



What if we do nothing?

“Letting nature take its course in these forests implies a willingness to accept the consequences of catastrophic fire. Are we willing to accept the ecological consequences of huge, unusually severe fires? We can’t restore the forests that were here 150 years ago, but we can restore the natural processes that created them, and that is what we are trying to do in our research work.”

Steve Arno, Ph.D., Fire Ecologist,
Intermountain Fire Sciences Laboratory,
USFS, Missoula, Montana,
Evergreen Winter 1994

The claim that ailing western forests can heal themselves if they are left alone seems based on a belief that pre-European forests and prairies were naturally functioning ecosystems uninfluenced by humans. But an enormous and growing body of physical, biological and anthropo-

Jack Ward Thomas, Ph.D., wildlife biologist, retired Chief of the U.S. Forest Service, Boone and Crockett Chair, School of Forestry, University of Montana, Missoula:

“Those who support the ban [on harvesting] seem to believe it will prompt natural restoration of pre-settlement forest conditions. I think that is highly unlikely. Unless we soon begin the long process of dealing with diseased forests that are prone to very hot stand-replacing fires, restoring natural ecosystems as we do, Yellowstone-scale fires are a serious probability.”



Dense, diseased and dying—(From left) A stand of lodgepole pine in western Montana; a blowup in a dead lodgepole stand lost to the 1988 Yellowstone Fire; and a recently thinned stand of 35-year-old lodgepole near Condon, Montana. Photographs by the late Peter Koch, author of *Lodgepole Pine in North America* a three-volume set.

logical evidence suggests this was not the case. In fact, millions of Indians were already here when white settlement began—and had been here for a least 12,000 years. Many lived in advanced, mainly agrarian, societies based on exploitation of natural resources including soil, water, minerals, trees, fish and game. They planted millions of acres annually and, where water was scarce, constructed elaborate irrigation systems. Fire was routinely used to clear land for crops, drive game animals, encourage berry production, clean campsites, ward off enemies and promote grass production, which attracted foraging animals, mainly elk and buffalo.

But if pre-European forests were not naturally functioning ecosystems, what then might happen if harvesting is banned and western National Forests are left alone to heal themselves?

“You don’t have to return to pre-settlement forests to see the likely result of a ban on harvesting,” says Steve Arno, Ph.D. fire ecologist at the Forest Service’s Intermountain Fire Sciences Laboratory in Missoula,

Montana. “The years 1992, 1994 and 1996 were big fire years in the Intermountain west. They provide very visible evidence of what happens when forests are neglected: severe fires in ponderosa pine forests that historically had lower intensity burns, major losses of fish and wildlife habitat and degradation of air and water quality.”

Minus some form of management, Dr. Arno predicts “large damaging fires, a futile fire fighting effort costing hundreds of millions of dollars and possibly taking firefighter lives, and massive insect and disease infestations.”

Assuming eventual resolution of the harvest debate, Dr. Arno sees a more hopeful outcome. “With management—thinning, harvesting and a carefully controlled burning program designed to encourage growth in native plant and tree species—we can slowly reduce the risk of severe wildfires and disease, creating a more natural range of forest conditions, which is the first step in ecosystem restoration.”

Dr. Arno is not alone in his concern for the consequences of leaving western

National Forests to heal themselves. Two of the country’s best known scientists agree with him: Jack Ward Thomas, Ph.D., wildlife biologist and former chief of the U.S. Forest Service and Chadwick Oliver, Ph.D., forest ecologist at the University of Washington and a contributor to the Clinton Administration’s Northwest Forest Plan.

“For ecological, biological and moral reasons, I oppose the ban on timber harvesting in National Forests,” Dr. Thomas said in a December interview. “Those who support the ban seem to believe it will prompt natural restoration of pre-settlement forest conditions. I think that is highly unlikely. Biologically speaking, eliminating harvesting, while continuing to control wildfires, would have significant adverse effects on bird and mammal species that thrive on early succession forest conditions.”

According to Dr. Thomas, a harvest ban accompanied by legislation that also permitted fires to run free would indeed open up overly dense forests, but it would also degrade air and water

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Before and after—Photographs of a diseased fir stand on Lick Creek in western Montana’s Bitterroot Valley. After thinning, the site was burned to rid it of excess woody debris. The right-hand photograph was taken a year later. The best trees were left to grow larger and provide a future seed source.

quality – environmental impacts he doubts the public would tolerate.

“If we ban harvesting, but continue to fight fires, we also move toward what we call mid-succession forests, which are far less diverse than young or old forests,” he explained. “I know of no species that finds its sole habitat in mid-succession forests. In managed forests, we solve the mid-succession problem by thinning, allowing light to reach the forest floor, thereby adding to biological diversity. But such thinnings would not be permitted were a harvest ban enacted.”

Dr. Thomas also has serious doubts about the government’s ability to successfully deal with the kinds of wildfires the West is now experiencing.

“The Yellowstone fire was a wakeup call for many scientists, including me,” he says. “Unless we soon begin the long process of dealing with diseased forests that are prone to very hot stand-replacing fires, restoring natural ecosystems as we go, Yellowstone-scale fires are a serious probability. I know many people distrust thinning, fearing a return to the days when too much

harvesting was occurring in National Forests, but I don’t see how it could happen. Far greater risks lie in accepting the idea that the best way to protect National Forests is to set them aside in no-harvest reserves. I’m a wilderness fan and would favor adding appropriate lands to the Wilderness system, but major portions of the National Forest System are not suitable for Wilderness designation and ought to be managed for multiple benefits, including commercial timber production.”

Dr. Oliver holds similar views concerning the probable environmental impacts that would likely accompany a decision to place National Forests in no harvest reserves.

“To minimize the risk of environmental degradation, I suppose we would still try to control wildfires, but increasingly these fires are simply too large and dangerous to be put out as we would extinguish a house fire,” he said in a recent interview. “Until we start dealing with the underlying problem—overly dense stands of dead and dying timber—I’m afraid this situation will only get worse.”

Short of “blending harvesting and thinning programs designed to restore native species,” Dr. Oliver expects the onset of wildfire regimes “on a scale not seen since early in this century.”

“In a few hundred years, a more natural range of forest species and conditions would probably re-emerge,” he says, “but there would be great suffering in the meantime. In many places, the air we breathe and the water we drink would be polluted; exotic plants, animals and pathogens would invade our forests; lives would be lost and millions of acres of native habitat would be destroyed. Fortunately, restoration ecology offers many more acceptable alternatives. By carefully blending thinning, harvesting and wildland vegetation management programs, we can eliminate pests, protect habitat, reduce the danger of catastrophic fire and encourage recovery of native plant and animal species. Moreover, we can create many of the structural features and processes associated with old-growth forests, and we can do it in substantially less time than nature requires.”

The National Forest S

Douglas MacCleery, Assistant Director of Timber Management, USFS, National Forest Mission Shift: *How to Respond to Changing Public Preferences*, March 1998:

“Over the last two decades, public debate over how National Forest System lands should be used and managed has become ever more intense and polarized, reflecting a lack of public agreement on the overall mission that should govern these lands. This lack of agreement, coupled with implementation of federal environmental laws, has had the effect of substantially reducing commodity outputs from National Forest lands, increasing emphasis on amenity values, and on maintaining and restoring ecosystem function, biological diversity and health.”



USFS

Turn-of-the-century cabin— This Forest Service photograph is thought to be of one of the first Ranger cabins constructed in Montana. Back then, District Rangers traveled their vast territories on horseback, and often fought forest fires with nothing more than shovels and axes. The children are unidentified but are probably the Ranger’s.

Listening to the National Forest harvest debate from the sidelines, one might easily conclude not much has changed in the Forest Service over the last 25 years, but the agency and its mission are both very different than they were—even ten years ago. Unfortunately, these changes—which reflect changing public values, scientific advancements and changes in the Forest Service culture—don’t make news in the same way anti-logging protests, mill closings and endangered species listings make news.

Gone is the half-century when most Americans believed harvesting National Forest timber was good for the country. Gone too are the days when the West’s

sawmills could rely on a steady and generous flow of timber from National Forests. Today, most living outside the rural West probably think it is wrong to log in National Forests. So do many of the rural West’s newest emigrants—transplanted city dwellers whose technology-based businesses are not tied to the timber economies that have sustained their newfound communities for most of this century. The fact that the National Forest timber sale program is gripped by political and legal chaos, and is nearing zero, poses no economic hardship for them.

These changes—political and scientific—transect five distinct eras in the history of the National Forest

System: 1905–1950, the 50s and 60s, the early 1970s, the mid-70 to mid-80 period and the mid-80s forward.

The 1905–1950 period is often called “the custodial era.” Little harvesting occurred and few people ventured into National Forests. Between 1896, when Congress created the first Forest Reserves, and 1910, the emerging National Forest System grew from 18 to 168 million acres. The System was created for two reasons: to protect watersheds and to serve as a future source of timber for a fast growing nation. But until the post-World War II era there was little demand for National Forest timber. Controlling wildfires—prerequisite to long-term management

System: Then and Now

—was a priority, and livestock grazing was the primary commercial activity. During the Depression years, the Civilian Conservation Corps (1933–1942) built most the trails and campgrounds found in National Forests today. CCC boys also fought fires and thinned forests, but most notably they planted 1.365 billion trees.

Things changed quickly following the end of World War II. GI's returning from the war got married, started families and bought homes.

Demand for timber soared and with it the National Forest harvest level. From the late 1940s to the mid-1960s, the annual harvest level rose from 2.0 to 14 billion board feet, a harvest sufficient to meet 20 percent of total U.S. wood consumption.

During this same period, an increasingly mobile and affluent population began putting a new kind of pressure on National Forests. Demand for recreation soared, rising from 18 million visitor days in 1946 to 233 million in 1975.

In 1960, Congress passed the Multiple Use-Sustained Yield Act mandating that National Forests be managed for multiple values: recreation, wildlife, timber, grazing and watershed protection. The act was the first of several new laws reflecting increased social unrest and growing public concern for the environmental impacts of timber harvesting. Others passed between 1960 and 1976 included the

Wilderness Act, 1964; the National Environmental Policy Act and the Clean Air Act, 1970; the Clean Water Act, 1972; the Endangered Species Act, 1973; the Forest and Range Lands Renewable Resources Planning Act, 1974; and the National Forest Management Act, 1976. Despite these protections the increas-

ingly rancorous National Forest debate has come to focus solely on whether *any* harvesting should be permitted in these forests, no matter the reason.

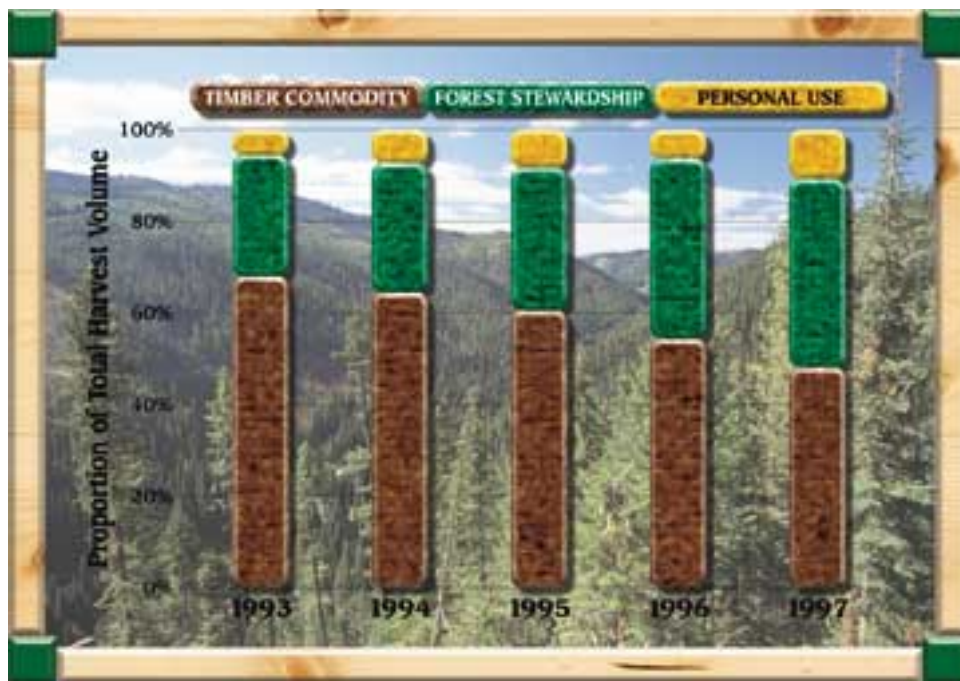
Between 1987 and 1995, National Forest harvest levels in Oregon, Washington and California—the epicenter of the spotted owl-old growth debate—

dropped 89 percent, from 6.86 to 0.78 billion board feet annually. Elsewhere in the National Forest System, the harvest level dropped 53 percent, from 4.46 to 2.10 billion board feet a year. Even more revealing is *the kind* of harvesting that is occurring.

Between 1988 and 1996, the area harvested by clearcutting dropped by 80 percent, from 283,000 acres annually to 57,000 acres; and the area in which

any kind of harvesting occurred declined by 44 percent, from 838,000 acres to 473,000 acres. Equally revealing is the shift in the kinds of trees that are being harvested. Between 1990 and 1996, the harvest of saw-log size trees declined from 77 to 56 percent while the harvest of dead and dying timber increased from 26 to 47 percent.

Today, 42.8 million acres—23 percent of the 191 million-acre National Forest System—is statutorily set aside in no-harvest areas. These include the National Wilderness Preservation System, 34.6 million acres; National Monuments, 3.4 million acres; National Recreation Areas, 2.7 million acres; National Game Refuges



Harvest decline—Since 1993, National Forest commodity harvesting—harvesting in response to consumer demand—has declined from 71 to 52 percent of total harvest volume. Meanwhile, “stewardship harvesting”—harvesting to improve forest health, create wildlife habitat or reduce the risk of catastrophic fire—has increased from 24 to 40 percent of total harvest. (*Changing Economics of National Forest Timber Sale Program*, USFS, 1999)

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and Wildlife Preserves, 1.2 million acres; Wild and Scenic Rivers and Scenic and Primitive areas, .9 million acres.

Where harvesting is still permitted, the shift toward selective removal of dead and dying trees underscores both a recognition of changing public values and a steady ecological decline in the West's National Forests. In the Interior West, more than twice as much timber dies annually than is harvested: 2.0 billion board feet died in 1997 and 744 million board feet were harvested. This is the "forest health problem" expressed in numbers—and what the numbers reveal is that wide areas within the western National Forest System are no longer able to function naturally—meaning the presence of natural agents such as insects and diseases often lead to catastrophic consequences, usually fire. But because restoring forest health is often linked to a need to thin dense stands, many environmentalists view it as little more than an excuse to harvest timber. Skepticism notwithstanding, the increasing frequency of increasingly destructive forest fires suggests many of the West's National Forests are unhealthy.

Big fires tell only the most visible part of the forest health story. Less visible but ultimately more dangerous is the startling increase in the number of small trees. The volume of trees less than 17 inches in diameter has increased 52 percent since 1952—in part because replanted forests were rarely thinned before they became commercially viable. Moreover, the public's aversion to fire made controlled burning politically undesirable, even in fire-dependent ecosystems where it would have helped control insects, diseases and stand density.

System-wide, National Forest net annual growth (gross tree growth minus mortality) has been increasing steadily since the 1950s and is nearing 16 billion board feet per year. Meanwhile, annual harvest hovers between three and four billion feet, meaning that growth exceeds harvest by about 400 percent. Most forest scientists agree that such outsized net growth is not sustainable. The Forest Service estimates that between 39 and 43 million National Forest acres could benefit from a long-term thinning program designed to reduce the risk of catastrophic fire, but if Congress approves the proposed harvest ban such thinning would be illegal.



Ponderosa pine—Transplanted seedlings at Savenac Nursery near Haugan, Montana, August 1941.



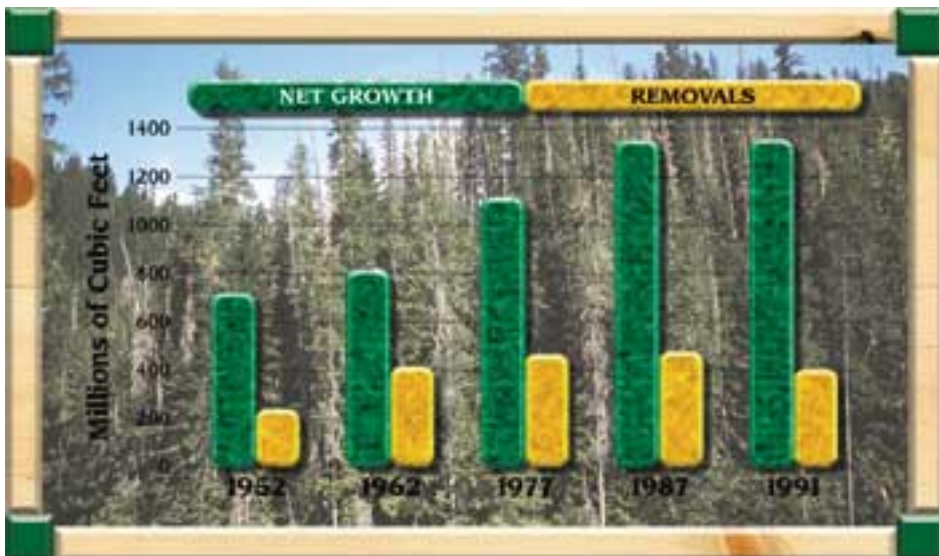
The next forest—A tree planting crew at work in the aftermath of the Sleeping Child Fire on the Bitterroot National Forest, June 1964.



Salvage logging—A truck loaded with dead spruce (killed by spruce bark beetles) climbs out of Clarence Creek on the Kootenai National Forest, October 1952..

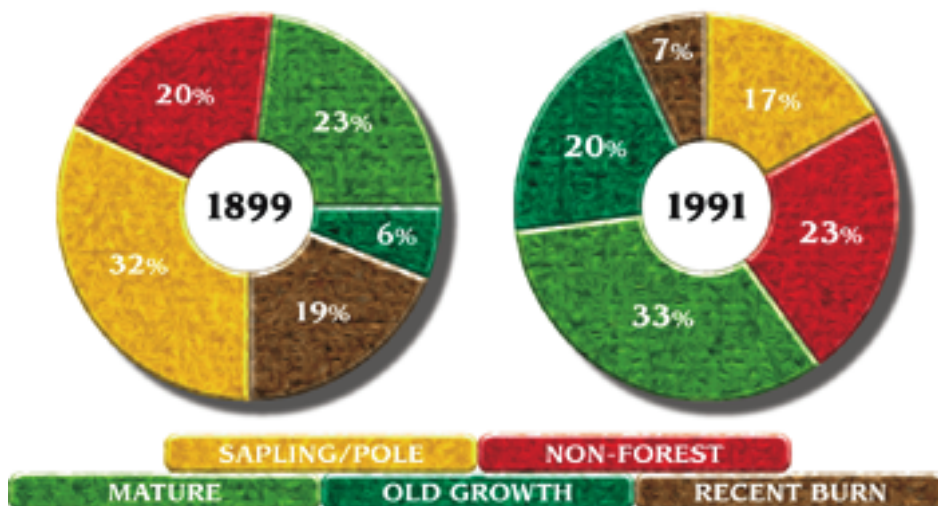


National Forest System Growth and Removals: 1952-1991—Since the early 1950s, net annual forest growth in National Forests has exceeded harvesting by a wide margin. Meanwhile, average forest biomass per acre has increased steadily—in 1994 by 2.8 billion cubic feet, almost 3 times harvest volume. Shown here, a second growth Douglas-fir stand on Oregon’s Umpqua National Forest. (USFS cut and sold reports)

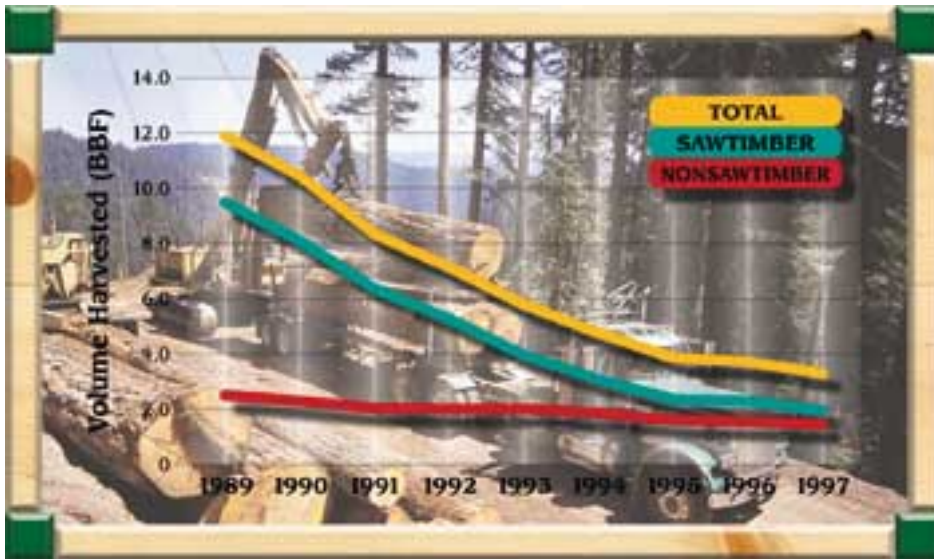


National Forest Net Growth and Removals, Interior West: 1952–1991—Green biomass accumulations are greatest in Intermountain National Forests, a result of the exclusion of fire from fire-dependent ecosystems. Since 1952, the volume of trees less than 17 inches in diameter has increased 52 percent. Today, such trees account for two-thirds of total stand volume in the Interior West. As biomass increases, so too do the risks posed by insects, diseases and wildfires. Shown here, dense—and dying—stand on Idaho’s Nez Perce National Forest. (Forest Resources of the U.S., USFS, 1992)

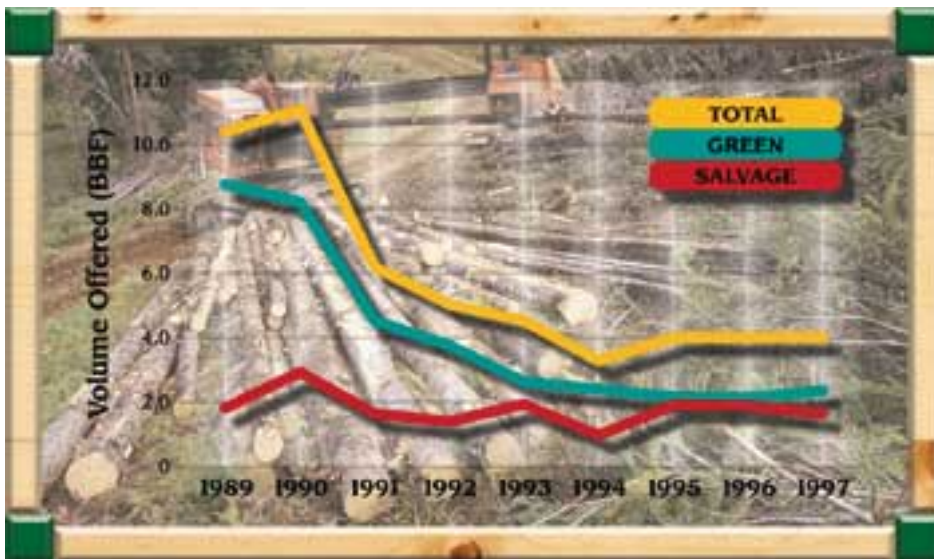
Forest Structures - 1899 & 1991



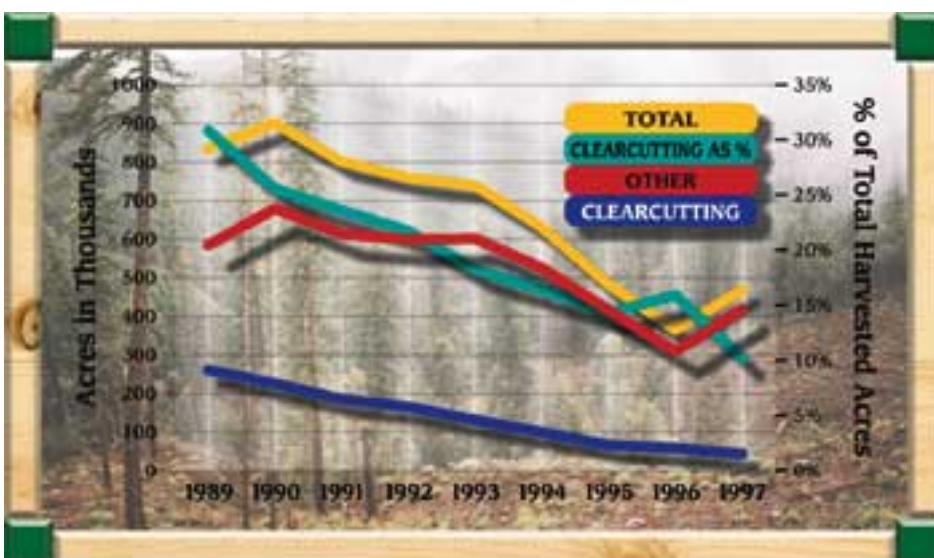
Trends in Forest Structure, Flathead National Forest: 1899–1991—The absence of fire is not just causing forests to become more dense; many forests are also older on average than they would have been had fire been more prevalent in this century. In 1899, 18 percent of western Montana’s Flathead National Forest was mature and 6 percent was old growth; but by 1990, 33 percent of the forest was mature and 20 percent had achieved old growth status. Just how long this publicly desired condition can be retained in the face of increasing disease and fire is an unanswerable question. (USFS, Flathead National Forest)



Trends in National Forest Harvesting: Sawtimber versus Non-Sawtimber—Since 1989, the volume of “sawtimber”—softwood trees at least 9 inches in diameter breast high—has declined from about 12 billion board feet annually to less than 4 billion board feet. Meanwhile, non-sawtimber volume—trees less than 9 inches in diameter—has increased from 20 to 40 percent of total annual harvest. Shown here, big logs moving off Oregon’s Rogue River National Forest in 1990. (USFS)



Trends in National Forest Harvesting: Green versus Salvage Volume—Historically, most of the trees harvested from National Forests were live or “green,” but now “salvage” harvesting—the removal of diseased, dying or dead trees that pose a fire hazard—accounts for 40 percent of National Forest harvesting. The shift from “green” to “salvage” volume is consistent with the shift from “commodity” harvesting to “forest stewardship” management practices designed to improve habitat, reduce the risk of fire or conserve biological diversity. Shown here, delimeter works on small logs harvested from a 1996 thinning in Montana’s Lolo National Forest in 1996. (USFS)



Trends in National Forest Harvesting: the Decline in Clearcutting—Since 1989, the number of National Forest acres harvested annually has declined by 55 percent and, since 1992, the acres that are clearcut annually has declined 72 percent. Today, less than one percent of all National Forest acres classified suitable for harvesting are harvested annually. Shown here, a mid-1980s clearcut on Oregon’s Siskiyou National Forest. (USFS)



Jim Petersen

Standing fire-killed timber – In California's Tahoe National Forest near Lake Tahoe mute testimony to disease and fire.