

Two views of the noble giant sequoia forest of the southern Sierra Nevada. Below, a giant sequoia towers over one of its younger rivals. At right, the aftermath of "grove enhancement" logging, a policy crafted by the Sequoia National Forest.



## Logging, smog, drought killing towering forests

Third of five parts

By Tom Knudson  
Bea Sierra Bureau

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**S**ERRAVILLE, Sierra Co. — Rounding a bend on a back-country road in the Tahoe National Forest, Ray Butler tells a story.

"They've absolutely trashed it," said Butler, chairman of the Nevada County Fish and Wildlife Commission.

Butler's feelings are not unusual. They are, in fact, a kind of echo one hears in the mountains these days — an elegy for the passing of a friend.

Today, the Sierra Nevada forest is dying. "The Sierra Nevada is a treasure to many millions of people," said Julie McDonald, an attorney for the Sierra Club Legal Defense Fund. "And if something isn't done, it's going to be a disaster."

Logging is the most visible and controversial agent at work in the Sierra forest. But air pollution, drought and insects are inflicting great damage, too. And there is one other problem — more subtle than the rest — causing enormous harm: fire suppression.

Like soldiers in a siege, Sierra trees are falling — and falling fast. The battlegrounds are many: North Mountain, Duncan Canyon, Black Mountain, Red Clover Creek. In its toughest hour, the Sierra Nevada forest can find little mercy.

Here is a look at the lay of the land, the broad forces and trends swirling about the imperiled Sierra forest:

■ **The U.S. Forest Service** is causing much of the problem, many people contend. Unlike timber-rich northwest California, most wood cut in the Sierra comes from public land — about 60 percent in recent years compared with 28 percent for northwest California, according to timber harvest data maintained by the California Board of Equalization.

■ **As the best timber disappears**, more trees are being cut on marginal land, where slopes are steep and soil is poor. History gives us a warning: When farmers plowed marginal land on the Great Plains, they created a disaster called the Dust Bowl.

■ **The severe potential for logging** — Research must improve in quality and broaden its scope," said a report last year by the National Research Council, an arm of the National Academy of Sciences. "Without additional knowledge, the misuse exemplified by deforestation, destroyed productive potential and lost biological diversity will prevail."

■ **As trees fall, the Sierra is changing** — forever. In the Sequoia National Forest, a 1988-89 Forest Service survey found that more than half of the seedlings the agency grows die. Often what grows back is brush — an assiduous of young trees, a foot soldier of the desert.

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■ **The Forest Service is trying to change.** Words like biodiversity and "new perspectives" are creeping into its vocabulary. But timber still runs the show. Today, even the Forest Service acknowledges that in some areas of the Sierra, forests are falling faster than nature can replace them.

■ **And finally, the Sierra forest is sick.** Throughout the range, a record 6 billion board-feet of timber — enough to build more than a half-million homes — is dead or dying, a victim of drought, insects, air pollution and fire suppression. And as it dies, the Sierra forest is seeing a new, controversial type of timber harvesting: salvage logging.

■ **My view is that, looking at the past**, we managed this tremendous demand for products pretty well or the forests wouldn't be in the condition they are now," said David Jay, deputy regional forester for the Forest Service in California.

■ **Look at the millions of dollars we have passed back to the counties as their share of the forest receipts**, the construction of campgrounds, the designation of wilderness.

■ **Turning Sierra trees into timber — and dollars — is big business for the Forest Service.** In 1989, the agency received about \$109 million for wood cut from the Sierra forest — 25 percent of which was funneled back to county governments from where it was cut.

■ **Timber is also the Forest Service's biggest single source of income**, accounting for about 85 percent of its revenues in the Sierra. The wood is sold to a variety of outlets, from major logging companies to local mills and contractors.

■ **"We've done the best job we could**, given the resources we had. Now I see us in another period of evolution or change in the management of these forests," Jay said.

■ **But even in the most hallowed spots**, the Sierra forest is not safe.

**L**ate in the afternoon, the sun angles through the southern Sierra forest, a mandala of yellow, gold, green, lemon and amber.

Half-hidden by shadow, conservationist Martin Litton holds one of a 100-foot tape measure looped around a giant sequoia. Ten feet ... 35 ... 60 ... 75 ... the tape stops just in time: This tree is 95 years old.

■ **All in the world, no tree is more enormous than the giant sequoia.** Or more special.

■ **Like Half Dome and Lake Tahoe**, it is a part of the very signature of these mountains — a tree so special that Congress created Sequoia National Park in its honor in 1890.

■ **But as Litton learned recently**, the sequoia is threatened.

■ **In the 1980s**, some of the world's largest unprotected sequoia groves were toppled by logging crews and sent to a sawmill — under a policy crafted by the Sequoia National Forest.

■ **To timber planners**, the cutting seemed a good idea. It would reduce the threat of fire, make way for a new forest and leave the largest sequoias unharmed. They even came up with a name for their work: "grove enhancement."

■ **Up close**, though, grove enhancement logging is like grove destruction.

■ **A firsthand look is available on** Forest Service Road 21512 near Black Mountain, about 10 miles north of Tulare County. In a few miles, the forest is lush. Near Deadman Creek, though, lies a wasteland of stumps, blackened logs and torn-up earth.



Conservationist Martin Litton, above, is calling for federal legislation that would permanently halt logging in the giant sequoia forest.

All that remains standing are three giant sequoias, huddled together like mourners at a funeral.

"Just look at this destruction," said Litton, 74, who is calling for the creation of a "Sequoia National Preserve," which would protect the area from logging. "How long is it going to be before this looks like a forest again — if ever?"

**W**riter and naturalist John Muir was one of the first to notice something important about the Sierra. "The sun is hot enough for palms," he wrote. "Yet the snow round the arctic gardens is plainly visible and between his specimen zones of all the principal climates of the globe."

■ **Today**, we marvel at granite peaks and sapphire lakes, but all too often we miss another Sierra wonder: Its diversity of trees and plants.

■ **In the world of botany**, there is no place like the Sierra. The range is a kind of natural arboretum — a melting pot of plants from Mexico, the Pacific Northwest, the Rocky Mountains, the Canadian arctic and the Great Basin desert.

■ **One of the greatest tributes to the Sierra forest** was delivered more than a century ago by the eminent botanist Asa Gray. Speaking at Harvard in 1878, Gray said:

"The western (slopes of the Sierra Nevada) bear in some respects the noblest and most remarkable forest of the world — remarkable even for the number of species of evergreen trees occupying a comparatively narrow area, but especially for their wonderful development in size and altitude."

**T**oday, a harsh sound is rolling through this storied forest. It is a deep growl and a metallic whine — the ballad of the bulldozer and the chain saw. It is the sound of clear cut.

■ **Most people believe clear cutting is something that happens in Oregon**, Washington and northwest California — but not in the Sierra. Yet every year the Forest Service issues contracts to clear cut vast stands of mixed-conifer Sierra forest — including some of the last stands of virgin timber in the mountains.

■ **The amount of clear cutting has jumped dramatically in recent years.** In the Tahoe National Forest, for example, about 700 acres were harvested through clear cutting and related methods in 1978. During the 1980s, the amount jumped to about 4,000 acres a year, but it is expected to decline over the next few years.

■ **But don't expect to see clear cuts on a drive through the mountains this summer.** The Forest Service has a policy of keeping them out of view of highways, campgrounds, lakes and other places where people gather.

■ **The agency says the policy — which it calls a "visual management system" — is for the public benefit.** But others feel differently.

■ **"I call it concealing the truth,"** said Litton. "It's a blindfold. They're trying to fool the public."

■ **But the Forest Service said that is not the**



case.

■ **"The truth is there for anybody to see if they walk in the forest,"** said Matt Mathes, a spokesman for the Forest Service in California.

■ **"We're just trying to maintain some sort of visual standard for the vast bulk of people who are going to see the area,** the scenic drivers from the highway, while still providing wood."

■ **"We are still mandated to cut trees.** We're just trying to do what we have to do — while minimizing the visual impacts."

■ **Turn onto a back-country road**, round a few bends, cross a ridge or two and — likely as not — a surprise will be in store.

■ **There will be an enormous splotch of barren, burned and baldheaded earth — the aftermath of a clear cut.**

**T**oday, clear cutting has transformed large parts of the Sierra forest into a kind of war zone. Here are some of the cries of the battle:

■ **Marilyn West**, a 47-year-old grandmother from Camp Nelson: "We've got all this beautiful country that people are starting to discover — they're moving in from Fresno and Bakersfield and L.A. And what is the Forest Service doing? They're clear cutting it as fast as they can."

■ **Jay Probasco**, district ranger, Sequoia National Forest: "Clear cuts, in the eyes of

many, are ugly. However, are they that different from the plowed fields of farm lands or areas leveled for subdivisions? Clear cuts have a lot less impact than cities, roads, landfills and chemical dumps."

■ **Frank Lewis**, former Army tank commander and president of the Tulare County Audubon Society: "In Vietnam, there was not a lot left after a B-52 air strike. You go into the Sierra forest after a clear cut and it looks the same way."

■ **Jim Boynton**, supervisor, Sierra National Forest: "Clear cutting won't be the demise of the Sierra forests, but it may well be the demise of the U.S. Forest Service. People just find it visually unattractive. For us to ignore that is completely out of line."

■ **Forest Service managers say there are many good reasons for clear cutting.**

■ **"Basically, a clear cut is an emanation of nature,"** said Ed Whitmore, chief of timber planning for the Forest Service in California.

■ **Pointing out the effects of the Mount St. Helens eruption in 1980**, he said, "You can't get much bigger clear cuts than that."

■ **"And despite the total devastation**, the area has come back without almost any help from man. Salmon are back in the streams, the elk are back and the natural process of plant succession is occurring."

■ **But many conservationists say clear cutting is a disaster**, especially on the steep slopes and erosive soils of the Sierra.



forest. "The giant sequoias are monuments to God," he says.



A logger working in the Tahoe National Forest trims off branches and cuts trunks to the proper length for loading onto a logging truck.



John Preschutti stands atop unsealable logs left over from logging in the Plumas National Forest. Preschutti and other conservationists say such piles are wasteful. But the Forest Service says they are a necessary part of logging.



At left, a common sight in the Sierra Nevada: a logging truck and its valuable cargo. Above, a small patch of trees has been spared in a clear cut in the Sequoia National Forest to provide habitat for birds and mammals.

See photos by Jay Mather

"Mount St. Helens was an isolated incident. It didn't happen everywhere, all at once, like what's happening in the Sierra," said Steve Beckwith, co-director of the Sierra Biodiversity Project, a grass-roots California conservation group.

"At Mount St. Helens, most of the old forest remained. In the Sierra, they're removing the trees, burning the soil and piling up the unmerchantable material. Basically, they're extracting the future productivity from the site."

"Today, under intense pressure, the Forest Service says it is backing away from clear cutting in the Sierra.

"We want to move toward a more natural way of management," said Ron Stewart, the agency's new regional director in California. "That is the idea behind our new 'environmental agenda.'"

"Still, skepticism runs high.

"The Forest Service tells you what you want to hear," said Lewis, "and then they cut and do what they please."

The Forest Service was not always so timber-bungry. A half-century ago, most of the nation's wood came from private land. But as stocks dwindled, the timber industry came knocking on the door of the national forests.

And the Forest Service responded — providing a remarkable volume of wood

over the past 40 years.

"We have been forced — since World War II — into being a company that provides a service to private industry and government coffers," said Dean Carrier, a wildlife biologist who recently resigned after two decades with the Forest Service.

"This may sound corny, but we should be the stewards of the land — not just a company that meets timber targets. The public land is more than just trees — and it's more than today. That's what we need to start looking at."

Since 1980, the amount of wood cut in the Sierra — on public and private land — has jumped 87 percent: from 459 million board-feet to 1.6 billion in 1989, state tax figures show.

Carrier said that new regional director Stewart — who is oriented more toward research than timber planning — may help turn the corner.

"I think Ron is going to be a catalyst. But the proof of the pudding will be if he says, 'The targets are too high and we're not going to make them.' Then we'll see how the political situation in Washington handles that."

The agency's annual timber targets are set by Congress. But today, after decades of heavy logging, there's a problem: The best stands of timber are disappearing.

Still, the agency keeps cutting. And many

feel that is a prescription for disaster.

"Timber harvest activities have pushed further into marginal areas — those areas with steeper slopes and highly erodible and unstable soils," said a 1988 policy paper prepared for the U.S. Environmental Protection Agency.

"The long-term effects will impoverish the soil, ruin fisheries and reservoirs and ultimately ruin many productive forest and water resources in California."

But Forest Service timber managers do not foresee problems.

"The perception is that if it's got trees on it, we're going to cut it, and that simply is not the case," said Forest Service timber management chief Whitmore at regional headquarters in San Francisco.

"What you call fragile and what I call fragile could be two different things," he said.

In the field, one bears a different story: "It's sad that my own agency approved all this," said Ron Medel, a fisheries biologist for the Tahoe National Forest.

As he spoke, Medel looked out across a steep hillside, stripped of timber and gouged by gullies, the result of a 1990 clear cut that sent so much soil and debris washing into a mountain stream that it brought a reprimand from state water quality experts.

"On my God — look at this," Medel said. "Here's an active area of erosion. It's

bringing all this crap into the creek. It's going to be a long time before this area recovers."

And there is another surge of logging under way — salvage logging — which accounts for about half of the timber harvested in the Sierra. It is aimed not at live trees, but at vast amounts of dead and dying timber.

By having the timber purchaser remove this material, and get a product out of it, that will keep us from having to go in and clean it up when there's no value to it — at huge public expense — to fire-proof the area," Whitmore said.

But salvage sales also are highly controversial. Often, they cause serious erosion and watershed damage. In some cases, live trees are taken. And some salvage sales actually lose money for the Forest Service.

Determining whether any timber sale earns — or loses — money is a subject of enormous controversy in the Sierra and across the West.

Often, the Forest Service puts its accounting information in a very light. One 1988 Tahoe accounting report, for example, lists the "positive effects" of timber sales at \$21.6 million and the "negative effects" — including impacts to soil, wildlife and watersheds — at zero.

Even many Forest Service employees are skeptical.

"I don't know how they got those numbers," said Jeanne Masquell, resources officer for the Tahoe National Forest. "It gets into — what do we call it? — phony-balance money."

Salvage sales, by their very nature, are among the most economically risky.

"We're not giving the wood away," Whitmore said. "But unfortunately, when you put a lot of something dead on the market, it doesn't generate a premium price."

No matter how much money the sales bring, it's no consolation to Bob Hackmack, who saw one of his most treasured places in the Sierra — North Mountain — transformed by salvage logging in 1989.

"North Mountain stands along the western border of Yosemite National Park — a region of stately old-growth timber, including enormous and stately sugar pines. It was really a cathedral-like place," said Hackmack, a Modesto state engineer.

"It was even nicer than the part I've logged through."

Before the sale, Stanislaus National Forest officials said no healthy trees would be cut. But shortly after logging started, 31,000 board-feet of timber from live trees came crashing to the ground — a mistake by the logging contractor, the Forest Service said.

"It shouldn't have happened," Hackmack said. "You win some and lose some, but the losses are never easy to take."

Such feelings are not unusual.

"There's a lot of concern, we're very cognizant of that," said Jay, the deputy regional forester. "And it's going to get more

intense as we pick up more dead trees.

"We know that, in an effort to salvage timber, we're taking more than what the forest can sustain — in the short run. We're going to have to adjust that in the near future."

Muir once wrote: "The inviting openness of the Sierra woods as one of their most distinguishing characteristics. The trees stand apart in groves, enabling one to find a way nearly everywhere. One would experience but little difficulty in riding on horseback through the successive belts all the way up to the storm-beaten fringes of the icy peaks."

Today, Muir's words seem like fiction.

No longer is the Sierra forest inviting and open. Today, it is a tangled thicket, a convention of brush and bramble.

"You wouldn't want to go riding through it at full gallop today," said plant ecologist Bob Holland, who most recently worked for the state Department of Fish and Game. "Not unless you've got a dumb horse. It's too dense."

The transformation of the Sierra woods — from stately forest to impenetrable thicket — is one of the most wide-ranging and serious problems in the mountains.

Like the controversy over logging, this transformation is rooted in policies of the U.S. Forest Service. The problem, though, is not chain saws. It is fire hoses.

Once, fire swept through the mountains every few years, cleaning underbrush but sparing older trees. Fire was a gardener that kept the woods young and open.

Then Smokey the Bear arrived — and the forests have not been the same since.

"The culprit is fire suppression," Holland contends.

"It used to be that, with fire running over an area every three to five years, shrubs never had a chance to grow up and form closed stands. Now if you go to the Auburn Dam site, the most south facing slope is solid brush.

"Up higher, in the mixed-conifer zone, there's another problem. There's all this white fir. You'll find hundreds of them per acre, shading the ground so nothing can grow."

Today, fire suppression is one of the most suspect, problems ricochet through the Sierra. Throughout the range, a billion board-feet of timber are dead or dying — in some places, one of every three trees is dead.

"We've found that if you look at the soil in some of our long unburned sequoia groves, it's almost sterile," said Carrie Koppes, an environmental scientist with Sequoia National Park.

"It's the ash from fire that revitalizes the soil."

But many others believe the biggest problem is drought.

"I don't think this cycle can be blamed on fire suppression," said Carrie Koppes, acting fire prevention specialist for the Forest Service in California.

Nichols, though, said that once fire is suppressed, problems ricochet through the forest ecosystem.

"I suspect that one reason the drought is so bad is not because you have a drought, but because you have a drought plus an overloaded, choked forest, full of brush and young trees," he said.

"The trees that are most likely to die are not the young ones, but the larger adults. They're the senior citizens whose vigor is already declining.

"So you begin to see the old trees die, and as this happens, you begin to lose your seed source."

"Without fire, the effects of drought — and the effects of air pollution — are certainly enhanced, adding to the decline of the forest as a whole."