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Have you seen this yet?
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A critic argues that the U.S. Forest Service, protected from congressional scrutiny by pork-barrel politics and imaginative bookkeeping, is devastating America's national forests through needless and unprofitable timber sales. A feasible and inexpensive policy alternative is available

THE MISMANAGEMENT OF THE NATIONAL FORESTS

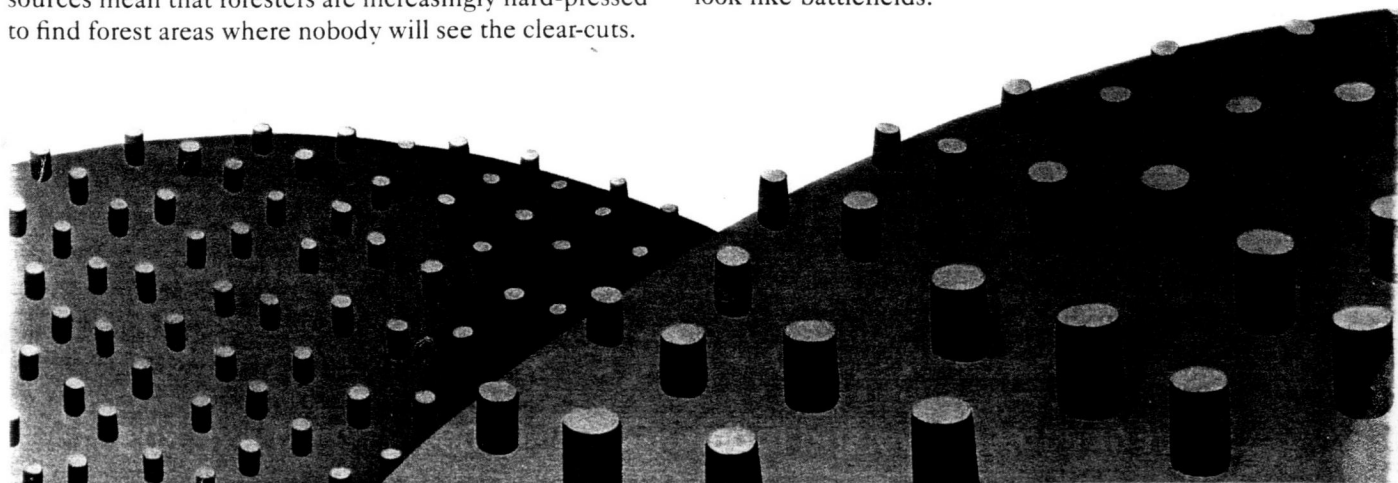
BY PERRI KNIZE

THERE ONCE WAS A TIME WHEN IF A TREE WAS FELLED IN THE FOREST, NOBODY SAW, and business went on as usual. But now a tree can't be felled anywhere in the national forests without causing violent tremors all the way to Washington, D.C. There the bureaucrats at the once-proud and formerly revered U.S. Forest Service, the administrators of the national forests, are losing credibility as forty years of forest devastation come to light.

While our government supports schemes to trade Third World debt for intact Third World rain forests and dispatches American foresters to Ecuador and Honduras to aid those countries in proper forest management, the Forest Service is deforesting our national timberlands at a rate that rivals Brazil's. What remains of America's original virgin forests is being clipped away daily on our public lands, lands that contain the most biomass per acre of any forests on the planet. We are losing intact ecosystems, watersheds, fish habitat, wildlife habitat, recreation lands, and native-species diversity to a degree that may be irreparable.

Once, the land could accommodate this "management" without attracting much notice. The national forests, unlike national parks, have traditionally provided wood, grass, and minerals to the private sector. But population growth, shifting demographics, and reduced resources mean that foresters are increasingly hard-pressed to find forest areas where nobody will see the clear-cuts.

When I joined the U.S. Forest Service as a volunteer wilderness guard, in the summer of 1983, I, like most Americans, thought the Forest Service was a conservation organization dedicated to preserving the nation's wild lands. I was vaguely aware that the Forest Service sold trees, but was unprepared for the extensive logging roads and cutting I saw on the Beaverhead and Bitterroot national forests, in southwest Montana. Entire mountainsides were shorn of cover, and rough roads crisscrossed their faces, creating terraces that bled topsoil into the rivers when the snows melted in spring. Since that summer I've traveled to national forests all over the United States, from the Carolinas to Alaska, and seen the same and worse: Entire mountain ranges have their faces shaved in swaths of forty to a hundred acres which from the air resemble mange. From the ground these forests, charred and smoking from slash burning, look like battlefields.



I was shocked: the Forest Service seemed more concerned about selling trees than about the vitality of the public's forests. Yet I met many dedicated Forest Service employees at all levels of the agency who were terribly unhappy about the emphasis on timber, and I felt compelled to learn as much as I could about why the Forest Service was pursuing such an apparently destructive policy.

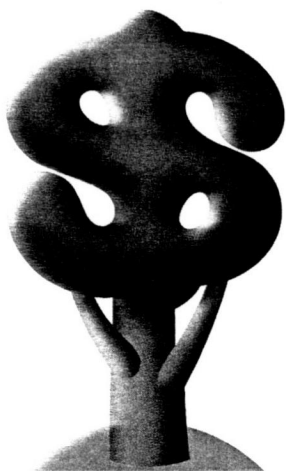
After all, the national forests supply only about 15 percent of the nation's wood, and Forest Service research shows that if that timber were removed from the market, half of the loss would be replaced by wood from private industrial tree farms and half by wood substitutes that are already on the market. Seventy-two percent of all the timberland in the United States is privately owned. This land is far better suited to tree farming than federal land—it is fertile, low-elevation, accessible, and for the most part does not have the intact ecosystems found on public land. Our national forests, although they are richer in biological diversity, have comparatively little value as tree farms. They are for the most part thin-soiled, steep, high-elevation, less accessible lands that produce low-quality timber. They are the lands nobody would take, even for nothing, when the government was divvying up the West.

Despite the abundance of merchantable private timber and the relatively low value of public timber, no one has seriously considered ending national-forest logging. With the exception of a tiny

minority of passionate nature lovers who are considered extremist, virtually everyone I've interviewed over the past eight years says that ending national-forest logging is impractical if not impossible.

A thoughtful look at the condition of our forests, the needs of our communities, and the national demand for wood products reveals that ending national-forest logging is not only possible but also highly pragmatic. In fact, we can end logging on the national forests and at the same time improve the future economic stability of small communities now dependent on timber dollars, stabilize our wood supply, save and spend more wisely the billions now pouring out of the federal Treasury, and preserve the health of our virgin forests—if we decide to. We can do it because, contrary to conventional wisdom, we don't need national-forest timber—not for jobs, certainly not for the income, and not for the nation's wood supply. Most commercial-timber owners would actu-





WE DON'T NEED NATIONAL-FOREST TIMBER—NOT FOR JOBS, NOT FOR INCOME, AND NOT FOR WOOD. COMMERCIAL-TIMBER OWNERS WOULD ACTUALLY BENEFIT IF THE GOVERNMENT WERE NOT COMPETING WITH THEM.

ally benefit if the government were no longer competing with them: as prices rose, long-term forest planning would become more feasible and profitable. The

Forest Service itself would benefit, as it escaped the endless and expensive forest-management planning with an emphasis on timber which inevitably lands it in court. Forest Service employees could begin to inventory and study the national forests, as they were mandated to do in the National Forest Management Act of 1976, though without adequate funding for the job. They could begin repairing the damage of the past forty years, instead of trying to produce board feet that can no longer be cut in an environmentally responsible fashion.

Timber Mythology

IN VIEW OF THESE BENEFITS, WHY ISN'T THE FOREST Service eager to end national-forest logging? Why is it adamant that that cannot or should not be done? The Forest Service rebuffs all such suggestions with three arguments that I call collectively the Great Federal Timber Mythology.

Myth No. 1: Federal timber is needed to meet an ever-escalating demand for wood fiber.

Myth No. 2: Timber sales overall make a profit for the federal Treasury.

Myth No. 3: Federal timber, even if sold at a loss, aids timber-dependent communities.

Last year the Forest Service once again predicted, as it has since its founding, in 1905, that demand for national-forest timber would continue to rise and that timber would remain in short supply. In fact the demand for timber has declined since the invention of the internal-combustion engine and since we began using electricity and fuel oil instead of wood for our energy needs. Many privately held forests logged in the nineteenth century are now regrown. Horse pasture and farmland have returned to forest. We actually have more standing trees today than we did ninety years ago. So whereas the old-growth trees that provide the softwood lumber used for products like fine furniture and musical instruments are indeed in short supply, particularly in the Pacific Northwest, we have plenty of wood fiber that can be made into less-refined products. Most of our ancient trees are not made

into pianos and armoires anyway, but are ground into pulp to make disposable diapers and cellophane for cigarette packs. Obviously, small-diameter trees from tree farms would serve that purpose just as well. As for building materials, we can also create them from small-diameter trees. Oriented-strand board, chipboard, finger-joint board, and particle board—made from chips or small pieces of wood—are already available; they are stronger than regular wood and can be made from very young trees grown in rows like a corn crop.

"Crop forests are where our timber supply really comes from," says a former logging manager at Weyerhaeuser Corporation, who asked not to be named. He explains that the industry wants the old timber on the national forests only because with minimal processing these logs bring a premium price overseas. "As to old growth, everyone has gored that fatted calf long enough. Weyerhaeuser made a fortune from old growth, but you can't cut the last one and say, 'Gee, that was nice. What do we do now?'"

One sign that we have a glut of wood fiber in the United States is that although we exported 4.2 billion board feet of raw logs last year, we can still find plentiful, cheap toilet paper in the supermarket. Timber has such a low market value in this country that owners of private timberland often find that growing trees doesn't pay—the rate of return isn't high enough. Many are selling off their forests and using the profits to reduce their debt. If timber were scarce—and valuable—this would be a poor business practice.

The Forest Service exacerbates the situation by flooding the market with cheap national-forest timber, driving prices down. One could argue reasonably that the national-forest timber program, by competing with the private sector, is destroying the environmental quality of our private timberlands as well.

It also empties the federal purse. "If we simply gave the loggers fourteen thousand dollars a year not to cut the trees, we'd be a lot better off," says K. J. Metcalf, a retired Forest Service planner in Alaska, about his review of the Tongass forest plan in 1978. He echoed the sentiments of many of the agency's critics. The Forest Service has long claimed that the government makes money on timber sales, but an analysis performed at the request of the House Government Operations Subcommittee on the Environment, Energy, and Natural Resources shows that the Forest Service timber program has lost \$5.6 billion over the past decade. Robert Wolf, a retired staffer at

the Congressional Research Service, a forester, and a road engineer, analyzed the Forest Service's timber-income accounting system at the request of Representative Mike Synar, the chairman of the subcommittee. At the time this was written, Wolf expected to submit his testimony in September. He says his original intention was to show that sales of national-forest timber were profitable and beneficial. Instead, he found that most of the 122 national forests have never earned a dime on timber, and only fifteen showed a profit last year. The Forest Service claims that it made \$630 million on its timber program last year; that claim, Wolf says, stems from inflated revenues and discounted costs.

The "net" revenue figure doesn't make allowances for the 25 percent of gross receipts (\$327 million last year) that must be paid to counties from which timber has been removed, as compensation for property taxes lost because those lands aren't privately owned. Nor does it take into consideration road-maintenance expenses—another \$80 million. Land-line location (surveying to confirm national-forest boundaries) cost another \$24 million. The Forest Service also overlooked some \$60 million spent on protection against insects and disease, maintenance of staff buildings, map-making, and fire protection.

Another \$575 million—funds earmarked for reforestation, brush disposal, timber salvage sales, roads built to accommodate timber buyers, and other programs—was depreciated over more years than appropriate for accounting purposes. The Forest Service has used a number of creative accounting gimmicks, including amortizing roads over 240 years. (One year roads on the Chugach National Forest, in Alaska, were amortized over 1,800 years.) The typical life of a logging road, however, is twenty-five years; that's why 60 percent of each year's road-building budget is earmarked for reconstruction. Last year the Forest Service received appropriations of \$700 million for the timber program from the federal Treasury, yet spent more than \$1 billion. According to Wolf's calculations, after a realistic amortization of costs, the timber program actually generated a net *loss* to the federal Treasury of \$186 million last year.

One reason timber sales don't make money is that most national-forest timber is virtually worthless. Short growing seasons and poor, unstable soils mean that a national-forest tree may need 120 years to reach maturity. "No one in his right mind would pay what it costs to grow it," says Wolf, who now calls the Forest Service timber program "a fraud." Since the Forest Service was founded on the promise that the timber program would make money, to admit losses after so many years of false claims would threaten not only the agency's timber program, and therefore about a third of its 45,000 jobs, but quite probably the existence of the Forest Service itself.

Even in the face of evidence that the timber market is glutted, and that its operations run at a net loss, the Forest Service will justify selling trees as a way to provide

small communities with jobs. But national-forest timber isn't keeping people employed; although timber production and logging on federal lands have increased, industry employment has declined. Automation, exports of raw lumber, and competition for foreign labor are the causes. As for small community sawmills wholly dependent on old-growth national-forest timber, their timber supply is limited. The small family mill is destined to go the way of the small family farm, and leveling the national forests won't save it.

The loggers and mill workers who depend on national-forest timber are, like the forests, victims of federal policy. Since the end of the Second World War the Forest Service has fostered in their communities an expectation that federal timber would be available indefinitely, and a way of life has evolved around that expectation. If the Forest Service and the loggers' elected representatives had been honest with their constituents even ten years ago, and warned them that the supply of trees could not support their industry forever, mill owners and loggers might not have invested further in lumber operations that are doomed, national-forest timber or no. These communities were misled, and they deserve aid in adjusting to what is for them a catastrophe.

But aiding those affected by an end to national-forest logging is less problematic than it seems. The jobs that would be lost are not irreplaceable, nor are they as numerous as claimed by the timber industry, which wants to maintain the flow of cheap national-forest old-growth lumber. A study funded by the timber industry predicted that 100,000 jobs would be lost in the Pacific Northwest as a consequence of restrictions to protect the spotted owl. But according to a Forest Service assessment written for other purposes, the true number is closer to 6,000. The industry study counted jobs projected for the year 2000 if logging continued to increase as was once planned, and it included a loss of secondary jobs, such as pumping gas and waiting tables, though the relatively healthy economy of the Pacific Northwest is creating new jobs in many other sectors.

The Forest Service says that only 106,000 jobs nationwide—including approximately 15,000 in the agency itself—are related to national-forest timber. An agency report speculated that these jobs would be replaced in part by new logging jobs when wood production shifted to private industrial lands. And in communities without nearby industrial timberland new jobs could be created, including jobs rehabilitating the national forests, with federal funds saved when national-forest timber was no longer being sold at a loss.

Inevitably, the small communities dependent on national-forest logging must diversify their economies or die. But if we do not end logging before their timber supply is exhausted, the clear-cuts that surround these communities will bankrupt their future. Once the forests are gone, they will have neither the timber industry nor

property values nor the recreation potential that could help them build a stable economic future. Logging the national forests results in the loss, rather than the strengthening, of community stability.

So if jobs are being lost despite increased logging, and the U.S. government loses millions a year on that logging, and we don't even need the lumber, why does the Forest Service persist in logging the national forests? When environmentalists, economists, forest planners, and policy-makers say it is not practical to end national-forest logging, they mean it is not practical *politically*.

Political Realities

THE NATIONAL FOREST MANAGEMENT ACT OF 1976 stipulates that those who are most intimate with the national forests—the public and the local Forest Service team—should work together to decide how they are to be managed. But in practice the forests are ruled by competing and complementary agendas in Washington, D.C. Forest Service administrators are concerned with maximizing their budgets, holding on to their jobs, and preserving the status quo. Congressmen want jobs in their districts and contin-

ued timber-industry support for their re-election campaigns. And the White House wants to take care of its friends. All use national-forest timber as a means to achieve their aims.

More than a quarter of the money the Forest Service spends comes from selling timber—whether the sales make money or not—through a little-known law called the Knutson-Vandenberg Act of 1930. The K-V Act allows the Forest Service to retain virtually all its gross timber receipts in order to fund projects like tree-planting, wildlife-habitat improvement, and trail-building, and to buy equipment like computers, refrigerators, and so on. It is a back-door way of funding the agency without going through the appropriations process. Last year K-V money and similar timber funds added \$475 million to the Forest Service budget, above and beyond congressional appropriations. Because Congress has limited its funding to timber-sales development, fire fighting, and road-building on the national forests, and has resisted the agency's requests for support of other programs, K-V money is often the only resource on which the Forest Service can rely to finance many of its non-timber activities. Erosion control, campground improvements, and plant and animal inventory, for example, are all funded by timber sales.

AT THE PIANO

At the piano, the girl, as if rowing upstream,
is driving triplets against the duple meter,
one hand for repetition,
one hand for variation and for song.
She knows nothing, but Bach knows everything.
Outside, in the vast disordered world,
the calves have been taken from their mothers;
both groups bawled and hooted all night long—
she heard them from her quilted double bed.
Twice a day, she gives the young
their frothy warm placebo. While her brother
steadies the cow with grain, her sister
leans in close from the little stool,
fingertips aligned on the wrinkled tits
as if to pick some soft, fleshy fruit,
but pressing in, hard, while pulling down,
she milks with both hands, two jets of milk
spraying the metal pail as they go in.
The girl must put her whole hand in the pail
and push the head of the suckling toward it:
wet muzzle, corrugated tongue:
when her last year's calf was in the bank
she drew the money out for candlesticks—

a present for her parents—tall and brass
because she thought the eighteenth was for brass.
Hers was the only gift. Her mother filled them
with thin candles; though never lit, they are twin
lighthouses on the mantle's narrow strait
where the loud clock makes a metronome.
At the piano, hands in her lap—
what's given, and what's made from luck and will—
she also hears a diaphonic moan:
long before dusk the animals in the pens
again have started calling for each other,
either hungry or too full, she can't tell
which is which. Her mother's in the kitchen,
her father's in the hayloft pitching hay,
she pushes off in her wooden boat—
she knows nothing, she thinks
no one could be happier than this.

—Ellen Bryant Voigt

For this reason the K-V Act has led to absolutely perverse management. According to Randal O'Toole, a natural-resource economist and the author of a tendentious book titled *Reforming the Forest Service*, mismanagement in the pursuit of K-V money is rampant. O'Toole has analyzed the management of more than half the national forests. He found, for example, that when Gallatin National Forest, in Montana, needed funds to close roads to protect grizzly-bear habitat, its managers held timber sales and built roads in other prime grizzly habitat. When the Medicine Bow National Forest, in Wyoming, needed funds to inventory ancient Indian archaeological sites, it sold timber on those very sites, destroying them in the process. And in the Sequoia National Forest, in California, when foresters needed funds for a prescribed burn to protect giant-sequoia groves from wildfire, à la Yellowstone National Park, they sold timber in the groves to get the money they needed to pay for the prescribed burn. But the clear-cuts left only a few giant trees, surrounded by devastation. Instead of burning, the foresters had to replant the area, at a cost of \$1,000 an acre. The point of these seemingly pointless exercises was to get and spend money. Like most bureaucracies, the Forest Service is deeply concerned with keeping overhead accounts full and maximizing its budget.

Since a third of all K-V money is spent on administrative overhead for every level of the Forest Service, from the Washington office down to the local districts, the promise of K-V funds encourages everyone in the Forest Service, including wildlife biologists and recreation specialists, to support timber sales, even if those sales damage the resources they are charged with protecting.

Because the Forest Service is so heavily dependent on timber sales, ensuring the future of the timber program is critical to the agency. That future depends on a vast network of access roads. In addition to the annual budget appropriation and the K-V money, the Forest Service has a capital-investment fund—known as hard money—set aside by Congress just for building and reconstructing roads. Last year this fund was \$270 million. In addition to the 360,000 miles of roads already on the national forests—nearly one mile of road for every square mile of forest, or a system about eight times the length of the U.S. interstate highway system—the Forest Service has ambitious plans to build another 43,000 miles of roads over the next fifty years. Depending on the type of road and terrain, building these roads can cost as little as \$5,000 or as much as \$500,000 a mile. The agency is anxious to get roads into even marginally productive areas, critics say, because a roadless area can become a designated wilderness, off limits to logging forever.

Another way the Forest Service hopes to protect the timber program is by rewarding forest managers with promotions for meeting their timber quotas. Congress sets these quotas as a means of accounting for the money it

has given the Forest Service. If the agency has said it will sell 11 billion board feet of timber in return for its \$700 million congressional appropriation, at the close of the fiscal year Congress will want to know that in fact the agency has sold the trees. To make sure they are sold, the Forest Service assigns sales targets to the nine national-forest regions, according to their capacity. Each regional forester's performance rating depends in part on coming within five percent of his target.

Congress's concern about jobs is of a different nature. To get votes, a public servant needs to get jobs and money for his or her district, and in small communities in the West timber sales mean jobs, and money in the county coffers for roads and schools. Counties are entitled to 25 percent of gross receipts from the national forests within their boundaries, so county commissioners are deeply interested in national-forest programs that generate receipts, and many cannot meet their budgets without them. These officials exert tremendous pressure on members of Congress and agency officials to keep the volume of timber cut in the national forests as high as possible. Congressmen from states with lots of national forest are usually zealous about complying if they want to stay in office.

They are also ready to express gratitude to the timber industry for its campaign contributions. The industry contributes to the campaigns of several key congressmen on the appropriations committees who go to bat for timber interests every year when the timber and roads budget comes up for review. Last fall, for example, the soon-to-be retired Senator James McClure, of Idaho, added to the 1991 appropriations bill a promise of a five percent funding bonus for wildlife and recreation to any Forest Service region that meets or exceeds its timber targets—this at a time when regional foresters throughout the West were insisting that they could no longer meet federally mandated targets without damaging the land and violating environmental laws.

The 9.5 billion board feet of timber scheduled for sale on the national forests this year, and the more than 2,000 miles of timber roads scheduled to be built, will continue to make following environmental standards and guidelines difficult. Former Forest Service officials have admitted to overcutting in the past, and timber targets remain high, causing some in the agency to protest that not enough trees are left to meet them. On a day I spent on the Willamette National Forest last year, no one was in the Blue River Ranger District office. The district had three days left to meet its timber target, and the rangers were out on the ground, scrambling to find trees that met specifications for cutting.

"Anybody—on the back of an envelope—could have figured out that the rate of [timber] harvest cannot be sustained," said Max Peterson, a former Forest Service chief, when he met with agency employees at the Wenatchee National Forest in 1989. He said the cut should go

down at least 25 percent; some forest planners, knowing the Forest Service to be extremely conservative on such matters, understood that to mean the cut should go down at least 75 percent.

Heavy cutting in much of the Pacific Northwest over the past decade was caused in part by congressional orders to the Forest Service which resulted in a cut far larger than the agency itself recommended. Last year Oregon's congressional delegation attached a rider to the federal appropriations bill allowing the Forest Service to sell more timber than existing laws allowed, and greatly reducing the possibilities of judicial review. A federal appeals court recently declared the rider unconstitutional.

But the impact of Congress on national-forest management is mild compared with the negative influence of the White House. My season with the Forest Service coincided with the era of John Crowell, Jr., a former timber-industry attorney and lobbyist appointed by President Reagan, as assistant secretary of commerce for natural resources and the environment—the official who oversees the Forest Service. Crowell, who had worked for Louisiana-Pacific Corporation, one of the largest buyers of federal timber, dedicated his term in office to doubling the amount of timber cut on the national forests, and he ordered the Forest Service to ignore federal court orders and national environmental laws to meet that goal.

Logging and road-building in forbidden areas was a familiar occurrence in the national-forest system during the Crowell era, and it continues to this day. Logging in a designated wilderness has been discovered several times on the Willamette National Forest. Crowell's successor, George Dunlop, another Reagan appointee, refused to approve any national-forest plan in the Pacific Northwest that didn't increase logging. As a result, Forest Service Region Six is now under such pressure to meet its targets that some districts have wandered into areas off limits to timber sales.

The President's influence on timber management can be far more direct. In June of last year the Forest Service was about to endorse the Jack Ward Thomas report, a study prepared by a team of scientists from the Forest Service and other natural-resource agencies. The Thomas report spelled out which lands should be spared from logging in the Pacific Northwest in order to save the northern spotted owl from extinction. The week before Dale Robertson, the chief of the Forest Service, was to announce the agency's endorsement of the report, timber-industry representatives paid a visit to the White House. Shortly thereafter the Bush Administration announced that it was ordering its own special task force, chaired by Clayton Yuetter, the Secretary of Agriculture, to study the spotted-owl situation further and to come up with more options. Months later Bush's task force announced its conclusions: the Thomas report's recommendations should be accepted in principle, and the cut should be reduced, but less old-growth forest should be

protected than the Thomas report implied. The delay meant that timber sales in spotted-owl habitat continued unrestricted by either report all summer; by the time Bush's task force made its announcement, the logging season was just about over.

The stalling continues. The Forest Service says it may need another two or three years to come up with a management plan for the spotted owl. And last May a court ordered the agency to withdraw sales planned for 66,000 acres of prime spotted-owl habitat. Those acres would have been in addition to the 400,000 acres of owl habitat already logged since 1984, when the agency began preparing guidelines for the spotted owl. William L. Dwyer, the U.S. district judge presiding over the case in Seattle (also, ironically, a Reagan appointee), wrote a stunning denunciation of the White House in his decision:

More is involved here than a simple failure by an agency to comply with its governing statute. The most recent violation of the National Forest Management Act exemplifies a deliberate and systematic refusal by the Forest Service and the Fish and Wildlife Service to comply with the laws protecting wildlife. This is not the doing of the scientists, foresters, rangers, and others at the working levels of these agencies. It reflects decisions made by higher authorities in the executive branch of government.

Biological Costs

JUDGE DWYER'S DECISION UNDERSCORES THE FUNDAMENTAL reason why we should not be harvesting the national forests. Aside from the facts that we don't need the lumber, that the timber program loses money, that the program is used to prop up faltering local economies artificially, and that the real reasons for timber cutting continue to be unacknowledged, we have a biological stake in an end to logging on our national forests.

The greatest threat represented by our current national-forest policy is that it will destroy biological diversity on public lands. Forest scientists say that the national forest are most valuable to us as founts of life. Our native and old-growth forests are intricate, fragile webs encompassing everything from bacteria, fungi, and insects to grizzly bears, wolves, and ancient sequoias. They constitute a complex, interdependent plant and animal community that is the foundation upon which we human beings eat and breathe. Scientists say they understand little about forest biological systems, but they do know that the fresh air and clean water our forests produce are essential to our survival, because they are basic components of the food chains that keep all species alive. As species die off, the ecosystem is simplified, and the more simplified it becomes, the less life it is capable of supporting.

We are learning more about the value of the nation's



IF THE FOREST SERVICE GETS FUNDS FOR ITS PROGRAMS BY SELLING TIMBER, AND TIMBER MANAGEMENT IS DESTROYING THE FORESTS FOR OTHER USES, THEN WE MUST FIND A MEANS OTHER THAN TIMBER TO FUND THE PROGRAMS.

forests every day. For example, scientists have recently concluded that forests play a major role in the absorption and storage of carbon dioxide. When very old trees,

those more than 200 years old, are cut down, vast stores of carbon are released, owing to soil disturbance, decay, and the burning that accompanies tree harvesting. The resulting climatic changes are called global warming.

With global warming, habitats that will nurture biological diversity become an even more pressing need. When climates change, species must migrate if they are to survive, and land-based species must have connecting corridors of undisturbed forest through which to move unmolested. The burden of protecting habitat that can nurture diversity must fall on the public natural-resource agencies, because virtually all the original, intact ecosystems remaining in the United States are on our public lands.

Our national forests also embody other important values. A national forest is a place where you might awaken to find a bull elk staring you down, startled from his drink at a glacier-fed lake. Snow-tipped crags and rocky cirques reflect in pools and creeks and waterfalls of penetrating clarity; the water is so clear that to look at it is to be mesmerized and merged with it. Sometimes the only sound is the wind, roaring through the giant firs like a locomotive. At other times the silence is so deep and inviolate that you can hear, seemingly, to infinity. To visit a national forest is to let a bit of the harmony lacking in our contemporary lives seep in. A lifelong New Yorker visiting a Montana national forest last summer said that camping there was like staying in a five-star hotel—a city-dweller's ultimate compliment, and a measure of how claustrophobic and diminished our everyday surroundings have become. The wildness, solitude, and silence of the national forests are now among our country's greatest luxuries.

The Forest Service's predominant logging method, clear-cutting, destroys the visual beauty of the national forests. But the threat to biological diversity is more subtle. By law, clear-cuts must be reforested, and they are usually replanted with one favored tree species. These plantings then grow into even-aged monocultures—they are tree farms, not forests. Diversity is reduced, and wildlife is stressed as nesting sites, dens, and cover from

predators are lost. Although the young grasses growing in clear-cuts do provide food for deer and elk, the loss of cover drives away bear, turkey, squirrels, and other species. Clear-cutting is also dangerous where rains are heavy and terrain is steep, as in southeast Alaska, on the western slope of the Cascade Mountains, and in the northwest corner of the Rockies. Flooding, soil erosion, water contamination, and loss of fisheries as sediment flushes into spawning streams are often the result. In some areas washouts and mud slides occur, and soil is removed down to bedrock. Clear-cutting changes the flow of streams, causing flooding during rains and drought during dry periods. It also interferes with recreation: no one wants to go hiking or camping in a clear-cut, and clear-cutting often obliterates recreation trails.

We know that clear-cutting destroys the complexity of forest ecology because we have the example of Europe, which was essentially deforested more than 300 years ago. Foresters there are still trying to figure out how to bring the forests back. Modern forestry techniques have evolved from the attempts, beginning in eighteenth-century Germany, to regenerate old-growth forests like the ones that we are logging here. The forests that European foresters so painstakingly tend are sterile: birds don't sing in them; sticks, not logs, are harvested from them; and now Europeans are worried about the long-term fertility of their soil. "Look to Europe for what the future holds," says Paul Alaback, a research biologist for the Forest Service in Juneau, Alaska. "Is it really necessary to cut all the forests down before we learn from others' mistakes?"

The Forest Service is now experimenting with an alternative to clear-cutting called new forestry. New forestry is an attempt to protect diversity by simulating natural events like windstorms and fires. As I've seen it practiced at the Andrews Experimental Forest, in Oregon, new forestry looks like a messy version of clear-cutting. Instead of clearing the land of all timber and burning the remaining debris, the foresters leave dead and living trees standing in clusters, slash unburned, and dead trees and debris on the ground and in streams. This new method can be just as ugly as a clear-cut and more expensive, because it requires being more careful and yields fewer board feet per acre. And no one knows for sure if it helps preserve long-term biological diversity, the purpose for which it was created by Jerry Franklin, a Forest Service scientist. It may not be biologically destructive, but new forestry is

almost always aesthetically destructive, and if it is adopted in place of clear-cutting, more timber will be sold below cost and net returns will be reduced on those forests that do earn money. We'll lose more money on the national forests than ever.

All of this points toward the conclusion that the Forest Service shouldn't be in the timber business. Managing the land to sustain its ecology is inherently incompatible with managing it to turn a profit. The time frame allowed under today's shortsighted economic system is far too limited to take biological diversity into account, and alternatives to clear-cutting will only increase deficit timber sales. Without regulation or financial incentives, most private industry will never manage its land to enhance biological diversity—long rotations (the number of years trees grow before harvest) don't help short-term profit margins—so this role must fall to the Forest Service. But as long as the Forest Service is in the timber business, its time horizon, too, will be far too short.

A Proposal

WE NEED TO RECONSIDER THE PURPOSE OF the national forests. Most people agree that public lands should exist to benefit the public, with private use permitted only when it does not reduce that public benefit. Yet the Forest Service's timber program is beneficial chiefly to politicians in Washington, to a small segment of the timber industry, and to the Forest Service's administrators. Taxpayers, small communities, recreationists, the owners of private timberland—and the land itself—all lose. The national forests without logging would not be the same as the national parks: hunting, grazing, mining, irrigation, and other private uses that don't interfere with the public's right to enjoy its lands would continue. But without the logging program the Forest Service could, like the National Park Service, emphasize a stronger conservation ethic.

Such a shift in management cannot be achieved without confronting the political realities. That is why any legislation to reform national-forest management must change the incentives that motivate the Forest Service and private users of the forests. If the Forest Service gets funds for its programs by selling timber, and timber management is destroying the national forests for other uses, then we must find a means other than timber to fund the national forests. The most logical approach would be to charge recreation fees.

In its 1990 planning paper the Forest Service estimated that if it were allowed to charge fees for recreation, the income to the agency could be more than \$5 billion a year, or three times what it earns in gross timber receipts. The estimate is based on fees that national-forest users

have said they would be willing to pay, ranging from a few dollars for picnicking to nearly thirty dollars a day for big-game hunting. As Randal O'Toole has pointed out, this income, combined with the money saved by ending logging on the national forests, would fund the agency entirely from its own receipts; tax dollars would no longer be needed to support the Forest Service. Instead, only those who used the national forests would pay, and their fees would ensure that the forests were managed in the best interests of recreationists.

When the agency's funding no longer came from Congress, pork-barrel politics would no longer dictate how the forests were managed. County commissioners would stop putting pressure on their congressmen to appropriate funds for timber sales, because counties that depend on timber receipts for their roads and schools would get even more money from recreation than they did from timber. Private industry and landowners would benefit, because the value of their land and their timber would increase, and they, too, could charge recreation fees. With part of the billions of taxpayer dollars we were no longer investing in the Forest Service, we could easily create programs to help communities dependent on national-forest timber make the transition to a more diverse local economy, one that would serve them for the long term.

Without fees, all taxpayers are paying for the destruction of the national forests. With fees, those who used the national forests would be paying to preserve their integrity. Hikers, hunters, fishermen, backpackers, and skiers would begin to get the resources and management they need to enjoy the national forests, instead of getting leftovers after the interests of the timber industry have been served. With this new emphasis we could fund an inventory of, research on, and monitoring of national-forest species and ecosystems to help us repair the damage done by forty years of overcutting.

To accomplish this revolution in national-forest management, Congress must be persuaded that recreation fees and an end to national-forest logging are a sensible and practical way to ensure a healthy future for our national forests. Environmental groups should endorse these recommendations as a means to preservation. County governments should support this plan because it would more than double their revenues from national-forest use. Large industrial timber farmers like Weyerhaeuser and International Paper should favor it because it would increase the value of their lands and their timber. Fiscal conservatives and those worried about the national debt should support this plan because it would save taxpayers the yearly cost of managing the national forests. An unprecedented coalition of these interests would stop national-forest logging in its tracks. Congress and the White House would have to comply. □