

# Forestry

Responsible management of forests has been a challenging and controversial issue throughout this country's development. From George Perkins Marsh's observation in 1864 in the landmark work *Man and Nature* that, "the too general felling of the woods has been recognized as the most destructive among the many causes of the physical deterioration of the Earth" to protests in 1996 over continued logging of old growth trees, debate over how to balance commercial harvest of trees with other uses and values associated with America's forests continues.

Federal involvement in managing forests began in the 1870s, with a Congressionally-mandated report to address the issues of preservation of forests and importance of cultivating timber and the (unsuccessful) introduction of legislation to preserve forests adjacent to navigable waters. Federal involvement and interest in forest matters increased steadily during the rest of the century, culminating in creation of the Forest Service in the Department of Agriculture in 1905. After creating a cadre of professional foresters in the United States, Gifford Pinchot became the first Chief of the Forest Service. He strongly believed in use of forest resources for timber, but insisted on professional standards, based on the best science avail-

able, not, in his words, "forest butchery." He also sought to achieve federal unity of purposes among the various government agencies having some authority over natural resources, rather than seeing them act "like loose horses in a field, each one following his own nose." The impact of the Forest Service was evident in the significant downturn in U.S. forestland burned by wildfire (Box 17.1).

The forest reserves, the precursor to the national forests, were created for two purposes: first, the need to secure favorable water flow conditions and avoid further damage to watersheds, and second, to provide for a reliable supply of timber for future generations. Throughout the first half of the 1900s, the Forest Service developed various planning methods to achieve these goals, adding, along the way, provisions to address recreation, including wilderness areas, as well as protection of archaeological sites and other noncommodity features of national forests. The national forests were also faced with accommodating other resource use and development, such as mining and grazing. Controversy over these multiple uses increased sharply after World War II, when increasing housing demands in turn stimulated pressure for higher timber harvest levels.

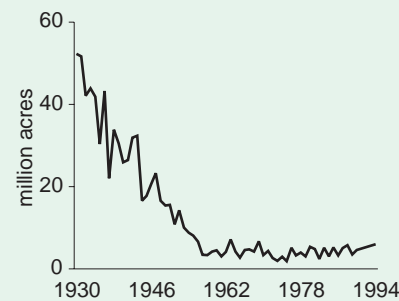
### Box 17.1 Forests and Fire

Some 7 million acres of forests were lost to wildfire in 1995. This is far less than the 50 million acres lost yearly in the early part of the century, but up from the 3.3 million acres lost in 1970 (Box Figure 17.1).

While fire management strategies need to be adopted to the characteristics of particular ecosystems, increased use of prescribed burns to decrease the fuel load, along with thinning and other fuels management techniques, are often recommended by forest ecologists and fire specialists. The recent findings of a Congressionally chartered scientific assessment of the status of the Sierra Nevada Mountains in California bear noting, although they are specific to the Sierra Nevada ecosystem:

- **Ecological Functions of Fire.** Fire is a natural evolutionary force that has influenced Sierran ecosystems for millennia, affecting biodiversity, plant reproduction, vegetation development, insect outbreak and disease cycles, wildlife habitat relationships, soil functions and nutrient cycling, gene flow, selection, and, ultimately, sustainability.
- **Effects of Climate.** Climatic variation plays an important role in influencing fire patterns and severity; fires have been most extensive in periods of dry years.
- **Presettlement Fire Regimes.** In most lower-elevation oak woodland and conifer forest types of the Sierra Nevada, presettlement fires were frequent, collectively covered large areas, burned for months at a time, and, although primarily low to moderate in intensity, exhibited complex patterns of severity.
- **Effects of Suppression.** Fire suppression in concert with changing land-use practice has dramatically changed the fire regimes of the Sierra Nevada and thereby altered ecological structures and functions in Sierra plant communities.
- **Fuel Conditions.** Live and dead fuels in today's conifer forests are more abundant and continuous than in the past.
- **Effects of logging.** Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other recent human activity.
- **Fire Size Trends.** The commonly expected consequence of decades of fire suppression—that large infrequent fires are becoming larger and small frequent fires smaller—is generally not confirmed by records for twentieth-century Sierran forests.
- **Fire Surrogates.** Although silviculture treatments can mimic the effects of fire on structural patterns of woody vegetation, virtually no data exist on the ability to mimic ecologic functions of natural fire.

Box Figure 17.1 U.S. Forest  
Land Burned by Wildfire,  
1930-1994



Source: See Part III, Table 65.



The growing understanding of the essential role fire plays in forest ecology has led to the incorporation of prescribed burns, such as this one in Florida, into forest management strategies.

Photo Credit: John and Karen Hollingsworth  
U.S. Fish and Wildlife Service

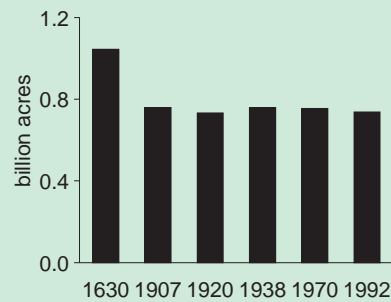
Beginning in the 1960s, Congress addressed the increasing conflict between uses of the national forests with legislation aimed at confirming the multiple use nature of the federal forests (the Multiple-Use Sustained-Yield Act of 1960), and coordination and planning requirements to address those uses: the Forest and Rangelands Resources Planning Act of 1974 and the National Forest Management Act of 1976 (NFMA). Passage of the National Environmental Policy Act (NEPA) in 1970 opened up forest planning to public involvement and scrutiny, while other protection or management statutes passed during the 1970s (such as the Endangered Species Act and the Clean Water Act) provided specific

management direction for particular resources.

## CONDITIONS AND TRENDS

During the past 25 years, the United States has maintained a relatively stable area of forestland (Figure 17.1). Today, forests cover 732 million acres in the United States. This area, however, is significantly reduced from earlier eras. In the precolonial era, forests covered about one billion acres, but declined by a fourth in the 19th century because of cropland clearing, fuelwood cutting, and logging for railroads and mines.

Figure 17.1 U.S. Forest Land Area, 1630-1992



Source: See Source for Part III, Table 61.

Timber growth currently exceeds removals, although the gap is narrowing (Figure 17.2). There have been notable improvements in technologies and efficiency. Recycled paper now accounts for more than one third of the fiber used in the pulp and paper industry, and sawmills produce more usable lumber and other products per log input than they did in 1970. Engineering standards reduce the wood volume used per square foot of building space, and preservative treatments extend the service life of wood. Over the 1970–90 period, U.S. production of lumber increased by 25 percent, plywood and veneer by 60 percent, pulp products by about 33 percent, and fuelwood production more than quintupled (Figure 17.3).

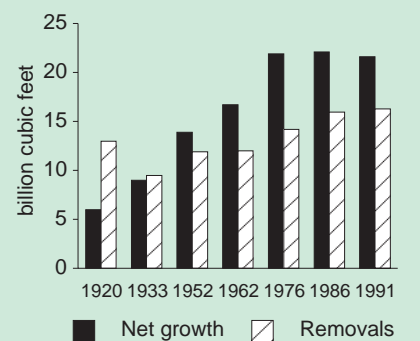
In 1995, the United States planted 2.4 million acres of trees, up 1 million acres from 1970. The Conservation Reserve Program (CRP) offers financial incentives to farmers willing to plant highly erodible cropland to forests (Figure 17.4). Of the new CRP forests, 90 percent are in the South.

Roughly two thirds of all public and private U.S. forests (490 million acres) are classified as timberland—forests capable of producing 20 cubic feet per acre of industrial wood annually and not reserved from timber harvest. Another 36 million acres that could qualify as timberland are reserved from harvesting and managed as parks or wilderness.

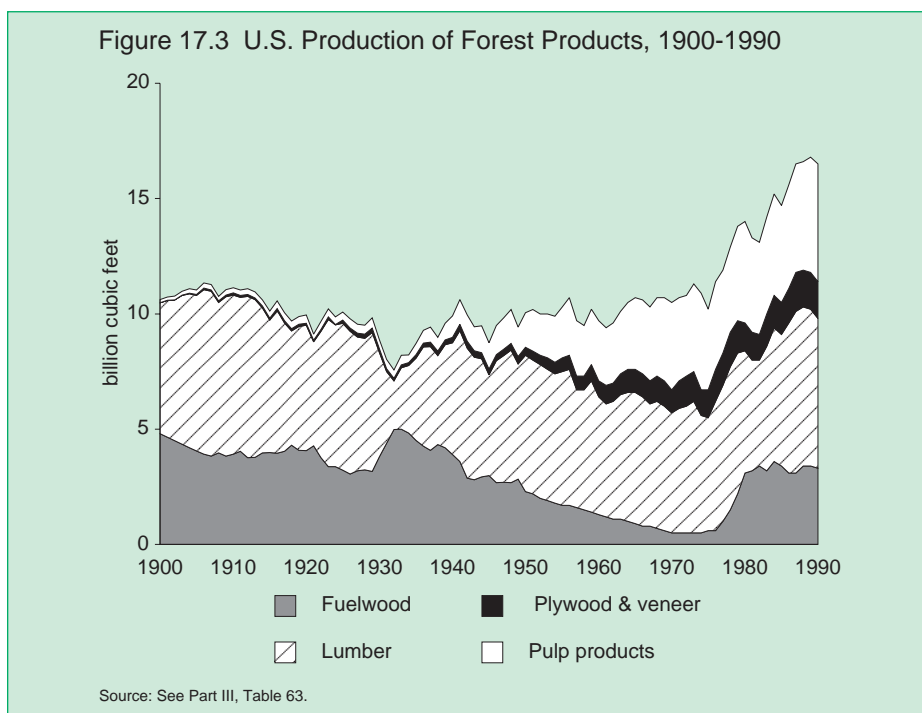
The Southeast and South Central states have most of this resource, with 199 million acres of public and private timberland. The Northeast and Midwest together have a total of 157 million acres; followed by the Pacific Coast (69 million acres, of which 15 million acres are in Alaska); and the Rocky Mountain states (62 million acres) (Figure 17.5).

Just over one fourth of timberlands (26 percent) are publicly owned—131 million acres, including 85 million acres in national forests. The forest industry owns 70 million acres (of which 40 million acres are in the South), and nonindustrial private timberlands total 287 million

Figure 17.2 Net Growth and Removals of U.S. Timber, 1920-1991



Source: See Part III, Table 62.



acres (Figure 17.6). Among the 6 million nonindustrial private forestland owners, 10 percent hold three fourths of the non-industrial forest base.

Public and private U.S. timberlands together contain an estimated 858 billion cubic feet of timber, of which 92 percent is in growing stock. Softwood growing

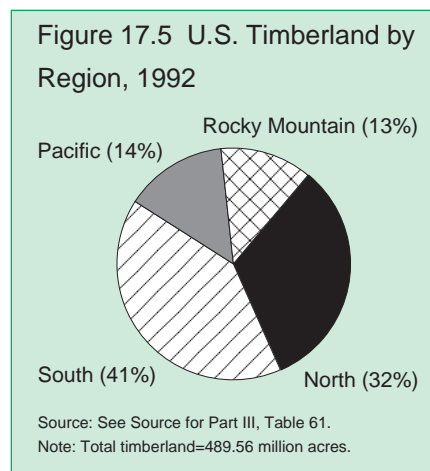
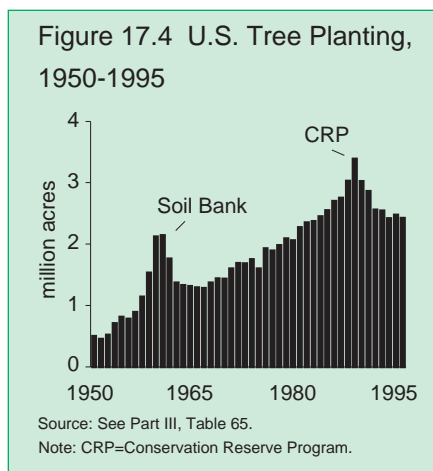
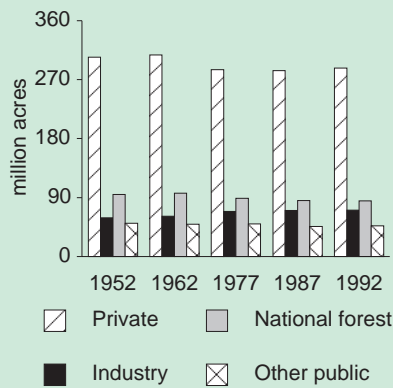
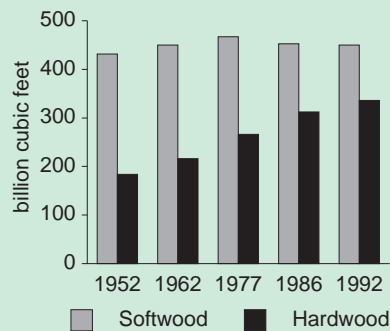


Figure 17.6 U.S. Timberland Area by Ownership, 1952-1992



Source: See Part III, Table 61.

Figure 17.7 U.S. Timber Volume by Type, 1952-1992

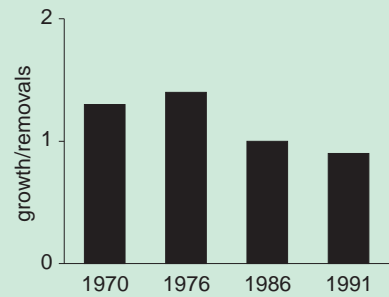


Source: See Part III, Table 62.

stock volume totals 450 billion cubic feet; the hardwood volume is 336 billion cubic feet (Figure 17.7). The most abundant softwood species, Douglas fir, has 93 billion cubic feet of volume; and oak, the most common hardwood species, accounts for 113 billion cubic feet.

Although the gap between growth and removals has narrowed, the national ratio

Figure 17.8 Softwood Growth/Removals Ratio in the Southern United States, 1970-1991



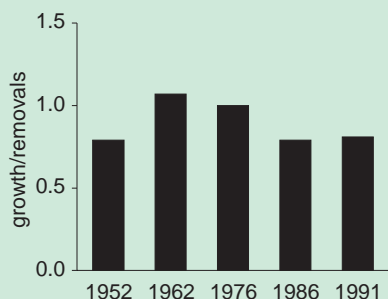
Source: See Part III, Table 62.

of growth to removals remains positive. In the South, however, the softwood ratio is down to 0.9; that is, removals now exceed growth (Figure 17.8). For the forest industry, the ratio is 0.8 (Figure 17.9).

When foreign demand for U.S. forest products is added to growing domestic demand, pressure on pulp and paper supplies will likely result. Forest Service projections show federal timber acreages remaining steady or declining. Any increase will likely come in the form of carbon-sink forests managed for nontimber uses. Even after accounting for the effects of recycling on roundwood prices, the Forest Service projects that, over the next several decades, stumpage prices could double in the South and rise by one third in the Pacific Northwest.

Declining federal timber sales and increasing state and local regulations will increase pressure on industrial and private forestlands. As wood prices rise, timber harvests on forest industry lands could increase as much as 39 percent over the next several decades, with har-

Figure 17.9 Growth/Removals Ratio for U.S. Industry-Owned Growing Stocks, 1952-1991



Source: See Part III, Table 62.

vests on other private lands increasing as much as 64 percent. Both softwood and hardwood harvests are likely to increase in coming decades (Figure 17.10). The biggest response is expected on private

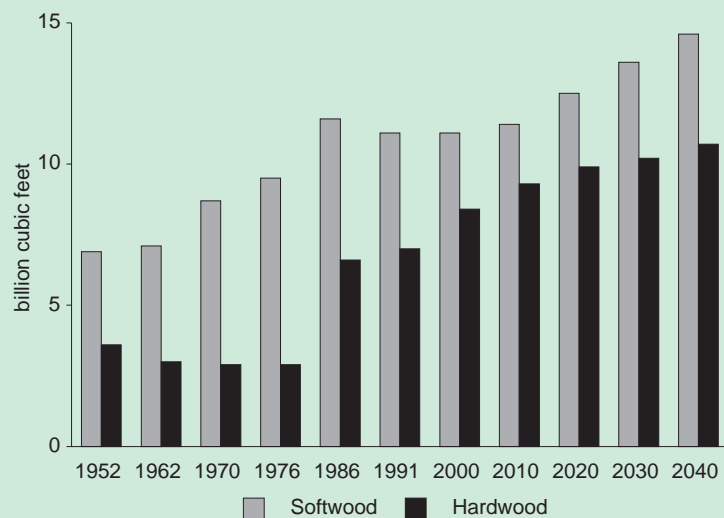
timberlands in the South, with the area of pine plantations possibly doubling from the current 23 million acres, and timber harvests escalating several times from the current 831 million cubic feet per year.

### Multiple Uses of the National Forest System

In the 1930s, the pioneer land manager Aldo Leopold cautioned natural resource managers to “save all the pieces.” That was wise, because all of the pieces are needed as the Forest Service strives to meet the following mandated objectives.

**Watershed Management.** From the earlier days of the U.S. forestry movement in the 19th century, the nation rec-

Figure 17.10 U.S. Timber Harvests by Type, 1952-1991, with Projections to 2040



Source: R.W. Haynes, D.M. Adams and J.R. Mills, *The 1993 RPA Timber Assessment Update*, General Technical Report RM-GTR-259 (USDA, Forest Service, Washington, DC, 1995).

ognized the value of forests in protecting watersheds. The foresight that the Forest Service's founders had in making watershed protection a preeminent rationale for the establishment of our national forests is underscored by the need to ensure safe drinking water for ourselves and future generations. Flood protection is another critical role that forests play in protecting our land and settlements.

**Wildlife Habitat and Biodiversity.**

Forests are a rich source of biodiversity, at the genetic, species and community level. Over the years, forestland conversions and timber management have reduced that diversity. Today, national forests provide habitats for more than 3,000 species of animals and another 3,000 species of rare plants. The ecosystem focus on the Forest Service seeks to protect the viability of resident species, minimize exotic introductions, and promote biodiversity. For example, in a partnership called "Bring Back the Natives," the Forest Service, the Bureau of Land Range Management, and the National Fish and Wildlife Foundation are improving the status of 28 threatened and endangered native aquatic species on public lands. The agencies are rehabilitating riparian areas, restoring watersheds, and reintroducing species. Since its creation in 1992, the partnership has completed 86 projects in 15 states (see also Chapter 7, "Ecosystems" and Chapter 8, "Biodiversity").

**Outdoor Recreation.** In 1995, national forests and grasslands recorded a total of 829 million recreation visits. With studies suggesting that outdoor recreationists will increasingly be older, from

urban areas, and from more diverse racial and ethnic backgrounds, the Forest Service is changing the design and management of recreation settings. Among recreation uses of national forests, fishing leads in popularity, followed by nonconsumptive uses (hiking, camping, photography, bird watching, viewing scenery) and then by hunting. The most significant increase occurred in mechanized travel and viewing scenery.

**Wilderness and Wild and Scenic Rivers.** The National Wilderness Preservation System, with more than 103 million acres in 36 states, protects fragile ecosystems and preserves natural resources for scientific, educational, and historical values. The National Wild and Scenic Rivers System, with 10,734 river miles, assures a heritage of protected waterways. The Forest Service manages 4,385 miles of Wild and Scenic Rivers and 34.6 million acres of wilderness. In 1995, the agency recorded 13.9 million recreational visits to roadless wilderness areas.

**Carbon-sink Forests.** The 1970 CEQ annual report listed as a forest value, "local climatic moderation." Since then, scientists have identified the value of forests in counteracting global climate change. Projected global warming may well affect forest growth and distribution, but forests, in turn, can affect climate change by storing or releasing carbon. When forests are harvested, burned, or decaying, they emit carbon dioxide, the greenhouse gas that accounts for half the projected warming. Conversely, living forests serve as a carbon sink, removing carbon dioxide from the atmosphere and



storing it. Carbon uptake by forests can be increased by increasing forestland area, restricting some commercial harvests, and increasing the efficiency of forest product manufacturing. Forests are considered part of the U.S. strategy to meet international obligations under the 1992 Framework Convention on Global Climate Change (see also Chapter 12, “Climate Change”).

**Range Management.** In fiscal year 1995, approximately 53.9 million acres of rangeland vegetation were managed in partial or full compliance with forest plan standards and guidelines. The range acreage accommodates 9.9 million animal “head months” of permitted grazing by cattle, sheep, goats, horses and burros. Riparian area restoration, watershed protection, maintenance of soil productivity, and improvement of rangeland conditions are management priorities.

**Timber Management.** In FY 1994, 3.4 billion board feet (bbf) were offered, 3.1 bbf were sold, and 4.8 bbf were harvested. For FY 1995, the numbers are 4. bbf offered, 2.9 bbf sold, and 3.9 bbf harvested. The reduction in volume sold in FY 1995 is partly attributable to a large amount of timber not offered until late in the year. For both FY 1994 and FY 1995, the most timber offered, sold, and harvested came from the Southern region, except that for FY 1994, the highest harvest was in the Pacific Northwest. The lowest offer, sold and harvest rates for both fiscal years were in the Southwest, except for the number of sales sold in FY 1994, which occurred in Alaska. The total acres clearcut declined from 100,796 in FY 1994 to 67,889 acres in FY

1995. A total of 441,000 acres were reforested in FY 1994, compared to 387,000 acres in FY 1995.

## RECENT DEVELOPMENTS

### *Meeting Commitments in the President’s Forest Plan*

In July, 1993, President Clinton convened a Forest Conference in Portland, Oregon, to address the human and environmental needs served by the federal forests of the Pacific northwest and northern California. Following the conference, the President directed his cabinet to craft a comprehensive, balanced, long-term policy for the management of over 14 million acres of public land. An interagency, interdisciplinary team of expert scientists, economists, sociologists and others was assembled—the Forest Ecosystem Management Assessment Team, led by Dr. Jack Ward Thomas. The team produced a report analyzing ten options and their effects. On July 1, President Clinton announced his proposed “Forest Plan for a Sustainable Economy and a Sustainable Environment.” A draft environmental impact statement (EIS) for the proposed plan was issued in July 1993, and, after extensive public comment, a final EIS was issued in February 1994. The Record of Decision for the plan was signed by the Secretary of Agriculture and Secretary of Interior on April 13, 1994. The plan withstood all federal court challenges (see Chapter 3, “National Environmental Policy Act” and case law appendix). An Interagency Office of Forestry and Economic Development



The President's Northwest Forest Plan has sought to preserve key areas of old growth timber while reestablishing a stable and predictable timber sale program.

was established in Portland, Oregon, to assist in coordinating implementation of the plan in the region and between regional and headquarters offices.

Progress made to date in meeting commitments set forth in the forest plan includes the following:

**Watershed Analysis.** The area covered by the President's plan includes 143 key watersheds designed to ensure that high-quality habitat is widely distributed across the landscape to conserve and restore at-risk fish stocks. Another 21 key watersheds are designed to maintain sources of high-quality water.

In 1994 and 1995, agencies completed watershed analyses on more than 8 million acres of federal lands covered by the President's forest plan. Federal agencies

plan to complete analyses on about 3.2 million acres more in fiscal year 1996, and an additional 2.5 million acres in fiscal year 1997.

**Watershed Restoration.** In fiscal year 1994, federal agencies involved in implementation of the forest plan published the "Interagency Watershed Restoration Strategy for Fiscal Year 1994" to guide and design and select watershed restoration projects for that year. The strategy was revised in October 1994, for use in fiscal year 1995. The Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, and Environmental Protection Agency contributed \$19.8 million of restoration work to the forest plan area in fiscal year 1994 and more than \$32

million in fiscal year 1995, completing more than 1,299 contracts or projects.

**Research and Monitoring.** An interagency Research and Monitoring Committee comprised of representatives from the Forest Service, Environmental Protection Agency and the National Biological Service is developing a monitoring program to review agency implementation of the forest plan standards and guidelines and the effectiveness and validity of those guidelines. The agencies have initiated a pilot effort to conduct reviews of a statistically valid sample of fiscal year 1994 and 1995 timber sales to determine compliance with the standards and guidelines. In August 1994, the interagency committee released a draft effectiveness-monitoring plan, focusing on five emphasis areas that are high priority for the agencies (late-successional and old-growth forests, northern spotted owl, marbled murrelet, survey-and-manage species, and riparian and aquatic habitat). The agencies intend to complete the draft plan by the end of fiscal year 1996, for use in the fiscal year 1997 field season.

**Timber Harvest.** Reestablishing a stable and predictable timber-sale program that was halted for three years by injunctions has been taken longer than some expected, due to reductions in staff, start-up times, a severe fire season in the summer of 1994, government furloughs, and implementation of the so-called "timber rider" passed in the 1995 Rescissions Act (see below). On the plus side, there were no court injunctions directed toward any management activities under the plan during fiscal years 1994 and 1995.

Despite some obstacles, the land management agencies got back on track to meet the timber commitments under the forest plan. The agencies offered 241 million board feet during fiscal year 1994, and increased their offerings to 620 million board feet in fiscal year 1995. As anticipated under the plan, restoring the federal timber-sale pipeline is expected to take until 1997.

**The Northwest Economic Adjustment Initiative.** The Northwest Economic Adjustment Initiative was designed to directly help those workers, businesses, tribes and communities in Washington, Oregon and northern California affected by reductions in federal timber harvests. It was not intended to directly employ people, but rather to provide workers and their families with the skills and support to find long-lasting, family-wage jobs, and to assist businesses and communities in providing the economic basis to sustain those jobs.

The federal financial commitment announced as a part of the forest plan is to make \$1.2 billion available to the region over 5 years, beginning in fiscal year 1994. Nine federal agencies with 16 different programs are participating financially, along with additional agency participation by way of technical assistance.

Not all the goals for funding the initiative have been met, due to lack of funding by Congress. For example, the proposed Northwest Economic Adjustment Fund of \$13 million was never implemented because Congress did not pass the legislation. Thus, funding has largely come from agency appropriations, including significant monies from the

Department of Labor and the Rural Development Agency in the Department of Agriculture, as well funds from Department of the Interior agencies for watershed restoration and the Jobs in the Woods program, earmarked ecosystem investment funds from the Environmental Protection Agency, and funds passed through to state agencies through the Community Development Block Grant program administered by the Department of Housing and Urban Development.

In fiscal year 1994, more than \$126 million dollars in federal assistance was delivered to more than 100 communities in grants (46 percent), contracts (21 percent), and loans and loan guarantees (33 percent). Forty-six percent of the assistance was spent in Oregon, 29 percent in Washington, and 21 percent in northern California. Additionally, \$164 million in loans were guaranteed by the Small Business Administration in the region. By category of assistance, the distribution was assistance to workers and families (7 percent), business and industry (31 percent), communities and infrastructure (37 percent), and watershed restoration (25 percent).

In fiscal year 1995, federal spending increased dramatically and more than \$217 million was delivered to the region. Forty-three percent were awarded as loans or loan guarantees, 42 percent was awarded as grants and 14 percent was awarded in contracts or agreements. Small Business Administration loans amounted to almost \$163 million in loans. Again, the biggest percentage of assistance was spent in Oregon (44 percent), followed by Washington (31 per-

cent), and California (25 percent). Workers and families received 9 percent, business and industry received 23 percent, assistance to communities and infrastructure amounted to 53 percent, and watershed restoration accounted for 15 percent.

**Interagency Coordination and Streamlining:** The Administration has placed a high priority on interagency coordination and cooperation in all of its efforts associated with the forest plan, from data sharing to policy formulation, and with natural resources management in general. Along with that, the agencies have sought to develop concurrent, rather than sequential, environmental review processes. For example, a new interagency Geographic Information System data base is being developed to provide standardized information for federal, state and local government representatives and the public. The Interorganization Resources Information Coordinating Council working on this effort has developed common standards for defining vegetation and is now seeking to standardize natural resource data bases. An Interagency Executive Committee of 11 federal agency directors and an Intergovernment Advisory Committee consisting of state, county, and tribal representatives from Oregon, Washington, and California were established. These committees meet monthly and provide advice about and oversight of implementation of the forest plan.

Considerable progress has been made in streamlining consultation and review processes between land management and wildlife management agencies. In March 1995, the Forest Service, Bureau of Land

Management, U.S. Fish and Wildlife Service and National Marine Fisheries Service entered into an agreement to utilize interagency teams and complete consultation under the Endangered Species Act in a timeframe needed to meet the requirements of the National Environmental Policy Act. This process shortened project planning timeframes from 220-475 days down to 160-350 days. In addition, the agreement allowed consultation to occur simultaneously with project development. This agreement was followed by a second interagency agreement in May 1995, on further streamlining consultation procedures under the Endangered Species Act. The agreement provides for progressive elevation to the forest, regional, or national arena if disagreements among the agencies cannot be resolved within a specific time period. As a result of these interagency agreements, consultation time has been reduced by 70 percent, averaging 34 days compared to 114 days in the past.

Among the benefits of interagency cooperation most often cited are creating common data bases and thus improving the availability of information, coordinating resources for meetings, field trips and discussions, understanding and respecting each agency's missions, building working relations and trust with other agencies, and maximizing limited agency resources. The significant changes in the way agencies now do business in the Pacific Northwest in the forestry context are serving as a model for headquarters' offices and other regions.

### **The 1995 Rescissions Act "Timber Rider"**

In July 1995, after vetoing an earlier version of the bill partly because of the so-called "timber rider," President Clinton reluctantly signed into law certain provisions of the 1995 "Emergency Supplemental Appropriations and Rescissions Legislation" (PL 104-19) that related to timber sales on both Forest Service and Bureau of Land Management (BLM) lands. Those provisions, commonly referred to as the "timber rider," contained requirements for three different types of sales:

(1) "Salvage timber sales" were defined as a sale for which an important reason for entry includes the removal of disease or insect-infested trees, dead, damaged, or down trees, or trees affected by fire or imminently susceptible to fire or insect attack (Box 17.2). The definition also encompassed the removal of associated trees or "trees lacking the characteristics of a healthy and viable ecosystem for the purpose of ecosystem improvement or rehabilitation," although each sale was to include an identifiable salvage component of trees. The act required the land management agencies "to achieve, to the maximum extent feasible," a salvage timber sale volume level above the programmed level to reduce the backlogged volume of salvage timber. The salvage program established under the act was shielded from litigation concerning compliance with federal environmental laws, forest management laws, and international agreements and treaties until December 31, 1996. During this

**Box 17.2  
Forest Health**

Indicators of forests in difficulty include increased mortality, species shifts in mixed conifer stands, overstocked stands of small trees, and excessive levels of burnable biomass. Timber mortality—loss of commercial-grade trees to insects, disease, and fire—is on the rise (Box Figure 17.2). In 1991, mortality estimates were 5.5 billion cubic feet per year; this was up a billion cubic feet from 1970. Although these estimates represent fewer than 1 percent of total growing stock volume, any upward trend in mortality merits scrutiny.

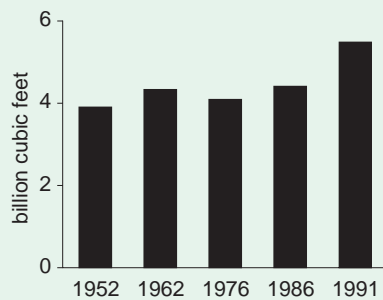
Contributing factors, in addition to natural aging, may include air pollution and climate change effects. Neither insects nor disease appears to be the culprit. Over the past 25 years, insect outbreaks have shown no clear trend, with the most severe damage caused by the southern pine beetle (Box Figure 17.3). In the 1991–93 period, this beetle damaged 35 million acres, mostly in monocrop forests on forest industry and nonindustrial private lands, which were salvage-logged soon thereafter.

In the intermountain West, many pine and mixed conifer stands are in an unhealthy condition from decades of overgrazing and heavy harvesting. In addition, fire suppression during the past 75 years may have weakened fire-dependent forests, and recent episodes of drought have aggravated the situation.

Forest management tools include precommercial thinning—removing trees too small to have commercial value—pruning to eliminate low-growing branches, prescribed fire to reduce biomass, and fertilization to accelerate growth. Foresters can use these tools in a coordinated approach to improve forest health.

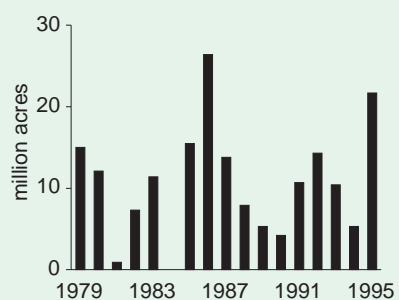
In 1995, in response to public concerns about mortality and wildfire, the Forest Service implemented a Western Forest Health Initiative, composed of 300 projects on national forests in the West. The projects are designed to make forests less susceptible to drought, insects, disease, and wildfire; and to restore forests destroyed by the 1994 wildfires. The agency named a Forest Health Technology Enterprise Team to develop technologies for protecting forests; a Forest Health Monitoring Program provides data on long-term trends.

**Box Figure 17.2 Annual Mortality of U.S. Timber, 1952-1991**



Source: See Source for Part III, Table 62.  
Note: Data refer to the net volume of timber dying from natural causes (e.g., insects, disease, fire, windthrow).

**Box Figure 17.3 U.S. Southern Pine Beetle Damage, 1979-1995**



Source: See Part III, Table 66.  
Note: Data for 1984 not available.

period, the land management agencies were directed to implement an expedited and integrated process that was deemed sufficient for compliance with the National Environmental Policy Act and the Endangered Species Act. The land management agencies were also exempt from competitive contracting laws and regulations and the Small Business Act. Congress stated that timber sales “shall not be precluded because the costs of such activities are likely to exceed the revenues.”

(2) “Option 9” Sales. Another section of the timber rider required the land management agencies to “expeditiously prepare, offer, and award” timber sale contracts described in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, more commonly referred to as the Pacific Northwest Forest Plan or the President’s Forest Plan (see discussion at pp. 210-212, Twenty-Fourth Annual Environmental Quality Report). The rider shielded these sales from judicial review under environmental and forest management laws until December 31, 1996. The rider also included sufficiency language for the proposed “4-d” rule to reduce restrictions on non-federal lands within the range of the northern spotted owl under the Endangered Species Act by shielding it from review under the National Environmental Policy Act until December 31, 1996.

(3) “Previously Offered and Unawarded Timber Sale Contracts.” Although the

timber rider was largely cast as a “salvage law” during Congressional debate, this section, pertaining to previously offered green timber sales, immediately proved to be the most controversial of the provisions. The provision required the land management agencies to award, release, and permit to be completed, with no change in originally advertised terms, volumes, and bid prices, all timber sale contracts offered or awarded before 45 days after enactment of the timber rider in any unit of the National Forest System or Bureau of Land Management districts subject to Section 318 of PL 101-121, an earlier timber rider on an appropriations bill in 1989. The only exception to the requirement to release these sales was a determination that a threatened or endangered bird species was “known to be nesting” within the acreage that was the subject of the sale unit, in which case, the purchaser was entitled to replacement timber of an equal volume, kind and value. This section of the timber rider was set to expire on September 30, 1996.

Shortly after signing the bill, the President directed the Departments of the Interior, Agriculture, Commerce and the Environmental Protection Agency to “move forward expeditiously to implement this timber-related provisions in an environmentally sound manner, in accordance with my Pacific Northwest Forest Plan, other existing forest and land management policies and plans, and existing environmental laws, except those procedural actions expressly prohibited by Public Law 104-19.” To implement

that direction, the departments and agencies executed a Memorandum of Agreement on the timber salvage program mandated by the law, reaffirming their commitment to carry out requirements of existing environmental law to the extent authorized.

Litigation regarding the interpretation of the provision mandating the release of previously offered and awarded sales followed quickly after the rider became law, and expanded considerably the number of sales subject to that provision. Numerous cases were also filed challenging salvage sales under the rider, confirming the

President's stated concern that "the timber salvage provisions could slow down our forest management program."

Demonstrators in Oregon and Washington protested the likely release of sales previously found to jeopardize threatened or endangered species. By the end of 1995, it was clear that the release of timber sales previously withheld for environmental reasons and the lack of a meaningful administrative or judicial remedy in the salvage and option 9 sales provisions had stimulated renewed controversy over timber harvest on federal lands.

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