

WORTH SAVING

BY BOB DEVINE

FORESTS PRIMEVAL ■ Lovely, dark and deep—and irreplaceable

For years, environmentalists and the timber industry have been skirmishing over the fate of America's old growth forests—those few conifer forests that have never been logged. But last June, the U.S. Fish & Wildlife Service listed the northern spotted owl as a threatened species, and suddenly the struggle escalated. Studies show that spotted owls need large areas of old growth in order to survive, and so the Endangered Species Act may require huge chunks of virgin forest to be set aside for them—meaning no logging on some public land that timber companies lust after.

A spotted owl swoops down for a landing in Willamette National Forest, Oregon.

The main battlefield is the Pacific Northwest, where the nation's finest timber is located, where the spotted owl lives and where passions are running hot. Loggers wear T-

shirts that say, "I Love Spotted Owls . . . Fried." Environmentalists chain themselves to old growth trees slated for the saw. Politicians are getting heavy pressure from both sides. Biologists struggle to *define* old growth so they can at least determine how much remains. And there's no satisfying solution in sight.

The battle raises many questions: How many jobs will be lost if the timber industry stops logging old growth? Why do timber companies that claim to practice sustainable forestry *need* to cut old growth trees? How much

old growth does the spotted owl require?

But a crucial question, one without an easy answer, seldom gets asked: What is an old growth forest? To satisfy my own curiosity, I recently drove east into the Cascades from my home in Oregon's Willamette Valley. I passed lumber mills, clear-cut slopes, and trucks bearing the colossal frames of slain old growth trees. Two hours from home I reached the H. J. Andrews Experimental Forest, a research area run by the U.S. Forest Service and Oregon State University. Here, in the 1970s, scien-

tists performed studies that revealed old growth conifer forests to be unique and valuable ecosystems, and a large interdisciplinary group of scientists has since continued to probe the mysteries of old growth.

Shortly after arriving I dived into a trackless old growth grove. The cool, quiet forest enveloped me much as a mountain lake would. I looked up at the sky-piercing trees; around at the tumult of ferns, rhododendrons, saplings, huckleberry bushes and fallen trunks; and down at the rich, green-brown mat of mosses, needles, li-



GARY BRAASCH

chens and decaying vegetation beneath my feet. As I walked I bounced slightly, as if atop a trampoline.

Like most Americans, I grew up knowing only young, second and third growth forests. Tracts of small, look-alike, evenly spaced trees defined the word *forest*. I guess part of me still expects to encounter those bland woodlands when I enter a grove, so I'm happily surprised when I hear Mozart instead of Muzak.

But old growth's value goes beyond its music. Many characteristics that make the forest pleasing to the eye also have a practical function. The wild disorder I find so appealing creates what foresters call structural diversity, a range of life that's especially pronounced when compared with the barren uniformity of young woodlands.

To explore the life-giving complexity of old growth, I wandered a venerable grove in the Andrews with John Cissel, a Forest Service silviculturist. First we considered the huge trees, mostly

Douglas firs, that anchor the forest. Average for this neck of the woods, they were stupendous: 200 feet tall, 40–50 inches in diameter and 375–500 years old. Cissel told me that in the 1970s, Andrews researchers hired rock climbers to shinny into the canopy, where they found another world with its own climate, flora and fauna. The branches of the trees' spreading crowns hold a surprising amount of soil, a layer of humus and plant matter that come from the gardens of mosses, lichens and liverworts decorating the treetops. Hundreds of insect species exist there, visited by spotted owls and flying squirrels. One little mammal, the red tree vole, is born, lives and dies in the canopy.

Among the giants of the forest stood

the skeletons of some of their predecessors, killed by fire, disease or simply the passing of 1,000 years. Standing dead trees, called snags, can remain erect for 100 years. Though foresters consider them useless, snags are vital to wildlife. Animals in children's books live in neat holes in healthy trees, but in a real forest the wood of a living tree is nearly impenetrable. So woodpeckers, nuthatches and other excavators turn to the rotting wood of snags to peck out holes which, in turn,

grove we had to clamber over fallen trunks, some taller than ourselves, that crisscrossed the forest floor. Loggers see a downed tree as waste, valuable wood that should have been cut and sold. Traditional forest managers see a downed tree as an obstacle they'll have to burn or haul off once the forest is clear-cut. But Andrews researchers see a downed tree as another source of food and shelter to forest flora and fauna—for as long as 500 years, while it slowly decomposes.

At one fallen Douglas fir—a “nurse log” from which seedlings sprouted—I dug into the rotting wood with my hands. Below the soft bark lay a rich, moist humus that smelled of fertility. Shoving my hand a few inches deeper, I pulled out a fistful of spongy wood. When I squeezed the wood, cool water squirted out—even though it hadn't rained for nearly two months. In death the tree was still a source of life.

Studies show that about 120 vertebrate species use fallen

trees as habitat, and as many as 1,500 invertebrates live on a single giant Douglas fir. At least several dozen animal species are believed to depend on old growth, though to what extent is sharply debated. The plants of an old growth forest are also a varied lot, with a wide range of genetic types within species—critical to long-term productivity and survival. Surrounded by such a bravura display of this planet's wealth of life, I thought how misleading it is to frame the old growth controversy as a matter of saving or not saving the spotted owl. What we're deciding is whether or not to save a rich and complex ecosystem.

In one way the very productivity of old growth works against its survival. Accord-



Raincoats of moss dress the ancient trees in Olympic National Park, Washington.

become homes for martens, flying squirrels, spotted owls and other species.

At one point Cissel and I emerged into a large sunny clearing where the base of a snag was awash in young trees and shrubs. Cissel pointed up to an opening in the canopy, created when the huge old tree withered and died. Such openings, he told me, promote the growth of plants that need sunlight, including the Douglas fir. The canopy of a logged and replanted forest generally closes tight in 20–40 years, producing an unvarying shaded environment below. The heartiest of the 15-foot Douglas firs surrounding the snag would eventually claim the clearing, inching its crown 250 feet into the sky.

As Cissel and I walked through the

ing to a study, groves like the one Cissel and I visited are about four times more productive than a tropical rain forest. Timber companies covet the big trees for more than their volume: The tight, straight grain and long, knot-free sections bring high prices compared with second and third growth logs.

Though old growth's value as a product is well known, its value to the environment has surfaced only recently. In fact, so little is known about these forests that scientists flounder when they try to define old growth: The draft management plans of 11 Pacific Northwest national forests listed 9 different definitions. Entomologist Andy Moldenke summed up that lack of understanding when he admitted, "Here, at the Andrews, we probably know more about old growth invertebrates than anyone else, and we know nothing."

It's even difficult to estimate just how much of America's old growth is left. But as definitions are pinned down and inventories tallied, a picture emerges—and it's a dismal one. The original forests of the East, Midwest and South are virtually gone. Significant tracts of old growth remain in the northern Rockies, but the dry climate there produces forests that are considerably less productive than those of the Pacific Northwest. As for the Pacific Northwest,

nearly all the old growth lies on public lands, and only a few million acres

remain—some 10 percent of what early pioneers on the Oregon Trail saw. A little less than a million acres of the Pacific Northwest's old growth is protected in national parks and wilderness areas; the rest is going fast. Elliott Norse, who wrote *Ancient Forests of the Pacific Northwest*, estimates that at the current rate of cutting, unprotected old growth will vanish in 30–70 years—probably nearer 30.

While many people worry about the elimination of the Pacific Northwest's old growth, a lot of researchers worry even more about its fragmentation. Logging is breaking old growth into biological is-

lands, a practice that could pass the point of no return in just a few years. Some animal species need plenty of space to survive; to them, a clear-cut section is a barrier that interferes with their normal movements, or prevents them from escaping a fire. Clear-cuts are susceptible to high winds, summer heat and winter cold; fragmentation thus creates more disruption to the mild interior climate of old growth. "What we do about fragmentation in the next ten years," said John Cissel, "will make it or break it."

Today, it's hard to grasp how thoroughly America has been logged. Most of the great forests were replaced by farms, tree plantations, cities and suburbs long ago. But back when Columbus arrived, hundreds of millions of acres of primeval forest greened much of this land. The deforestation of the tropics has received a great deal of publicity, but in the contiguous United States only about 5–10 percent of the old growth forests remain.

If the last traces of old growth forest slip through our fingers, what will be lost? The music, certainly. And biodiversity, though the importance of that loss is unclear. Current research indicates that old growth forests perform certain ecological functions better than young forests: reducing erosion, cleaning the air, mitigating floods, creating new soil, and storing carbon, which slows the greenhouse effect. Of course, the most compelling

answer to the question of what we could lose is simple: We don't know.

It takes time to comprehend an ecosystem in which the dominant components, trees, live as long as 1,000 years. One Andrews researcher has begun a 200-year study of log decomposition. That might strike outsiders as crazy, but most insiders believe old growth requires such a long-term perspective.

Early one morning I hiked into a superlative old growth grove along Lookout Creek in the Andrews area. Beside the creek I settled onto a downed tree to contemplate the question that had brought me there: What is an old growth

forest? I had found only a shred of an answer, but I wasn't disappointed. I knew the question was an exciting one, a good question. A bad question would be: What *was* an old growth forest?

Into the Woods

The source for information about old growth forests in the United States is the **Ancient Forest Alliance**, a coalition of more than 100 organizations. There's no central office for the Alliance, so you must contact one of the organizations involved. The Audubon Society, National Wildlife Federation, Sierra Club and Wilderness Society are all on the list. Two useful books are *A Walking Guide to Oregon's Ancient Forests* (Oregon Natural Resources Council, 1991) and *Visitors' Guide to Ancient Forests of Western Washington* (Wilderness Society, 1989).

If you'd like to walk among the largest living things on earth, here are three outstanding Pacific Northwest ancient forests to visit.

Olympic National Park: The Quinalt Loop Trail is an easy network of paths that lead through a classic low-elevation rain forest in the southwestern portion of this Washington park. Signs identify features and explain the ecology. Information: 600 E. Park Ave., Port Angeles, WA 98362; telephone 206-452-4501.

Willamette National Forest: The Shale Ridge Trail passes through superb stands of old growth Western red cedar and Douglas fir as it follows the Willamette River's middle fork and climbs gently to Waldo Lake. Information: Oakridge Ranger District, 46375 Hwy. 58, West Fir, OR 97492; 503-782-2291.

Redwood National Park: The Tall Trees Trail winds through the Redwood Creek Basin in the southern reaches of this California preserve. The tallest coast redwood (at last count, 367 feet) and many other giants edge this path. Information: 1111 Second St., Crescent City, CA 95531; 707-464-6101. ◀◀

BOB DEVINE, AN OREGON JOURNALIST WITH A KEEN INTEREST IN CONSERVATION, LIVES JUST DOWN THE ROAD FROM AN OLD GROWTH FOREST.