic rivers — the Rogue, Illinois, Smith, Chetco and Elk — has preserved the riparian corridors. But most of the thick forests lie outside these areas.

Siskiyou National Park's various proposals would protect anywhere from 700,000 acres in Oregon to over a million acres extending into California. Supporters see the park as a way to wean the local economy from its dependency on timber. They insist that it would attract millions of visitors.

The park, however, faces an uphill battle. "The national park proposal has no local community support," says Greg Miller, executive vice president of the Southern Oregon Timber Industries Association, which represents over 130 companies. "It's smoke and mirrors to say a national park will increase tourist attractions in southern Oregon. We already have more than we know what to do with."

Opponents point to nearby Redwood National Park in California, created in 1968 after two decades of efforts. It has drawn only a small fraction of the predicted visitors. What's more, they add, timber jobs that normally pay from \$18,000 to \$36,000 per year have been replaced with tourism-oriented employment that is considerably less lucrative.

Bruce Apple, Northwest regional director for the National Wildlife Federation, has an answer to those criticisms. "Congress waited two decades too long to create Redwood Park," he says. "We still have an intact forest here. If we wait even five years, we may not. Logging jobs are decreasing. We can replace them, although not with the same high-paying jobs. But we will be creating a viable future, not a pipe dream."

Nonetheless, even some environmentalists question the wisdom of a Siskiyou National Park. Some fear a park would attract development and threaten the area's unspoiled isolation.

Halfway between Portland and San Francisco, the area is as far from a metropolitan center as you can get on the West Coast. "A lot of the environmentalists here are loggers or timber cruisers," said one. "We're not urban yuppie environmentalists."

"This is a working man's forest," adds Jim Britell of the Kalmiopsis Audubon Society. "A lot of people heat with wood, or collect boughs or cones or mushrooms from the woods. Even many activists here think logging is an appropriate use of the forest — we're just against trashing the forest with clearcuts. But if Congress fails to stop that trashing, then we'll look at the national park."

Protecting the ecosystem

While a small group continues to keep the national park idea alive, the Forest Service is exploring another option that could protect the ecosystem — a pilot project on 23,000 acres north of the Kalmiopsis that would use techniques from what the Forest Service calls "new perspectives."

The Shasta Costa project is showcased in a full-color glossy booklet that talks of a "lighter touch over a wider area," of conserving "important elements of biological diversity on every acre," and of "not taking any more from the ecosystem...than it needs to renew itself and adapt to change."

"We're working closely with industry and the public," says Siskiyou public affairs officer Warren Olney. "We're leaving big trees for raptors, and a selection of species — hemlock, tan oak, and madrone, as well as conifers — a multiculture rather than a monoculture."

But Shasta Costa has problems. One is the expense in time and money for a project that requires added planning but offers less return. The Forest Service has spent half a million dollars planning Shasta Costa, about twice what would have been spent in a conventional planning process. But project public affairs officer Susan Mathison points out that much of the cost would not be

repeated on subsequent projects: "The first jet plane off the assembly line also is very expensive."

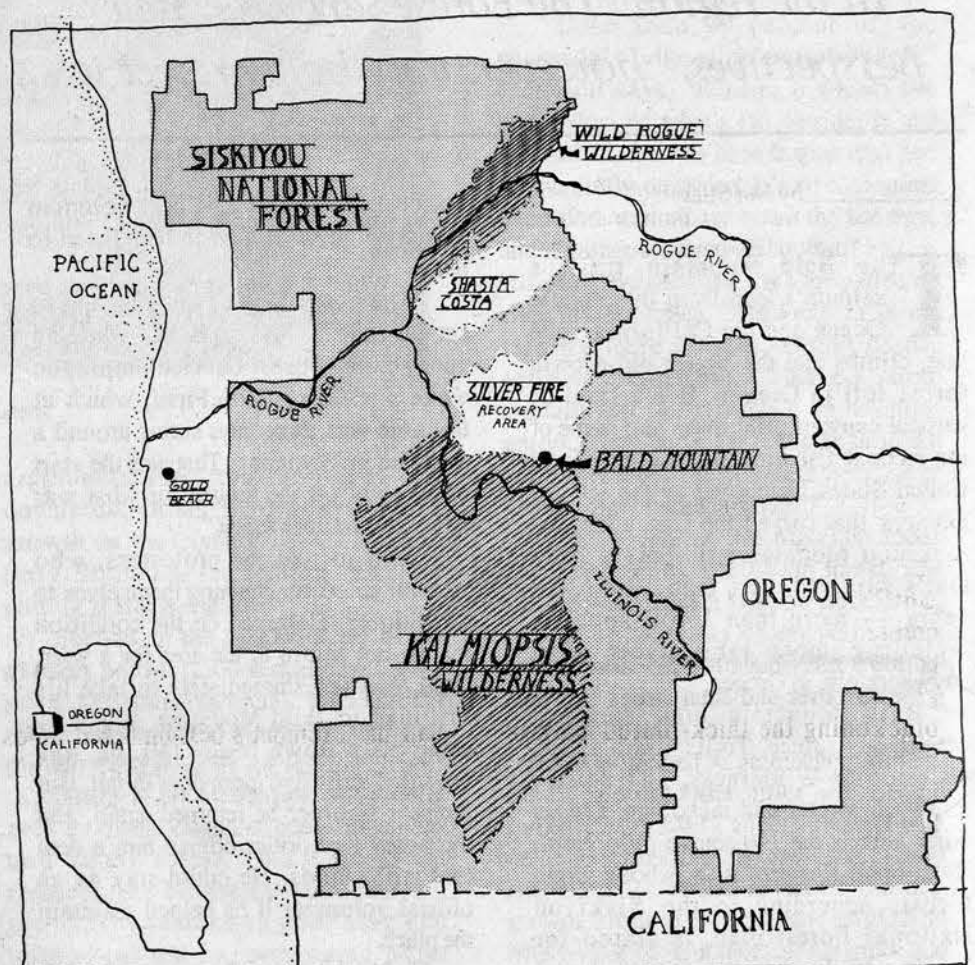
What would carry over to other "new perspectives" projects would be a reduction in logging. On Shasta Costa, the timber cut will be 15 to 30 percent lower than in past years. "If you're practicing 'new perspectives,' you have to reduce yield," says the Southern Oregon Timber Industries' Miller. "It has our profession divided. I think all we really want out of this debate is some certainty for our timber supply."

Another obstacle is the Siskiyou forest plan. If logging in Shasta Costa is initially kept low, that plan will call for more intensive cutting later in the decade. "To get that cut out," admits Mathison, "we'd have to compromise some of the principles of 'new perspectives.' However, between the spotted owl situation and changing social

pressures, I think we'll see amendments to the forest plan."

Nonetheless, the Shasta Costa project may have effects far beyond the forest's wild canyons — effects that may be the most far-reaching legacy of the battle over the Siskiyou. "I can't tell you the impact it's having on the Forest Service," says Mathison. "I get hundreds of calls from folks on the ground who want to know what we're doing. I think we are finally looking at the forests instead of the trees."

In the North Kalmiopsis, however, the Forest Service is still looking at the trees. The agency has no immediate plans to extend Shasta Costa's principles to the area. For the ancient forests there, which have survived longer than man has plowed this planet, the waning years of the 20th century may still bring, as Lou Gold puts it, "the last great buffalo hunt."



'New perspectives' to limit clearcutting

by Roy Keene

Over the last decade forest researchers have shown that even-age, single-species tree plantations cannot replace native forests. They say that present silvicultural practices will not sustain soil, watershed, wildlife, recreation or even timber production. These scientists are challenging foresters to make changes that will maintain the integrity of the national forests.

Many in the Forest Service are taking the message to heart. The agency calls it "New Perspectives." It seeks to blend the protection of the whole land with resource production and to manage ecosystems rather than a single species or resource. The agency calls it "a commitment to carry out a land ethic that the American people support and admire: that a healthy environment is the key to sustainable use of natural resources and that both are key to the survival of the human species."

The program might better be called "Renewed Perspectives." Gordon Robinson, in his book *The Forest and the Trees: A Guide to Excellent Forestry*, notes that the Forest Service once practiced true multiple use. But in recent years, he writes, the Forest Service "has turned its back on its tradition and substituted dominant use [timber

production] in its management... Clearcutting has become the norm rather than the exception."

In the 1940s Forest Service researchers developed an uneven-age, selective harvest model that maintained the natural landscape, species diversity and multi-layered stands. This type of management prevailed until the 1950s, when industry pressures caused drastic increases in timber production. Most of today's public forest managers have been taught that clearcutting is the only prudent way to harvest timber.

Selective, sustainable, low-impact forestry doesn't harmonize with the quick-profit corporate forestry model. But it can work for public forests intended to be used perpetually for all resource values. New Perspectives may be the first step in a journey back to the Forest Service's original management policy.

Managers are implementing this new view in the Siskiyou National Forest in southwestern Oregon. It is called the Shasta Costa Integrated Resource Project. From a series of ridges bridging the Klamath and Coast mountain ranges, Shasta Costa Creek drops a mile in elevation into the Rogue River just above the town of Agness. To the north is the Wild Rogue Wilderness, to the south the Kalmiopsis Wilderness. The 23,420-acre project area contains 14,260 unroaded acres.

The drainage is a steep, coniferous forest with a rich flora and fauna that result from the landscape, climate, geology and fire history. Clearcuts in the higher elevations have been only marginally profitable. They have caused increased sedimentation and have not regenerated well after planting. Shasta Costa's unique resources deserve gentle, true multiple-use management.

Project planners have recognized Shasta Costa as a biological corridor connecting two protected areas. They have considered the critical fishery watershed, mosaics of undisturbed old growth, and potentially high recreation use. Their plan mimics nature's disturbance patterns and manages for landscape diversity by maintaining biological communities, reducing roads and de-emphasizing clearcuts.

The timber harvest plan enhances forest growth by calling for prudent thinning, diversification of homogenous stands with partial cuts, and retention of some mature trees to shelter seedlings. Timber volume goals are compatible with the longer rotations realistically required for sustainable forestry in this moderate- to low-productivity drainage.

The Shasta Costa pilot project is a breath of fresh air for the heavily cut Siskiyou Forest. Forest Supervisor Abel Camerena says his goal is to maintain the stability of both the forests and the

human communities that depend upon them. "We've found that the best way to do this is to keep the forest ecosystem at its natural best," he says.

The foresters, biologists and hydrologists who planned Shasta Costa have charted the paths public forestry should take. Whether the agency's leaders are as serious about New Perspectives as the people on the ground is still an open question. One ominous sign is a recently accepted proposal to cut the Shasta Costa area again in the late 1990s in order to achieve the high timber volumes promised in the Siskiyou Forest Plan.

If New Perspectives opens a path to conserve biodiversity and endangered species, improve fisheries, protect streams and forest soils, and manage old-growth forests as a perpetual resource, it could resolve much of our public forest conflict. If it becomes just a new label for deforestation in the old haste-and-waste style for timber-dominated multiple use, it will deepen the conflict and damage the Forest Service's professional integrity.

(Editor's Note: Information about Shasta Costa is available from Public Affairs Officer, Gold Beach District, Shasta Costa Project, 1225 Ellensburg Ave., Gold Beach OR 97444.)

Old growth on the dry side

Ancient forests also exist east of the Cascades and into the Rocky Mountains. Their survival is even more threatened because of the harsher terrain and the Forest Service's zeal for timber.

by John Daniel

The Pacific Northwest's old-growth issue is not confined to the wet forests of western Oregon and Washington. It also extends across the Cascades to a different and drier ecosystem where the Douglas-fir does not dominate and the spotted owl is unknown.

This is where the true firs and mountain hemlocks of higher elevations give way at five or six thousand feet to a mixed forest of fir, pine, Douglas-fir and incense cedar. Still lower on the moisture gradient, as the mountains sink toward juniper-shrub steppeland, lies the native home of the ponderosa pine.

Where they've been undisturbed, the big ponderosas grow in spacious array, tilted at various slight angles like orange-shafted, green-fletched arrows thrust into ground, with grasses, small shrubs or needle duff between them. Until this century the openness was created by fires that scoured the pine country every eight to 12 years, burning ground cover and small trees but only blackening the thick-plated bark of mature ponderosas. A healthy tree felled in Montana's Bitterroots a few years ago had been scarred by 21 fires since 1659.

Old-growth ponderosas occasionally reach eight feet in diameter and 200 feet in height. That they attain such stature is a tribute to their superb adaptation to the hard conditions of this terrain. Seedlings routinely survive surface temperatures ranging from 150 degrees to freezing within 12 hours. A four-year-old tree a foot high will sometimes extend roots five feet into the ground. The root systems of old trees, taking what the shallow volcanic soils of the region allow, can grow five times wider than the tree's crown.

But if soil, climate and fire have produced forests very different from those of the wet Westside, their recent history is more similar. Early settlers of the open prairies east of the Cascades had no need to clear land for agriculture, but the groves of fat pines on easy terrain turned many of them to a new vocation — logging. By the 1930s large patches of old growth had been clearcut — or "clean-cut," as it was called then. Other areas have had their big trees high-graded, or selectively cut, two or three times since 1900, with more stumps, skid marks and road damage left with each entry.

Early foresters in central Oregon reported 10 to 30 trees per acre with an average trunk diameter over 17 inches. Today, with big trees scarce and poles and saplings flourishing under fire-suppression policies, the norm is 300 trees per acre and average diameter under 10 inches.

In the 10 Eastside national forests in Oregon and Washington, very few unlogged old-growth ponderosa and mixed conifer stands remain. Two of the largest and finest are in the Fremont

Forest in south-central Oregon — the Deadhorse Rim and Coleman Rim roadless areas. Both were in the House version of the 1984 Oregon Wilderness Act but were dropped from the final bill. Now the Coleman Rim forest is scheduled for timber sales in 1994. And the Forest Service may soon cut the Augur Creek drainage on Deadhorse Rim, a spectacularly diverse 13,000-acre woods of big ponderosa pine, western white pine, lodgepole pine, white fir, Douglas-fir, aspen groves and boulder-strewn meadows.

When the Forest Service first tried to sell the Augur Creek timber in 1985, the sale was appealed by Oregon conservationist Don Tryon, who stood alone in a hostile crowd of millhands let off work to attend the hearing. Forest Service timber sale appeals don't usually involve a public hearing. But Augur Creek is part of the Lakeview Federal Sustained Yield Unit, a special marketing arrangement — there is only one other in the country — where timber can be sold only to local buyers. The unit amounts to a semi-private fiefdom of half the Fremont's best-timbered lands that benefits an in-group of timber companies who are logging intensely — often clearcutting, spurning the mixed-age management employed in most of the pine country. Says a young Forest Service seasonal worker who was born in the area: "I've been hiking around here for 15 years, and a lot of places I know are being trashed. They're cutting way too much."

Tryon's appeal was upheld, but Augur Creek's choicest lower-elevation timber was offered again in 1989. That sale also was successfully appealed, and the Sierra Club Legal Defense Fund then sued to stop future sale attempts. The Forest Service is now preparing an Environmental Impact Statement on Augur Creek to settle its future.

No conservationist believes that non-commercial uses will be seriously considered. Says Tim Lillebo, Oregon Natural Resources Council field representative for eastern Oregon: "It's a pre-determined murder. They want the EIS to be their legal license."

Ted Yarosh, timber management officer for the Fremont forest, says a decision will be made on the basis of "all considerations." But he adds: "We're not doing an EIS for planting palm trees on the moon. Our project is the proposed sale of Augur Creek timber."

A zeal for timber

Many conservationists consider the Fremont the most benighted of Eastside national forests. Certain others — notably the Deschutes, Ochoco and Malheur — have recently taken steps to protect riparian areas, maintain thermal cover for wildlife and practice uneven-age management (cutting trees of varying ages).

All the new Eastside forest plans reduce cutting levels. But these reductions don't impress Lillebo, who says they are only a belated acknowledgement that far less old growth remains than was previously believed. James Monteith, the Oregon Natural Resource Council's executive director, agrees. "The plans do bring down the cut," he says, "but they still liquidate everything we care about. The plans are focused where they've always been: on taking the big pines as long as they can before retooling for smaller-diameter trees." The reductions might mean more if harvests weren't already so high — two to three times sustained yield, Monteith contends.

The Forest Service's zeal for timber prevails even in Hells Canyon, the great Snake River chasm that Congress designated a national recreation area in 1975. The law permits timber to be harvested, but only in a manner compatible with scenic and recreational values. In the words of Ric Bailey, director of the Hells Canyon Preservation Council, "The Forest Service took that loophole and drove a log truck through it."

The Wallowa-Whitman National Forest has increased Hells Canyon timber sales since its recreational designation, most dramatically during the last five years. Most of the canyon's ponderosa pine and mixed conifer forest grows along north-facing slopes of ravines. These ecologically sensitive zones, unlikely ever to regenerate a forest like the one that now stands, are being managed in many cases for timber production.

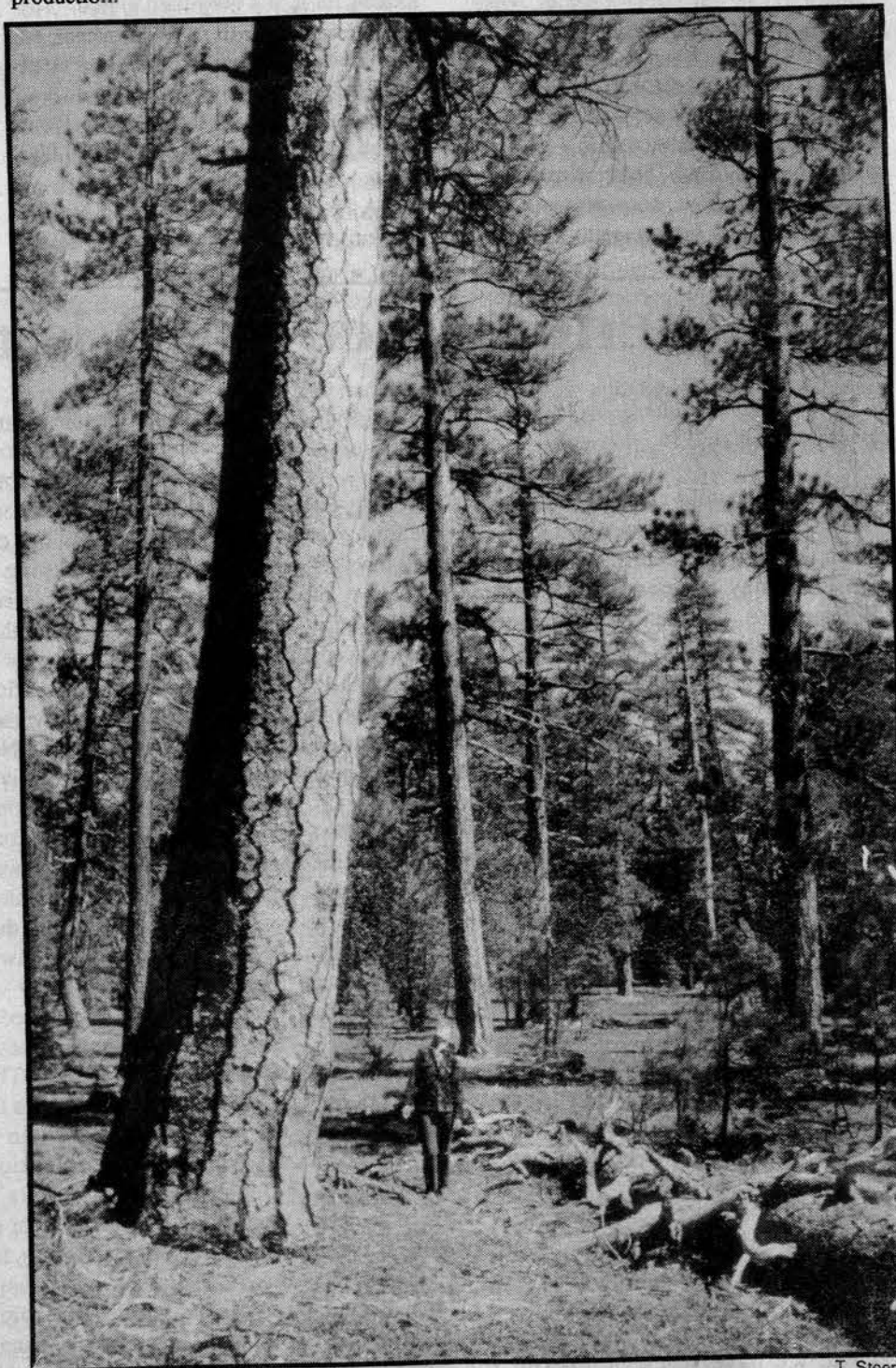
So are the more heavily wooded uplands of the Imnaha River, a region of seeps, verdant meadows and clusters of big ponderosa that James Monteith calls the prettiest place in Hells Canyon. The Skook sale, logged in 1988, turned a thousand acres into a dump of logging debris. More sales are in the pipeline. Near Horse Creek, an Imnaha tributary, a few irregular blow-down areas sold for salvage mysteriously turned into large rectangular clearcuts. Larry Tuttle of The Wilderness Society singles out those clearcuts as the worst he has ever seen on a national forest.

The national recreation area legislation stipulates selective logging in Hells Canyon. The Forest Service, resorting to verbal legerdemain, allows a "group selection" that has resulted in a profusion of small clearcuts. Such flouting of the letter and spirit of the law has launched a movement to remove Hells Canyon from Forest Service management. The Hells Canyon Preservation Council is campaigning to designate it as a national preserve, a national park unit that allows hunting.

National preserve status would stop logging altogether in Hells Canyon. At present only a tiny portion of Eastside forest enjoys such protection. Some old-growth pine occurs in wilderness areas like the Wenaha-Tucannon in south-central Washington. But wilderness areas usually are located in higher-elevation terrain, not in the lower slopes and valley bottoms associated with old-growth trees.

The Forest Service has set aside

(Continued on page 28)



Old-growth ponderosa pine in the Augur Creek area

T. Steen

The dry side ...

(Continued from page 27)

only a few tiny patches as Research Natural Areas. In four central Oregon forests — the Fremont, Deschutes, Winema and Ochoco — there are 400,000 to 600,000 acres of ponderosa forest. Less than 2,000 acres are protected as research areas.

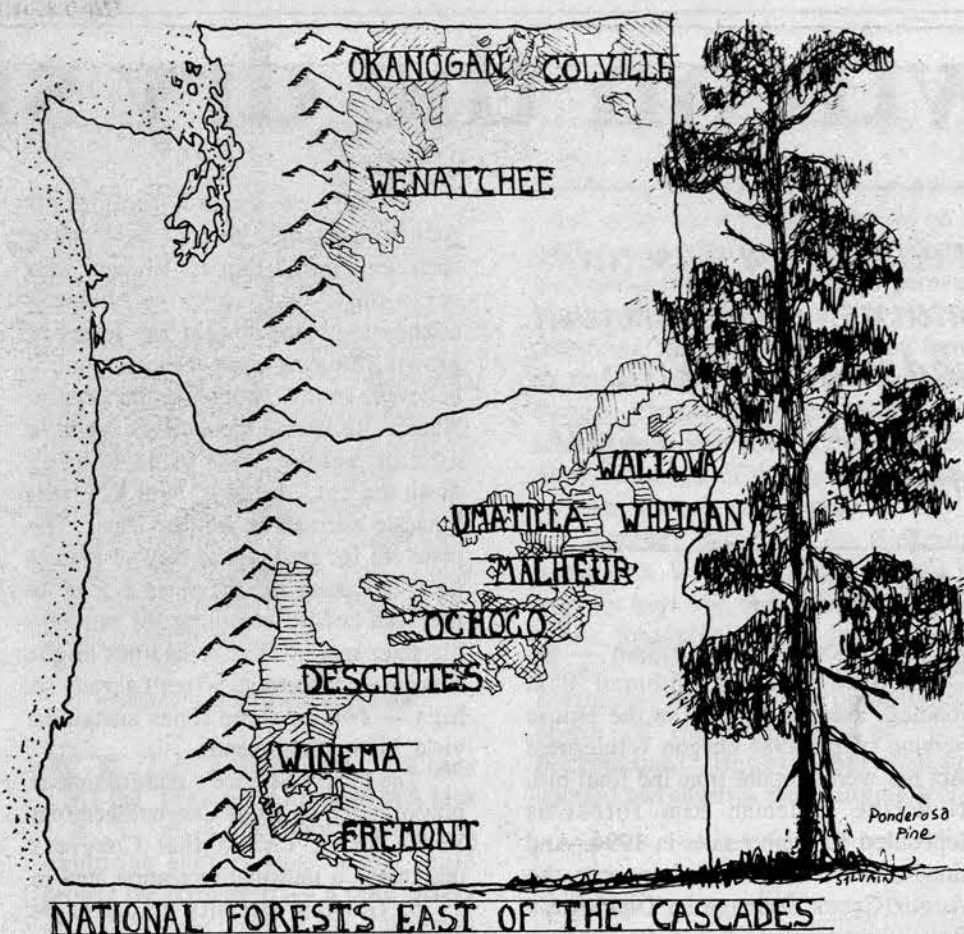
Some Forest Service people want more old growth set aside. Bill Hopkins, an ecologist in central Oregon, wants to see research areas expanded to include a representative variety of forest types and gradients, including intact drainages. He would protect part of Augur Creek and the forests that line canyon bottoms and moister slopes. Preserving a set of such ecological benchmarks would serve commercial as well as scientific and aesthetic purposes. Research into the biotic interrelations of old-growth communities, which are as subtle and complex in Eastside forests as in the Cascades, can yield important secrets to be applied in cultivated forests.

A few pairs of spotted owl live on the eastern flank of the Cascades in the Winema, Deschutes, Wenatchee and Okanogan forests. Farther east there are none. But elk, deer and other animals use the ponderosa forest for winter and summer thermal cover, and at least 17 other species, such as the flammulated owl and white-headed woodpecker, rely on old growth.

The Forest Service sets aside wildlife areas for some species, but the areas are small and isolated — 80-acre to 300-acre islands. Rick Brown of the National Wildlife Federation calls this "the cookie-cutter approach," arguing that it accomplishes little significant habitat preservation.

Cleaning out the pines

Eastside old-growth protection could come if the Ancient Forest Preservation Act (HR 4492) is passed by Congress. The act directs the Forest Service to consider all its Northwest lands for protection on the



basis of old-growth values. But conservationists aren't holding their breath. The bill may never pass, and the pine forest is going fast. James Monteith estimates that current harvest levels will clean out the last of the big pines in five or six years. Tim Lillebo is slightly more optimistic, giving the forest 10 to 15 years.

The Forest Service and timber companies vigorously deny these forecasts. As on the Westside, there is little agreement on defining Eastside old growth or where it grows. According to Rick Brown, Forest Service maps of the Fremont show about 200,000 acres of old growth, "but when you go out looking for it, it's very hard to find." The only true old growth on the Fremont, he maintains, is in the two roadless areas the Forest Service is trying to log — Coleman Rim and Deadhorse Rim, which together contain about 20,000 acres.

A Forest Service team led by Bill Hopkins has been working on a set of

Eastside old-growth definitions, two of which are now under review in the regional office. The team concludes that old-growth ponderosa pine and the white fir/grand fir series can be identified the same way as old-growth Douglas-fir: by size and number of trees and snags, presence of down woody material, layers of canopy, and overall stand size and shape. A definition of old-growth lodgepole pine is still being written.

A National Audubon Society program is beginning to provide the first reliable mapping of Eastside old growth. Called Adopt-a-Forest, the program was launched three years ago by Chuck Sisco, an Audubon biologist and former Forest Service employee. Beginning on the Westside, Sisco organized teams of local activists to work with the Forest Service to determine what acreage of large sawtimber had been logged, what still stood and where future sales were planned. Last year, the program spread over the Cascades to include the dryland forests.

Forest managers seem more receptive to Adopt-a-Forest volunteers, most of whom live near the forests they map, than to outside environmental groups. The program is organizing constituencies — truck drivers, dentists, people of all educational backgrounds — who convey a different message to the Forest Service from what it hears from loggers, millworkers and timber companies.

The companies continually argue on behalf of jobs and communities they say environmentalists are destroying. As environmentalists organize in these same communities, company claims sound less convincing. The underlying job situation is the same on both sides of the Cascades: Jobs have been disappearing since the late 1970s, as companies automate or leave altogether, having mined the best old-growth forests. Timber supply was never the problem. Cutting levels actually increased in the 1980s as jobs slipped away.

As the Northwest shifts to a more diversified economy in which timber plays a lesser role, there will be hardships. But the transition may be easier on the Eastside than on the Westside, which faces sudden forest closures over the spotted owl. The transition regionwide could be eased considerably if the Northwest congressional delegation would shift its focus from the wood products industry, whose profits are higher than ever, to job retraining and worker relocation. Tax incentives are needed for new non-timber businesses as well as for secondary wood-products manufacturing, which creates more jobs per tree than the timber industry does.

With no spotted owl to dominate it, the Eastside's old-growth dispute will be worked out on fundamental terms: the remnant integrity of a major ecosystem vs. a traditional extractive industry. The challenge facing the inland Northwest is to evolve a new, sustainable identity in relation to the land before the identity of the land itself is reduced to little trees and big stumps.

Why senescence (rot) is not a dirty word

Excerpted from *Wintergreen*, by Robert Michael Pyle. Houghton Mifflin, 1986.

When the mills close, the log trucks stop rolling, the dairies go to summer beef or weeds, the fresh, wet green remains the same. It is something the mill towns of the East may not possess. The essential beauty of Willapa, Ore., has been marred, but not erased. The quiet can only enhance the appeal of the landscape. It keeps stubborn people here and brings new ones. While depopulation inevitably followed the successive turn-downs of industry and families have been hurt and all but exiled, others, better suited perhaps to the new conditions, will remain. That's evolution.

One of the difficult things for people to realize is that senescence (a prettier word for rot, reminding one of the susurrance of the wind) is not all bad. In ecological terms, senescence must precede (and is normally accompanied by) regeneration. All communities must senesce in order to be renewed. Renewal can occur continually in a climax state, as in the Long Island cedar grove or in New York City; or it can take place episodically, as following a forest fire or a bad recession.

A mature rural economy, like that of England prior to World War II, is one in which senescence and regrowth occur together; a kind of a climax state of the countryside and its settlements. Willapa never had a chance to get there, or to come even close. Instead, it followed another classic pattern in ecology: boom and crash. It is an uncomfortable way to go, it hurts people and their pride. But it leaves open the door for stability next time through a different model than the one that created the crash.

So we have senesced without the concomitant

regrowth that denotes gentle maturity. That way lies obliteration. If we are not to fade away, we need to begin to grow again. But we would be wise, I feel, to avoid setting ourselves up for another crash — not that there is much worry of that. The chamber of commerce types have a hard time buying the "senescence is okay" argument, as do the displaced families. They may cling to the hollow husk of hope that another boom will come. But theirs is a faith in what's not going to happen. They are the casualties of simplification.

We know that a diverse ecosystem is a stable one. The simplification of the Northwest woods will lead to instability, just as lack of diversity in the workplace led to the unstable present situation. Those early boosters had it right when they plumped for a highly varied agricultural and industrial base. Had it worked out that way, their plan might have come to something.

Now, in our winter of disconsolation, a new diversity is beginning to arise. Drawn by the very features that represent economic decay — empty old houses, lower land prices, the uncluttered countryside of the largely abandoned valleys — a new sprinkling of settlers has been arriving in Willapa. They include the naturalists I wrote of, as well as retirees from the merchant marine or the military, industry or the office; yuppie dropouts and seasoned hippies, all anxious for a taste of the land; young farmers and traders and technicians willing to work hard to buck the tide; craftsmen and craftswomen, artists and artisans. Natives, having left for the lure of the city or the lack of a job, come back to make one. That is the essence of the new colonists: they make their own jobs with an astonishing range of skills and resources. In so doing, they begin to bring back something of the living

human diversity that's been lost.

Meanwhile, the old-timers who remain, the Finns and Swedes and Swiss and others, furnish the essential matrix for regeneration. That's what an enormous clearcut lacks: old-timers to tell the tales, to pass on the locally adapted genes and knowledge and skills and traditions that successful regrowth requires. The purge of the local population began to look like a clearcut, until it became clear that a good many of the locals were loath to leave. Some, having become prosperous off the land when it was still giving, have kept their money here. Others remain on scant resources, bolstered by the nearness of family and friends. Family looms large in Willapa society. While extensive intermarriage can prop up provinciality, it also lends texture to the community. As newcomers arrive, the incestuous features of the towns and country give way to their refreshing influences; still, the strength of families remains.

Among the rotting homesteads one sees many tidy homes in good repair, proof against the agents of senescence, ready to shelter another generation from rot's best friend, the rain. Nothing shows the evergreen possibilities of any region like those who stay, for they are the ones who have seen the boom, lived through the bust, and still believe in the land.

One still sees mobile homes plopped down beside fine old houses left to return to the humus. It's cheaper, and a lot easier, than fixing up the old. But just a few of the original homesteads are being reclaimed, lovingly restored, or remodeled into places where life can take over again. The germ cells of generation have been planted; now it's up to initiative and evolution to decide what happens next.



A Weyerhaeuser clearcut in Oregon's Middle Santiam Valley

T. Steen

A vision for our future forestry

A nature writer presents his reasons why the timber industry must limit its profits for the sake of a healthy, varied and sustainable forest. If not, he says, "restraint may have to be imposed."

by Robert Michael Pyle

For the second time in a week, I entered the hollow cedar. As my eyes adjusted, I could see several feet up into the burned-out bole of the living tree. Outside was an array of greens painted by the cedar's own foliage together with that of salmonberry, deer fern, salal brush and many mosses. The calm of the ancient forest, for the moment, was complete.

A dozen quiet walkers, staff members of Conservation International on retreat, had followed me into the holt. After a hard day of project reviews and planning sessions, these devoted workers for the land needed an outing. I offered to take them to a nearby western red-cedar preserve, recently saved from logging by Washington's Department of Natural Resources. When we were all inside the venerable cedar, a hush came over us as we realized where we were — *inside a tree* — in a land where most trees can be entered by one person's hands.

I was reminded of a time in Sequoia National Park, where I was a ranger-naturalist. The usual nature walk through the Congress Grove of the Big Trees was somewhat pat. Seeking a way to personalize it, I happened upon a fire-hollowed sequoia with a small opening. People willing to bend over could shimmy into the cavern of the hollow trunk. The largest group I ever escorted into that tree was 93 park visitors. Imagine — nearly a hundred people standing within a living tree. Each of them took home a very different idea of "tree" than they had come with.

Now, in the South Nemah Cedars Natural Resource Conservation Area in southwest Washington, a handful of

conservation professionals were gaining a similar expanded sense of forests and trees. A great windstorm in 1921 had leveled most merchantable timber on the stand and thus excused it from logging. But many grand cedars and spruces had resisted the wind, and the hemlocks around them had since grown up into a solid forest of different ages and sizes. Just before logging was to begin, biologists such as Jim Atkinson, who was with us now, noticed the unique nature of the Nemah stand. Acting with the support of many locals, including loggers, the state machinery worked fast to safeguard this stand.

Now, as we walked away from the hollow cedar, Jim noted its probable use as a roost site by several species of bats. Perhaps we shouldn't have gone in and risked disturbing them. But if bats and people can share a hollow tree even momentarily, I wondered, shouldn't we all be able to coexist with owls, murrelets and trees in a vast landscape?

I led my entourage out of the hollow tree and into a forest of living giants. For a while we rambled among the red-cedars that might as well be redwoods and let them take away our daily cares. Jim found a new salamander, his eighth species, beneath a slab of wood left by cedar poachers. A woman from Mexico traced the angular pattern of pileated woodpecker holes up the side of a snag. Another from Vancouver Island watched the setting sun reflect off the candelabra tops of the oldest trees.

Then it was time to emerge from the woods. We picked our way among the banana slugs on the way out, pausing to watch a mating pair and reflect on their enormous importance to the forest ecology as recyclers. We found our cars and

reluctantly drove out. At the boundary, we entered a big clearcut on Weyerhaeuser land and, after that, the monotonous doghair hemlock-and-fir plantation that makes up much of the Willapa Hills. Darkness softened the contrast, which in bright light is almost too great to abide.

The Maritime Northwest, from northern California to southeast Alaska, possesses climate, soil and geology that have generated the greatest forests on earth. They are not as diverse in species as Virginia's forests or Brazil's. But their abundant conifers, ferns, fungi and epiphytes produce the highest biomass of any earth system.

These forests have grown more wood per acre than any others at any time. That is how they differ from the other forests of the world. And that is why there is so much acrimony over their fate today.

Estimates of the remaining ancient forest vary [see story on page 23]. But most agree that what remains is less than one-tenth of the original lowland big-tree forest. This leaves us fighting for the scraps.

If there is to be any future in all the woods for loggers, birders and mushroom hunters; for timber towns, salamanders and watersheds; for those who hunt or fish or simply seek serenity, there must be some kind of integrated vision for our future forestry. Future timber profits are going to wither, no matter who wins the old-growth fight. What is now needed is a new timber-industry ethic that recognizes the inherent vulnerability of the forest resource and the necessity to incorporate the long-term view. Unfortunately, that is the opposite of what has been driving the industry in recent years.

The problem is greed

By now everyone interested in the Northwest's timber issue must know that old-growth timber jobs will disappear in a few years no matter how much or little land is set aside. But this straightforward fact and its economic implications are still being ignored by those who will be hurt the

most. Why? Certainly part of the answer must be found in the timber industry itself and how it has changed, especially during the Reagan era of leveraged buyouts and junk bonds.

The vast timber combines, having cut virtually all the ancient trees on their own land, have turned to milking the public trees in the national forests. If many of these last old-growth stands are set aside, the timber companies stand to lose large profits. What has been less apparent, however, is the effort these companies have made to keep their workers in the dark about their actions, which undercut jobs and communities even as the companies strip the forests and their soils.

Most of the timber companies, with their eyes on immediate profits, have chosen to manipulate the fears of their workers in order to cut off their communication with conservationists. The reason is to undermine the natural interest both groups have in ensuring the long-term health of the forests. The exploitation of the northern spotted owl issue to drive a wedge between these potential allies has been one of the industry's deftest and most cynical acts of the decade. The common ground we seek is slippery enough, but Big Timber greased the skids.

I live in the Willapa Hills of southwest Washington, virtually all of which have been logged over. These low, wet hills south of the Olympic Peninsula, bounded by the Columbia River and the Pacific, contain no national forests whatsoever. Perhaps because the Indians here became functionally extinct without having ceded their lands, the whole range went to railroad and timber concerns early on, bypassing federal ownership. In time, all but a little state-owned forestland and various small holdings in the valley were acquired by Big Timber.

Much of the aboriginal forest was cut in the decades that ended the 19th century and began the 20th. Most of the rest fell during the frantic building boom of the post-World War II era that extended into the 1960s. By the early 1980s the Northwest's timber industry

(Continued on page 30)

Vision ...

(Continued from page 29)

was in a recession. Log dumps, mills and camps closed unceremoniously to create vast unemployment. Communities and families collapsed. Willapa Hills got an acrid taste of boom and bust, cut and run.

Big Timber took off again in the late 1980s. Domestic and export prices climbed for raw logs and pulp. But the timber towns did not really boom again. During the slowdown the unions had either been broken or were weakened. Most loggers don't work for the big companies anymore. Those back at work in the woods now work for smaller outfits that contract with the companies and generally offer lower wages and fewer or no benefits. The accident rate in the woods has returned to the bad old days of the 1930s.

Some of the older timber companies have left. The Weyerhaeuser Corp. has sold more than 80,000 acres in Washington to the John Hancock Co., in a switch of resources to land development. Crown Zellerbach, having stripped much of its lands, sold off the huge Cathlamet Forest to Sir James Goldsmith's empire, which also is largely financed by insurance companies. The once-moribund timber industry has sold itself in part to outside investors whose only interest is how to wring the most profits from the overworked land in the shortest amount of time.

None of this has anything to do with forest sustainability. Stands that were once cut every 50 to 90 years are now going under the saw after 30 years of growth. As the last loads of old-growth logs go down the roads of Willapa on their way to Japan, they are followed by truckloads of 25-year-old beanpoles bound for the pulp mill.

Left in this wake are the phony forests of the future. To see them, just fly over the Gifford Pinchot National Forest between Mount St. Helens and Mount Adams, or the once-forested hems of any of the protected volcanoes of Washington and Oregon. They are good examples of the new non-sustainable forests being created by today's Big Timber. These are their characteristics:

- Soil compacted into hardpan by heavy timber equipment.
- Erosion from steep-slope logging that has wrecked roads and salmon beds by bringing whole headwalls of streams to their feet.
- Down- and deadwood slash-burning that destroys the forests' natural

nitrogen banks in a nitrogen-poor land.

- Herbicide spraying on cut-over lands to kill alders that compete with Douglas-firs; this destroys the forests' main nitrogen-fixer.

- Disruption of the soil relationship developed in the mycorrhizal-fungi-rootlet-nutrient chain that is vital for healthy tree growth.

- Destruction of invertebrate diversity by clearcutting, spraying and burning.

- Creation of unstable, pest-prone "super" monoculture trees that grow quickly but have little tensile strength; they are fit only for pulp, despite Big Timber's promises to provide strong sawlogs forever.

No, these plantations are not forests in any way that respect the richness and diversity of that word. Nor are they sustainable, even at the reduced level of their new characteristics. No forest has ever been known to produce more than three successive commercial rotations of mature trees without a breakdown. The *waldsterben*, or tree death, now afflicting Germany's Black Forest and other areas provides a grim harbinger. It probably is just as much a result of an exhausted soil and forest system as it is of the multiple toxics poisoning Europe's air.

Big Timber's public-relations campaigns, however, bear little resemblance to the reality in the woods. In one full-page ad, George Weyerhaeuser's picture takes up a third of the page in a Big Timber pitch that borders on the surreal. "We can have both forests and forest-based economic opportunities in Washington. Forever, if we manage our resources wisely," the ad states. "Our company manages its forests to provide a continuous flow of wood forever." Weyerhaeuser then goes on to invite the reader to "inspect our forests today."

I, too, invite you to do that, but get off the highways and go beyond the Weyerhaeuser demonstration tracts with their neat explanatory signs. Drive up the Upper Chehalis River, for example, and view the many failed watersheds whose soil has washed away, ruining the fish runs below. This is all on Weyerhaeuser land. And on your way down, pause to look at the main street of Pe Ell. That will tell you what the company's policies mean for the social fabric of the towns they dominate. I have inspected a great deal of Weyerhaeuser land. If this is "responsible stewardship," I'd hate to see the opposite.

The forests of the future promise to be one big doghair pulp plantation, with little richness and less stability, employing as few people as possible.

George Weyerhaeuser himself, in a recent interview, concluded that "these forests will never grow old." And that is precisely the point.

Is there a way out?

When the old growth is all gone, either to the mills or the export docks or perpetuated in reserves, what will be left? The answer is just about everything — most of the timberland base. Most of the protected land in the Northwest consists of rocks and ice or subalpine fir and other nonsaleable cover. The federal forest preserves are small in comparison to the "industrial forest" owned by the timber companies. But most of the acres that industry and consumers have come to depend on will still be available for commercial use. The question is how much and how often this timberland base can continue to grow trees.

The timber companies employ many excellent foresters who would manage the woodlands well if they had the chance. The management and work force have honorable people with no desire to wreck the fabric of the land. But these people seldom come near the decision loop. Must the timber industry always be run by those who seek only to maximize short-term profits?

There are reforms that could, if realized, begin to assure *real* forests for the future. The widely touted Timber/Fish/Wildlife agreements in Washington are designed to encourage private forest practices that would promote the three interests stated in the name. But policing by the Washington Environmental Council will be difficult because of the deluge of timber-cutting permit applications, as landowners rush to take advantage of high pulp and export prices.

Washington Commissioner of Public Lands Brian Boyle, an elected official responsible for some 3 million acres of state timberlands, has stated that private logging permits will not be issued if strict safeguards are not met. Since some reforms, notably those protecting state natural areas, have been very successful, his dedication to better logging practices bears watching. He is a great improvement over his notorious predecessor, Bert Cole, who managed state lands as an extension of Big Timber.

The most widely discussed reform, however, is the so-called "new forestry." Its principle, based on years of research by such forest ecologists as Jerry Franklin and Chris Maser, is to replicate

natural processes by leaving more trees standing — dead and alive — and more wood and coarse debris on the ground than is usually left after clearcutting. This would help build soil, provide habitat for all organisms and promote the rebuilding of overall forest structure after the catastrophic effects of logging.

Selective logging can work well and do less damage to soil, stream and scenery with a quicker recovery time for the stand. Some agencies, including Boyle's, are already experimenting along these lines. So why does it remain so controversial?

One reason is that even the proponents of "new forestry" are beginning to differ on how to apply it. Franklin talks about a half-dozen green trees per acre, while Maser would like more. Some worry about blowdown of isolated standing trees, while the state is concerned about logger safety because of the snags left.

Another reason is that some new-forestry supporters go too far, suggesting that the practice could in effect replace old growth, giving the owls and other wildlife enough habitat for survival. But this doesn't make sense. While new forestry clearly is a vast improvement over clearcutting, it has nothing whatsoever to do with an intact ancient forest. The two are separate issues.

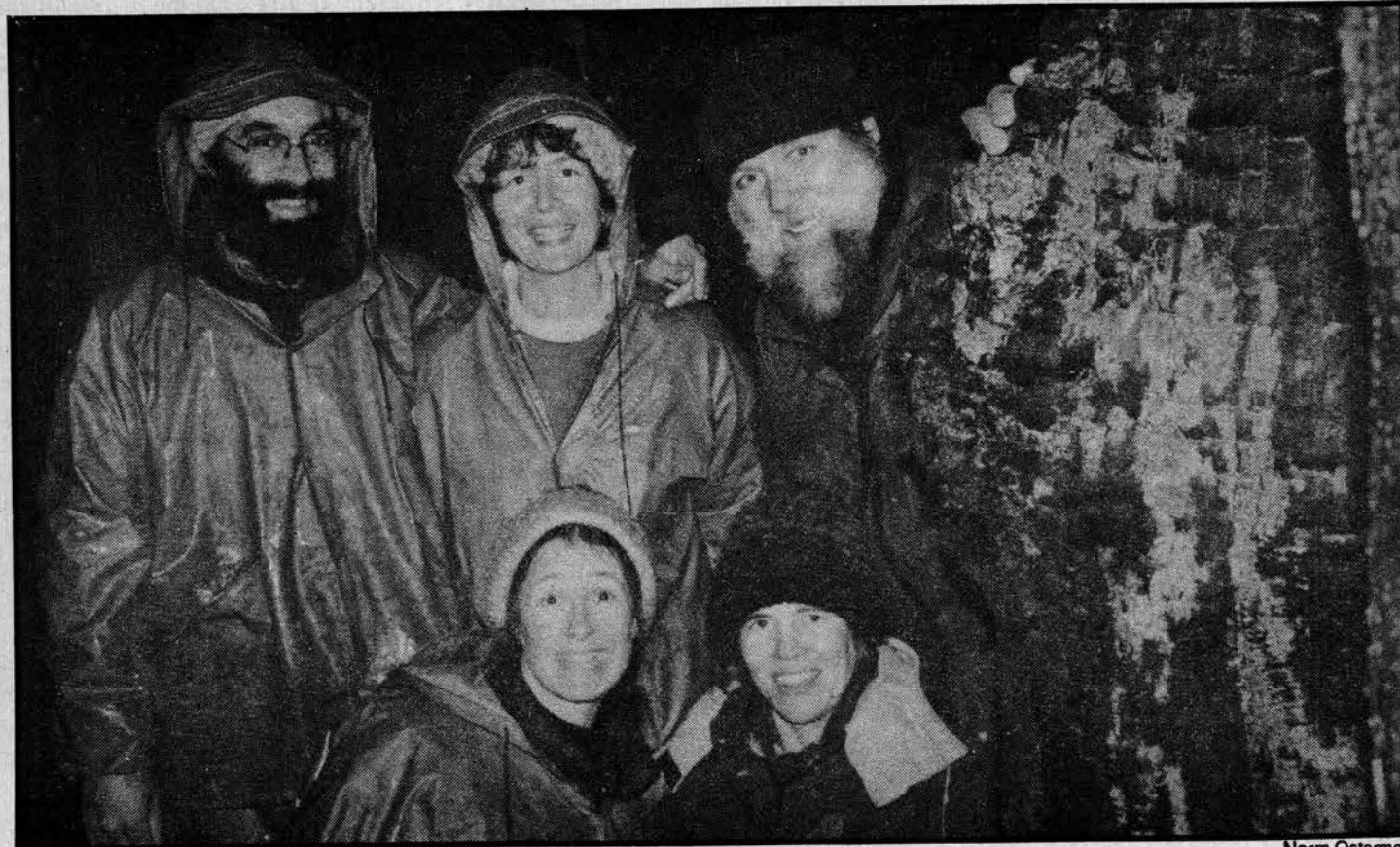
Finally, new forestry will not work without some new economics. If we are to treat the forests as infinitely renewable, we must demand less from the woods in the short term. Everyone should prepare for diminished profits. But this is going to happen anyway. The big, fat logs will be gone soon, either cut or preserved. Profits will dip, whether from the diminished capacity of the logged-off land or from reined-in exports, stricter controls, new forestry, reorganized labor, recycling, or the sheer opportunistic overcutting of young trees.

These woods *can* continue to produce both fiber and wildlife, jobs and aesthetics, just as the Weyerhaeuser ads promise. But not their way. By adopting a more realistic attitude toward the long-term capacity of the land and a more humane posture toward their work forces, Big Timber can still turn a reasonable profit and sustain jobs.

For substantive change to take place in the manhandling of our forestlands, restraint in profit-taking will be necessary. In a lecture at the Yale School of Forestry and Environmental Studies, I characterized the problem as one of unmitigated greed. One listener asked if I thought there was such a thing as mitigated greed. I do. But does Big Timber?

Weyerhaeuser's facile ads are not a good augury. The company apparently cannot see the forest for the fees, so restraint may have to be imposed. And, as with the political fights that have preceded other efforts to contain corporate greed, this will take time and patience. But we all have our reasons to persevere. Mine is that I care about these hand-me-down habitats, these second-hand lands, that surround my home and town. They have been hurt, along with the people who work them. But both can heal. The ancient forests cannot be replicated, so they must be the first priority while the chance to save them remains. And our sights must be high: All we can get is not enough.

Will the forest become a steadily degrading pulp plantation employing a diminishing number of underpaid workers and supporting fewer species? Or will it become a real forest again, scarred but growing, nurturing viable communities of all living things? Surely this is the common ground we all should be seeking when the old-growth smoke clears.



Robert Pyle, back right, and Conservation International staff members inside a hollow cedar

Norm Osterman

Why the timber war is so bitter

A way of life in Oregon is disappearing. The agony involves the death of a vision that is now more myth than reality.

—by Steve Forrester

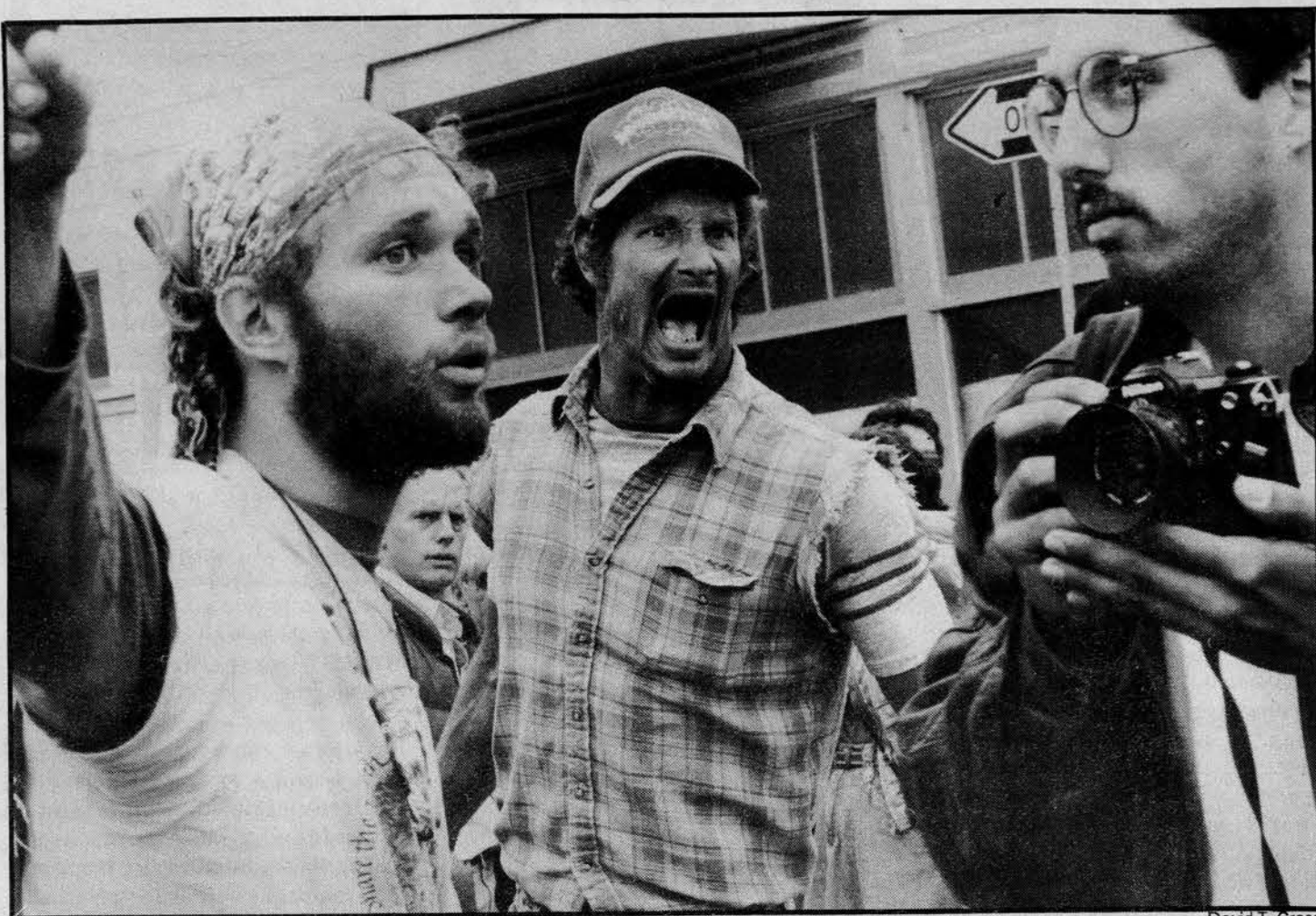
To be an Oregonian is to be obsessed with change. People came to Oregon in the 1800s because it was a new beginning, promoted as an Eden of fertile farmland and abundant timber. People these days come to Oregon because it has what much of America has lost. It is relatively uncongested, clean and unspoiled.

The mythology of Oregon runs throughout my family saga. My great-great-grandfather came here in 1849. My forebears include three newspaper editors and the president of a lumber company. I am perhaps more conscious than most of what Oregon has become in the past few decades.

Between jobs in 1977 I considered writing a book about how Oregon was changing. There were signs of major change all around. After a year's research for that book, I left Oregon to spend 10 years as a Washington, D.C., correspondent for Northwest newspapers.

The change I thought I saw in 1977 did not come to pass, as economic and population growth gave way to a long recession. But the change is happening now. The working title I chose for my book has now become apt: *Goodbye, Oregon: The Passing of a Place.*

Oregon is in the midst of a major transition. The state's economic structure is shifting. People are pouring in, to both



David T. Cross

Emotions ran high after a Redwood Summer demonstration in Ft. Bragg, California

the cities and the countryside. And, thanks to both the old resource economy and the newcomers themselves, environmental degradation is rapidly increasing.

That is the setting for the bitter controversy over logging old growth. But Oregon's battle over ancient forests is not just about forests. It is also a stage for, and a symbol of, a larger conflict over what future Oregon will choose. Beneath the rational and scientific arguments, it is a highly personal, visceral debate.

On one side is an economic and social class threatened with loss of its deep-rooted way of life — rural people who still believe the vision of inexhaustible timber and fertile farms that drew their parents or grandparents here. These people are part of the Oregon that is disappearing.

On the other side are the new Oregonians — new by residence or by age — who want to preserve the vision of a lush and still wild land that drew them here. They identify with another part of Oregon that's disappearing: the old-growth forests.

I have long believed that the simple mathematics of the timber debate was that more Oregonians live in urban areas than in rural areas dependent upon timber harvest. Therefore, preservation of old-growth timber will win any debate.

But Tim Hibbitts, one of Oregon's more perceptive public opinion researchers, says the populace is divided, with the balance narrowly on the timber industry side. "In Roseburg or Grants Pass," he says, "respondents will favor jobs over preserving old growth. But in Portland a majority is pro-environment. There is a strong correlation between how dependent a community is on timber and its stand on this issue."

"If you give respondents a way out — a way to save old growth and preserve jobs — they will go for that," Hibbitts adds. "But despite all of the heat and light this issue has generated over the past few years, I have not seen any movement in the numbers."

There has been change on the periphery of environmental concerns, however. One example is the issue of field burning in the Willamette Valley by the grass seed industry. Smoke from the fires caused a major traffic accident on Interstate 5 a few years ago, which triggered the opposition.

But the basic cause for eventual change is the gradual urbanization of the state. Metropolitan Portland, as Gov. Neil Goldschmidt has noted, is just one seat away from forming the majority in the Oregon House of Representatives. The state's urban areas are growing in power and self-confidence as the timber communities — both in rural and urban areas — are fading.

Anyone who reads the lumber production and timber supply numbers understands that the Pacific Northwest forest products industry is in the midst of a major adjustment. There are fewer mill jobs now than there were 10 years ago,

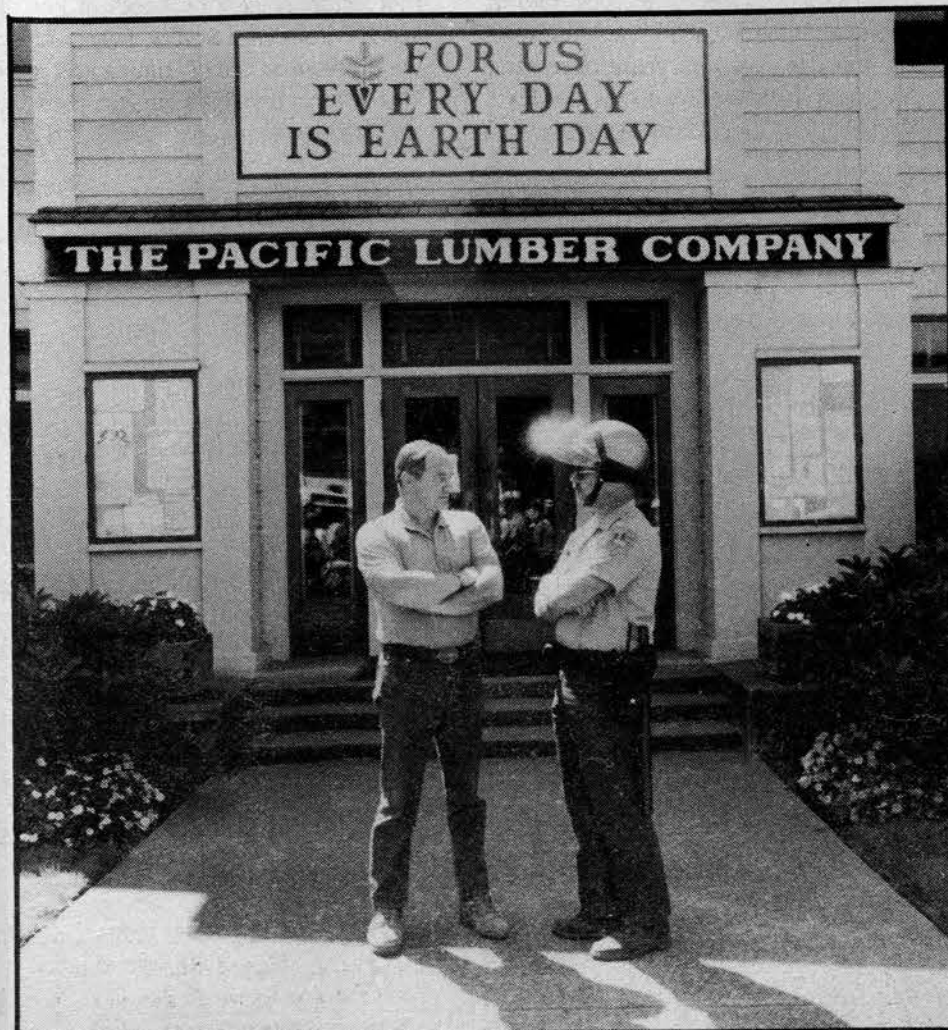
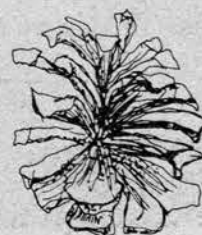
principally because of structural unemployment — jobs that were eliminated by technology. And except for the northwest corner of Oregon, the byword in Oregon's public and private woods is "timber shortage."

In the face of such change, millworkers and loggers are understandably upset. In fact, a friend of mine likens the mood in Oregon's timber towns to what Elizabeth Kübler-Ross has described as the stages of dying — denial, then bitterness, then anger. The final stage — acceptance — has yet to appear.

The painful truth is that sooner or later these timber communities will have to accept their demise. The question is whether this will happen before the elimination of the last old-growth stands or after they are gone.

The timber industry will cut everything it is allowed to cut. And along the way it will complain about the lack of a predictable timber supply. Lewiston, Idaho's *Morning Tribune* summed up the question best by asking, "When will enough public timber be enough public timber?" The answer, of course, is that there will never be enough public timber for the forest products industry.

Are a majority of Oregonians prepared to limit the industry that has been the dominant element of the state's economy for most of this century? Not yet. But my sense is that most people in non-timber jobs are running out of patience with millworkers and loggers who face displacement. After all, there are few, if any, industries and professions that have not been transformed by technology and global competition in the past two decades.



David J. Cross

Officers await a Redwood Summer demonstration in Scotia, California

'Rambles in a Ravaged Land'

by Pat Ford

Ancient Forests of the Pacific Northwest, by Elliot Norse. Island Press. 1990. \$19.95, paper.

Fragile Majesty, by Keith Ervin. The Mountaineers. 1989. \$14.95, paper.

Secrets of the Old Growth Forest, by David Kelly and Gary Braasch. Gibbs Smith, Publisher. 1988. \$15.95, paper.

Wintergreen, by Robert Michael Pyle. Houghton Mifflin. 1986. \$8.95, paper.

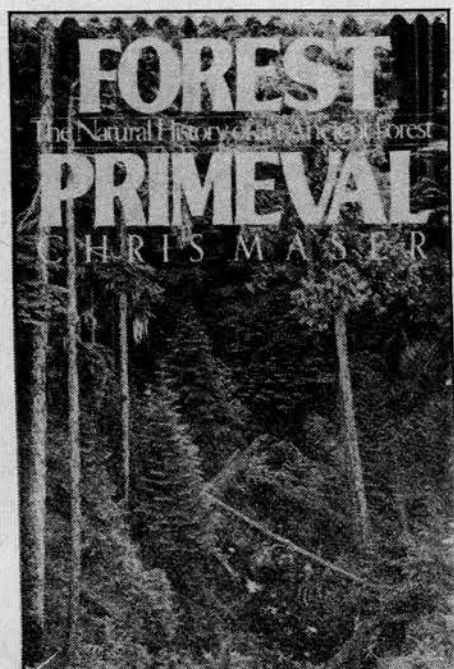
The Redesigning Forest, by Chris Maser. R&E Miles. 1988. \$9.95, paper.

Forest Primeval: The Natural History of an Ancient Forest, by Chris Maser. Sierra Club Books. 1989. \$25, cloth.

The presumptuous task of editing a *High Country News* special edition on forests I had never walked in led me to these books. I recommend them all. Each has a solid, distinctive grasp on "the ancient forest issue," and together they bring this compelling, unfinished story into perspective. There is overlap, but it works more as layering than as duplication.

Two of the authors, Keith Ervin and Bob Pyle, have stories in this special issue. Excerpts from some of the books also appear throughout. Here I shall just try to sketch the distinct focus of each book and writer.

If you, too, have never walked in these woods, *Secrets of the Old Growth Forest* may be the place to begin. It is mostly Gary Braasch's color photography of the structures, creatures, seasons and textures of Northwest ancient forests. Eyes used to Rocky Mountain forests will take time to accept the riot of life and growth in these frames. Some are just astonishing, as if lifted from a magic wood where animated ferns and mosses glow from within and colors flash back and forth.

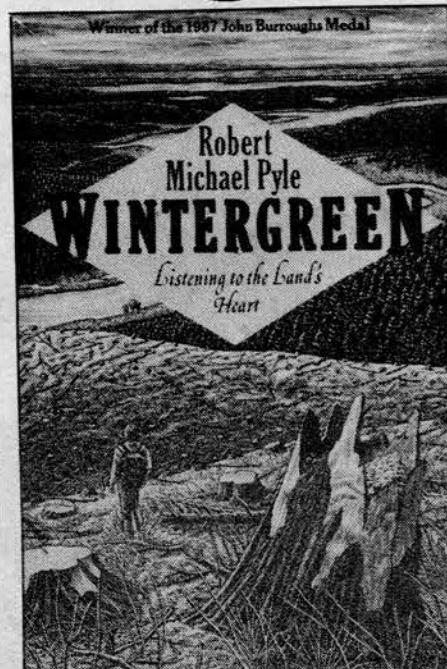


Once I stopped looking for the elves, the images taught as well as beckoned.

Elliot Norse is an ecologist, and his *Ancient Forests of the Pacific Northwest* is a thorough survey of the scientific workings and biological values of Northwest forests and the ecological ramifications of their loss. Norse writes well and presents his material in lucid sequence. I learned more from this book about the forests themselves and why their remnants need to be preserved than I learned from any other.

Writer and reporter Keith Ervin presents the best composite of the science, politics, economics and human dimensions of ancient forests in *Fragile Majesty*. His chapters on Northwest forest Indian tribes, woods workers and timber towns, the history of Northwest timbering, and the "brave new forest" of intensive industrial forestry supply social context largely missing from environmental surveys of the issue, yet often decisive in the arenas of action. If you want a good grounding in both the forests and the fight and have time for just one book, this is it.

Robert Michael Pyle and *Wintergreen*



belong to an old tradition. He is a naturalist and his book is a natural history of the Willapa Hills in southwest Washington. The Willapas — low, coastal, very wet — surely hosted, up to 100 years ago, one of the richest forests on earth. Now it is gone, and Pyle's book, originally subtitled "Rambles in a Ravaged Land," tells of the fresh scars and healing wounds that remain for people and communities as well as for plants and animals. There are many virtues here — grace, humor, empathy, deep love for his home — but the writing is most electric in the angry chapter on the natural and human costs of unremitting timbering by the private companies who own most of the Willapas.

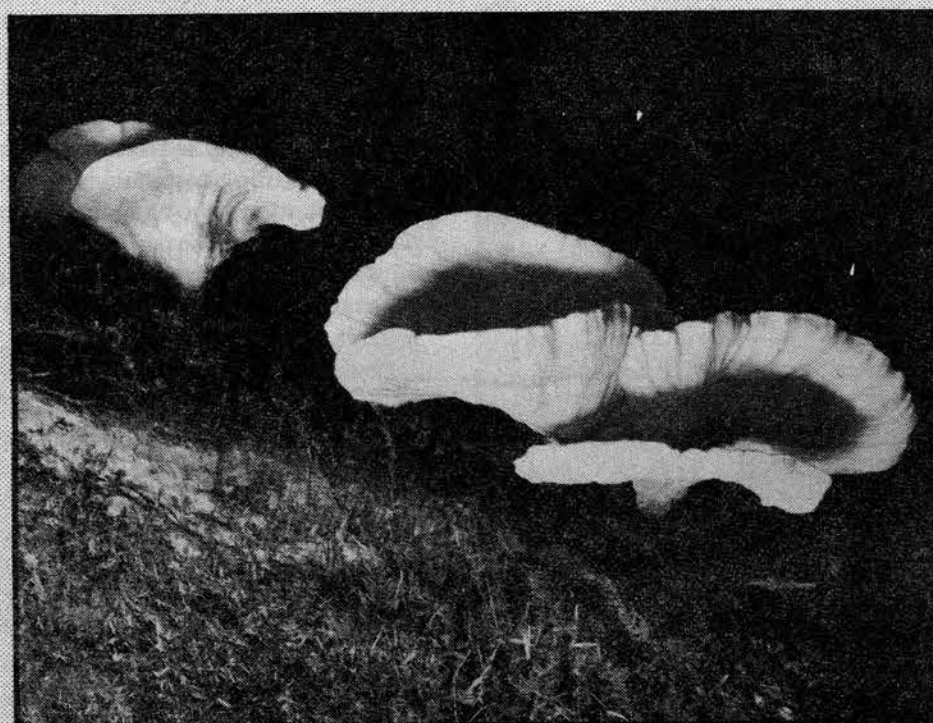
Conservationists could usefully ponder two themes that run through *Wintergreen*: Pyle's empathy and respect for the country people who cut and plow for a living, and his joy in the natural values of wasted lands, not just the pristine or unspoiled. "It is no wilderness," he says of the Willapas, "and yet it is wild and elusive."

The last two books on my list are by Chris Maser, one of the scientists who has

revealed the staggering complexity of native Northwest forests. His specialty has been the intricate pathways connecting small mammals with the larger ecological cycles sustaining the forests. (These fascinating connections are described in detail in both books.) Maser is also a Buddhist, and his writing combines a careful account of those forest cycles with devotion to their mystery and a gentle but insistent attack on the walls people build between one another as they use and fight over the forests.

Forest Primeval is a chronological tale of an ancient forest in Oregon's Cascades, beginning with a fire in the year 987 and ending in 1988 with the sound of chainsaws just 10 miles away. As the tale proceeds, a few native people pass through the forest's story, historical events leading toward white encounter with the forest are noted and, finally, the events of Maser's own life are woven in. This is an ambitious work. It was difficult for me to stay with its rhythm on first reading; on second reading I am enjoying it much more. Be patient and this book will open up.

The Redesigning Forest is small, humbly published, and in appearance and style the most primitive of all six books. It's also my favorite, since from the first word it goes right to the heart of the ancient forest issue and its analogues that consume us in the West. The heart is sustainability. Maser's book is about the key barrier separating us from it: the gulf between the long, patient, fluid, infinitely complex cycles of nature and the short, simple, rigid lines of our economic and social machineries. We must seek ways to enable our getting and spending to stretch out and blend into those prior, wiser natural cycles. *The Redesigning Forest* makes that as plain as anything I've read, while insisting that the personal side of that search is more enduring and decisive than law, policy or environmental "wins."



T. Steen

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