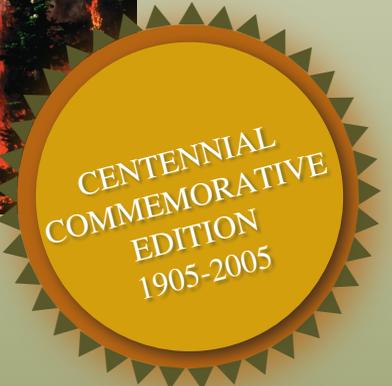
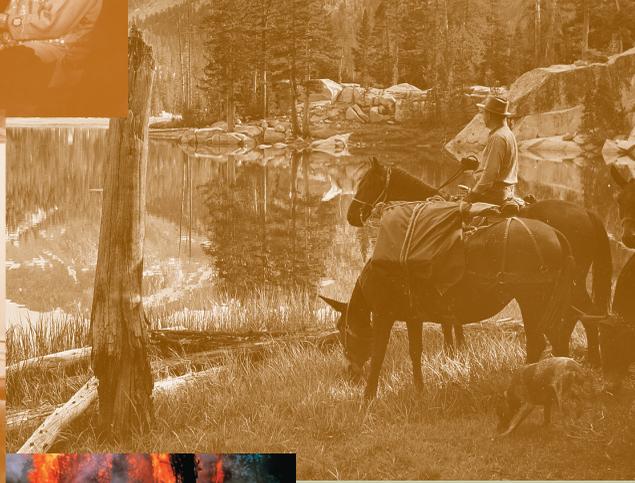
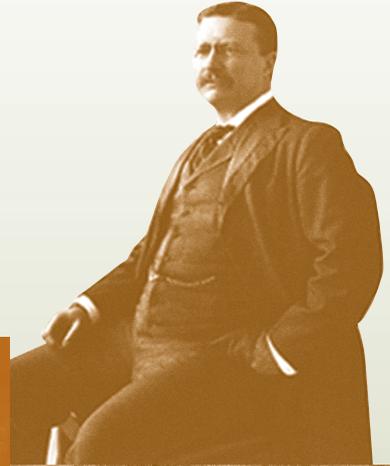


United States Department of Agriculture • Forest Service

# The USDA Forest Service— *The First Century*



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# **THE USDA FOREST SERVICE —** ***THE FIRST CENTURY***

by

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USDA Forest Service  
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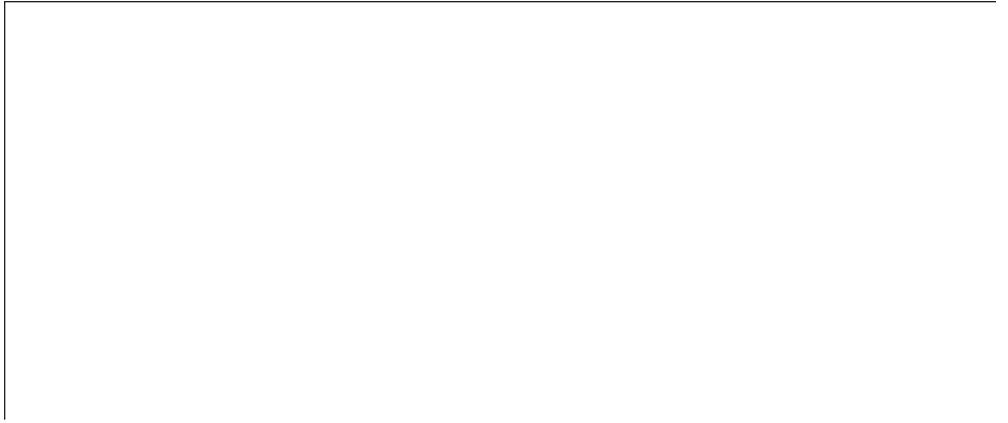
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## Introduction

The founding of the National Forest System and the Forest Service, an agency of the U.S. Department of Agriculture, has its roots in the last quarter of the 19th century and was directly related to three visionary men: Franklin B. Hough, Bernhard E. Fernow, and Gifford Pinchot. These three contributed countless hours, strong leadership, and assistance to the new field of forestry and especially Federal forestry. Their expertise helped to create millions of acres of forest reserves (now called national forests) in the West. They also laid the foundation for the development of the new Forest Service in the Department of Agriculture. These visionaries, along with willing presidents (especially Teddy Roosevelt), scientific and conservation organizations, and newly trained forestry professionals, led the successful effort in retaining millions of acres of Federal forest land for future generations.

The pride and professionalism shared by these early leaders continue in the Forest Service today. These forestry crusaders were so successful in their battle for protection of public forest domain land that today the United States has a system of 155 national forests, 20 national grasslands, and 20 research and experimental forests, as well as other special areas covering 191 million acres of public land. The Forest Service has evolved into a 35,000-employee agency that manages the national forests and grasslands for a number of multiple uses, including timber, wilderness, recreation, minerals, water, grazing, and wildlife. The people who work “on the ground” in the national forests include specialists such as ecologists, foresters, silviculturists, engineers, range conservationists, firefighters, surveyors, hydrologists, landscape architects, archeologists, soil scientists, fisheries biologists, wildlife biologists, and geologists. Supporting these specialists are an assortment of planners, economists, public affairs specialists, social scientists, budget and financial administrators, human resource specialists, civil rights specialists, computer programmers, accountants, technicians, clerks, writers, editors, carpenters, mechanics, heavy equipment operators, and others.



*President Theodore Roosevelt*

Library of Congress

## The Beginning Era of Concern About Natural Resources, 1873-1905

Following the devastating Civil War, the United States experienced tremendous change, especially in the West. American Indians, buffalo, trappers, and pioneers had already given way to miners, timber cutters, and other people bent on exploiting the land and resources of our quickly growing, resource-rich Nation. Herds of cattle and sheep soon spread over the grasslands of the Great Plains and Southwest.

Yet, even these uses were beginning to be replaced by homesteading farmers who broke the sod and sowed the grain on the prairies and plains. Hard-rock and hydraulic mining were major industries in the Sierra Nevada, the Cascades, and the Rocky Mountain ranges. Mining extracted valuable minerals, but often severely eroded the land. Railroads had just finished linking the far West (California) with the rest of the Nation, and plans were being made to connect all of the West's major population centers by rail. Congress gave massive land grants to many railroads, especially along the northern tier of States (from Minnesota to Washington) to encourage the railroads to build rail lines connecting cities and towns, as well as spawn growth in the West. Timber companies, which had exhausted the virgin forests of the East, were quickly clearing the great pine forests of the Lake States (Minnesota, Wisconsin, and Michigan) and were contemplating moving their operations to the South and far West.

*“Log Stacks” -  
Michigan White  
Pine Before  
1900*



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Acquisitiveness and exploitation were the spirit of the times, with little regard for the ethics of conservation or the needs of the future. The reaction to the abuse of the Nation's natural resources during this period gave rise to America's forestry and conservation movement.

## The Visionaries

The beginning of America's concern about the conservation of land for the people can be traced back to George Perkins Marsh, who in 1864 wrote the book *Man and Nature: Or Physical Geography as Modified by Human Action*. This influential book drew on the past to illustrate how human actions had harmed the Earth—leading to the demise of earlier civilizations. Marsh wanted not only to warn his contemporaries against this fate, but also to initiate actions to prevent it. One measure that Marsh advocated was the protection of forests—yet few heeded his important message.



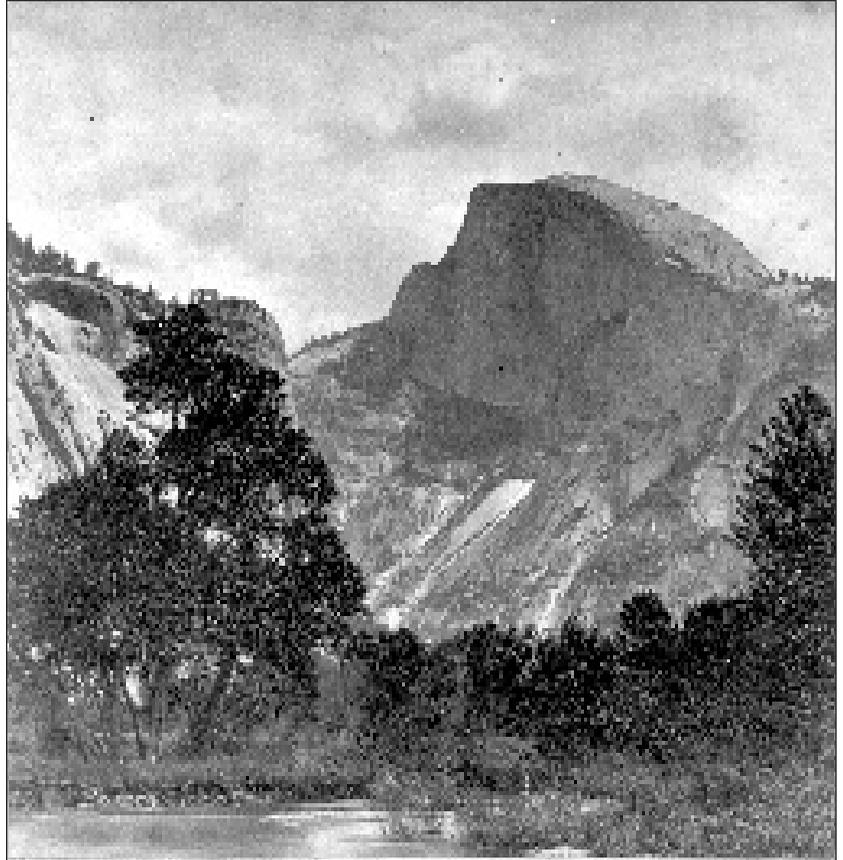
*Erosion  
- Effects of  
Deforestation  
in Colorado,  
1915*

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Two other influential persons in the early conservation movement were John Wesley Powell, who surveyed and reported on large portions of the West and its major rivers for the U.S. Geophysical and Geological Survey, and F.V. Hayden, who made several important investigations of the Rocky Mountains—especially the Yellowstone area—for the U.S. Geological and Geographical Survey (predecessors of the U.S. Department of the Interior's Geological Survey). Several landscape photographers of the era—Timothy H. O'Sullivan, William Henry Jackson, and Carlton E. Watkins—were also important in generating concern about the marvelous and unusual features of the unpopulated West. The impressive images they produced informed Americans of the stark beauty and impressive majesty that abounded in the western mountains and valleys. These elements came to-

gether to protect the Yellowstone area in northwest Wyoming. Hayden's scientific reports of its remarkable features accompanied by O'Sullivan's spectacular photographs swayed Congress to establish Yellowstone National Park in 1872—the first such park in the world.

*Half Dome,  
Yosemite Na-  
tional Park*



Carlton E. Watkins - Williams Collection

Others became convinced that the more ordinary forested areas, which were still in public ownership, also needed protection. This effort was spearheaded by Dr. Franklin B. Hough—a physician, historian, and statistician. He noticed that timber production in the East would fall off in some areas, while building up in others, which to him indicated that timber supplies in some areas of the United States were being exhausted. As a result of his study, Hough presented a paper, “On the Duty of Governments in the Preservation of Forests,” to the annual meeting of the American Association for the Advancement of Science (AAAS), held at Portland, Maine, in August 1873. The following day, AAAS prepared and approved a petition to Congress “on the importance of promoting the cultivation of timber and the preservation of forests.” They sought congressional action, but no legislation was passed for 3 years.

## Federal Involvement in Forestry

On August 15, 1876, a rider (amendment) was attached to the free-seed clause of the Appropriations Act of 1876. This amendment provided \$2,000 in funding for a person with "...approved attainment, who is practically well acquainted with methods of statistical inquiry [sic], and who has evinced an intimate acquaintance with [forestry matters]...." This was the first Federal appropriation devoted to forestry. Dr. Hough received congressional appointment to undertake a study encompassing forest consumption, importation, exportation, national wants, probable supply for the future, the means of preservation and renewal, the influence of forests on climates, and forestry methods used in other countries. In 1878, his 650-page report, titled simply "Report on Forestry," so impressed the Commissioner (later the Secretary) of Agriculture and Congress that they authorized the printing of 25,000 copies.



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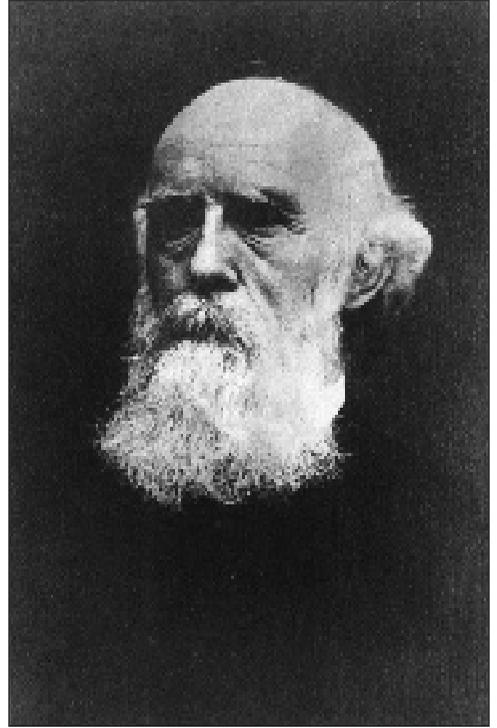
Franklin B.  
Hough

Thus, a new governmental "organization" was formed that consisted solely of Dr. Hough, as the first forestry agent, and was placed under the supervision of the Commissioner of Agriculture. However, Hough as the forestry agent did not have any authority over timbered areas that remained in public domain. In 1881, the Department of Agriculture Division of Forestry was *temporarily* established to study and report on forestry matters in the United States and abroad; Hough was named its "Chief."

In Hough's 1882 report, he recommended "that the principal bodies of timber land still remaining the property of the government...be withdrawn from sale or grant." His idea was that this protected Federal timber would be cut under lease and that young timber growth would be protected for the future. In 1883, Nathaniel H. Egleston, who had also played an active role in the American Forestry Association, replaced Hough.

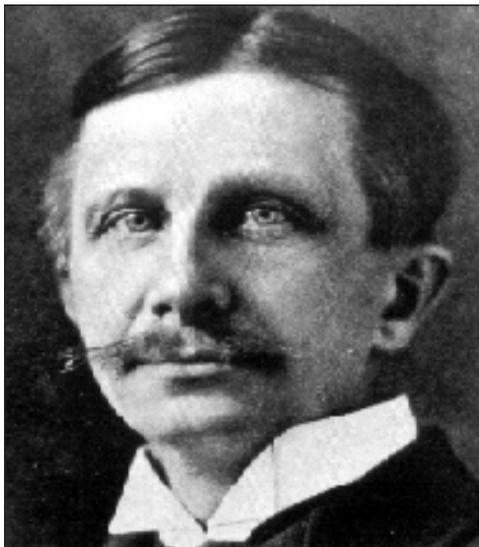
Nathaniel H. Egleston

Egleston served uneventfully until the spring of 1886, when he was replaced by Dr. Bernhard E. Fernow, who was trained in forestry in his native Germany (there were no American forestry schools at the time). Fernow was a leader in the new field of forestry and a founder of the American Forestry Association. As Chief of the Division of Forestry, he brought professionalism to it. He set up scientific research programs and initiated cooperative forestry projects with the States, including the planting of trees on the Great Plains. On June 30, 1886, the Division was given permanent status as part of the Department of Agriculture. This provided the needed stability for the fledgling organization.



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Bernhard E.  
Fernow



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In early 1889, Charles S. Sargent, professor of arboriculture at Harvard and editor of *Garden and Forest*, wrote an editorial for his magazine that took to heart Hough's 1882 recommendation to not permit the sale or grant of Government timberland. Sargent proposed three things: The temporary withdrawal of all public forest lands from sale or homesteading; use of the U.S. Army to protect these lands and forests; and Presidential appointment of a commission to report to Congress on a plan of administration and control of forested areas. As Gifford Pinchot pointed out, "the first suggestion was politically impossible, the second practically unworkable, but the third, in the end (some 7 years later), put Government forestry on the map."

In April of the same year, the law committee of the American Forestry Association, consisting of Fernow, Eggleston, and Edward Bowers of the U.S. Department of the Interior's General Land Office (GLO), met with President Benjamin Harrison. The committee recommended that the Nation adopt an efficient forestry policy. In 1890, after the President took no action on the matter, the American Forestry Association petitioned Congress to make forest reservations and provide a commission to administer them. Again, no noticeable action took place, but there was a strong groundswell to retain the forest-covered public domain for the people. The Boone and Crockett Club rallied around the issue of protecting Yellowstone National Park, as well as other forested areas in the West. This sportsmen's club was founded in 1887 with members such as Theodore Roosevelt, Gifford Pinchot, George Bird Grinnell, Henry Cabot Lodge, Henry L. Stimson, and many others. Their influence in national politics substantially helped the fledgling national forest movement in the early 1890's and the decades to follow.

The weight of the data and the recommendations of Hough, Fernow, Sargent, the Boone and Crockett Club, and the American Forestry Association led to the genesis of the National Forest System as we know it today. In the early 1890's it was apparent to many that the remaining forests represented a great, but vulnerable, national asset that needed to be protected from unbridled despoliation for the sake of posterity.



*John Muir*

## **The Forest Reserve Act of 1891**

In the spring of 1891, when Congress was debating the issue of land frauds (the illegal purchase or deceit in the homesteading of Federal land) related to the Timber-Culture Act of 1873 and several other homestead laws, a rider was attached to a bill to revise a series of land laws. This small, one-sentence amendment (Section 24) allowed the President to establish forest reserves from public domain land:

SECTION 24—The President of the United States may, from time to time, set apart and reserve, in any state or territory having public land bearing forests, in any part of the public lands, wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations; and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof.

Since referred to as the “Creative Act” or the Forest Reserve Act of March 3, 1891, it was used by President Harrison on March 30th of the same year to set aside the first forest reserve—the Yellowstone Park Timberland Reserve (now part of the Shoshone and Bridger-Teton National Forests in Wyoming). By the end of Harrison’s term as President in the spring of 1893, he had created 15 forest reserves containing 13 million acres. These forest reserves were the White River Plateau, Pikes Peak, Plum Creek, South Platte, and Battlement Mesa all in Colorado; the Grand Canyon in Arizona; the San Gabriel, Sierra, Trabuco Canyon, and San Bernardino in California; the Bull Run in Oregon; Pacific in Washington; and the Afognak Forest and Fish Culture Reserve in Alaska.

On September 28, 1893, his successor, President Grover Cleveland, added two forest reserves—the huge Cascade Range Forest Reserve and tiny Ashland Forest Reserve—totaling 5 million acres—in Oregon. Cleveland did not add any more forest reserves for almost 4 years, until Congress was willing to pass legislation to allow for the management of the public forests.

## **The National Forest Commission of 1896**

Meanwhile, there were efforts in Congress to change the procedure for establishing Federal forest reserves. In the summer of 1896, the National Forest Commission, the brainchild of the National Academy of Sciences, was funded by Congress. The commission, which consisted of Charles Sargent (chair), Henry L. Abbot, William H. Brewer, Alexander Agassiz, Arnold Hague, Gifford Pinchot (secretary), and Wolcott Gibbs (member ex-officio) traveled throughout the West touring existing forest reserves and areas where new reserves were proposed. John Muir and Henry S. Graves accompanied the commission on parts of their investigations. Although members of the commission disagreed with one another much of the time, they did agree on the need for Mt. Rainier and Grand Canyon National Parks and on a number of new forest reserves.

On February 22, 1897, President Cleveland, as a result of the Commission's recommendations, proclaimed 13 new forest reserves in the West, known thereafter as the "Washington's Birthday Reserves." The following forest reserves were established: San Jacinto and Stanislaus in California; Uintah in Utah; Mt. Rainier (renamed from Pacific and enlarged) and Olympic in Washington; Bitter Root, Lewis and Clarke, and Flathead in Montana; Black Hills in South Dakota; Priest River in Idaho; and the Teton and Big Horn in Wyoming. The furor of opposition to these forest reserves was unprecedented, and the outcry resulted in Congress passing certain amendments to the 1897 Sundry Civil Appropriations bill.

## JOHN MUIR

John Muir (1838-1914) left his native Scotland in 1849 to start a new life on the Wisconsin frontier. He attended the University of Wisconsin in his mid-twenties. After recovering from a serious accident to his eyes, he felt compelled to undertake a 5-month, 1,000-mile walk from Indiana to the tip of Florida. The following year, Muir voyaged to California, living at times in the wondrous Yosemite Valley, where he studied botany and the geology of the new State park. Muir was a strong advocate of the need to preserve the public forests and prohibit sheep grazing in the alpine meadows. He married in 1880, settling in Martinez, California, where he became a successful farmer.

Returning to his work as an advocate for wilderness and forest preservation, he wrote many articles about the need to transfer Yosemite back to the Federal Government and rename it as a national park. The effort was successful in 1890. Two years later he helped to organize and become the first president of the Sierra Club. The club gained national recognition for its efforts to reserve and preserve scenic and forest areas first in California then across the Nation. Muir lost his last major battle, when, in 1913, Congress authorized the Hetch Hetchy reservoir in the valley adjacent to Yosemite Valley. Both were part of the Yosemite National Park, but forces from San Francisco, especially after the 1906 earthquake, were successful in having a dam built to supply clean water and power to the city. Muir died 2 years before the dam was constructed.

His efforts at trying to have the national forests be more like national parks were countered by Gifford Pinchot with the notion that forests were to be used, while parks were to be preserved. Their disagreement was especially evident over grazing in the forest reserves. Muir did not want any; Pinchot felt that restricting grazing would be better than no grazing or unrestricted grazing. Both men were part of the 1896 National Forest Commission, which traveled throughout the West looking at existing and potential forest reserves. Despite their differences over sheep grazing and eventually Hetch Hetchy, they remained friends and often wrote to each other about their wonderful experiences together in the western mountains.

Muir was an eloquent spokesperson for the preservation movement in the late 1800's and early 1900's. Even today his name evokes a deeply felt admiration and resolve that characterizes many environmental organizations. He wrote many articles for national publication, as well as several books including: *The Mountains of California* (1894), *Our National Parks* (1901), and *My First Summer in the Sierra* (1911). His writings addressed many controversial issues, including the notion that the Earth and its resources had been made for people to use and to use up for the benefit of society. Muir argued that all living things were equally important parts of the land and that animals and plants have as much right to live and survive as people. Unlike many of the nature writers of his time, Muir tended to write about the environment through his own experiences. In an 1897 article for the *Atlantic Monthly*, Muir wrote:

Any fool can destroy trees. They cannot run away; and if they could, they would still be destroyed—chased and hunted down as long as fun or a dollar could be got out of their bark hides....God has cared for these trees, saved them...but he cannot save them from fools—only Uncle Sam can do that.

## **The Organic Act of 1897**

On June 4, 1897, President William McKinley signed the Sundry Act. One of the amendments, the so-called “Pettigrew Amendment” (later referred to as the “Organic Act”) provided that any new reserves would have to meet the criteria of forest protection, watershed protection, and timber production, thus providing the charter for managing the forest reserves, later called national forests, for more than 75 years. The act also suspended the “Washington’s Birthday Reserves” for 9 months. This suspension was seen as a clever tactic to overcome western demands for totally eliminating the new forest reserves.

Basically, the Organic Act allowed for the proper care, protection, and management of the new forest reserves and provided an organization to manage them. One of the first, if not the first, GLO employee was Gifford Pinchot, who was hired in the summer of 1897, as a special forestry agent to make further investigations of the forest reserves and recommend ways to manage them. The Department of the Interior’s GLO was able to politically appoint superintendents in each State that had forest reserves. The following summer, 1898, saw the appointment of forest reserve supervisors and forest rangers to patrol the reserves.



*GLO Division "R" Staff With Filiberto Roth (L) and H.H. Jones (R) in Washington, DC*

Library of Congress

For 7 years, until 1905, forest reserve superintendents, supervisors, and rangers were appointed by the U.S. senators and the GLO from the affected States through the Department of the Interior rather than the Department of Agriculture, where all the forestry experts were located.

One of the first men appointed as a ranger was Frank N. Hammitt, a native of Denver, Colorado. He went to work in the summer of 1898 on the Yellowstone Park Timberland Reserve. Prior to his appointment with the GLO, he had been chief of the cowboys in Colonel William F. Cody's Wild West Show. Like many of the old-time GLO rangers, he was selected from the local area, but he had no knowledge of forestry. Yet he was a "rough-and-ready," practical man with great knowledge of the mountains. He stayed with rangers until his untimely death in the summer of 1903 after falling from a cliff on that reserve (now the Shoshone National Forest).



*Bill Kreutzer - 1st GLO Forest Ranger, 1898*

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*GLO  
Ranger  
on the  
Battlement  
Mesa Forest  
Reserve*



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Meanwhile, back East at the national level, Bernhard Fernow performed his duties as Chief of the Division of Forestry with great distinction until April 15, 1898, when he resigned to become the Director of Cornell University's new forestry school. In the 25 years since Hough had presented his paper "On the Duty of Governments in the Preservation of Forests," the Nation had made significant progress in its movement from the frontier exploitation of the natural resources in the forested areas toward a policy of wise use and conservation.

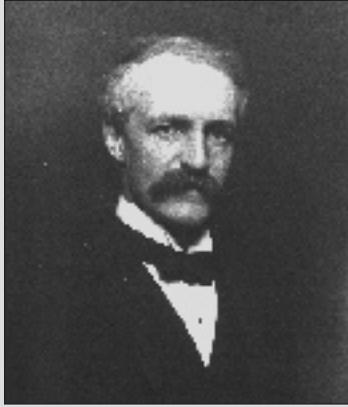
Fernow's replacement was Gifford Pinchot—America's first native-born professional forester. He had been schooled at Yale, then spent one summer in France and Germany studying forestry, gained experience in managing George Vanderbilt's Biltmore Estate in Asheville, North Carolina, and became personally familiar with many of the new forest reserves through serving on the National Forest Commission. As the new and charismatic Chief of the Division of Forestry, Pinchot was in charge of 60 enthusiastic and dedicated employees. The headquarters was on the third floor and a small place in the attic of the Department of Agriculture building in Washington, DC. Pinchot changed his title "Chief" to "Forester," as there were "many chiefs in Washington, but only one forester." The title of "Forester" would remain in use until the 1930's.

*Forest Service Office  
in Washington, DC,  
1901-1938*



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Pinchot was instrumental in obtaining full bureau status for the Division of Forestry. It became the Bureau of Forestry on March 2, 1901. In 1902, the Minnesota Forest Reserve was the first reserve created by Congress rather than by Presidential proclamation. Strong support by the Federation of Women's Clubs, which had 800,000 members in 1905, made the establishment of this forest reserve possible.



## Gifford Pinchot—First Chief of the Forest Service, 1905-1910

Born on August 11, 1865, in Simsbury, Connecticut, Gifford Pinchot's New England family was made up of well-to-do, upper-class merchants, politicians, and landowners. He became involved with the National Forest Commission during the summer of 1896, as it traveled through the West to investigate forested areas for possible forest reserves. After the passage of the Organic Act of 1897, Pinchot was

hired as a special forest agent with the General Land Office to report on the forest reserve management situation. The following summer, the Secretary of Agriculture invited him to become "Chief" of the Department of Agriculture's Division of Forestry. During the same period, the assassination of President McKinley in 1901 elevated his friend, Theodore Roosevelt, to the Presidency. Pinchot, with Roosevelt's willing approval, restructured and professionalized the management of the national forests, and greatly increased the area and number of these national treasures.

In 1905, the management of the forest reserves was transferred from the Department of the Interior to the Department of Agriculture and Pinchot's new Forest Service. In 1907, the forest reserves were renamed national forests. During Pinchot's era, the Forest Service and the national forests grew spectacularly. In 1905, there were 60 forest reserves covering 56 million acres; in 1910, there were 150 national forests covering 172 million acres. A pattern of effective organization and management was set during Pinchot's administration, and the "conservation" (an idea or theme he invented) of natural resources in the broad sense of wise use became a widely known concept and an accepted national goal. He was the primary founder of the Society of American Foresters, which first met at his home in Washington, DC, in 1900. He served with great distinction, motivating and providing leadership in the management of natural resources and the protection of the national forests. He was replaced in 1910 by Henry "Harry" S. Graves, Dean of Forestry at Yale.

Gifford Pinchot wrote:

When I came home [from France] not a single acre of Government, State, or private timberland was under systematic forest management anywhere on the most richly timbered of all continents....When the Gay Nineties began, the common word for forests was "inexhaustible." To waste timber was a virtue and not a crime. There would always be plenty of timber....The lumbermen...regarded forest devastation as normal and second growth as a delusion of fools.... And as for sustained yield, no such idea

had ever entered their heads. The few friends of the forest were spoken of, when they were spoken of at all, as impractical theorists, fanatics, or “denudatics,” more or less touched in the head. What talk there was about forest protection was no more to the average American than the buzzing of a mosquito, and just about as irritating.

Without natural resources, life itself is impossible. From birth to death, natural resources, transformed for human use, feed, clothe, shelter, and transport us. Upon them we depend for every material necessity, comfort, convenience, and protection in our lives. Without abundant resources prosperity is out of reach.

## CARIBBEAN NATIONAL FOREST— FIRST IN THE WESTERN HEMISPHERE

Adapted from Terry West’s  
*Centennial Mini-Histories of the Forest Service* (1992)

Fifteen years before President Benjamin Harrison proclaimed the first Federal forest reserve in the United States—the Yellowstone Forest Reserve in 1891—the Spanish Crown established reserves in Puerto Rico—then part of the Spanish Empire. The present Caribbean National Forest was formed from parts of these reserves.

In the 19th century, increased population accelerated the rapid and widespread destruction in Puerto Rico’s forest resources as trees were cleared for agricultural land—the economic base of the Nation. In 1816, colonial wars of independence and illegal timber trade led the island’s Governor to restrict the sale of wood considered important for naval use. If military concerns led to the first consideration of forest depletion, it was the impact of farming that really led to conservation measures. In 1824, alarmed by the extent of deforestation that government-sponsored farming caused, Governor Miguel De La Torre issued Puerto Rico’s first conservation law (circular 493)—a decree to stem harm to watersheds by planting trees.

Puerto Rico remained under the dominion of Spain, which drafted the first comprehensive forest laws (1839) and set up forestry commissions that led to the first island-wide forest inventory in 1844. These inventories were conducted by *ingenieros de montes* (forest engineers) for the *cuero de montes* (forest corps), a department directed by the minister of public works and staffed by graduates of the Spanish forestry school.

The Puerto Rican government's protection of the forest resources eroded in the next decades as Spain's ability to fund distant programs faded along with its economic status. Yet, in 1876 King Alfonso XII strove to ensure continued conservation of soils and water quality and flows in Puerto Rico by creating forest reserves. Because the forests were sources of roofing material, fuelwood, and sawtimber for people, regulations for extraction needed to be enforced by the *servicio de monteros* (forest service).

As part of the settlement of the Spanish-American War of 1898, control of Puerto Rico passed to the United States. The Luquillo Forest Reserve was declared by Presidential proclamation in 1903. It became the Luquillo National Forest in 1907 when all the forest reserve names were changed to national forest names. (It has the distinction of being the only early forest reserve that was not established under authority of the 1891 act. Instead, the Luquillo reserve was established under a 1902 act of Congress that gave the President 1 year to reserve "Crown lands" ceded to the United States by Spain in the Treaty of 1898.) In 1935, additional land was purchased and the Luquillo National Forest name was changed by executive order to become the Caribbean National Forest. In 1939, the Tropical Forest Experiment Station (now the International Institute of Tropical Forestry) was established in Puerto Rico. The Caribbean National Forest is the only tropical ecosystem in the National Forest System and serves as an international management model for tropical forests.

## The Early Forest Service Organization Era, 1905-1910

During the early 20th century, the administration of the Federal forest reserves was divided between the supervisors and rangers of the GLO and the surveyors and mappers of the Geological Survey (USGS), both in the Department of the Interior. The forestry experts in the Department of Agriculture's Bureau of Forestry were limited to technical forestry advice and assistance. Pinchot was the primary advocate (with the strong agreement of his friend President Theodore Roosevelt) of moving the responsibility of forest management away from the Department of the Interior.

### The Establishment of the Forest Service in July 1905

On February 1, 1905, Pinchot was able to unify all Federal forest administration under the Department of Agriculture's Bureau of Forestry. The Forest Service was finally established on July 1, 1905, replacing the Bureau of Forestry name. The creation of the Forest Service was followed by a change—the custom of GLO forest rangers gaining employment via political appointments ended, and selections were made through comprehensive field and written civil service examinations. These new standards helped create a workforce that was well-qualified, satisfied, and inspired by Pinchot's leadership.



*Agriculture Secretary James Wilson at the Department of Agriculture Building in Washington, DC*

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The Forest Service's early years were a period of pioneering in practical field forestry on the national forests. Forest rangers were directed from Washington, DC, and by local national forest supervisors. A *Use Book*, written in 1905 and updated yearly, contained all the Forest Service laws and regulations used by the rangers. Today, of course, the laws require a book of 1,163 pages, while the regulations required to manage the national forests fill several bookshelves. The Forest Service manuals and handbooks are now available on the Forest Service's computer system.

Arkansas National Forest Supervisor's Office



USDA Forest Service

Much of the ranger's activity centered on mapping the national forests, providing trail access, administering sheep and cattle permits, and protecting the forests from wildfire, game poachers, timber and grazing trespass, and exploiters. In other words, they acted as custodians of the national forests during this "Stetson hat" era. An important and controversial land management decision was made to charge user fees for sheep and cattle grazing on national forests. A law was passed in 1906 to transfer 10 percent of the forest receipts (through grazing fees and some timber sales) to the States to support public roads and schools. Two years later, payments to the States were increased to 25 percent.



USDA Forest Service

*Sheep on the  
Way to Summer  
Range on the  
Beaverhead  
National Forest  
(Montana)  
in 1945*

## FOREST RANGERS

After the passage of the Organic Act of 1897, the General Land Office (GLO) established a forestry unit—later called Division “R” (Forestry)—to administer the new forest reserves. State superintendents were appointed first, then in the summer of 1898, more men were politically appointed as summer forest rangers, usually to fight forest fires. These appointments were made by the GLO State superintendents, the GLO in Washington, DC, or by a U.S. Senator, who was appointed by the State legislature. There were great temptations and opportunities for political favoritism and graft in these appointments, resulting in many GLO rangers being less than competent in managing the land and resources.

There are many stories of these early GLO rangers not doing the jobs they were assigned, going home every day to work their farms or businesses, being unwilling or unable to undergo the rigors of living in the wilderness for long periods of time, or simply not having any knowledge of what they were doing. In a few cases, GLO rangers were actively involved in land frauds committed by their friends or in accepting money to “assist” homesteaders in obtaining forest land that was immediately sold to speculators or timber companies.

In the spring of 1905, management of the forest reserves (later called national forests) was transferred from the Department of the Interior's GLO to the Department of Agriculture's Bureau of Forestry. On July 1, 1905, the Forest Service name came into being. Gifford Pinchot, as the first Chief of the agency, was intent on building a force of forest rangers who were trained in or had good knowledge of practical forestry. He considered the words on the "Invalids Need Not Apply" poster (circa 1905) to be "a slap at the Land Office...and certainly well deserved." Pinchot was determined to transform the negative stigma of the GLO's reign from 1897 through 1905 to a positive image of professional Forest Service employees, dedicated to "scientific forestry" and public service.

When the forest reserves were turned over to the Forest Service, with a few exceptions, the GLO rangers quit Government service. The GLO rangers who did transfer to the new agency were very practical and greatly experienced men who helped form a cadre of highly talented rangers.

Beginning in the summer of 1905, the new Forest Service required that applicants for the forest ranger position (now under Civil Service rules) take practical written and field examinations. The written test, although not highly technical, was quite challenging. Questions were asked to determine an applicant knowledge of basic ranching and livestock, forest conditions, lumbering, surveying, mapping, cabin construction, and so on. The field examination, held outdoors, was also quite basic. It required applicants to demonstrate practical skills such as how to saddle a horse and ride at a trot and gallop, how to pack a horse or mule, how to "throw" a diamond hitch, accurately pace the distance around a measured course and compute the area in acres, and take bearings with a compass and follow a straight line. In the field examination's early years, the applicants were also required to bring a rifle and pistol along with them to shoot accurately at a target. At some ranger examinations, the applicants were required to cook a meal, then EAT it! The applicants, as well as the rangers themselves, were not furnished with equipment, horses, or pack animals—they were required to have them for the test and for work, at their own expense. The pay was \$60 per month.

The forest ranger job changed little for several decades, with the practical forester serving the agency well. University-trained foresters, or "technical foresters," began to enter the agency after 1910, coming from the few colleges and universities offering degrees in forestry. By the 1920's, job specialization was becoming common. The changing needs of society after World War II prompted the agency to open the national forests to timber harvesting, which meant that the role of the general practical forester was outdated—university-trained specialists would take this agency into a new era. Today, agency employees are no longer required to take practical tests for employment and university-trained specialists are everywhere, but practical experience still "counts" highly in the Forest Service.

## FOREST SERVICE BADGES AND PATCHES

Adapted from Frank Harmon's 1980 Article  
"What Should Foresters Wear?" in the *Journal of Forest History*  
and other sources

As chief of the Bureau of Forestry, Gifford Pinchot began thinking about the need for a unique badge of authority for his agency employees even before the forest reserves were transferred from the Department of the Interior to Agriculture. When the shift finally took place early in 1905 and the bureau was designated as the Forest Service in the summer of the same year, Pinchot set about at once to get a new official badge for the forest rangers (the earlier General Land Office used a nickel-plated, round badge).

For creation of the badge, Pinchot announced a contest among Washington Office employees. A highly varied collection of tree-related designs resulted, including scrolls, leaves, and maple seeds. Although the judges appreciated the employees' artistic merits, they were dissatisfied because none of the designs included generally recognized symbols of authority. The group agreed that the vast responsibilities of the new Forest Service required such a symbol to help assure public recognition of the agency and respect for its officers and their authority, both in Washington, DC, and in the field. A reliable symbol was especially needed for those men in the field who were charged with applying and enforcing Federal laws and regulations in the face of an often suspicious and hostile local populace.

Edward T. Allen, one of the judges, strongly believed that a conventional shield was the best authority symbol. As it turned out, he and an associate, William C. Hodge, Jr., (who, like Allen, worked both in the Washington Office and in California between 1904 and 1906) came up with the design that became the official badge. In the spring of 1905, the two men were together in Allen's office or, perhaps, at a railroad depot in Missoula, Montana. Allen, who was attracted by the type of shield used by the Union Pacific Railroad, began tracing an outline of the shield (from a Union Pacific timetable) on a sheet of paper. He inserted the large letters U and S halfway from the top to the bottom of the shield, leaving a space between them. Hodge, looking on, was inspired to sketch a fir tree on a sheet of "roll-your-own" cigarette paper he took from his pocket. He then laid this between the U and S. The two men then quickly wrote "FOREST SERVICE" across the top and "DEPARTMENT OF AGRICULTURE" across the bottom. The placement of the two names was probably dictated by available spaces. Whether this design had any influence on the soon-to-develop and still widely used but unofficial expression "U.S. Forest Service" is debatable. In any case, Pinchot and his assistant, Overton Price, were pleased with the design and called off a planned second contest.

## BRONZE BADGES

A large bronze badge—about 3 inches in diameter, slightly convex with raised letters and tree—was issued to all field officers by July 1, 1905. Less than 2 years later, Pinchot issued an order on the wearing of the badge: “Hereafter the badge will be worn only by officers of the Washington Office when on inspection or administrative duty on the national forests, by inspectors, and by supervisors, rangers, and guards and other officers assigned to administrative duty under the supervisors.” The present bronze badge, first issued in 1915, is smaller than the original.

Badges for fire guards were nickel-plated bronze with the words “FOREST GUARD” across the top, “U.S.” on the left of the tree, “F.S.” on the right, and “DEPARTMENT OF AGRICULTURE” on the bottom. Another forest guard badge type was made with “FOREST GUARD” across the top, “U.S.” left of the tree, “D.A.” on the right, and “FOREST SERVICE” at the bottom. Neither of these Forest Guard badges had a raised edge around the border of the badge. The words were stamped into the surface and the tree was highly symmetrical.

Another badge was issued, probably to forest guards or lookouts, that was the same as the regular Forest Service bronze badge, only nickel-plated. Around 1922, a smaller 1-inch bronze badge was authorized for uniform wear. This badge was a smaller version of the larger badge. It was used on dress uniforms until around 1972. Finally, a flat bronze badge has been recently issued.

In addition to the three size variations and three forest guard variations, there were two other minor image changes: In 1920, the large letters U and S were lengthened, but the tree remained the same and, in 1938, Chief F.A. Silcox approved revising the tree image in the middle to make it longer/taller. The tree and root shapes on the shield also changed slightly—the tree became more symmetrical and the roots became slightly shorter. Since the late 1930s, there have been no additional changes to the image on the official badge. These changes were evident on both the badges and Forest Service shields everywhere.

Forest Service law enforcement, however, has a different official badge. This unusual shield stylistically resembles the regular Forest Service patch in shape, but it has several variations: An additional point at the top of the badge, an eagle with wings outspread and head facing to the left sitting on the top, and a slightly “fatter” main body. The badge was designed by Agent Dixon from Region 8 in the 1970s. It is similar to other law enforcement badges of different agencies. At the top of the silver badge are the words “FOREST” and “SERVICE.” The words are separated from the remaining words by a bar across the narrow part of the badge. The round USDA symbol is in the center, including the words “UNITED STATES DEPARTMENT OF AGRICULTURE” in the upper three-quarters of the circle. On each side

of the round symbol are the highly stylized letters “U” on the left and “S” on the right. Immediately above these letters, between the letters and the word “SERVICE” are two five-pointed stars, one on each side. At the bottom of the patch are the words “LAW ENFORCEMENT” on one line and the “& INVESTIGATIONS” on the second line, both inside a raised banner.

## CLOTH PATCHES

Since the early 1960’s, a cloth shoulder patch was authorized for wear on the left shoulder of official uniform shirts and jackets. The first authorized patch, issued in 1962, was flat on the bottom and sides, but rounded on the top. A curved overhead bar was added to designate which national forest or other office the wearer was from. In 1974, the current the Forest Service shield patch was authorized. The new patch, in the same shape as the badge, has the shield outlined in yellow, with the words and tree also in yellow against a green background.

There are two variations: An older, smaller 2-inch Forest Service flat bottom patch, sometimes called the women’s patch, which is identical to the larger 4-inch patch and the newer, smaller 2-inch Forest Service shield patch, also referred to as the women’s uniform patch, which is identical to the larger 4-inch patch except that the word “DEPARTMENT” is abbreviated to “DEPT.” and the word “AGRICULTURE” is abbreviated as “AGRIC.”

There were also two shoulder patches that are distinctly different from the other patches: A color variation—that of the Forest Service patch for winter snow ranger uniforms—orange border with black letters and tree on a white background and another snow ranger patch with a slightly smaller black-bordered shield with a larger orange shield outline. Apparently, the snow ranger patches were worn during the 1960’s and 1970’s. Several reasons for this unusual patch were: The patch could be worn on the outside of heavy winter clothing (the bronze badge could be underneath layers), it was highly visible against a dark green jacket, and when the ranger fell in the snow, the bronze badge would not be lost or cause injury.

Another special patch is that of Forest Service law enforcement. This resembles the regular Forest Service patch in shape, size, and color with the following variations: At the top of the patch the words, in yellow thread, “FOREST” and “SERVICE” are on two lines. In the middle is a round symbol of the USDA in the center (outlined in yellow) and a larger circle with the words (in green) “DEPT. OF AGRICULTURE” circling the upper two-thirds of the yellow circle. On each side of the round symbol are the letters “U” on the left and “S” on the right. Immediately above these letters, between the letters and the top word “SERVICE” are two five-pointed stars - one on each side. At the bottom of the patch is the word “ENFORCEMENT” (in green) inside a yellow thread ribbon.

A very different shoulder patch has been authorized in recent years for Forest Service volunteers. This off-white patch is somewhat like the older Forest Service uniform patches: About 3 1/4 inches tall and 2 1/4 inches wide, with a flat bottom and rounded top. The patch is outlined in an olive green thread. The off-white background has sewn with olive green thread the words “FOREST SERVICE” with the word “VOLUNTEER” underneath. Above the words is a shallow “V” in a pea-green color which has two olive green evergreen trees (without needles) having three branches on each side of the main stem. The trees overlay a pea-green sun.

## Land Frauds

*Forest Ranger  
Camp in Logan  
Canyon, Cache  
National Forest  
(Utah) 1914*



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As some of the forest reserve boundaries had been hastily drawn, the Forest Homestead Act of June 11, 1906, allowed homesteading inside forest reserve boundaries on land that was considered primarily agricultural. However, there were many instances of land fraud on agricultural and State school lands. To meet the intent of the law, unscrupulous speculators would pay people to fraudulently claim that they were making a home on the land. After such “ownership,” when the homesteaded land was transferred from the Federal Government, the new owners would immediately transfer that land’s ownership to a land speculator, timber, or mining company. The terms “land-office business” and “land-office rush” came about during this period—reflecting

the legitimate and not-so-legitimate people lining up to secure land claims at the local GLO’s.

Federal investigations about land fraud were started in several States, and a few elected officials were indicted. The first successful fraud prosecutions, involving land speculators and various State, county, and GLO employees, occurred in Oregon between 1905 and 1910. GLO head Binger Hermann resigned after being indicted, but was later found innocent; Oregon’s Senator Mitchell was convicted. Many minor Federal and State officials spent time in jail over such wrong doings.

## New Forest Reserves

In January 1907, there was considerable opposition to a Presidential proclamation that reserved thousands of acres of prime Douglas-fir timberlands in northern Washington State. The local press, chambers of commerce, and the Washington State congressional delegation protested that the reserve would cause undue hardship on residents by taking away homestead and “prime” agricultural lands (the land, in fact, was not agricultural, but heavily forested) as well as impeding the future development of the State. After considerable pressure, Pinchot and President Roosevelt relented, by saying that the reserve had been a “clerical error.” Soon thereafter, Senator Charles W. Fulton of Oregon, who had been implicated in the land frauds in that State, introduced an amendment to the annual agricultural appropriations bill. This amendment, the Fulton Amendment, prohibited the President from creating any additional forest reserves in the six Western States of Washington, Oregon, Idaho, Montana, Wyoming, and Colorado; took away the President’s power to proclaim reserves, established under the Forest Reserve (Creative) Act of 1891; and gave Congress alone the authority to establish reserves. However, before this bill could be signed into law on March 7, 1907, Gifford Pinchot and the President came up with a plan.



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*Forest Ranger  
Tying Equipment  
and Supplies on a  
Horse, Umpqua  
National Forest  
(Oregon), 1923*

On the eve of the bill’s signing, Chief Forester Pinchot and his assistant Arthur C. Ringland used a heavy blue pencil to draw many new forest reserves on maps. As soon a map was finished and a proclamation written, the President signed the paper to establish another forest reserve. On March 1st and 2nd, Roosevelt established 17 new or combined forest reserves containing over 16 million acres in these six Western States. These included the Bear Lodge in Wyoming; Las Animas and Ouray in Colorado; Little Rockies and Otter in Montana; Cabinet, Lewis & Clark, Palouse, and Port Neuf in Idaho; Colville and Rainier in Washington; and the Blue Mountains, Cascade, Coquille, Imnaha, Tillamook, and Umpqua in Oregon. These have been since referred to as the “Midnight Reserves.” The President defended his actions by claiming that he had saved vast

tracts of timber from falling into the hands of the “lumber syndicate.” The Fulton amendment, at the suggestion of Pinchot, also changed the name of the “forest reserves” to “national forests” to make it clear that the forests were to be used and not preserved. The first national forests established east of the Mississippi River were the Ocala and Choctawhatchee National Forests in Florida in November 1908.

## Decentralization

During the same month, six district offices were established in various sections of the country: Denver, Colorado; Ogden, Utah; Missoula, Montana; Albuquerque, New Mexico; San Francisco, California; and Portland, Oregon. They were part of a successful effort to decentralize decisionmaking from Washington, DC, to the districts, which were closer to and more familiar with local and region-wide problems. These new districts were staffed the following December and January by employees from the Washington Office and various supervisor’s offices.

*Fire  
Equipment  
Warehouse  
in Missoula,  
Montana*



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Decentralization was carried further with the creation of the Ogden (Utah) Supply Depot in 1909. This new depot was centrally located in the West and took advantage of the reduced shipping costs and shortened time that it took remote ranger outposts to receive supplies. To

respond to local conditions, local national forest supervisors were given greater fiscal responsibilities. A seventh district, covering the administration of the national forests in Arkansas and Florida, was added in 1914. Alaska was made a separate district in 1921; then a new district was created in 1929 to cover the Eastern States. All the districts were renamed regional offices on May 1, 1930. (Region 7 was eliminated in 1966, leaving nine regions today.)

Pinchot recognized the need to continue cooperation with the States and the private sector when in 1908 he organized the Division of State and Private Forestry (S&PF) within the Forest Service. The new division immediately began a cooperative study with the States to look at forest taxation. With the passage of the Weeks Act of 1911, the S&PF focused on working with State forestry and fire prevention associations—a cooperative relationship that continues to this day.



*Perry Davis on  
Early Speeder  
Looking for  
Railroad  
Fires, Pisgah  
National  
Forest (North  
Carolina),  
1923*

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## STATE AND PRIVATE FORESTRY

The Forest Service and its predecessors have been involved with cooperative assistance to forest landowners since 1876. Several forest reserves were created to protect city water supplies (such as the Bull Run Timberland Reserve in 1892, Portland, Oregon's water supply). Since the early USDA Division of Forestry and later Bureau of Forestry did not directly manage the forest reserves, the main duty of USDA's forestry experts was to assist private landowners—including writing plans for millions of acres of private timber land. After 1905, when management of the forest reserves transferred to the USDA and the new Forest Service, the Department's foresters were quickly moved to field positions in the West. However, providing "practical forestry" assistance to private landowners remained one of the agency's most important missions.

In 1908, Gifford Pinchot recognized the Forest Service's obligation to the private sector when he formally established the Branch of State and Private Forestry (S&PF) in the Washington Office. This was the second "leg" of the agency—the other being the National Forest System. Cooperation was ongoing with the USDA's Bureau of Entomology for pest control work and with the Bureau of Plant Industry on forest tree diseases.

One of the new S&PF Division's first efforts was to aid States in the study of forest taxation. The agency published wholesale lumber price lists and supported lumber industry efforts to retain a tariff on lumber—with the understanding that these efforts were in the public interest. The lumber industry wanted the Forest Service to keep Federal timber off the market. With the vast "storehouse" of national forest timber (much of it inaccessi-

ble), selling the trees before they were needed in the housing market would reduce private timber prices and generally weaken the lumber industry. Yet the Forest Service continued to sell small timber tracts to ensure that the national forests were used, not set aside as parks.

Chief Henry Graves noted that cooperation fell into three categories: Advising States in establishing forest policies, assisting them in surveying their forest resources (mainly timber), and finally helping forest owners with practical forestry problems. Section 2 of the Weeks Act of 1911 codified Chief Graves' ideas. It authorized the Forest Service to work together with its State counterparts to fight fire on Federal, State, or private land. (Previously, if a fire started on private or State land, the Forest Service could not help until the fire entered national forest land.) With the Weeks Act in place, it did not matter where the fire started or ended, the main premise was to put it out and take care of the money later. The Weeks Act also authorized \$10,000 in matching funds for State fire protection agencies' local fire prevention programs.

The Clarke-McNary Act of 1924 greatly expanded the Weeks Act. The new act used cooperation and incentives to improve conditions on private forest land. Fire and taxes were the primary components of the act—which allowed Federal, State, and private interests to work together. Section 3 of the Clarke-McNary Act authorized the Forest Service to study tax laws and their effect on forest land management. Because of concerns over the Nation's future wood supplies related to capital investments, logging activities, and even fire, the Forest Service assumed a responsibility in the tax matter. However, when Professor Fred R. Fairchild's 1935 report on the tax matter failed to find any relationship between taxes and management, the report quickly fell into obscurity.

Based on the Lea Act of 1940, which was designed to unify and coordinate efforts to control the white pine blister rust problem, irrespective of property boundaries, the Forest Pest Control Act of 1947 recognized a Federal responsibility for forest insect and disease protection on all ownerships. This law also offered technical and financial assistance to State forestry agencies to control insects and disease outbreaks in forested areas.

The most famous cooperative effort, which continues to this day, involves the forest fire prevention program (see the Smokey Bear sidebar). Begun during the first few months of 1942, cooperation between the Forest Service, State foresters, and the Advertising Council continue to spread the fire prevention program across the country.

The Cooperative Forest Management Act of 1950 expanded the Forest Service's cooperative efforts of the post-war decade, provided for technical assistance, and extended management assistance to all classes of forest ownership. The Forest Service gave priority to assisting small forest land-

owners. In 1952, the Forest Service initiated a major field inventory, the Timber Resources Review (TRR), to analyze the forest conditions on small forest landownerships. Although drafts of the report were circulated within 2 years, the forest products industry protected its results so much that the final report was not published until 1958! The TRR report found that forest practices would need to be intensified to meet future demands and that small ownerships were in the greatest need of assistance. Although the Forest Service made efforts to institute a program to remedy this situation, it proved to be too controversial and expensive.

The Small Watershed Program (Public Law 566) in 1954 expanded the Forest Service's authority to include flood prevention on farmland watersheds not exceeding 250,000 acres. The program covered flood prevention structures, upstream protection, and livestock control. The Forest Service worked closely with the United States Department of Agriculture's Soil Conservation Service (now Natural Resources Conservation Service) and Agricultural Research Service, U.S. Army Corps of Engineers, and the States to implement such projects.

The primary statutory authority for many of the current S&PF program activities is the Cooperative Forestry Assistance Act of 1978, as amended by the 1990 farm bill. In the past, the cooperative forestry program has been based on timber production, wood utilization, fire protection, and insect and disease control, but the emphasis is changing. Cooperative forestry is now involved in urban forestry to maintain trees within urban areas, reach out to new constituencies, and build new partnerships in the inner cities. A new forest stewardship program seeks to help, both technically and financially, nonindustrial private forest owners to manage all the resources on their forest lands based on their own objectives. The rural development initiative is designed to help small communities diversify and strengthen their local economies.

Regional foresters are responsible for the S&PF programs with the exception of the Northeastern Area, which is located in Newtown Square, Pennsylvania. The Northeastern Area is a reflection of the large number of nonindustrial private woodland owners who reside in the Northeastern States.

## **Forest Service Research**

The first forest experiment station was established in 1908 at Fort Valley on the Coconino National Forest, Arizona, followed by other research stations in Colorado, Idaho, Washington, California, and Utah. Today, there are 20 research and experimental areas in the National Forest System.

*Regional Office, Southwest Region (Region 3) in Albuquerque, New Mexico, circa 1916*

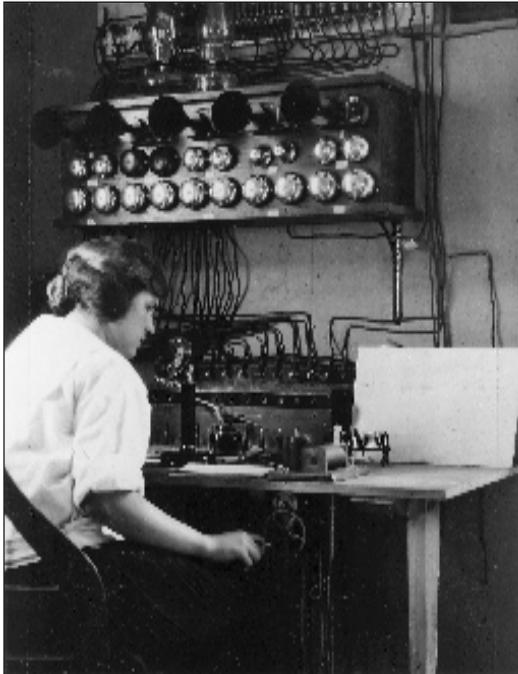


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Prior to 1910, the Forest Service undertook major efforts to evaluate sites for possible on-the-ground forest management camps called ranger stations. Ranger stations were established because of the need to have local control on many of the national forests. About the same time, many of the larger forests were divided into smaller, easier-to-manage national forests.

The height of the nationwide conservation movement was between 1907 and 1909, just before and after Theodore Roosevelt's National Conference of Governors met at the White House in May 1908 to consider America's natural resources. The President told conference attendees that "the conservation of natural

*Oakridge Ranger Station Telephone Operator, Cascade National Forest (Oregon)*



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resources is the most weighty question now before the people of the United States." The conference recommended that the President appoint a National Conservation Commission to "inquire into and advise him as to the condition of our natural resources." The commission returned with a three-volume report, which Roosevelt used in the effort to conserve the Nation's natural resources. Roosevelt left office in 1909 and was succeeded by William Howard Taft. Pinchot ran into problems with the new Taft Administration's Secretary of the Interior, Richard A. Ballinger, over coal leasing in Alaska. After months of national debate and personal attacks from both men, Taft fired Pinchot for insubordination in January of 1910. Pinchot was replaced as "Forester" by Henry Graves, his long-time associate and personal friend.

## The Forest Protection or Custodial Management Era, 1910-1933

The next 23 years was the Forest Service's era of forest protection through custodial management. Most important was a system for detecting and fighting forest fires. During the summer of 1910, when extremely dry conditions prevailed in the West, widespread fires flared in the Northwest and the northern Rocky Mountains, burning over 3 million acres in Idaho and Montana alone. Seventy-eight forest firefighters lost their lives nationwide trying to protect the national forests and remote communities from these devastating fires. Soon the Federal Government made firefighting funds available to combat such fires. As a result of the 1910 fires, cooperation between the various State foresters and the Forest Service became a driving force.

During this era, the Forest Service also began several important programs to better manage the national forests, including an extensive system of basic and applied research, timber management, recreation, and highways to better provide access to the forests.

### FOREST FIRES AND FIREFIGHTING

Control of forest fires has long been considered as one of the most important aspects of forestry. Very large scale forest fires are primarily a North American phenomena, although many other countries face serious forest and brush fire conditions. Early European-trained foresters, under whose tutorage Pinchot and others learned the basics of forestry, had not dealt with large fires potentially covering hundreds of thousands of acres in one fire. As a result, forest fires in the United States were much more serious than those they had ever encountered.

Fire has long been used to clear land, change plant and tree species, sterilize land, maintain certain types of habitat, and for many other reasons. Indians are well-known to have used fire as a technique to maintain certain pieces of land or to improve habitats. Although early settlers often used fire in the same way as the Indians, major fires on public domain land were largely ignored and were often viewed as an opportunity to open forest land for grazing. If fires were fought at all, they were fought with shovels, brooms, rakes, fire lines, and backfires. When near farms, plows could be used to make fire lines in crops or near houses.

Especially large fires raged in North America during the 1800's and early 1900's. The public was becoming slowly aware of fire's potential for life-threatening danger. The first very large fires were the Miramichi and Piscataquis fires of 1825 that burned around 3 million acres in Maine and New Brunswick. Other large and deadly fires were in the Lake States, including the Peshtigo fire of 1871 that covered over 1 million acres and

took over 1,400 lives in Wisconsin. At the same time, fires were burning in Michigan, cindering about 2.5 million acres. Ten years later, these devastating Michigan fires were followed with another 1 million acres going up in smoke. In 1894, a large fire around Hinckley, Michigan, took the lives of 418 people. In 1903 and 1908, huge fires burned across parts of Maine to Upstate New York. In response, the first State fire organization in the East was established in Maine.

Federal involvement in trying to control forest fires began in the late 1890's with the hiring of General Land Office rangers during the fire season. Largely ineffectual, the rangers were at least aware of many remote fires and could notify towns and settlers if a fire was heading their way. When the management of the forest reserves (now called national forests) were transferred to the new Forest Service in 1905, the agency took on the responsibility of creating professional standards for firefighting, including having more rangers and hiring local people to help put out fires.

Of great importance to this cause were the devastating fires in the West. The first one was the 1902 Yacolt fire in southwestern Washington, which burned more than a million acres in Washington and Oregon and cost the lives of 38 people. A result of the fire was the formation of the Western Forestry and Conservation Association in 1909, led by the Edward T. Allen. In the previous year, Allen had been appointed as the first Forest Service Regional Forester in the Pacific Northwest Region. One year later, in the northern Rockies, some 3 million acres were burned in the "Big Blowup of 1910," and another 2 million acres in other areas. Within a year, Congress passed the Weeks Act of 1911 which, in part, allowed the Forest Service to cooperate with the various States in fire protection and firefighting. The Forest Service also began a program of fire research, which continues to this day.

Lookout houses (many starting just as platforms atop trees) were used to locate fires from mountain tops during the fire season. The houses varied from low ground houses to very tall towers, sometimes over 100 feet tall. Just after World War I, the Forest Service contracted with the Army Air Service (Corps) to provide airplanes and pilots to spot fires from the air. This program worked successfully for more than 10 years until a comprehensive network of lookout houses and telephone systems were in place. Today, a computer network tracks every lightning strike and aerial patrols monitor for active fire sites after lightning storms. The few remaining lookouts still operating are valuable for locating human-caused fires. The Clarke-McNary Act of 1924 allowed the Forest Service to administer grants-in-aid to equal the amounts contributed to firefighting by the States and to set standards for firefighting and equipment.

During the 1930's, the Civilian Conservation Corps (CCC) program offered a change from just having Forest Service employees or hired people to fight

fires. CCC enrollees were sent by the thousands to help fight fires throughout the West. The CCC's successfully tested and then used a 40-man (there were no women firefighters at this time) fire suppression crew. The CCC program also built and staffed thousands of lookout houses and towers across the country.

Near the end of the 1930's, another new tactic was employed—having firefighters jump from airplanes to remote locations to put out fires before they became too large to fight. In 1939, smoke jumping was tested on the Okanogan National Forest in Washington. The first smoke jumping on a forest fire took place July 12, 1940, on the Martin Creek fire on the Nez Perce National Forest of Idaho. The two smokejumpers were Rufus Robinson and Earl Cooley.

In 1935, the Forest Service developed the “10 a.m.” policy that stipulated that a fire was to be contained and controlled by 10 a.m. following the report of a fire, or, failing that goal, controlled by 10 a.m. the next day, and so on. Faced with the necessity of controlling a fire overnight, the Forest Service was compelled to call out massive numbers of firefighters to try and control these blazes in the initial attack. A new division of forest fire research began operation in 1948, with three laboratories opening soon thereafter. On August 5, 1949, 13 smokejumpers lost their lives when a fire in Mann Gulch on Montana's Helena National Forest suddenly flared in high winds, leapt out of control, and enveloped the firefighters. This tragic event prompted the Forest Service to establish centers in Montana and California that were dedicated to developing and testing new firefighting equipment.

By the mid-1950's, the Forest Service gradually assumed the primary responsibility for coordinating wildland and rural fire protection in the United States. During this time period, more than \$200 million worth of World War II surplus equipment was passed to State and local cooperators. By 1956, air tankers, often military surplus B-17's filled with a borate mixture, and helicopters for transport were in use.

In 1971, the Forest Service modified the 10 a.m. policy to handle fires in wildernesses by using a 10-acre policy as a guide for planning. Thus, some fires were allowed to increase in size to 10 acres only if they did not destroy or threaten to destroy private property or if they endangered life or property adjacent to the wilderness. Another so-called “let burn” policy came into being in the 1980's, it essentially allowed some fires, as in wilderness, to burn on the national forests depending on conditions. The 1988 fires in the greater Yellowstone ecosystem were devastating to large areas in and around the national park. In 1994, a forest fire claimed the lives of 10 hot shot crew firefighters when they tried to escape the fast moving South Canyon Fire on Storm King Mountain in Colorado.

*Result of the  
1910 Fires  
Along St. Joe  
River on the  
Coeur d'Alene  
National Forest  
(Idaho)*



USDA Forest Service



## **Henry S. Graves— Second Chief, 1910-1920**

Pinchot's close friend, Henry "Harry" Solon Graves born on May 3, 1871, in Marietta, Ohio, was also one of the seven original members of the Society of American Foresters. Graves, an eminent professional forester, served as the first professor and director of the newly founded Yale Forestry School. In 1910, he was selected to take over the reins of the 5-year-old Forest Service.

His 10-year stint as Chief of the Forest Service was characterized by a stabilization of the national forests, the purchase of new national forests in the East, and the strengthening of the foundations of forestry by putting them on a more scientific basis.

His great contribution was the successful launching of a national forest policy for the United States—a permanent and far-reaching achievement. During his tenure as Chief, the Forest Products Laboratory was established at Madison, Wisconsin; the Weeks Law of 1911 was enacted—allowing for the Federal Government to purchase forest lands (mostly in the East); and the Research branch of the Forest Service was organized.

Henry Graves wrote:

When the policy of deeding away the public timberlands was at last found to be an unsafe one for the Nation, it was changed and the bulk of the remaining public timberlands were withdrawn from public appropriation and segregated as national forests. In this way, about 155 million acres, nearly all in the western mountains were reserved.... The public forests are being protected from fire, the timber is used as it is called for by economic conditions, and the cutting is conducted by such methods as leave the land in favorable condition for the next crop of timber.

The very magnitude of the national forest enterprise has created in the minds of many people the impression that the problem in this country is already on the way to definite solution. In point of fact, only certain initial steps have been taken.... It is my hope that we may secure sufficient public support to enable us to accelerate the acquisition by the Government of the important remaining areas [in the East] before it is too late.... Forests on critical watersheds should be owned by the public for their protective value. Public forests serve, also, as centers of co-operation with private owners and as demonstration areas for the practice of forestry as well as furnishing their direct benefits in producing wood materials, as recreation grounds, etc.

## **Forest Products Laboratory and Research**

Chief of the Forest Service Henry Graves noted that with the forest practices of this era, loggers were typically leaving as much as 25 percent of the trees on the stump or ground and more than half of the trees that reached the mill were either discarded as waste products or burned on the site. In cooperation with Wisconsin State University (now the University of Wisconsin), the Forest Service established the Forest Products Laboratory (FPL) in 1910 at Madison, Wisconsin. The FPL was to be a “laboratory of practical research” that would study and test the physical properties of wood; develop and test wood preservation techniques; study methods to reduce logging waste; improve lumber production methods in sawmills and devise new uses for wood fiber; distribute wood product information to the public; and cooperate with the wood products industry. FPL research made utilization of forest products an important element in the greater use and production of wood from public and private forests.

The Weeks Act of 1911 allowed the Government to purchase important private watershed land on the headwaters of navigable streams, which may have been cut over, burned over, or farmed out. As a result, this act indirectly supported the creation of new national forests through land purchases in the Eastern United States where there was little public domain land left. It also provided cooperation with, and Federal matching funds for, State forest fire protection agencies.

*Forest Products  
Laboratory, Madison,  
Wisconsin*



USDA Forest Service

By 1920, more than 2 million acres of land had been purchased under the Weeks Act—by 1980 over 22 million acres in the East had been added to the National Forest System.

The Forest Service Research Branch, known earlier as the Office of Silvics, was established in 1915 to investigate better ways of managing the national forests, as well as to study the hundreds of tree species and to explore methods to reseed and replant forests. This period saw a great expansion of the number of national forest timber sales; the construction of numerous ranger stations, lookout, trails, and trail shelters; and the first use of telephones on national forests.

## **FOREST PRODUCTS LABORATORY— MADISON, WISCONSIN**

In 1907, McGarvey Cline, head of the Forest Service's wood use section, proposed that all wood product scientists be brought together under one roof. As a consequence, the University of Wisconsin constructed a special laboratory for its use in Madison, Wisconsin, and the Forest Products Laboratory (FPL) began operations on October 1, 1909, and was officially opened on June 4 of the following year.

Scientific research on wood and wood products began in earnest, with FPL scientists receiving a large number of patents over the years. Some of the first work at FPL involved drying wood through a dry kiln process. Hundreds of species of wood were tested for their fiber strengths. A pulp and paper research unit was formed to study the mechanical and chemical pulping processes. Research started on wood's chemical properties, distillation and extraction of chemicals from various woods, the manufacture of chemicals from trees, and the development of chemicals used to stabilize and moisture-proof wood products.

During World War I, the FPL was instrumental in efforts to produce light-weight, but very strong, airplanes. They tested the strengths of fuselages, wings, and propellers, and developed effective ways to use wood, cloth, and paint (dope) to strengthen the new airplane airframes. During World War I, FPL's workforce rose from fewer than 100 to about 450. Paper was in short supply during World War I, so FPL scientists began research on tree species not commonly used for paper production.

In 1928, the McSweeney-McNary Act made special provisions for continuation of research at the FPL and, by 1931, the FPL had completed construction of a new laboratory building. In 1932, FPL gained notoriety as the place where the wooden ladder used in the Lindbergh child's kidnaping was analyzed. The advent of World War II caused the number of FPL employees to rise again, to around 700. They conducted research and development work on many wartime needs and uses, such as airplanes, ships, buildings, containers, paper, and plywood. FPL became the model for national laboratories around the world.

After the war, the FPL began to shift emphasis from old-growth, high-quality wood, such as pine and Douglas-fir, to the lesser-used species and more efficient uses of existing timber supplies, including second and even third-growth timber. The private sector became active after the war, funding smaller laboratories to conduct research on wood products, manufacturing techniques, and consumers. Many of these small private laboratories conducted their research on proprietary products with the research results not released to the public. FPL's research findings are in the public domain.

Today, FPL conducts basic research work on many wood-related topics, including wood fiber recycling and better utilization of wood products, while continuing the testing of wood fibers and better ways of manufacturing wood products and training wood technology researchers from all over the world.

## WEEKS ACT OF 1911

Adapted from Terry West's  
*Centennial Mini-Histories of the Forest Service* (1992)

Floods, fires, and Forest Service foresters all contributed to the passage of the Weeks Act of 1911, which marked the shift from public land disposal to expansion of the public land base by purchase and was the origin of the eastern national forests. The role played by floods, wildfires, and foresters goes back to the beginnings of the conservation movement and professional forestry in the United States. The importance of forests in watershed protection, for example, was an early subject of concern among those who argued for forest reserves.

The place of forests in moderating stream flow was unclear in the early stages of the forest conservation movement, but gained enough credence that “securing favorable conditions of water flows” was defined as a primary function of the newly formed Federal forest reserves in the Forest Management (Organic) Act of 1897. It may have been the memory of the disastrous Johnstown (PA) flood in 1889 that helped dramatize the consequences of watershed deforestation to people in the East.

Foresters, largely based in the USDA Forest Service, recognized the importance of forests in flood protection—the U.S. Army Corps of Engineers did not. The Corps’ idea of flood control was dams and levees. Forest Service Chief Gifford Pinchot felt that the Corps of Engineers’ position undermined one of the key arguments for creating additional forest reserves. Most of the over 150 million acres of forest reserves established by 1907 were in the West. The issue of flood control became important to gain political support for purchase of lands for national forests in the East.

Rain was important to irrigators in the arid West, and urban residents wanted pure drinking water, so these two groups supported watershed protection through creation of forest reserves. It was recreationists in the East, however, who sought creation of additional Federal forests—with supporters of the proposed White Mountain reserve of New England (Maine and New Hampshire, now the White Mountain National Forest established in 1918) working with the regional advocates of Appalachian reserves (who later managed to get a series of national parks for the area in the 1920’s). Enlisted in the effort was Congressman John Weeks (of Massachusetts), who, in 1906, made a motion in Congress to authorize Federal purchase of private lands for the purpose of forest reserves. The notion of spending public money on recreation sites did not appeal to the powerful Speaker of the House, Joe Cannon, who declared “not one cent for scenery” in the debate against the proposal.

In 1905, the American Forestry Association endorsed the proposal to establish eastern national forests through Federal purchase, and Congress’s defeat of the bill led them and other advocates of forest reserves to shift their argument from nature preservation to utilitarian concerns over flood protection. In the meantime, a need for fire control offered a second reason for the shift of ownership of forest lands to the Federal Government. The lack of fire protection efforts on the part of the private sector and even States made it a national program for the new Forest Service, the reason being that when scientific forestry began in North America its practitioners regarded fire protection to be a fundamental mission of the forestry profession.

With the massive western fires of 1910 accelerating the trend, U.S. public opinion gradually moved toward the forester’s view of the need for wildfire control of forested lands. The 1910 fires in Idaho and Montana burned over 3 million acres and killed over 80 firefighters. Combating these fires cost the Forest Service more than 1 million dollars. Spurred by the costly fires,

Chief Graves initiated a program of scientific research on fire control. Passage of the Weeks Act on March 1, 1911, added to the Forest Service's fire work. Section 2 of the Weeks Act authorized firefighting matching funds for State forest protection agencies that met Government (Forest Service) standards. This was the first time that Congress allowed direct funding of non-Federal programs, and since it was busy developing cooperative fire control programs, the action greatly increased the task of the agency's recently formed (1908) State and Private Forestry Branch.

Passage of the Weeks Act led to the Federal purchase of forest lands in the headwaters of navigable streams—expanding the National Forest System east of the Great Plains—a region of scant public domain. The Pisgah National Forest, the first national forest made up almost entirely of purchased private land, was established on October 17, 1916. The core portion of the new forests came from the privately owned Biltmore Forest—once managed by Gifford Pinchot. Land purchases for the Pisgah began in 1911, soon after the passage of the Weeks Act. By 1920, the end of the Graves administration, more than 2 million acres had been purchased; by 1980, purchases and donations based on the Weeks Act added over 22 million acres to the National Forest System.

## RESEARCH ON THE NATIONAL FORESTS

Adapted from Terry West's 1990 Conference Paper

Gifford Pinchot found it necessary in his first year (1898) as Chief of the Division of Forestry to establish a Section of Special Investigations (Research). By 1902, it was an agency division directed by Raphael Zon with 55 employees and accounting for one-third of the \$185,000 budget. Zon proposed creation of forest experiment stations to decentralize research. The first area experiment station was established in 1908 at Fort Valley on the Arizona Territory's Coconino National Forest. These stations were Spartan operations designed to serve the needs of the local forest. One exception, however, was the Wagon Wheel Gap Watershed Study in Colorado, a cooperative project with the U.S. Weather Bureau to study the effect of timber removal on water yields.

In 1909, the second pioneer, Carlos Bates, chose a remote site near the Rio Grande National Forest in Colorado for the Nation's first controlled experiments on forest-streamflow relations. Little was known of the hydrology of mountain watersheds until Bates' innovative research on how water moves through soil to sustain streams during rainless periods.

Research's importance to forest management was formalized in 1915 with the creation of a Branch of Research in the Forester's (Washington) Office, with future Chief Earle Clapp in charge. It was felt that Research needed

to be based out of a central office to ensure project planning on a national scale. This move made Research co-equal to the administrative side of the agency. Forest Service Research's original function was to gather dendrological and other data needed to manage the national forests. Independence from administrative duties allowed scientists to dedicate more time to research projects, but required the agency to develop a staff of specialists to transfer Research's technical information into field applications.

Range research began in the USDA's Department of Botany (1868-1901) and later in the Division of Agrostology. USDA's Division of Forestry became interested in range research in the summer of 1897 when Frederick Coville carried out the first range investigation on the impact of grazing on the forest reserves of the Oregon Cascades. This important study, the Coville Report (Division of Forestry Bulletin No. 15), was published in 1898 and resulted in Oregon's forest reserves being reopened for grazing.

In 1907, James Jardine and Arthur Sampson conducted studies to determine the grazing capacity of Oregon's Wallowa National Forest. The bulk of range research, however, took place in the Intermountain Region at the Great Basin Experiment Station on Utah's Manti National Forest.

By the 1920's, the Forest Service had 12 regional research stations with branch field (experimental) stations. Congress passed the McSweeney-McNary Research Act on May 22, 1928, which legitimized the experiment stations, authorized broad-scale forest research, and provided appropriations.

One impetus for forestry research in the United States was the limited applicability of European models to the management of U.S. forests, especially in dealing with the threat that fire posed. European forests simply did not experience the fire danger that U.S. forests did. The Forest Service began its research program with Chief Greeley writing that "firefighting is a matter of scientific management just as much as silviculture or range improvement." California District Forester Coert DuBois directed tests of light burning and fire planning and, in 1914, published his classic *Systematic Fire Protection in California*.

By 1921, the Forest Service dedicated the Missoula, Montana, headquarters of the Priest River Forest Experiment Station to fire research. Research head Earle Clapp personally arranged for Harry Gisborne to be assigned to the station. From then until his death during a fire inspection trip of the Mann Gulch fire in 1949, Gisborne worked on fire research. Fire research during the 1920's was subordinate to administration—research focused on fire control rather than fire itself. Under this pragmatic approach, fire researchers were expected to leave their field plots and statistical compila-

tions for the fireline. Fire research in the Southern United States focused on the fire rather than fire control, since “light burning” (human-set fires) was still an industrial practice. Thus, research on fire and wildlife management and longleaf pine silviculture was carried on in the Southern Region. When the Forest Service created a separate Division of Fire Research in 1948, one objective was to have a national fire research agenda supervised by forester-engineers and forester-economists.

Although research funding declined in the 1930’s, this was an era when facilities expanded. Programs such as the Civilian Conservation Corps and Works Progress Administration provided labor and materials to construct research facilities. By 1935, there were 48 experimental forests and ranges, and their physical plants were being further developed. Forest genetics research received a boost in 1935 when James G. Eddy deeded the Eddy Tree Breeding Station to the Government. Inspired by the work of Luther Burbank, lumberman Eddy founded the station in 1925. It is now part of the Forest Service’s Pacific Southwest Forest and Range Experiment Station in California.

Research did not really expand until the post-World War II economic boom and cold war generated funding increases. Employment of large numbers of professional scientists allowed projects in pure research—such as forest genetics and fire spread. In the late 1950’s, the structure of Forest Service Research changed from one of centers to one of projects. Under the new system, a senior scientist led a project and supervised its staff.

Relative to Forest Recreation Research, Chief Cliff noted that the agency was only beginning to explore this new field. In his words, “a rapid expansion of the relatively new and unexplored field of research...will provide a better basis upon which to handle the problems of policy and management of forest recreation...it is long overdue.” At first, the recreation research program operated within the Division of Forest Economics; it was then shifted to the Division of Range Management Research. In 1959, Harry W. Camp was appointed to be the first head of Forest Service Recreation Research. Between 1963 and 1983, Forest Service recreation research became more clearly defined and gained in popularity and scientific significance.

The Forest and Rangeland Renewable Resources Research Act of 1978, which supplanted McSweeney-McNary Act, revised Research’s charter. Outside groups put increasing pressure on Forest Service Research to develop baseline studies to guide management of national forest resources. Research became more complicated and, at times, isolated from local needs—a situation that is now changing with the new emphasis on ecosystem-based management and collaborative stewardship.

## Recreational Developments

In the Forest Service's early days, it was against legislation to create a National Park Service (NPS) to manage the national parks (the act passed Congress in 1916). To counter the recreation component of the new NPS, the Forest Service initiated an extensive outdoor recreation program, including leasing summer home sites and building campgrounds on many national forests. The first Forest Service campground was developed in 1916 at Eagle Creek on the Oregon side of the Columbia River Gorge on the Mt. Hood National Forest. Apparently, the first cooperative campground was constructed in 1918 at Squirrel Creek on the San Isabel National Forest near Pueblo, Colorado, at the time Federal funding was lacking and communities saw the need for better camping and picnicking facilities on the national forests.

*Campground  
on the Cibola  
National Forest  
(New Mexico),  
1924*



USDA Forest Service

## RECREATION ON THE NATIONAL FORESTS

Adapted from E. Gail Throop's 1989 Conference Paper and L.C. Merriam, Jr.'s, article in *Encyclopedia of American Forest and Conservation History* (1983), Vol. 2: 571-576.

Although recreation was not specifically included in the Forest Reserve Act of 1891, it could be reasonably inferred to be included among the compatible uses of the forest reserves. The Organic Act of 1897 and implement-

ing regulations allowed many activities on the forest reserves (renamed as national forests in 1907), including camping and hunting. Most important was the potential for these visitors to start fires: “Large areas of the public forests are annually destroyed by fire, originating in many instances through the carelessness of prospectors, campers, hunters, sheep herders, and others, while in some cases the fires are started with malicious intent. So great is the importance of protecting forest from fire, that this Department will make special effort for the enforcement of the law against all persons guilty of starting or causing the spread of forest fires in the reservations in violation of the above provisions.” Before the first forest rangers of the General Land Office (GLO) took to the woods in the summer of 1898, picnickers, hikers, mountain climbers, campers, hunters, and anglers—individually and as families and other groups—were among the regular users of the forest reserves.

The first legislation to recognize recreation in the Forest Reserves was enacted February 28, 1899. The Mineral Springs Leasing Act permitted the building of sanitariums and hotels in connection with developing mineral and other springs for health and recreation. The act stated that regulations will be issued “for the convenience of people visiting such springs, with reference to spaces and locations, for the erection of tents or temporary dwelling houses to be erected or constructed for the use of those visiting such springs for health and pleasure.” The revised GLO regulations set forth in the 1902 *Forest Reserve Manual* stipulated to the right of the public to travel on the forest reserves for pleasure and recreation. However, recreation was considered to be secondary to the need for forest management, especially through grazing opportunities and later through timber harvesting.

In the 1905 *Use Book* there were statements noting that the national forests served many purposes, some of which were related to early recreationists: “The following are the more usual rights and privileges... (a) Trails and roads to be used by settlers living in or near forest reserves. (b) Schools and churches. (c) Hotels, stores, mills, stage stations, apiaries, miners’ camps, stables, summer residences, sanitariums, dairies, trappers’ cabins, and the like...” The 1907 *The Use of the National Forests* book (public version of the *Use Book*), included such statements as: “Playgrounds.—Quite incidentally, also, the National Forests serve a good purpose as great playgrounds for the people. They are used more or less every year by campers, hunters, fishermen, and thousands of pleasure seekers from the near-by towns. They are great recreation grounds for a very large part of the people of the West, and their value in this respect is well worth considering.”

By 1913, the annual Forest Service report raised the issue of the need for sanitary regulation to protect public health. The report also listed 1.5 million “pleasure seekers,” of whom a little over 1 million were day visitors, in the 1912-1913 fiscal year. Campers, including those who engaged in hunt-

ing, fishing, berry or nut picking, boating, bathing, and climbing totaled 231,000 and guests at houses, hotels, and sanatoriums came to 191,000.

The Forest Service undertook development of recreation facilities in the national forests as early as 1916. The first official campground was the Eagle Creek Campground along the Columbia River Highway in Oregon's Mt. Hood National Forest. It was a "fully modern" facility with tables, toilets, a check-in station, and a ranger station. In the summer of 1919, nearly 150,000 people enjoyed the Eagle Creek facilities.

At the same time, the Forest Service was opposed to the creation of a National Park Service to administer the national parks. At one time, the Forest Service proposed that it could manage all the national parks, but, obviously, this was not approved by Congress. When the United States Department of the Interior National Park Service was established in 1916, it was given a dual role—preserve natural areas in perpetuity and develop the parks as recreation sites.

Early in 1917, the Forest Service hired Frank A. Waugh, professor of Landscape Architecture at Massachusetts Agricultural College, Amherst (now University of Massachusetts) to prepare the first national study of recreation uses on the national forests. *Recreation Uses in the National Forests*, Waugh's 1918 report on the status of recreation noted that some 3 million recreation visitors used the national forests each year. He summarized the types of facilities found in the forests—publicly owned developments consisted almost entirely of automobile camps and picnic grounds, while the private sector provided fraternal camps, sanatoria, and commercial summer resorts. In addition there were "several hundred" small colonies of individually owned summer cabins. With the first crude recreation use figures, collected during the summer of 1916, he figured a recreation return of \$7,500,000 annually on national forest lands. Waugh did not address winter sports, as it was just beginning on the national forests—as early as 1914, the Sierra Club was conducting cross-country ski outings on California's Tahoe National Forest.

Although the development of recreation on the national forests was a slow progress during the period from 1919 to 1932, it was not an era without controversy and change. Responsive to the need for improved public service, the agency generally supported the idea of professional planning and design. To this end it hired a "recreation engineer," landscape architect Arthur Carhart, in 1919, to begin recreational site planning. The year 1920 marked the completion of the first forest recreation plan for the San Isabel National Forest in Colorado. Carhart proposed that summer homes and other developments not be allowed at Trappers Lake on the White River National Forest in Colorado. In 1921, he surveyed the Quetico-Superior lake region in Minnesota's Superior National Forest where he recommended only limited development. It eventually became the Boundary Waters Canoe Area Wilderness.

In 1921, while attending the first National Conference on State Parks, Carhart discussed national forest recreation uses. He was challenged by Park Service Director Stephen Mather who stated that recreation was the work of the National Park Service, not the Forest Service. Differences of opinion over recreation has been a source of controversy between the agencies for decades. The National Conference on Outdoor Recreation in 1924 criticized the two agencies for over development of their recreation programs. The conference went so far as to accuse the National Park Service of swapping the concept of preserving the Nation's natural wonders for the concept of the creating a "people's playground."

Arthur H. Carhart and Aldo Leopold believed that wilderness was a recreational experience unmatched by the drive to develop areas for heavy recreation use. The Gila Wilderness—the Nation's first wilderness—was established on the New Mexico's Gila National Forest in 1924. Carhart later wrote that "there is no higher service that the forests can supply to individual and community than the healing of mind and spirit which comes from the hours spent where there is great solitude."

Early in the decade, while ground was gained on the budgeting front, professional expertise in planning and design was lost. Arthur Carhart resigned because of what he perceived as a lack of support for recreation in the agency—he was not replaced by a person trained in the landscape design disciplines. At the time, only three regions—Northern, Pacific Southwest, and Pacific Northwest—had personnel assigned to recreation duties. Other regions either indicated too little recreation activity to merit specialized personnel or a determination to develop their own forester-recreationists.

Throughout the decade of the 1920's, the Forest Service pursued a cautious conservative recreation site development policy. Generally, that policy held that the recreation role of the national forests was to provide *space* for recreation. Publicly financed recreation facilities remained limited in number and usually simple in nature. Yet by 1925, there were some 1,500 campgrounds in the national forests. This policy of limited development of national forest recreation sites fit both the philosophical outlook of the forest managers and the budgetary goals of the Coolidge and Hoover Administrations and of Congress.

*A National Plan For American Forestry* (the Copeland Report) was prepared by the Forest Service in 1933. The section on recreation was written by collaborator Robert Marshall. In May 1937, Bob Marshall filled the new position of Chief of the Division of Recreation and Lands. He had a strong and long-lasting influence on recreation policy and development, especially that of wilderness. Using mainly Civilian Conservation Corps labor, the Forest Service built recreation structures from coast to coast. Under Marshall's guidance, a tremendous variety of facilities were built, many of them elaborate, that were unprecedented in the Forest Service. Facilities such as bathhouses, shelters, amphitheaters, downhill ski areas, and play-

grounds were part of large recreation complexes. Recreation was established as a national administrative priority of the Forest Service.

Following World War II, Americans aggressively sought an improved quality of life that included active participation in all forms of outdoor recreation. The socioeconomic influences of the post-war baby boom, increased affluence, increased leisure time, and improved transportation systems and population mobility led to unprecedented growth in demand for outdoor recreation. Visitors to the national forests were seeking hunting and fishing opportunities, developed campgrounds, downhill ski areas, picnic areas, wilderness experiences, water access, and hiking trails. The supply of recreation sites was soon overwhelmed by this demand.

In 1958, Congress created the Outdoor Recreation Resources Review Commission to review the overall outdoor recreation opportunities in the United States. When the final report was printed in 1961, the commission made a number of recommendations that have affected forest recreation. The commission recommended passage of the Wilderness Act—which was signed into law in 1964—and the creation of a Bureau of Outdoor Recreation in the Department of the Interior. Interior Secretary Stewart Udall appointed Edward Crafts, former Forest Service Assistant Chief, as the agency's first director.

At the start of the 1960's, there was another surge in the national interest in the "great outdoors." This ushered in the era of growing national recreation interests and the desire for preservation of lands and history. This was also an era when America looked to the Federal Government to solve the Nation's problems and provide for social needs of the citizens. The Wilderness Act of 1964 created the National Wilderness Preservation System. National Recreation and Scenic Areas, Wild and Scenic Rivers, and National Scenic Trails legislation followed throughout the next two decades.

In 1985, President Reagan established the President's Commission on America's Outdoors to review existing outdoor recreation resources and to make recommendations that would ensure the future availability of outdoor recreation for the American people. The thrust of this commission was away from Federal centralism and strongly toward public-private partnerships. The Forest Service response to socioeconomic changes of this period took the form of an exciting and imaginative national initiative, the National Recreation Strategy. The preferred tool to meet this strategy was the development of partnerships between other public and private providers of outdoor recreation. This strategy is operational and significant progress toward the objectives has been made.

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## Railroad Land Grants

When the Southern Pacific Railroad Company failed to live up to the terms of its 19<sup>th</sup> century land grant to the Oregon and California (O&C) Railroad (purchased by Southern Pacific), the U.S. Supreme Court ruled that the remaining unsold grant land must be returned (revested) to the Federal Government. Extensive congressional hearings in 1916 resulted in the return of 2.4 million acres of the heavily forested O&C lands, which today are managed by the Bureau of Land Management (BLM) and the Forest Service. The Northern Pacific Railroad land grant, across the northern tier of States from Minnesota to Washington, also came under scrutiny by Congress, but ownership remained with the railroad. Interestingly, when Mount St. Helens exploded in 1980, the top of the mountain was owned by the railroad—part of the old land grant—and was traded with Forest Service land to establish the Mount St. Helens National Volcanic Monument in 1982.

The Pisgah National Forest, the first national forest that was from almost entirely purchased private land, was established on October 17, 1916. The core portion of the new forest came from the privately owned Biltmore Forest (once managed by Gifford Pinchot). Land purchases for the Pisgah began in 1911, soon after the passage of the Weeks Act.

## World War I and Aftermath

Two U.S. Army Engineer Regiments (10th and 20th Forestry) formed in 1917 and 1918 to fight in Europe during World War I. Many Forest Service employees joined these regiments and after arriving in France were assigned to build sawmills to provide timbers for railroads and to line trenches. One of their leaders, Lt. Colonel William B. Greeley, later became the third Chief of the Forest Service. Another unique organization formed during the war was the U.S. Army Spruce Production Division. Some 30,000 Army troopers were assigned to Washington and Oregon to build logging railroads and cut spruce trees for airplanes and Douglas-fir for ships. Although the Spruce Division lasted only 1 year (1918-19), it affected private and public logging operations and unions for the next two decades. Remnants of the spruce railroads can still be found on the Siuslaw National Forest in Oregon and the Olympic National Park in Washington State, which was then part of the Olympic National Forest.

While the men were off fighting the war in Europe, women were employed outdoors as fire lookouts on many national forests. Women had worked in clerical positions for many years, but working outdoors was unusual.

In 1919, soon after the war, cooperative agreements between the Forest Service and the Army Air Corps led to experiments using airplanes to patrol for forest fires in California; this use was quickly expanded to the mountainous areas of Oregon, Washington, Idaho, and Montana.

*U.S. Army's  
Spruce  
Production  
Division  
Riving  
(Splitting)  
Tree,  
Washington,  
1918*



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Before, and for a while after World War I, there were no radios—communications between the lookouts and the ranger station were limited to messages on foot, horseback, and carrier pigeon. Soon, however, an extensive (and expensive) system of field telephones, connected by miles and miles of telephone wires, was used to communicate between the lookouts atop the mountain peaks and the ranger stations in the valleys below.

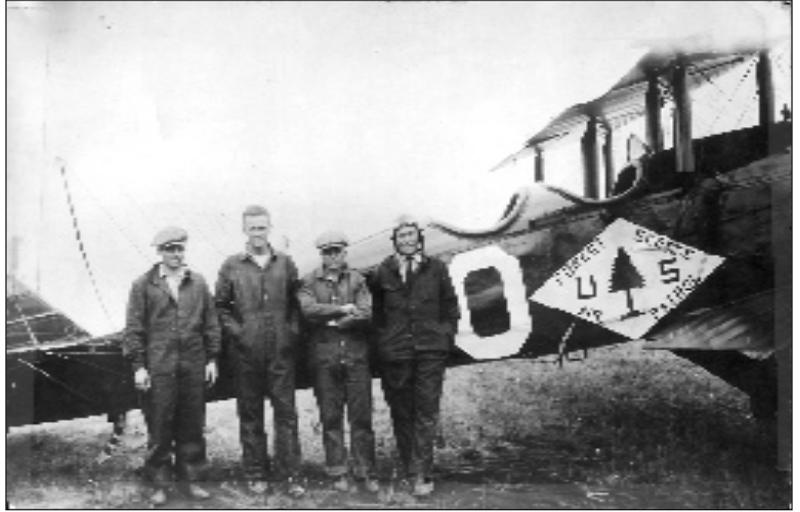
These phone systems along major forest trails needed continual maintenance and repair as trees often fell on the No. 9 wire, breaking the connections. Many new forest fire lookout houses and towers using standardized construction plans were built during the 1920's. Two-way radios were invented during World War I, and there were many experiments after the war using the new two-way radios in fire detection. These radios eventually made communication much easier and less costly.



*Helen Dowe, One of the First Female Lookouts, on the Pike National Forest (Colorado)*

USDA Forest Service

*Forest Service Air Patrol Airplane at the Eugene, Oregon, Airfield with Lt. De-Garme (Pilot) and Me-*



USDA Forest Service

*Ranger Using a Heliograph in California, 1912*



USDA Forest Service



Mr. Adams  
Demonstrating  
the First Wireless  
Radio Used in the  
National Forests  
at the Montana  
State Fair, Helena,  
Montana, 1915

USDA Forest Service

## HALLIE M. DAGGETT—WOMAN LOOKOUT

Although women have been Forest Service employees since 1905, for many decades very few were hired for field work. Yet as early as 1902, during the General Land Office days, wives (who were not employees) sometimes accompanied their forest ranger husbands into the wild forests. One of the first accounts of women employed as forest fire lookout comes from California on the Klamath National Forest. The lookout was Hallie M. Daggett who worked at Eddy's Gulch Lookout Station atop Klamath Peak in the summer of 1913 (and for the next 14 years). A 1914 article in the *American Forestry* magazine described her work:

Few women would care for such a job, fewer still would seek it, and still less would be able to stand the strain of the infinite loneliness, or the roar of the violent storms which sweep the peak, or the menace of the wild beasts which roam the heavily wooded ridges. Miss Daggett, however, not only eagerly longed for the station but secured it [the lookout job] after considerable exertion and now she declares that she enjoyed the life and was intensely interested in the work she had to do....

Some of the [Forest] Service men predicted that after a few days of life on the peak she would telephone that she was frightened by the loneliness and the danger, but she was full of pluck and high spirit...[and] she grew more and more in love with the work. Even when the telephone wires were broken and when for a long time she was cut off from communication with the world below she did not lose heart. She not only filled the place with all

the skill which a trained man could have shown but she desires to be reappointed when the fire season opens this year [1914]....

[In describing her life as a lookout, Hallie said that] “I grew up with a fierce hatred of the devastating fires and welcomed the [Forest Service] force which arrived to combat them. But not until the lookout stations were installed did there come an opportunity to join what had up till then been a man’s fight; although my sister and I had frequently been able to help on the small things, such as extinguishing spreading camp fires or carrying supplies to the firing line.

“Then, thanks to the liberal mindedness and courtesy of the officials in charge of our district, I was given the position of lookout...with a firm determination to make good, for I knew that the appointment of a woman was rather in the nature of an experiment, and naturally felt that there was a great deal due the men who had been willing to give me the chance.

“It was quite a swift change in three days, from San Francisco, civilization and sea level, to a solitary cabin on a still more solitary mountain, 6,444 feet elevation and three hours’ hard climb from everywhere, but in spite of the fact that almost the very first question asked by everyone was ‘Isn’t it awfully lonesome up there?’ I never felt a moment’s longing to retrace the step, that is, not after the first half hour following my sister’s departure with the pack animals, when I had a chance to look around....I did not need a horse myself, there being, contrary to the general impression, no patrol work in connection with lookout duties, and my sister bringing up my supplies and mail from home every week, a distance of nine miles.”



### **William B. Greeley— Third Chief, 1920-1928**

William Buckhout Greeley was born in Oswego, New York, on September 6, 1879. After Greeley was appointed Chief in 1920, he faced a number of challenges, including the acquisition of new national forests east of the Mississippi River; making cooperation with private, State, and other Federal agencies a standard feature of Forest Service management; fighting the Government’s renewed efforts to return the Forest Service to the Department of the Interior; and “blocking up” the national forest (exchanging or purchasing lands inside or near the forest boundaries to simplify management).

During his administration, the Clarke-McNary Act of 1924, which extended Federal authority to purchase forest lands and to enter into agreements with the various States to help protect State and private forests from wildfire, became law. This time, the “Roaring Twenties,” was when prosperity brought about tremendous growth in recreation on the national forests and led to the need to develop and improve roads for automobile use, campgrounds for forest visitors, and summer home sites for semipermanent users.

During this era, the Forest Service also began several important programs to better manage the national forests, including an extensive system of basic and applied research, timber management, recreation, and highways to provide better access to and across the national forests.

William B. Greeley wrote:

The national forests are no longer primeval solitudes remote from the economic life of developing regions, or barely touched by the skirmish line of settlement. To a very large degree, the wilderness has been pressed back. Farms have multiplied, roads have been built, frontier hamlets have grown into villages and towns, industries have found foothold and expanded. Although the forests are still in an early stage of economic development, their resources are important factors in present prosperity.

There is probably no large area of forest land in the world on which the use and conservation of multiple resources have been so thoroughly studied or so completely developed in practice as on the national forests of the United States.... Nothing better illustrates the democracy of the American forest policy or the decentralization in administering national forests than the conscientious effort of the Forest Service to weigh the importance of different uses on each unit and to give every use its merited place in a bewildering regimen of administrative detail.

## **Timber Sales**

The economic boom of the “Roaring Twenties” vastly increased the need for wood products. Many extensive national forest timber sales were authorized, including a 1921 sale of 335 million cubic feet of pulpwood on Alaska’s Tongass National Forest. Within a few years, scores of huge timber sales were being made, including a 1922 sale on the California’s Lassen National Forest that topped 1 billion board feet. Previously, most timber sales had been for rather small volumes—many of them related to timber beams for mining and ties for railroads. A considerable number of the new sales were large railroad logging operations that were geared for lengthy harvesting periods of several decades or longer. The national forests began to play an increasing role in providing timber for the United States.

## TIMBER HARVESTING FROM THE NATIONAL FORESTS

Although the Forest Reserve Act of 1891 established Presidential authority to create forest reserves, there was no provision for their management. One of the underlying premises of the act was that the private timber lands were being cut at rates that could not be sustained, especially since reforestation was mostly a dream. The Organic Administration Act of 1897 was written, in part, to “furnish a continuous supply of timber for the use and necessities of citizens of the United States....” However, the congressional debate and the 1897 Act’s implementing regulations made it clear that timber cutting was always considered to be *permitted*, not a *required* part of forest management. The Organic Act also allowed the General Land Office (GLO) to manage the forest reserves. The first timber sale by the GLO (Case No. 1) was to the Homestake Mining Company for timber off the Black Hills Forest Reserve in 1898. Fifteen million board feet were purchased at a dollar per thousand board feet. The contract required that no trees smaller than eight inches in diameter be removed and that after the harvest the brush left behind had to be “piled.” Thus began the effort to remove billions of board feet of timber from the national forests.

When the management of the forest reserves was moved from the Department of the Interior to the Department of Agriculture in 1905, Chief Gifford Pinchot was concerned that the reserves (renamed national forests in 1907) should pay for themselves, that is, not be a drain on the U.S. Treasury. The most direct way of showing a profit was by charging for grazing and selling timber. By 1907, timber sold from the national forests amounted to just 950 million board feet, which was only 2 percent of the Nation’s 44 billion board feet cut that year. Pinchot finally gave up by stating “the national forests exist not for the sake of revenue to the Government, but for the sake of the welfare of the public.”

From the late 1910’s and through the 1930’s, there was an emphasis by the Forest Service and outside groups to “sell” the idea of a coming “timber famine.” Based on overcutting in the Great Lake States and elsewhere came the widely espoused notion that the Nation was running out of trees, which would lead to rising cost of housing, mining shutdowns because of lack of mining timbers, railroads without wooden ties, and water diminished for crops. A 1920 Forest Service (“Capper”) report to Congress also warned of forest depletion as a major national problem. Ironically, forest net annual wood growth actually rebounded nationally in 1920, with total forested area about constant from that date, after its severe decline in the 19th century and first two decades of the 20th. Only 3 years later the Senate passed a resolution (SR 398 on March 7, 1923) to provide for an investigation “relating to problems of reforestation, with a view to establishing a comprehensive national policy for lands chiefly suited to timber production, in order to insure a perpetual supply of timber for the use and necessities of citizen of the United States.”

Through the 1920's there were few timber sales, those that were made were usually quite large, selling entire drainages at one time. Other than small operations, the timber sales were designed for railroad logging operations that would harvest the drainages over decades. The timber sales program collapsed in the 1930's with the advent of the Great Depression.

A pamphlet entitled "Deforested America" (1928) by Major George P. Ahern warned of the risks of depending on private forests and the forest industry for future supplies of timber. Instead, Ahern argued, government control was required to ensure that sustained-yield forestry would be practiced on commercial forest lands. The argument for Federal regulation of private forestry was codified in Article X of the Lumber Code effective on June 1, 1934. Although the code was ruled unconstitutional by the Supreme Court less than a year later, the timber industry was generally supportive of efforts at self-regulation to end widespread forest devastation and to develop cooperation between industry members and a closer cooperation with the Forest Service.

Due to the defense needs during World War II, timber sales increased in the early 1940's. The Forest Service began to think about the needs after the war, which saw passage of the Sustained Yield Management Act of 1944. This act allowed the agency to sign agreements with the timber industry and communities to establish either cooperative sustained yield units or Federal units. Only one cooperative unit was ever established (Shelton on the Washington's Olympic National Forest). Five Federal units were established in Washington, Oregon, California, Arizona, and New Mexico.

With the return of the veterans after the war, a baby boom took place (60 million births from 1946 to 1964) during a period of economic growth. This was fueled by low interest rates and massive housing starts. Other Federal agencies answered this call for goods as well. The rapid depletion of old growth timber on private lands in the 1950's further reinforced the need for increased harvests on Federal lands. During the 1950's, timber harvests on national forests almost tripled going from about 3 billion board feet in 1950 to almost 9 billion at the end of the decade. The impact was felt most in Pacific Northwest Region, the major producer of softwood timber in the National Forest System.

The Multiple Use Act of 1960 set new priorities for the agency, essentially giving equal footing to the five major resources on the national forests: timber, wildlife, range, water, and outdoor recreation. By the late 1960's, the Forest Service felt increasing opposition because of major controversies on the Bitterroot National Forest in Montana—involving clearcutting and terracing—and Monongahela National Forest in West Virginia—also involving clearcutting. A lawsuit (*Izaak Walton v. Butz*) was filed on the Monongahela controversy by the Izaak Walton League. A court ruling in 1973 on the case was against the Forest Service practice of timber harvesting under the rules of the Organic Act of 1897. Congressional action was necessary to "fix" the

law. Congress passed sweeping legislation called the National Forest Management Act of 1976 that pushed deep into the agency's traditional autonomy with many new requirements and substantive restrictions, almost all of which revolved around timber harvesting.

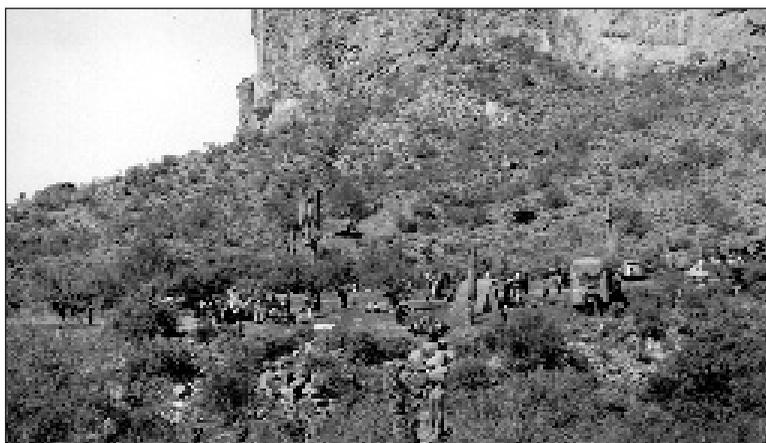
By the early 1980's, the findings of decades of important scientific forest research provided much needed clues to the long-term health and productivity of the coniferous forests of the Northwest. Because of extensive research carried out on the H.J. Andrews Experimental Forest (part of the Willamette National Forest), Jerry Franklin and Chris Maser were able to make some preliminary conclusions that indicated there was more to the forest than the trees. They briefly led the Forest Service into "new forestry" and "new perspectives" in the search for alternative ways to manage the Federal forests.

In the summer of 1992, the Forest Service embraced a new concept called ecosystem management. Ecosystem management was not a reinterpretation of current field practices to fit a new national agenda, as multiple use generally was. Rather, it is a new goal for the national forests that was more philosophical and addressed the larger societal questions and values surrounding the management of the national forests.

## Recreation and Wilderness

In the early 1920's, there was an increasing need for improved recreational facilities on the national forests. A good part of this need was caused by the increasing use of the forest roads and trails by recreationists' automobiles. As more cars became cheaper, reliable, and available, more people were willing to spend some of their free time in the mountains, at lakes, and along streams—as long as these areas were easily accessible. Existing roads and highways had to be improved. In this same era, the Forest Service began to use trucks and automobiles—a significant change from the days of the horse, packhorse, and mule.

*Campers  
at Peralta  
Canyon near  
the Superstition  
Mountains,  
Tonto National  
Forest (Arizona), 1938*



USDA Forest Service

Numerous special-use recreation resorts, which provided for developed recreation facilities in popular areas, began operation on the national forests. Long-term summer home leases were allowed to give people greater use of the national forests. Hundreds of new campgrounds were opened as many thousands of people now owned or had access to automobiles.



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*Summer Home Along Big Lake on San Bernardino National Forest (California), 1946*

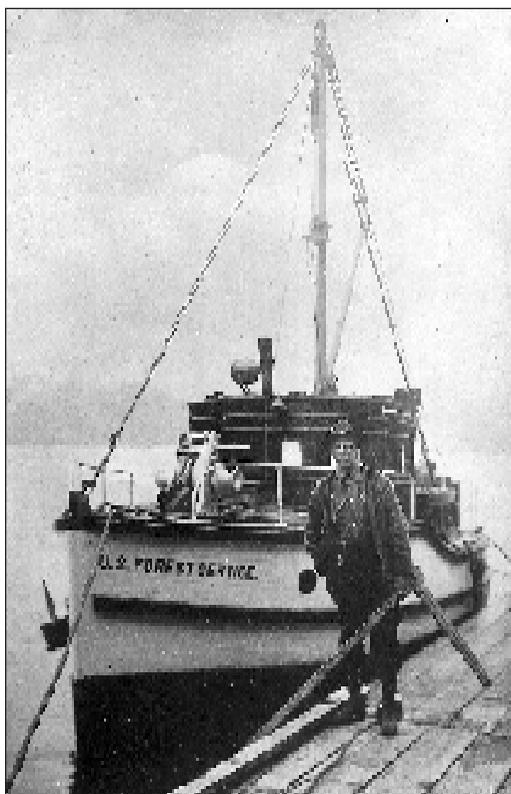
One of the Forest Service's first wilderness advocates was Arthur H. Carhart, a landscape architect. In the late 1910's and early 1920's, his innovative ideas, which involved leaving some forest areas intact (no development) for recreational use, received limited support. He proposed that an area around Trapper's Lake on Colorado's White River National Forest remain roadless and that summer home applications for that area be denied. He developed a functional plan for the Trapper's Lake area to preserve the pristine conditions around the lake and convinced his superiors to halt plans to develop the area. Later, he recommended that the lake region of the Superior National Forest in northern Minnesota be left in primitive condition and that travel be restricted to canoe. This plan was approved in 1926 and the Boundary Waters Canoe Area was dedicated in 1964. Carhart, however, frustrated by what he felt was a lack of support from the Forest Service, resigned in December 1922.

*Arthur Carhart in the  
Boundary Waters Canoe  
Area Wilderness, Su-  
perior National Forest  
(Minnesota)*



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*Forest Service  
Ranger Boat,  
Tongass Na-  
tional Forest  
(Alaska)*



USDA Forest Service

Aldo Leopold, author of the *Sand County Almanac*, however, took up where Carhart left off. In 1922, Leopold made an inspection trip into the headwaters of the Gila River on New Mexico's Gila National Forest. He wrote a wilderness plan for the area, but faced opposition from his own colleagues who thought that development should take precedence over preservation. His plan was approved in June 1924 and the 500,000-acre area became the first Forest Service wilderness—the Gila Wilderness. Leopold transferred to the Forest Products Laboratory, the same year, and then resigned from the Forest Service in 1928. Five years later he began teaching at the University of Wisconsin, where he had a profound influence on students and the public.

In 1929, the Forest Service published the L-20 Regulations concerning primitive areas that were basically undeveloped areas, many of which would later become wildernesses. Regional Offices were required to nominate possible “primitive areas” that would be maintained in a primitive status without development activities—especially roads. Within 4 years, 63 areas, comprising 8.7 million acres were approved. By 1939, the total acreage in primitive classification had increased to 14 million acres.

Many new forest fire lookouts (houses and towers) were built in the early 1920's, while two-way radios were becoming more practical and used extensively to communicate during forest fires. The Clarke-McNary Act of 1924, an extension of the Weeks Act, greatly expanded Federal-State cooperation in fire control on State and private lands. Many States formed fire protection associations.

Forestry research came into “full swing” with the establishment of two new experiment stations in 1922. Today, there are seven experimental stations scattered across the country, with 72 research work unit locations.

The natural resource controversy of the early 1920's was over a huge increase in the number of mule deer on the Grand Canyon Federal Game Preserve (established in 1906) on Arizona's Kaibab National Forest. In 1906, the deer herd numbered only about 3,000, but after almost 20 years without being hunted and with predator control, the herd exploded to more than 100,000 animals. The Forest Service sought to reduce the number of deer on the refuge to prevent many from starving. In 1924, the case went to the U.S. Supreme Court—that ruling allowed the Forest Service to hunt excess deer to protect wildlife habitat.



*Gila Wilderness Sign, Gila National Forest (New Mexico), 1960*

USDA Forest Service

*Sleeping Beauty Lookout, Columbia National Forest (Washington), 1937*



USDA Forest Service

## ARTHUR H. CARHART AND THE BOUNDARY WATERS CANOE WILDERNESS

Adapted from Terry West's  
*Centennial Mini-Histories of the Forest Service* (1992)

Arthur H. Carhart was a national leader of the early 20th century conservation movement, especially in advocating wilderness areas. He was born in Mapleton, Iowa, in 1892, and received his bachelor's degree in landscape architecture and city planning from Iowa State College in 1916. He served in the U.S. Army Medical Corps during World War I, then joined the Forest Service as its first landscape architect in 1919.

Arthur Carhart viewed wilderness as a recreational experience and proposed that summer homes and other developments not be allowed at Trappers Lake on the White River National Forest in Colorado. After surveying the Superior National Forest in the Quetico-Superior lake region in 1921, he recommended only limited development and became a strong advocate for wilderness recreation for that roadless area. Carhart later wrote that "there is no higher service that the forests can supply to individual and community than the healing of mind and spirit which comes from the hours spent where there is great solitude. It is significant that people who have experienced the fullness of wilderness living, specifically men of the forests [Forest Service], have initiated and labored for keeping some parts of them as wildland sanctuaries."

Carhart resigned from the Forest Service in 1922 to practice landscape architecture and city planning in the private sector. His dream to protect wilderness recreation areas from development took the Forest Service 4 more years to accomplish. With Aldo Leopold's successful effort to have an administrative wilderness established in 1924 on the Gila National Forest, time was ripe for additional wilderness designations on the national forests.

Secretary of Agriculture William H. Jardine signed a plan to protect the Boundary Waters area in 1926, and it was dedicated as the Boundary Waters Canoe Area in 1964 with it finally becoming a wilderness in 1978. Chief William Greeley was willing to endorse the concept of wilderness areas and, in 1926, ordered an inventory of all undeveloped national forest areas larger than 230,400 acres (10 townships). Three years later, wilderness policy assumed national scope with the promulgation of the L-20 regulations. Commercial use of the areas (grazing, even logging) could continue, but campsites, meadows for pack stock forage, and special scenic "spots" would be protected. It would take many years until a national wilderness policy, set by Congress, would be enacted as the Wilderness Act of 1964.

In 1938, Carhart was appointed director of the Colorado program for Federal Aid in Wildlife Restoration. He wrote numerous articles, many for the *American Forests*, the publication of the American Forestry Association. He also wrote a number of books on conservation matters including: *The Outdoorsman's Cookbook* (1944), *Fresh Water Fishing* (1950), *Water—or Your Life* (1951), *Timber in Your Life* (1955), *Trees and Game—Twin Crops* (1958), and *The National Forests* (1959).

## ALDO LEOPOLD AND “THE LAND ETHIC”

Rand Aldo Leopold was born on January 11, 1887, in Burlington, Iowa. Aldo—he never used his first name—was the oldest of four children. He loved to hunt, fish, and explore the bluffs, forests, marshes, lakes, and fields along the nearby Mississippi River. His father, Carl Leopold, taught Aldo different ways to see nature firsthand. Aldo's love of the out-of-doors did not sit well with his grades during the second part of his high school years that he spent at the Lawrenceville Preparatory School near Princeton, New Jersey. Writing to his mother, Clara, in 1904, Aldo mentioned that “I have flunked Geometry...” However, he did finish prep school and went on to attend Sheffield Scientific School at Yale in New Haven, Connecticut, the following year. In 1906, Leopold began his forestry course work at the Yale School of Forestry, which had been founded by a grant from James Pinchot. Leopold received his B.S. degree in 1908 from the Sheffield School and then graduated in 1909 with a masters of forestry.

Soon after graduation he joined the Forest Service and was assigned as a forest assistant to the new Southwestern District (now region). A month later, he was in charge of a timber reconnaissance crew on the Apache National Forest in the Arizona Territory when he saw “a fierce green fire” in the eyes of a dying old wolf. He never forgot that haunting look and it affected his thoughts for the rest of his life. By 1911, Leopold had been promoted to deputy forest supervisor and, a year later, he was promoted to Supervisor of the Carson National Forest in the New Mexico Territory. In 1912, Aldo married Estella Bergere from Santa Fe, New Mexico (they would have five children together—Starker, Luna, Nina, Carl, and Estella). In 1913, he almost died of an attack of acute nephritis. It was during his almost 17-month recovery that he wrote about setting aside remote areas for special protection based on wilderness as part of the national heritage and the importance of studying nature in a pristine setting.

In 1914, Leopold was assigned to the Office of Grazing in the Forest Service Southwestern District Office (D-3) in Albuquerque, New Mexico. While working on recreation, fish and game, and publicity for the district (Arizona and New Mexico) less than a year later, he wrote a report recommending that game refuges be established in the district and, then, a Game and Fish Handbook—the first such direction in the Forest Service. Leopold’s growing concern about studying nature in natural, undisturbed settings arose through his exposure to the new science of ecology. (Ecology as an area of academic study was formed in 1915 when the Ecological Society of America was founded.) He began his life’s work on wildlife management issues, including game refuges, law enforcement, and predator control, as well as founding a number of big game protective associations in New Mexico and Arizona. Because of these interests, he won the W.T. Hornaday’s Permanent Wildlife Protection Fund’s Gold Medal in 1917.

In 1918, Leopold took a leave of absence from the Forest Service and served as the Secretary of the Albuquerque Chamber of Commerce. He returned to the Forest Service the next year as Assistant District Forester for Operations in the Southwestern Region. While in this role, Leopold developed new and efficient procedures for handling personnel matters, fire-control methods, and forest inspection procedures over some 20 million acres of national forest land. He made a number of important contributions to the soil erosion problems in southwestern watersheds.

Concerned with the rapid pace of road expansion after World War I, Leopold recommended that roads and use permits be excluded on the Gila River headwaters on the Gila National Forest in 1922. In the early 1920’s, he was responsible for laying the groundwork for the Gila Wilderness. Established in 1924 as a 500,000-acre wilderness area, the Gila Wilderness was the first administrative wilderness in the National Forest System. Although his plan was approved, it was only a local policy, not national. Leopold left the Southwest in 1924 to serve as the assistant, then Associate Director of the Forest Products Laboratory in Madison, Wisconsin.

Leopold was unhappy at the Laboratory and resigned from the Forest Service in 1928 to take the lead in establishing a new profession—game management—which he modeled on the profession of forestry. His game survey of nine Midwestern States was funded by the Sporting Arms and Ammunition Manufacturers' Institute. These surveys were summarized in his 1931 *Report on a Game Survey of the North Central States*. Leopold's book *Game Management*, published in 1933, was based in part on his game survey work and helped define a new field of managing and restoring wildlife populations. Soon after the publication of his book, Leopold accepted an appointment to a new chair in the Department of Agricultural Economics at the University of Wisconsin. Although Leopold spent the next several decades with wildlife management issues, his interests expanded to the field of ecology, where he is most revered today.

In January 1935, Aldo Leopold, Bob Marshall, Benton Mackaye, Harvey Broome, Barnard Frank, Harold Anderson, Ernest Oberholtzer, and Sterling Yard founded the Wilderness Society. Leopold spent the fall of that year in Germany on a Carl Schurz fellowship studying forestry and wildlife management. During that same year he purchased a small, worn-out farm along the Wisconsin River—north of Baraboo, Wisconsin, in an area known as the “sand counties.” This was where the family (wife Estella and their five children) rebuilt the only standing structure on the property—the chicken coop—into a small cabin. This cabin became famous as “The Shack.” Trying to restore the health of the land, he planted thousands of trees on the property, slowly changing abandoned fields to a growing forest and restoring a low area into a wetland where waterfowl came flocking in to feed and rest. Daughter Nina wrote “as he transformed the land, it transformed him. By his own actions and transformation, Aldo Leopold instilled in his children [and students] a love and respect for the land community and its ecological functioning.” He used the farm to observe and write about nature. Graduate students were brought to “The Shack” many times to observe and discuss ecological matters. In 1936, Leopold helped found a society of wildlife specialists (it became the Wildlife Society in 1937).

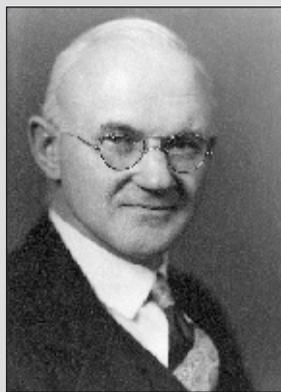
His philosophy began to shift to a more ecological approach in the late 1930's. Susan L. Flader, in a biography of Leopold, characterized this shift: “Originally imbued like other early conservationists with the belief that man could rationally control his environment to produce desired commodities for his own benefit, Leopold slowly developed a philosophy of naturally self-regulating systems and an ecological concern with the land and a land ethic.” It was a new way of thinking and acting toward the land. Leopold wrote about nature and people and that living with the land required a new or complete understanding of the interrelationship among all creatures. Author Amy McCoy noted that he “added unprecedented insight into the world of ecology and naturalism. He moved from believing in partial participation in nature, to the view that total integration is absolutely necessary to the healthy existence of the natural world, and of humans.” This would

become the basis, still with us today, of a profound reverence for nature and the role that people play in the environment—a land ethic for people.

In 1939, the University of Wisconsin created a new department, the Department of Wildlife Management, with Leopold as its first chair. He held this position until his death. The new science and profession of wildlife management wove together the related fields of forestry, agriculture, ecology, biology, zoology, and education. He believed that people, who often destroyed landscapes, could use the same tools to help rebuild the land. Just before World War II, Leopold began working on a manuscript of ecological essays. It took several attempts to write and rewrite the volume, entitled *Great Possessions*, which was finally accepted for publication by the Oxford University Press on April 14, 1948.

While at “The Shack” vacation home, smoke was spotted across the swamp on a neighbor’s farm. Leopold gathered his family, handed out buckets and brooms, and went with them to put out the fire. While fighting the fire, Aldo Leopold died of a heart attack at the age of 61 on April 21, 1948.

His ecological essays book was retitled and published as *A Sand County Almanac* in 1949. Over his lifetime, Leopold was involved with more than 100 organizations, many of which he served as an officer, president, or chair. Although Leopold, a gifted writer, wrote more than 350 articles, it was the books that he wrote—two of which were published posthumously (edited by Luna B. Leopold)—that have influence today: *A Sand County Almanac* (1949) and *Round River, from the Journal of Aldo Leopold* (1953). *A Sand County Almanac* has sold millions of copies and is regarded as a classic with well-worn paperback copies in backpacks and book shelves across the country. Leopold has gained the status as a prophet of the environmental movement and his legacy continues to the present, with scores of new books and articles appearing every year about him and his work.



### **Robert Y. Stuart— Fourth Chief, 1928-1933**

Robert Young Stuart was born in the Southern Middleton Township, Cumberland County, Pennsylvania, on February 13, 1883. He was appointed Chief in 1928 after the resignation of Chief Greeley. During his tenure, the McSweeney-McNary Act of 1928 promoted forest research, while the Knutson-Vandenberg Act of 1930 was designed to expand tree planting on the national forests.

Stuart was instrumental in preparing the Forest

Service to deal with the crises caused by the stock market crash of 1929. He led the Forest Service in creating job opportunities for the unemployed on national forests, especially those working on Forest Service road systems. When President Franklin Delano Roosevelt created the Civilian Conservation Corps in the spring of 1933 to relieve the severe economic stress among young unemployed men, the Forest Service was ready with a long list of projects.

Robert Y. Stuart wrote:

The importance of recreational use as a social force and influence must be recognized and its requirements must be met. Its potentialities as a service to the American people, as the basis for industry and commerce, as the foundation of the future economic life of many communities, are definite and beyond question. Its rank in national forest activities will, in large degree, be a major one and, in a limited degree, a superior one. It will in many situations constitute a use of natural resources coordinate and occasionally be paramount to their industrial conversion to commercial commodities, and as a recognized form of use of natural resources, it deserves and should receive the same relative degree of technical attention and administrative planning that is now given to other forms of utilization.

## The Great Depression Era, 1933-1942

The Great Depression is generally thought to have started in the fall of 1929 with the New York stock market crash. It did not take long for the entire country to be hard hit by the crash. Because of low wood prices and lack of demand, timber sales declined, hundreds of timber companies went bankrupt, and tens of thousands of employees lost their jobs. Federal Government workers took pay cuts, but remained working.

### Civilian Conservation Corps

The Civilian Conservation Corps (CCC), brainchild of President Franklin D. Roosevelt's "New Deal," began in April 1933 to revive the lagging economy and marked a renewed interest in the conservation of natural resources. The CCC, founded to provide outdoor work for millions of young unemployed men, later was expanded to include World War I veterans and American Indian tribal members. The first CCC camp, appropriately named Camp Roosevelt, began operation in the late spring of 1933 on Virginia's George Washington National Forest. Thousands of other camps were established in national and State parks and refuges, national monuments, soil conservation districts, and other areas.

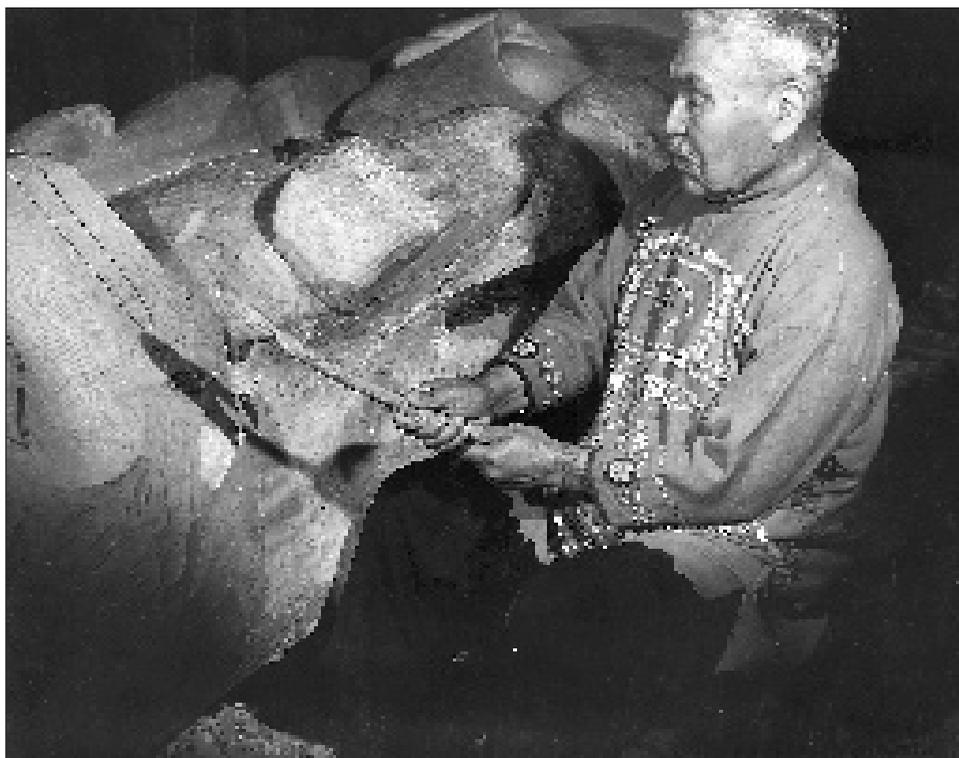
CCC Camp  
Roosevelt,  
George  
Washington  
National For-  
est (Virginia),  
1933



USDA Forest Service

Fortunately, the Forest Service was prepared for these conservation workers. The massive 1,677-page, *A National Plan for American Forestry* (also called the Copeland Report), published a few months previously, had suggested a comprehensive plan for more intensive management of all the National Forest System lands. Included in the report were hundreds of projects that needed money or

people to complete them. The CCC program was the ideal opportunity for young men (there were no women's camps) to be engaged in outdoor projects that would help improve the recreation potential and management of the national forests. Through the entire 9-year program, more than 3 million men enrolled for 6 months or longer in the over 2,600 camps (200 men per camp). Each national forest had at least one CCC camp. That enabled hundreds of work projects to begin, many of which were recreational facilities, especially trails, trail shelters, campgrounds, and scenic vistas. The CCC's also worked on truck trails (roads), guard and ranger stations, lookouts, and telephone lines, and they fought many forest fires (nearly 6.5 million person days).



*CCC Tlingit Alaska Native Enrollee Joe Thomas Working on Baranof Pole at Wrangell, Alaska, Tongass National Forest, 1941*

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## CIVILIAN CONSERVATION CORPS (1933-1942)

The year was 1933. The Nation was floundering in an economic depression, deeper than any it had ever known. Over 13 million Americans, about one-third of the available workforce, were out of work. People had nothing to do, nowhere to go, and often felt hungry, bewildered, apathetic, and angry. Young men were especially vulnerable as they were often untrained, unskilled, unable to gain experience, and often without an adequate education. They had little hope for the future. In this sad, tumultuous time, Congress passed an act that was to have great impact for unemployed young men and natural resource management.

On March 4, 1933, Franklin D. Roosevelt was inaugurated as President. His “New Deal” program helped put people back to work. He quickly placed legislation before Congress to put ten of thousands of unemployed young men to work in the public forests and parks. On March 31, 1933, just 10 days after Roosevelt proposed it, Congress passed the Emergency Conservation Work Program (Public Law 73-5) popularly known as the Civilian Conservation Corps (CCC). Four years later, on June 28, 1937, the CCC name was officially attached to an act that continued the program. (Similar Federal work programs were established during the 1930’s, including the Works Progress Administration which focused on arts, music, literature, history, and other related activities.)

The act establishing the CCC had two purposes: The most important was the need to find immediate and useful conservation work for millions of unemployed young men; the second was to provide for the restoration of the country’s depleted natural resources and the advancement of an orderly program of useful public works projects. The CCC also provided educational training, and beginning in 1940, vocational training, to its enrollees. The program was directed by Robert Fechner, until his death on January 1, 1940, thereafter by James McEntee.

Eligibility requirements to join the CCC were handled by the U.S. Department of Labor and State selection organizations. CCC enrollees were required to be—

- Male citizens of the United States or its Territories
- Between 18 and 25 years of age
- Unemployed and not in regular attendance at school
- Unmarried
- Of good character and physical condition

These young men were officially referred to as juniors. There were three other categories of CCC enrollees:

- Veterans of World War I, who could be older than 25
- American Indians, who worked mostly on their Indian Reservations
- Locally employed men (LEM), who were usually experienced older men who served as trainers to the young men

There were no camps for women, although Eleanor Roosevelt suggested that there should be. Black enrollees were generally separated from white enrollees with segregated CCC companies and camps. In any case, the enrollees were required to set aside \$25 of their monthly \$30 paycheck to assist their dependents (usually their parents).

The CCC enrollment period was for 6 months, with options for renewal. The CCC “boys” were often assigned, initially, to the Forest Service or

National Park Service to work on conservation projects. Later, a number of CCC camps were established for the Bureau of Indian Affairs, State forests and parks, Soil Conservation Service (now Natural Resources Conservation Service), Biological Survey (later Fish & Wildlife Service), Bureau of Reclamation, General Land Office (now Bureau of Land Management), U.S. Army and Navy, and even some private demonstration forests. The U.S. Department of Labor and the U.S. Army handled CCC monthly pay, as well as travel to and from the often remote CCC camps.

A CCC company usually consisted of 200 enrollees, with most of them coming from one city or county within a State. When the CCC men arrived, usually by train then truck, at their assigned CCC camp, they lived in comfortable World War I surplus pyramid tent frames or wooden barracks. The camp commander was usually a career military officer, or, later in the program, a reserve officer. On various projects, smaller work camps (called side or spike camps) were established so that the men did not spend all of their project time getting to or from the work site.

The CCC men ate plain but wholesome food, which was purchased locally. They worked 40 hours per week and were required to keep their camps neat and orderly. Beyond that, they were free to study or enjoy any outdoor recreation opportunities such as swimming or fishing. During the summer months, the CCC boys were often treated to weekend trips to beautiful mountain lakes, national parks, or the coast. At other times, the local communities took pleasure in providing facilities for meeting the local citizens, dancing, and having good times. Some of the young men, products of the Great Depression and coming from all parts of the country and all walks of life, later stayed in or returned to the community that had served as their temporary home away from home. Many of the CCC men who stayed went on to become prominent foresters, businessmen, and even State legislators.

Throughout CCC's history (1933-1942), the number of conservation projects completed across the Nation was staggering: 48,060 bridges; 13,513 cabins and dwellings; 10,231 fire lookout houses and towers; 360,449 miles of telephone lines; 707,226 miles of truck trails (forest roads); 142,102 miles of foot and horse trails; 101,777 acres of campground development; 35.8 million rods of fences; 168 emergency landing fields; 13.3 million acres of insect control work; 6.4 million man-days of fighting forest fires; over 2.6 million acres of planting and seeding; and almost 1 billion fish stocked.

As national economic conditions improved in the late 1930's, enrollment quotas became more and more difficult to fill. Then on December 7, 1941, America became directly involved in the war that had been raging in Europe for more than 2 years. Within 6 months, the CCC era came to a close as enrollees flocked to join the military and the remaining camps were shut down. The program's funding was terminated on June 30, 1942.

So ended one of the most successful work recovery programs in the history of the United States. The CCC was the most popular and successful of Roosevelt's New Deal programs. Perhaps the most significant product of the CCC program was the profound and lasting effect it had on the 3 million enrollees. CCC work provided a turning point in the lives of many of the Nation's youth and it brought much-needed financial aid to their families. In addition, it created a new self-confidence, a desire and capacity to return to active work, a new understanding of a great country, and a faith in its future. The national forests, national parks, and State parks decades later still enjoys benefits from many of the CCC projects.



### **Ferdinand A. Silcox— Fifth Chief, 1933-1939**

Ferdinand Augustus Silcox was born on Christmas Day in 1882, in Columbus, Georgia. The Great Depression was in full-swing when Silcox took over as Chief in 1933; he led the Forest Service during some of its most difficult times. He was able to effectively help millions of unemployed workers thrive during the Depression through the Civilian Conservation Corps (CCC) and Works Progress Administration projects on the national forests. The Forest Service provided space to 200-man CCC camps (there were

no women in the program), thousands of work projects, and experienced project leaders. More than 2.5 million unemployed young men enrolled in the CCC during its 9-year existence.

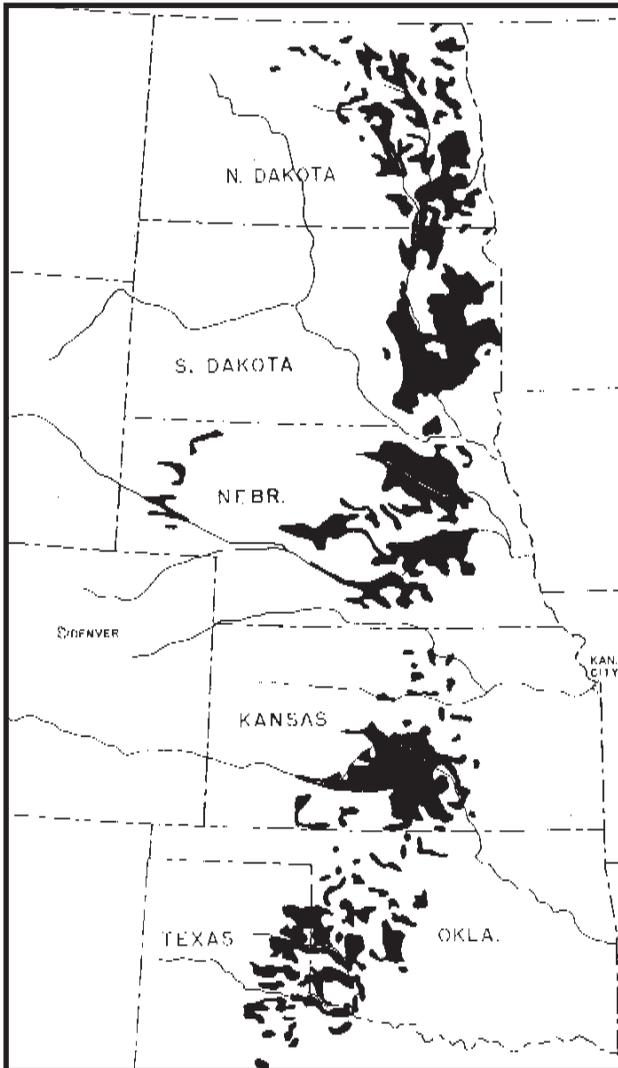
Silcox's contributions to the forest conservation movement were many, but especially significant was his success in focusing public attention on the conservation problems of private forest land ownership. During his tenure, the Forest Service studied western range use and surveyed forest watersheds for flood control.

Ferdinand A. Silcox wrote:

Civilizations have waxed and waned with their material resources; dwindling means of livelihood have set rolling great tidal waves of migration and have been a prolific cause of domestic disorder, class uprising, and international war; but never before have the people of a great country still rich in the foundations of prosperity sought to forestall future disaster by applying a national policy of conservation—of which planned land use is the central core.

## Shelterbelt Project

In response to the “Dust Bowl” conditions in the Great Plains between Texas and North Dakota during the early 1930’s, the cooperative Prairie States Forestry (Shelterbelt) Project was begun. This unique windbreak project, an idea of President Franklin Roosevelt, began in 1934. In March 1935, the first tree was planted on a farm in Mangum, Oklahoma. The project involved extensive cooperation between the USDA Soil Conservation Service (now Natural Resources Conservation Service); various State, county, and local agencies; and hundreds of farmers. Legions of Works Progress Administration (WPA) relief workers, many of whom were unemployed farmers, accomplished the work. In the spring of 1938, they planted approximately 52,000 cottonwood trees in one severely sand-blown area south of Neligh, Nebraska.



*Major Planting Areas of the Prairie States Forestry (Shelterbelt) Project, 1935-1942*

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The Taylor Grazing Act of 1934 ended unregulated grazing on the national forests and remaining GLO-administered land. The act authorized the creation of 80 million acres of grazing districts and the establishment of a U.S. Grazing Service—combined with the GLO in 1946 to form the BLM in the Department of the Interior. In 1935, the title “Chief” of the Forest Service came back into use.

*Ranger and Permittee on an Inspection at the Tatoosh Mountain Range, Gifford Pinchot National Forest (Washington), 1949*



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## SHELTERBELT PROGRAM ON THE GREAT PLAINS

During the great “Dust Bowl” of the 1930’s on the Great Plains, millions of acres of farm land were literally being blown away. In the dry, rainless condition, soil was lost at a horrendous rate and many farmers and ranchers were forced from their land. Dust and dirt filled the air and sands were drifting across fields, covering fences and houses, and killing animals. By the early 1930’s, one of many practices the Great Plains Agricultural Council proposed to slow or halt the damage was the planting of trees to reduce wind and drought-caused soil erosion.

In the summer of 1932, then Presidential candidate Franklin D. Roosevelt proposed that the Federal Government begin a program of planting trees in belts across the hardest hit farm lands on the Great Plains. To reduce wind erosion and protect crops from wind damage, millions of trees were planted on private property or “shelterbelts,” as they became known. Under Roosevelt’s Administration from 1934 to 1942, the program both saved the soil and relieved chronic employment in the region.

The Forest Service was responsible for organizing the “Shelterbelt Project,” later known as the “Prairie States Forestry Project.” This project, headquartered in Lincoln, Nebraska, was directed by Paul H. Roberts from the Research Branch. The Shelterbelt Program included the States of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and the northern part of Texas.

Trees were usually planted in long strips at 1-mile intervals within a belt 100 miles thick. It was felt that shelterbelts at this spacing could intercept the prevailing winds and reduce soil and crop damage. The project used many different tree species of varying heights, including oaks and even black walnut. Shelterbelts, with trees and shrubs of varying heights, could reduce wind velocities on their leeward sides for distances of 15 times the height of the tallest trees. Reduced winds tended to create more favorable conditions for crop growth, reduce evaporation of water in the soil (and thus reduce the need for irrigation), reduce soil temperatures, stabilize soils, protect livestock, increase wildlife populations, and provide a more livable environment for farm families.

One of the project’s first tasks was to obtain tree and shrub seeds and then to establish nurseries to grow the stock for replanting. Funding for the project almost ended in 1936, but Agriculture Secretary Wallace pushed Congress for a continuation. On May 18, 1937, the Norris-Doxy Cooperative Farm Forestry Act expanded the shelterbelt project by requiring greater Federal-State cooperation.

Although Works Progress Administration and Civilian Conservation Corps workers planted the trees and shrubs, landowners were responsible for their long-term care and maintenance. During 1939, the peak year of the project, 13 nurseries produced more than 60 million seedlings. Over the project’s duration, over 200 million trees and shrubs were planted on 30,000 farms—a total length of 18,600 miles in all! The shelterbelts worked amazingly well and the results can be seen even today, although many of the shelterbelt trees have been cut for their highly valued wood.

Since 1942, tree planting to reduce soil losses and crop damage has been carried out by local soil conservation districts in cooperation with the Soil Conservation Service (now Natural Resources Conservation Service).

## GRAZING ON THE NATIONAL FORESTS

Adapted from Terry West's  
*Centennial Mini-Histories of the Forest Service* (1992)

From the beginning of European settlement along the eastern and southern coasts of what was to become the United States, domestic livestock has been a prominent part of farming and grazing activities of New World settlers. For many decades, stock animals were free to roam over the unsettled areas along the edge of farm lands newly cleared from the forests. As the settlers moved westward, the size of the unsettled forest area was much reduced and public domain land “taken up” by homesteaders.

Controversy soon erupted when cattle interests sought to have sheep and homesteads prohibited from “open ranges” (public domain). Conversely, sheep owners and farmers wanted cattle restricted from grazing and trampling their crops and destroying their water sources. The situation was similar on the public domain timberland, but *that* changed after forest reserves were created in 1891.

Western ranchers were some of the strongest opponents of the creation of the forest reserves because they feared that grazing would be prohibited on them, perhaps rightly so. Concerned with erosion and other problems caused by overgrazing, the Secretary of the Interior banned grazing on Federal forest reserves in 1894.

After a rapid growth in cattle ranches in the 1870's and 1880's, the industry had declined so much by the year 1900 that sheep outnumbered cattle in most Western States. The woolgrowers were the West's best organized interest group. The battle of grazing pitted sheep raisers and their supporters in Congress against the Department of the Interior and the cattle ranchers—dependent on upland forest watersheds.

Although John Muir (founder of the Sierra Club) referred to sheep as “hoofed locusts,” he acknowledged that regulated grazing was better than unregulated grazing. As early as 1896, Gifford Pinchot favored regulated sheep grazing on the forest reserves. Frederick V. Coville's independent study of sheep grazing in the Oregon Cascades during the summer of 1897 left no doubt that regulated grazing was less destructive to the forests than unregulated grazing—especially to young trees. Pinchot had similar investigations made in the Southwest. The official Federal policy, developed in 1898, allowed restricted sheep grazing in the Oregon Cascades and extended eventually to all the other forest reserves. Cattle and horses were allowed to range freely. In 1900, the Department of the Interior established a free permit system to control the number of animals on the forest reserves and remaining public domain land.

Grazing continued the same after the transfer of the forest reserves to the Department of Agriculture and the new Forest Service in 1905. In 1906, the Forest Service announced that fees would be imposed: 25 to 35 cents per head of cattle and horses, with a lower rate for sheep and goats. Although free-ranging hogs were a problem in some areas, there were no fees announced for hog grazing. Forest rangers set up new grazing allotments with set dates for entering and leaving the forest reserves. The grazing revenues exceeded those from timber every year between 1906 and 1910, and periodically until 1920. In 1910, the Forest Service established an Office of Grazing Studies, which began studying the effects of grazing on the national forests.

In 1917, with the United States' entry into World War I, the number of animals that grazed on the national forests increased dramatically. Grazing was even allowed in Glacier and Yosemite National Parks. Studies of the increasing numbers of sheep and cattle being grazed on national forests during the 1917-1919 period showed severe overgrazing. Range conditions were so poor that sheep permittees were unable to produce the amount of lamb meat that they expected. The issue of carrying capacity of the range was controversial because it determined how many animals a rancher could place on Government land.

The bulk of the research on range management took place at the Great Basin Experimental Station (Intermountain Research Station) on the Manti National Forest outside of Ephraim, Utah. Historian Thomas Alexander claimed that professional range management emerged in the Forest Service largely as the result of the Intermountain Station's grazing research staff. The typical district ranger was often concerned about the social and economic costs to local ranchers if they were forced to reduce stock numbers; while range researchers focused on the condition of the land. Over time it was the condition of the land that determined the policy, based on their research findings on carrying capacity. In the end, the numbers of animals on the national forests were reduced, except during World War II.

Controversy over grazing fees (which continues to this day) resulted in a 1924 Forest Service report on public and private fees. Stock owners immediately expressed objections to the study, leading to congressional hearings and passage of the McSweeney-McNary Act of 1928, which enhanced research activities on public and private forest and range land. During the Great Depression grazing fees were lowered by 50 percent. The western drought in the early 1930's and the passage of the Taylor Grazing Act of 1934 tightened public land grazing regulations. An interagency rivalry over which agency could best administer and regulate grazing led to the creation of the U.S. Grazing Service in the Department of the Interior to "counter" Forest Service attempts to take over grazing management on all public lands.

World War II saw another attempt to expand the number of animals grazing on the national forests. The Forest Service resisted this effort. The Forest Service reduced the number of animals allowed on the national forests in order to increase the quality of the grazing lands. This plan met strong opposition and the controversy resulted in the Granger-Thye Act of 1950. In essence, Granger-Thye recognized the Forest Service's authority to collect fees for grazing privileges and endorsed grazing advisory boards, as long as representatives from the State game commissions were members, allowed cooperative range improvements, and allowed 10-year grazing permits to be issued.

In the 1960's, controversy was again stirring over grazing fees. By the late 1970's, this resulted in the "Sagebrush Rebellion" in the Western States. Supporters of the Sagebrush Rebellion wanted all Forest Service and Bureau of Land Management grazing lands transferred to the States. They assumed that if such lands were under State control, the ranchers would have more influence and thus get their own way over fees, allotments, and number of animals grazed. Because of local and national opposition, the Sagebrush Rebellion lost momentum, then stalled, and finally died by the mid-1980's only to be revived in the 1990's. This movement today is called the "wise use," "county supremacy," or "property rights movement."

## Wilderness

Robert Marshall, founder of the Wilderness Society and author of the recreation portion of the *National Plan for American Forestry* (the Copeland Report), worked for the Forest Service in the mid-1930's. He proposed that the Forest Service inventory large unroaded areas that might be suitable for wildernesses or primitive area designation. Shortly before his untimely death in 1939, Marshall and several others made a tour of the western national forests, performing this inventory and making recommendations to regional foresters to greatly increase the number of wilderness and primitive areas.

Bob Marshall  
Examining  
Pine and Larch  
Seedlings,  
Priest River  
Experimental  
Station, Kaniksu  
National Forest  
(Idaho)



Wilderness Society

## ROBERT MARSHALL

Adapted from Terry West's  
*Centennial Mini-Histories of the Forest Service* (1992)

Robert Marshall (1901-1939) was the son of Louis Marshall, one of the Nation's most prominent constitutional lawyers, social reformers, and defenders of the Adirondack State Park in New York. As a young man, Robert Marshall spent his summers at Lower Saranac Lake at his family's estate. His first book, *High Peaks of the Adirondacks*, was published in 1922. His love of nature and exploration influenced his college studies in forestry. Marshall received his B.S. degree from the New York State College of Forestry at Syracuse University (now called the State University of New York, College of Environmental Science and Forestry) in 1924, then a Masters of Forestry from Harvard Forest (part of Harvard University) in 1925, and a Ph.D. in plant physiology from Johns Hopkins University in 1930.

Bob Marshall worked for the Forest Service at the Wind River Forest Experiment Station near Carson, Washington, during the summer of 1924 as a "field assistant." After earning his masters in forestry degree, he worked for the Forest Service, again, from 1925 to 1928 at the Northern Rocky Mountain Forest Experiment Station at Missoula, Montana. After leaving the Forest Service to earn his doctorate, he again joined the Forest Service in 1932 to 1933, working on the recreation portion of the *National Plan for American Forestry* (the Copeland Report) (1933). In that report, Marshall foresaw the need to place 10 percent of all U.S. forest lands into recreational areas—ranging from large parks to wilderness areas to roadside campsites. In the same year, he became the Director of Forestry for the Office of Indian Affairs, where he supported roadless areas on reservations.

In 1937, Bob Marshall returned to the Forest Service as Chief of a new Division of Recreation and Lands in the Washington Office. In his short tenure at the Washington Office, he drafted the "U Regulations" that replaced the "L-20 Regulations" for primitive areas and wildernesses. These regulations gave greater protection to wilderness areas by banning timbering, road construction, summer homes, and even motorboats and aircraft. Marshall checked recreational development plans for the national forests to see if they included access for lower income groups—a very real concern during the Depression years of the 1930's. He also thought that protection should be granted to large areas over 200,000 acres—that they should be reclassified as primitive areas. In 1938, he and others made a trip through the western national forests to map and propose millions of acres of national forest lands for primitive or wilderness status.

Marshall was an eccentric and maverick who was famed at the time for both his vigorous 40-mile hikes and radical political opinions. Marshall was famous for his hiking speed—once walking 70 miles in a 24-hour period to make connections for a trip—while at other times easily outdistancing his

companions on trips into the mountains. Bob Marshall was a leading writer on the social management of American forests, both public and private, combining conservation with social theory. He, along with Gifford Pinchot, George P. Ahern, and three others, signed a letter in 1930 that recommended increased Federal and State regulation over private forests and transfer of private lands to public ownership and control. For the next 15 years, this issue would be raised by various Forest Service Chiefs, but Congress would not approve. Unable to endure the diplomacy of working within the bureaucracy, he had planned to resign. While on a train from Washington, DC, to New York City, he had a heart attack and died on November 10, 1939. The following year, the Forest Service reclassified and renamed a 950,000-acre area (comprised of three primitive areas) on the Flathead and Lewis and Clark National Forests in Montana as the Bob Marshall Wilderness.

A prolific writer, Marshall published a number of articles and pamphlets, as well as several books, including: *The People's Forests* (1933), *Arctic Village* (1933), and *Arctic Wilderness* (1956). Marshall was the principal founder and financial supporter of the Wilderness Society in 1935.

## Timber Salvage of 1938

Timber sales, which practically disappeared during the Great Depression, started again just before World War II. Millions of trees were blown down by the Great New England Hurricane of September 1938. The Forest Service directed massive salvage operations on national forest, State, and private lands. More than 50 CCC camps and 15,000 WPA enrollees worked feverishly to salvage the downed trees to prevent insect and disease infestations and prevent fires from starting in the dried trees. During the 3 years that followed, the Northeastern Timber Salvage Administration was able to salvage 700 million board feet of timber.

*New England  
Hurricane  
Results, New  
Hampshire,  
1938*



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## Smokejumping and National Defense

Because many of the forest fires in the West were started by lightning in inaccessible locations, the Forest Service experimented with firefighters parachuting to fires before they became large and out of control. The first experimental “jumps” began in 1939 at Winthrop, Washington, on the Okanogan National Forest. By the summer of 1940, the smokejumpers, as they became known, were operating out of Winthrop and the Moose Creek Ranger Station on Montana’s Bitterroot National Forest and made their first jump on a fire on the Nezperce National Forest in Idaho. The successful operation proved that smokejumping into remote, rugged areas was feasible. The lessons learned from smokejumper training methods and actually jumping into heavily forested areas would prove useful to the new military paratrooper units like the 101st Airborne during World War II.

National defense became important in the late 1930’s and early 1940’s. The first conscientious objector camps were established at abandoned CCC camps in 1941. World War II started for the United States on December 7, 1941. In early 1942, the CCC’s were disbanded because fewer men were signing up and national attention (and money) was being diverted to the war effort.



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*Smokejumpers Ready for Experimental Jumps, Chelan National Forest (Washington), 1939*



### **Earle H. Clapp— Sixth Chief, 1939-1943**

Earle Hart Clapp, born in North Rush, New York, on October 15, 1877, was appointed Associate Chief in 1935, then Acting Chief in 1939 after Chief Silcox died. Clapp was never officially Chief, apparently because President Roosevelt did not want to approve his appointment. Clapp served in this acting capacity until 1943 when Lyle Watts was appointed the Forest Service’s seventh Chief.

During Clapp's time as Acting Chief, he faced the continuation of the Civilian Conservation Corps projects on the national forests, meeting the need for forest experts to help in the aftermath of the disastrous New England Hurricane, opposing transfer of the Forest Service from the Department of Agriculture to the Department of the Interior, and mobilizing the Nation's forest resources behind the World War II effort. The cutting of national forest timber was stepped up, special studies and tests were made for the armed forces, and forest lookout stations were staffed along both the east and west coasts in 1942-1943 to detect enemy aircraft.

Try as he did, Clapp was not successful in supporting Federal regulation of timber cutting on private forest land, adding 150 million acres of mostly cutover land to the national forests, or in alleviating poverty in depressed communities by means of reforestation projects. During his last 2 years, he was responsible for preparing a new appraisal of the Nation's forest situation.

Earle H. Clapp wrote:

[The] scarcity of natural resources and their control by the very few may pave the way through widespread human misery to despotism and dictatorship; while an abundance of natural resources, accessible to people generally, makes for democracy and freedom.

The struggle to create and administer the national forests gave birth to the entire conservation movement in the United States. At the end of the voluminous Public Land Act of 1891, a little section of 68 words gave the President authority to create from the public domain what we now call the national forests. A paragraph of 133 words as a rider to the Sundry Civil Appropriations Act of 1897 provided for the administration of these forests. I know of no other legislation in our history which more broadly and as briefly authorized an undertaking so far-reaching in its consequences. The Act of March 3, 1891, was a clean break with the long established public policy of indiscriminate disposal of all public lands regardless of what might be done with the resources on them. That was a bold and daring thing to do in the face of public opinion of years ago. It took courage on the part of its advocates in Congress and out.

## The War Years, 1942-1945

The war years intensified the need to establish national forest priorities—one of which was increasing national forest wood outputs through the Timber Production War Project. The biggest single wood use was packing crates to ship military supplies; but other important uses were for bridges, railroad ties, gunstocks, ships, docks, barracks, other buildings, and aircraft. The Forest Products Laboratory in Madison, Wisconsin, greatly expanded its research to fulfill military needs. The Forest Service also was called upon to lead a high-priority project—producing a rubber substitute from the guayule plant—a shrub native to the Southwest. A pilot project was begun in Salinas, California, and by 1944, more than 200,000 acres of guayule were under cultivation—producing 3 million pounds of rubber substitute for use on airplanes, ships, and vehicles, especially for tires. The project was abandoned after the war when rubber from Southeast Asia again became available.

Recreation was de-emphasized nationwide during the war; forest fire protection became quite important, especially along the west coast. Aircraft Warning Stations (AWS), usually at selected forest lookouts, were established in 1942 to warn of impending air attacks on the west and east coasts. Almost 2,000 Forest Service employees joined the Armed Forces. In 1943, many conscientious objectors at home volunteered for smoke-jumper duty. Sixty were chosen for this very dangerous work. As during World War I, women were again employed as fire and aircraft lookouts, while



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*Aeneas Aircraft  
Warning Service  
Lookout, Okano-  
gan National For-  
est (Washington),  
1943*

civilian volunteers and outdoor groups were encouraged to form “Forest Service Reserves” to help with lookout and firefighting work on the national forests. The Cooperative Forest Fire Prevention Campaign—a joint venture between the Forest Service and State forestry officials—was organized during the war, when it became vitally important to protect the Nation’s timber supply. In 1944, this program became the Smokey Bear campaign.



## Lyle F. Watts— Seventh Chief, 1943-1952

Lyle Ford Watts was born in Cerro Gordo County, Iowa, in 1890. Watts served as Chief during the turbulent years of World War II. With the obvious progress being made in the war effort, his attention turned to planning what the national forests and the Forest Service would be like after the war. He and his staff realized that the national forests needed to be opened up to development in the most scientific and orderly manner.

Watts encouraged the Forest Service to hire university forestry graduates to help develop forest road systems and intensively managed, sustained-yield forests.

He oversaw the expansion of the Federal role of cooperator with the various States and private industry in the fields of forest fire protection, pest control, tree planting, woodland management and harvesting, wood-product marketing and processing, grazing, and so on.

Lyle F. Watts wrote:

Forest Service conservation involves much more than the growing of crops on forest lands to supply raw material in one form or another for an ever-growing list of uses. Forestry must be coupled with the social and economic welfare of rural communities, especially in regions primarily dependent upon forest industries. Improving forest productivity should mean a great deal to rural America in augmenting the income of farm folk, maintaining payrolls in small communities, and sustaining the tax base to support local government functions.

## **The Sustained-Yield Forest Management Act of 1944 and Sustained-Yield Units**

The Sustained-Yield Forest Management Act of 1944 authorized the establishment of sustained-yield timber units. To stabilize communities, cooperative units were to combine the management of Federal timber land with private land. Federal units, the other category, reserved national forest timber for only one geographic area—usually one community and one mill. The act was first heralded as protecting mills and jobs in the communities, but soon companies and communities that were not included in the agreements thought it to be monop-

listic, noncompetitive, and exclusionary. The Shelton (Washington) Cooperative Sustained-Yield Unit agreement was signed in 1946—the only cooperative unit ever established—and still in operation today. Five Federal sustained-yield units were established: Vallecitos, New Mexico (Carson National Forest); Grays Harbor, Washington (Olympic National Forest); Flagstaff, Arizona (Coconino National Forest); Lakeview, Oregon (Fremont National Forest); and Big Valley, California (Modoc National Forest). Only the Lakeview unit is actively operating today.



*Shelton, Washington—Location of the Shelton Cooperative Sustained-Yield Unit*

**Smokey Bear**

In 1944, Smokey Bear became the official fire prevention symbol of the Nation. The first Smokey poster was distributed the following year. On June 27, 1950, a young bear cub—the only survivor from a massive fire on the Lincoln National Forest—was moved to the National Zoo in Washington, DC, where he became the symbol of Smokey Bear. In May 1975, the original Smokey Bear was retired from public duties. He died quietly the following January, with Smokey II taking his place. In the summer of 1990, Smokey II died. There are no more living Smokey Bears at the National Zoo.



*Smokey Bear Artist Rudolph Wendelin*

## THE STORY OF SMOKEY BEAR

Adapted from

Gladys D. Daines and Elsie Cunningham

“Prevention Programs: 1944 to 1994 and Beyond”

*Fire Management Notes*, Volumes 53-54, Special Issue 1992-93

In 1942, a Japanese submarine shelling of an oil field near Santa Barbara, California, very close to the Los Padres National Forest, reinforced forest managers’ concerns about forest fires. Ongoing war efforts had drained the United States of forest firefighters and heavy equipment used to fight fires. Thus, the Forest Service wanted to encourage the general public to participate in forest fire prevention.

The first step was taken when the Cooperative Forest Fire Prevention Campaign was begun. The forest supervisor of California’s Angeles National Forest contacted the newly formed Wartime Advertising Council for help. The council was made up of business and advertising people who were willing to donate their time and talent for the war effort. With an additional pledge of support from the National Association of State Foresters, a nationwide forest fire prevention campaign was launched. Foote, Cone and Belding Communications, Inc., of Los Angeles, became the volunteer agency for the campaign. Between 1942 and 1944, fire prevention posters used wartime slogans, then Bambi. They decided they wanted a bear illustration on the posters for 1945.

On August 9, 1944, Smokey Bear was described by Richard Hammett, director of the Wartime Forest Fire Prevention Program, as having a “nose short (Panda type), color black or brown; expression appealing, knowledgeable, quizzical; perhaps wearing a campaign (or Boy Scout) hat that typifies the outdoors and the woods.” Blue jeans were added later. The bear was named “Smokey” after “Smokey” Joe Martin, who was the Assistant Chief of the New York City Fire Department from 1919 to 1930.

Albert Staehle, a nationally known artist, was asked to paint the first bear, which was completed in 1944 and distributed the following year. This first Smokey poster showed him pouring water on a campfire. In 1945, Smokey made his debut in many magazine and newspaper ads and hundreds of radio stations donated valuable broadcasting time for his message.

When the war was over, the Wartime Advertising Council, renamed the Advertising Council, continued to sponsor public service campaigns, including Smokey Bear’s message (and does to this day). In 1946, Rudolph “Rudy” Wendelin returned to the Forest Service after serving in the Navy—he worked closely with the Advertising Council on Smokey Bear posters. Rudy was one of the best known Smokey Bear artists and soon became known as the “caretaker of the Smokey Bear image.” After his retirement in 1973,

Rudy continued to paint Smokey and act as a Smokey Bear program consultant. Harry Rossoll, another famous Forest Service artist, created four Smokey cartoons a month in the United States and Canada.

In 1950, some careless person started the terrible Capitan Gap forest fire on the Lincoln National Forest in New Mexico. When a strong wind suddenly swept the fire toward a group of the courageous firefighters, 25 of them had to run to a rock slide, lay face down, and cover their faces with wet handkerchiefs to escape the deadly flames. They emptied their canteens over their clothes and swatted burning embers from each other's backs. Finally, the fire passed and the smoke cleared. The only living thing those firefighters saw was a badly burned bear cub clinging to a blackened tree. They took the little bear to a ranger station to tend to its burns. He was named "Smokey" after the original famous poster of Smokey Bear.

After the burns healed, the little bear was sent to live at the National Zoological Park in Washington, DC, where he became the living symbol of forest fire prevention, as well as the most visited attraction at the zoo. Another orphaned bear was found in 1961 in the Magdalena Mountains of New Mexico. "Goldie," as she was named, was sent to the zoo to become Smokey's companion.

The original Smokey Bear was retired from public duties in May 1975 and died quietly on November 5 of that same year. He was buried at the Smokey Bear State Historical Park in Capitan, New Mexico (the idea for the park originated from the Capitan Women's Club and opened on May 15, 1976). Smokey was buried under a huge rock near where he was found 26 years before. A bronze plaque with the following inscription has been placed on the rock:

SMOKEY BEAR. This is the final resting place for the first living Smokey Bear. In 1950 when Smokey was a tiny cub, wildfire burned his forest home in the nearby Capitan Mountains of the Lincoln National Forest. Firefighters found the badly burned cub clinging to a blackened tree and saved his life. In June 1950, the cub was flown to our Nation's Capital to become the living symbol of wildfire prevention and wildlife conservation. After 25 years he was replaced by another orphaned black bear from the Lincoln National Forest.

After the original Smokey retired, Smokey II took his place. Smokey II died in the summer of 1990. The Forest Service has since decided not to replace the living symbol of Smokey at the National Zoo.

Because of the Smokey Bear Program's growing popularity, Congress passed the Smokey Bear Act in 1952 to protect the Smokey's image and the work of the Cooperative Forest Fire Prevention (CFFP) Council. The act

prohibits Smokey Bear's use and wearing the Smokey Bear costume without permission, permits licensing the use of Smokey Bear, and allows the Forest Service to keep any Smokey Bear royalties and put them into a fund to be used only for forest fire prevention.

In 1952, Ideal Toys manufactured the first Smokey Bear stuffed toy. It came with a card that children could fill out and mail to become "Junior Forest Rangers." Children readily responded and by 1955 there were 500,000 Junior Forest Rangers. Children were encouraged to write to Smokey and by 1965 Smokey Bear was given his own zip code—20252!

The famous message "Only YOU Can Prevent Forest Fires" was created in 1947 by the Ad Council's volunteer agency and is still used today. In a recent study, 95 percent of the people surveyed could finish the sentence when given the first words, "Remember, Only YOU...." The same survey found 98 percent of those polled could identify Smokey Bear when shown his picture. On August 13, 1984, the U.S. Postal Service honored Smokey Bear's 40th birthday with a commemorative stamp, drawn by Rudy Wendelin.

The Smokey message has been oriented towards children ages 4 to 12 in the form of posters, films, videos, comic books, pins, handouts, wall and pocket calendars, bumper stickers, exhibits, balloons, and even a Smokey hot air balloon. As early as 1950, a number of State organizations began designing Smokey costumes that were (and still are) used in schools, in parades, and other places where children and adults can see and hear the fire prevention message. The Smokey costume has varied over the years, eventually evolving into the familiar costume that resembles the Wendelin character. For a short time there was a Smokey Jr., costume and then—in the later years—a graying fur costume as Smokey was showing his age.

The 50th anniversary of the first Smokey poster has been characterized as a celebration of one of the most successful advertising campaigns in the history of the United States. A new series of 50th anniversary posters, pins, and other memorabilia were distributed, as well as a special 25-minute historical video production. The video was entitled "Fifty Years with Smokey Bear" and focused on the visual character and real life of Smokey. A special golden anniversary slogan competition was sponsored by the National Association of State Foresters. The winning slogan was submitted by the Ohio Division of Forestry: "REMEMBER...SMOKEY HAS FOR FIFTY YEARS."

*Smokey  
Bear as a  
Cub with  
Judy Bell*



USDA Forest Service

## The Postwar Development Era, 1946-1959

Due in part to the vastly increased demand for wood products and the construction of new homes, the postwar national forest managers were active in opening vast forest areas to timber management. Until then, the timber industry viewed the national forests as huge timber sources that needed to be kept off the market so that the timber industry could keep private timber prices high. The timber industry now sought cheap national forest timber to supplement or replace heavily cutover private forest lands. The opening of the national forests to timber harvesting and road development after World War II would have consequences that we are still feeling today.

### Timber Management

The technology of extracting timber from the woods changed dramatically. Before the Depression and war, much lumbering was done with axes and crosscut saws, but after the war, everyone was using the new, highly efficient chainsaws. Log transportation evolved from horses, oxen, floating logs down rivers, and railroads to the new systems of roads and trucks, and even balloons and helicopters by the 1970's. With the increased emphasis on timber production, the number of timber sales jumped. Forestry schools around the Nation were training thousands of new foresters who were dedicated to finding more efficient and intensive methods of managing the national forests. The Forest Service was entering what has been called the "hard hat era." Intensive forest management was beginning in earnest. Congress passed the Tongass Timber Act on July 27, 1947, which authorized four 50-year timber sales on Alaska's Tongass National Forest.

*Logging truck  
on Pole Road,  
Clearwater  
National Forest  
(Idaho), 1935*



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*A Large Douglas-Fir Tree Being Felled by Ax and Crosscut Saw in Western Washington, circa 1899*

USDA Forest Service



*Early Chainsaw (Gas) Felling Sugar Pine, Stanislaus National Forest (California), 1948*

USDA Forest Service

## TREE CUTTING TECHNOLOGY

Adapted from *Encyclopedia of American Forest and Conservation History* (1983) and other sources.

Tree cutting (logging) technology has undergone extensive changes in the last 200 years. When colonists arrived on the eastern seaboard, the ax was the only method to fell trees to clear farmland, build houses, and provide firewood for the hearth. Yet early settlers were faced with many problems in the New World, including the fact that the trees were very large and very tall, unlike the trees the settlers had left in Europe.

By 1789, the American felling ax evolved to meet the settlers' needs. This unique ax was straight handled and single bitted (one blade), which gave great balance and more power to the stroke. Its short, heavy, wedge-shaped blade was both durable and easily extracted from the wood. Curved handles became standard during the 19th century. Some time around 1850, loggers began using a double-bitted ax. This new invention proved to be very popular. The ax had the advantage of having two cutting edges, yet still possessed the balance and durability of the single-bitted ax. By the 1880's, Americans were making these blades of cast steel—rather than iron with a steel cutting edge welded on.

American settlers also modified European cutting or chopping techniques. Instead of making V-shaped cuts at almost the same level on opposite sides of a tree trunk, Americans made one cut lower than the other (the undercut) and made both cuts flat on the bottom. This method gave the feller greater control over the direction the tree would fall and reduced the time-consuming use of wedges and levers.

Beginning in the 1870's, crosscut saws were adapted to felling trees—a major innovation. Crosscut saws had long been used to cut logs into lengths once they were on the ground, but now the saws were used in the horizontal position to cut the trees down. Two crosscut saw developments helped this major advance: The invention of raker teeth, which when coupled with cutting teeth and gullets carried away the sawdust and tree pitch or sap that would often clog the saw blade. The invention resulted in a saw that could cut green standing trees without binding the blade. The other invention was the adoption of the tempered steel blade, which was stronger than previous saws and would remain sharp through hours of use. Use of crosscut saws, especially the two-man saws, spread rapidly and became the industry standard for many years. By the turn of the 20th century, new saw designs with different teeth had been developed for use on different tree species. In the 1920's, the bucksaw replaced the crosscut saw in the Northeast and Canada. The bucksaw was lighter, but not suitable for large trees.

The springboard was introduced in the far West and in cypress logging in the South. Essentially, springboards were metal-tipped planks that were inserted into notches chopped into the tree trunk. These springboards served as platforms on which the fellers stood, allowing them to be above the dense undergrowth and above the swollen base of the old-growth trees, which were often pitch-laden and full of rotten wood.

During this period, logging operations were often along the edges of streams and rivers, making the transportation of logs downstream to the mill a relatively easy task—river log drives. As harvesting proceeded, logging operations moved farther and farther away from the river's edge, creating a problem—how to move the heavy logs. Loggers responded by cutting smaller length logs or, in the case of redwoods and other large trees, by splitting (riving) the logs lengthwise.

Yarding or skidding of the logs also changed over the decades. The most difficult aspect was moving the logs from where they were felled to a place where they could be transported to the mill. Log moving technology progressed quickly in the United States from the human effort applied through brute force and primitive tools to oxen and horses. In the Northeast and Lake States, logs were very often hauled during the winter months when horses could easily pull heavily laden sleds over the ice and snow.

Mechanization came to the woods in the form of high-wheel logging where logs were suspended under an arch that connected a set of large wooden wheels. High wheels, as they were called, were pulled by horses or oxen, and later steam powered tractors. Beginning in the 1880's, railroads with special geared locomotives were used to transport the logs from the forest to the mill. Three well-known gear driven locomotives were manufactured by Shay, Climax, and Heisler. Many of the first Forest Service timber sales were railroad operations. A great improvement on hauling logs to transportation sites was the invention of the stationary steam-powered Dolbeer donkey engines to yard (pull) logs from where they fell to a central location. The process was referred to as ground lead logging.

The crawler-type tractor, first powered by gasoline, then diesel engines, was used beginning in the 1920's to pull logs along the ground or used with big wheels, arched steel axles, and A-frame logging arches. In the 1920's, with the invention of the cable-operated blade by Forest Service employees in Portland, Oregon, the "cat" was ready to replace the donkey engine to haul logs or build roads in almost any terrain. Gasoline- then diesel-powered logging trucks were used in the forests beginning around World War I, but their main impact came shortly after the end of World War II. Since that time almost all logging operations on national forests have used logging roads and trucks to carry logs from the forest to the mill.

Newer technological inventions, such as high-lead logging with a spar tree, skyline full-suspension systems with one or more spar trees or towers, balloon, and helicopter operations, allowed logs to be carried high over the forest with very little dragging of the logs through the often steep, rugged country with fragile soils. Many of these new systems would become required on the steep mountainous country that was characteristic of many national forests.

The first power saw was built in the 1870's when the Ransome steam tree-feller was designed. What may have been the first gasoline-powered chain saw was tested in 1905 at Eureka, California. These early experiments were followed by air- and electric-powered models. Moderately successful drag (reciprocating) saws were used to cut fallen logs to length and to make short bolts for shingles. All of these experimental models proved to be too cumbersome, too heavy, and too undependable. Then in 1927, Andreas Stihl of Stuttgart, Germany, built a portable, gasoline-powered chainsaw that revolutionized the industry. But because of the Great Depression, power saws remained relatively rare until after World War II.

The chainsaw soon replaced the crosscut and bucksaws for felling trees, as well as the remaining ax work. The chainsaw also made new felling techniques possible. In the big timber country, the Humboldt undercut was used. After an initial horizontal cut on the tree trunk, a second angle was sawed up to the horizontal cut; then the "wedge" of wood between the two cuts was removed from the stump. The tree trunk was then cut from the backside along the horizontal cut on the frontside until it would fall down. This would leave the butt end of the log with a square end.

By the 1940's, hydraulic shears appeared that could cut through standing trees when pressure was applied to heavy-duty blades. By the 1960's, a variety of tractor-mounted shears were in use, with many machines designed not only to cut the trees, but also to remove the bark and limbs, cut the tree to desired lengths, and stack the logs. These new systems worked very well on relatively flat terrain and with small-diameter trees. Another advantage was that they could operate during either the day or night.

Other inventions have played roles in the evolution of logging technology, some of which have come into widespread use—others limited use. With increasing pressure from the Federal agencies to reduce ground erosion during and after logging operations, restricting the use of heavy equipment has become the norm. Full-suspension of logs, use of low-pressure tire-tractors, selective cutting, directional felling, and aerial removal of logs are all measures that may be required of logging companies in order to log on national forests or Bureau of Land Management lands today. In any case, the new techniques and equipment are easier on the land, usually more efficient, but also more costly.

## Research Builds

During the same period, national forest research came of age. Research stations and new experimental forests conducted studies to find better ways to harvest trees, construct new roads, and measure the effects of logging and roads on streams and watersheds. A system of multifunctional research centers was established in 1946, with each center concerned about its own assigned research territory, and a new program was designed to address local forest and range problems, with applications to regional and national issues.



*H.J.  
Andrews  
Experimental Forest  
Willamette  
National Forest (Oregon),  
1953*

USDA Forest Service

The BLM in the Department of the Interior was formed in 1946 from the Grazing Service and the GLO. The BLM currently manages some 264 million acres of Federal land—mostly grazing land with the exception of the old O&C Railroad Grant land in western Oregon, which is heavily timbered.

## Forest Protection

The Forest Pest Control Act of 1947 paved the way for increased protection from pest outbreaks. The act encouraged Federal, State, and private cooperation in the prevention, control, and even eradication of forest insects and diseases that reduced tree growth or killed trees. In 1948, the Forest Service became involved in the Yazoo-Little Tallahatchie Flood Prevention Project—the largest tree planting program the country has ever known—with some 621,000 acres planted. The project was designed to rehabilitate severely eroding lands—with some gullies as much as 50 feet deep—in Mississippi. The USDA Soil Conservation Service (now called the Natural Resources Conservation Service), as well as other Federal, State, 19 counties, and many local agencies, cooperated in this extensive project until it ended in 1985. New technology in every field became very important in managing the forests.



## Richard E. McArdle— Eighth Chief, 1952-1962

Richard Edwin McArdle was born on February 25, 1899, in Lexington, Kentucky. In 1952, McArdle became Chief of the Forest Service. As the first Chief to hold a Ph.D. and to have been a researcher, he felt the need for balanced management of the national forests. During his tenure as Chief, *The Timber Resource Review* was published; it evaluated the total timber resources in the United States. The landmark Multiple-Use Sustained-Yield Act of 1960 established policy for the broad development and administration of the national forests in the public interest.

McArdle was successful in increasing intensive management of the national forests, as well as providing for reforestation of logged and other lands, curbing mining and grazing abuses, and accelerating various recreation projects. During his tenure, the Forest Service was assigned the management of 4 million acres of western plains lands designated as national grasslands. McArdle also was instrumental in upgrading Forest Service personnel, hiring new specialists to bring about intensive management, and increasing the professionalism of employees. He improved relations with the timber industry by backing away from earlier proposals to regulate timber harvesting practices on private lands.

Richard E. McArdle wrote:

Farm woodland and other small private forests hold the key to this Nation's future timber supply. These lands, generally in poor condition, are the greatest potential source of wood fiber. Producing more wood on these lands requires concerted effort by State and Federal forests, forest industries, and the landowners.

## New Specialists and Land

During the 1950's, forest engineers, landscape architects, and silviculturists became common in the Forest Service. In 1954, the agency became responsible for managing approximately 4 million acres of "land utilization projects" (referred to as L-U lands), which were basically grazing lands on the Great Plains. These lands, acquired by the Federal Government during the Depression years of the 1930's, were in many cases relinquished or abandoned farms. In 1960, the earlier land utilization projects became the first national grasslands.

In 1953, the Department of Agriculture transferred forest insect and disease research and control work from other Department agencies to the Forest Service.



USDA Forest Service

Little  
Missouri  
National  
Grassland,  
Custer National Forest  
(North  
Dakota),  
1995

## NATIONAL GRASSLANDS

Adapted from Terry West's Essay on National Grasslands

The origin of the USDA Forest Service-administered national grasslands begins with the disposal of public lands in the early 20th century. The Enlarged Homestead Act of 1909, for example, offered free land to those who would cultivate the Great Plains. Market demand for wheat during and after World War I further motivated “sodbusters” to settle previously bypassed grassland areas and plow them for cultivation.

The removal of the grass that held down the soil on these marginal farm lands contributed to the erosion of the “dustbowl” in the drought years of the 1930's. In that decade, an estimated 2½ million people abandoned their small farms, mainly on the plains. Many of them migrated to the west coast to work in the fields. The young author John Steinbeck was so affected by the sight of these families pouring into California to work the fruit harvests that he immortalized them in the novel *The Grapes of Wrath*. The economic and ecological plight of the Nation spurred Government action to address the effects of the Depression, especially in the “dustbowl” area of the Great Plains.

In 1931, a national conference entitled “Land Utilization” called for a survey of submarginal farmlands. Once these lands were identified, the Government began to purchase them under the authorization of the National

Industrial Recovery Act of 1933 and Emergency Relief Appropriations Act of 1935. The aim was to control erosion, produce more forage, and ensure economic stability for rural residents who had remained. Depleted cropland was planted with grass and the grazing of cattle and sheep on the public rangelands changed from year around grazing to grazing on a rotating basis. Various government programs undertook water and soil conservation projects.

The purchased lands were called Land Utilization (L-U) projects after the title of the 1931 conference. The Government obtained title to 11.3 million acres in 45 States for \$47.5 million (about \$4.40 an acre) by voluntary sales. After the L-U lands were purchased, they were used for practical demonstrations of the best soil conservation techniques to set an example for adjacent private landholders. Between 1933 and 1946, there were 250 L-U projects that focused on grazing, forests, recreation, wildlife, and watershed protection. During the Depression years, relief agencies hired unemployed locals to work on L-U soil conservation projects, enabling many who stayed on the land to survive. Specific projects of the Soil Conservation Service (SCS) (now Natural Resources Conservation Service) included building stock water ponds and reservoirs, planting trees, seeding grasslands (with crested-wheatgrass, a bunchgrass originally imported from Siberia), and controlling erosion and fire.

The lands were first administered by the U.S. Resettlement Administration, later called the Farm Security Administration. The Bankhead-Jones Farm Tenant Act of 1937 gave custody of the L-U lands to the Secretary of Agriculture and authorized more extensive conservation efforts. In 1938, the SCS was given the task of managing the L-U lands. The period after World War II was one of intense range rehabilitation by the SCS.

By Secretary of Agriculture Administrative Order dated December 24, 1953 (effective January 2, 1954), management of the remaining 5.5 million acres of L-U lands was transferred from the SCS to the Forest Service. The original intent was that the Forest Service act as interim manager pending final disposal of these acquired lands. By 1958, about 1.5 million acres had been incorporated into adjacent national forests. Discussion over the future of these lands continued.

On June 20, 1960, some 3,804,000 acres were designated as the 19 national grasslands. The Forest Service was now responsible for the permanent retention and management of the grasslands. The 1960 order stated that the national grasslands were to be administered as part of the National Forest System under the Bankhead-Jones Farm Tenant Act and that the Forest Service was to manage these lands for outdoor recreation, range, timber, watershed, and wildlife and fish. This new task created some internal confusion about the place of the national grasslands in the agency and their national function.

When the Forest Service took over management of the grasslands, existing SCS policies were not readily accepted by the Forest Service. The Forest Service had managed rangeland for 50 years and many of its range staff felt that the new national grasslands should abide by established agency practices. One area of difference was working with grazing associations. In 1939, the SCS had entered into cooperative agreements with Great Plains States' grazing associations and districts. These associations originated on the Great Plains as early as 1931 when stockmen organized to request that Congress withdraw public domain land from homesteading and permit it to be leased on a long-term basis.

Forest Service officials were reluctant to surrender to grazing associations control of activities such as issuing permits, collecting fees, and controlling trespass and fires. However, the mass transfer of SCS employees in Montana and the Dakotas to the Forest Service in this transition period led to the eventual acceptance of many of the SCS practices. The current policy is to rely on grazing associations where practical. This arrangement is most common in the larger L-U range lands in the northern Great Plains. By the 1970's, national grasslands in northern New Mexico, Oklahoma, and Texas ceased to have grazing associations. Instead, the Forest Service issued individual grazing permits and fenced off grassland units to make separate pastures. The change was a logical adaptation to the region's ecology and land use patterns. (The L-U lands purchased in New Mexico-Oklahoma-Texas area were smaller than those on the northern Great Plains. For example, the Black Kettle [Texas] allotments ranged from 30 to 1,500 acres.)

The national environmental focus of the 1970's and 1980's on the national forests spilled over to the national grasslands. District rangers on both national grasslands and national forest districts found that local concerns over specific project impacts were transformed into national issues. On the grasslands this has meant the employment of more wildlife biologists and an increased stress on noncommodity resources.

In the late-1990's, management of the national grasslands in the Dakotas was given greater emphasis when they were given the same management treatment as the national forests—one supervisor's office to manage several grasslands. Future management of the national grasslands will involve many more specialists, ecosystem management, collaborative stewardship, and cooperative efforts between all the special interest groups. It will not be an easy task.

## **Mining**

In 1955, the Multiple-Use Mining Act helped prevent abuses of mining laws and curtail mining abuses that interfered with managing national forest lands. An important feature of this law was that, after proper notice, mining claimants could

be requested to prove the validity of their mining claims. This procedure quickly eliminated thousands of abandoned mining claims on the national forests.

The year 1956 saw the first practical airplane tanker airdrop of water and chemicals on a forest fire. Many of the airplanes were converted World War II bombers, now with their bomb bays were full of Borate and other mixtures rather than bombs.

*Air Tanker  
Dropping  
Chemical on  
a Fire*



USDA Forest Service

## MINING ON THE NATIONAL FORESTS

Adapted from Terry West's  
*Centennial Mini-Histories of the Forest Service* (1992)

“Prosperous mining is impossible without prosperous forests,” Forest Service Chief Gifford Pinchot told the mining industry in 1901 in his quest for support for forest conservation and Federal forest reserves. The linkage between the fortunes of mining and forests in the United States grew following discovery of the rich Comstock silver lode at Virginia City, Nevada—large underground mines needed mine timbers to support the tunnels. Between 1860 and 1880, an estimated 600 million board feet of timber from Sierra Nevada forests were used in the Comstock. Many new sawmills were built around the country to supply mine timbers from local forests.

Pinchot was after more than just asking miners to conserve lumber when he told them about the relationship between forestry and mining. Miners and prospectors had been early opponents of the proposed Federal forest reserves. They worried that mining would be restricted on such reserves and voiced their concerns in the congressional debate over the Organic Act of 1897.

The General Land Office's (GLO) first timber sale (Case No. 1) was made in 1898 to the Homestake Mining Company for timber from the Black Hills Forest Reserve. Homestake purchased 15 million board feet at a dollar per thousand. The contract required that no trees smaller than 8 inches in diameter be removed, and that the brush resulting from the harvest be "piled."

The Federal Government's regulation of mining was not a critical issue in Congress until the California Gold Rush of 1849 and later rushes in Colorado, Nevada, Idaho, and Montana. These "finds" resulted in claims being worked on public domain lands. After the Civil War, Congress passed a number of laws intending to establish some semblance of order to the mining industry. Two of these laws—the Lode Law of 1866 and the Placer Act of 1870—merely legalized what had been the unofficial "law of the land."

The General Mining Law of 1872 consolidated the earlier laws and confirmed the principle that minerals found on public domain land belonged to the person who found (located) them. The 1872 law also:

- Set standards for making mineral claims on public land
- Set no royalty fees for production
- Set fees for transfer of the land from public to private ownership (\$2.50 per acre)
- Set the size of the claims
- Allowed a claimant to hold the land indefinitely as long as minimal work was completed (\$100 value per year) on the claim

A claim was set at 20 acres, with no limit on the number of claims that could be filed. A person could hold his claim by performing \$100 worth of work each year or by obtaining permanent legal ownership of the minerals and land surface by paying a fee to "patent" the claim. Most importantly, the claimant was granted legal claim to the discovery of a valuable mineral deposit.

The transfer of the forest reserves from the Department of the Interior to the Department of Agriculture in 1905 removed much of the USDA foresters' impediment in regulating the forest reserves; however, mining remained under control of the Department of the Interior. Richard Ballinger, appointed in 1907 to head GLO and elevated to Secretary of the Interior in 1909, differed with Chief Gifford Pinchot over coal claims in Alaska. Ballinger wanted them patented, while Pinchot argued for Federal leasing. Pinchot feared a national coal famine would result if the private sector was allowed complete freedom to exploit coal fields without concern for future needs. The mining industry depicted Pinchot as out to curtail the citizen's right to engage in free enterprise—the "little guy" was being crushed by Government. By 1910, the dispute between Pinchot and Ballinger reached the point that President Taft fired Pinchot. Historians now note that the coal

debate was only a small part of the conflict between Pinchot, President Taft, and his cabinet over natural resource management policies.

In 1920, Congress passed the Mineral Leasing Act, which incorporated oil and natural gas, oil shale, phosphates, sulfates, carbonites, and other surface and subsurface resources under a system of rental and royalty fees. The Government still retained ownership of the land. The 1947 Materials Disposal Act set standards for the Federal Government to sell materials such as sand, gravel, building stone, clay, pumice, and cinders from Federal lands. Competitive bidding was an integral part of the act.

In the early 1950s, the Forest Service and several conservation groups launched a campaign to expose abuses found under the various mining laws. The resulting investigations found widespread problems—mining claims were being used as home and recreation cabin sites, excuses to cut the timber, fishing and hunting camps in remote areas, commercial businesses, and even trash dumps. Congress responded by passing the Multiple-Use Mining Act of 1955. As a result, the Forest Service was able to reclaim thousands of “mineral” claims that were never used for their authorized and intended purpose, others that had no minerals, and even more that had not lived up to annual work requirements on the claim.

The Federal Land Policy and Management Act (FLPMA) of 1976 changed the procedures for filing mineral claims—the paperwork had to be filed with the Bureau of Land Management (rather than the local county courthouse) and all claims needed to be refiled by 1979. As a result of FLPMA, the Federal Government found that some 1.1 million mining claims were located on Federal lands and also eliminated many fraudulent claims.

Legislation to “fix” the General Mining Law of 1872 has been proposed many times over the years, but every effort has been successfully blocked by the mining industry and western congressional delegations.

## **Recreation and Timber Demands**

Recreational demands on the national forests were increasing; millions of new visitors used the national forests and parks. “Operation Outdoors,” a 5-year program designed to improve and replace many of the older CCC-built structures, was launched in 1957 to expand the recreation facilities and opportunities on the national forests to meet demand.

In 1958, the Forest Service issued the results of the nationwide Timber Resource Review, “Timber Resources for America’s Future.” This extensive national study, begun 6 years earlier and prepared with the assistance of other Federal, State, and private organizations, found that the Nation needed to grow more timber to meet expected demands. The study was a preview of more extensive timber resource assessments that would be made in the future.

At the same time, there was a growing concern that the Forest Service was clearcutting too many areas that were also used for recreation. This issue and others about resource priorities would involve many outdoor groups, timber industry organizations, the Forest Service, and Congress, and would result in the Multiple-Use Sustained-Yield Act of 1960.



*Winter Olympics at Squaw Valley, Tahoe National Forest (California), 1960*

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Most of the national forests were “opened up” through an extensive network of roads for timber, recreation, and protection activities. Many of the older trails were replaced by the growing road system used to access remote forest areas.

## The Fully Managed, Multiple-Use Forest Era, 1960-1970

In the early 1960's, a new wave of national concern about the conservation of natural resources began. It resulted in several controversies over the management of the national forests and in the passage of many environmental protection laws.

### Multiple-Use Sustained-Yield Act of 1960

The first of the environmental protection laws was the Multiple-Use Sustained-Yield Act of 1960. Its purpose was to ensure that all possible uses and benefits of the national forests and grasslands would be treated equally. The “multiple uses” included outdoor recreation, range, timber, watershed, and wildlife and fish in such combinations that they would best meet and serve human needs.

*Wildlife Biologist Bernie Carter Measuring Seed Production, Umatilla National Forest (Oregon), 1964*



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This act was necessary because many members of Congress and interest groups felt that the Forest Service was giving too much attention to timber harvesting on the national forests—just 15 years after the huge post-war development push to open the national forests for needed timber to be used in the national housing boom. Multiple-use forestry was in “full-swing,” with an increasing emphasis being placed on nontimber resources, while timber production increased to the maximum in the private sector and approached that for the national forests.

In the early 1960's, the family of Gifford Pinchot donated Grey Towers, the family home and surrounding land in Milford, Pennsylvania, to the Forest Service. Extensive stabilization and repair work was needed on the magnificent building. Grey Towers is one of two Forest Service buildings listed as a National Historic Landmark. The other is the Timberline Lodge on the south face of Oregon's Mt. Hood on the Mt. Hood National Forest. The newly formed Pinchot Institute for Conservation Studies was dedicated at Grey Towers by President John F. Kennedy on September 24, 1963. The Pinchot Institute currently resides in Washington, DC.



*Hiker at Indian Peaks Wilderness on the Roosevelt National Forest (Colorado)*

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*President Kennedy and Chief Cliff at Pinchot Institute Dedication (Pennsylvania), 1963*



*Oregon Governor Mark Hatfield and Astronaut Walter Cunningham Talking During Moon Walks Preparation on Lava Beds, Oregon, Willamette and Deschutes National Forests*



Photo Credit: USDA Forest Service



## **Edward P. Cliff— Ninth Chief, 1962-1972**

Edward Parley Cliff was born in the tiny community of Heber City, Utah, on September 3, 1909. Serving as Chief from 1962 to 1972, Cliff experienced a decade of rapid change within the agency and around the country. He devoted much time to promoting a better understanding of public forest management problems with grazing interests and the timber industry—and especially with the general public. Public interest in the management of the national forests, as well as demands for numerous forest resources, expanded during this era. He helped the Forest

Service develop a long-range forest research program.

Important for the national forest recreationists was Cliff's vision of moving the Forest Service into more recreational improvements and programs—caused by an “explosion” in outdoor recreation—hiking, camping, wilderness travel, mountain climbing, and many other national forest outdoor activities. The Wilderness Act of 1964 gave congressional blessing to a new National Wilderness Preservation System and established more than 9 million acres of previously “wild” or “wilderness” areas as the core. The Forest Service hosted the new Job Corps program, which operated over 50 camps on national forest lands. The agency also became involved in the nationwide natural beauty campaign, rural area development, and the war on poverty.

Edward P. Cliff wrote:

As the population of the country rises and demands on the timber, forage, water, wildlife, and recreation resources increase, the national forests more and more provide for the material needs of the individual, the economies of the towns and States and contribute to the Nation's strength and well-being. Thus the national forests serve the people.

## **MULTIPLE-USE SUSTAINED-YIELD ACT OF 1960**

The Multiple-Use Sustained-Yield Act of June 12, 1960 (MUSY), was the congressional embodiment of 55 years of Forest Service management and policy. The Organic Act of 1897 guided the agency for decades with the management ideas of protection of the forests and water and the production of timber. For the most part, Federal forest management was not controver-

sial during this period, but major changes were on the horizon. Part of the reason for the act was a realization that everyone could not get everything they wanted or needed from the national forests' finite resources. Even an equal balancing act between the available natural resources was not possible.

By the mid-1950's, the first inkling of a shift in management philosophy came with the congressional debates about multiple-use bills. The first was introduced by Senator Hubert H. Humphrey of Minnesota. Basically, there was a growing concern that in the decade of rapid development of the national forests since the end of World War II, the Forest Service was leaning so much toward managing of timber that other resources, especially recreation, were getting short shrift.

Initially, the Forest Service was opposed or neutral to a multiple-use bill. However, the Forest Service was beginning to feel the heat from growing opposition to its policies about logging in or near recreation sites. One focus of this contention was in California's Deadman Creek area. The 3,000-acre site contained a stand of old-growth Jeffrey pine. When the Forest Service announced plans to do "sanitation salvage" in the area, reaction was swift and allegations were made that the recreation and scientific values were being ignored for the timber value. Similar conflicts arose in many parts of the West.

By the late 1950's, the conservation groups generally supported the Humphrey bill, with the exception of the Sierra Club, which felt that support of the multiple-use bill would jeopardize its efforts to pass a wilderness bill. During the spring of 1960, agreements were made with various groups to clarify wording in the act so that timber would not dominate, that recreation would be equal to other resource uses on the national forests, and that the Organic Act of 1897 would only be supplemented, not replaced.

After the act was signed in 1960, the Forest Service was active in managing the national forests where all resources (timber, wildlife, range, water, and outdoor recreation) were treated equally. Many rangers did their utmost to embody the principles of multiple use into their management. For some, however, the act simply redefined what the Forest Service had been doing for decades: Timber harvesting and road construction. Many people outside the agency saw that forests were not managed any differently under MUSY—it was still just a road leading to an ugly clearcut. *This example of redefinition of the old ways rather than managing differently on the ground had implications for the forest management controversies of the 1970's, 1980's, and 1990's.*

The passage of the Wilderness Act of 1964, opposed by the Forest Service as being authorized by MUSY, set the stage for strident antagonism expressed by the old conservation organizations and new environmental groups that would be felt by the Forest Service to this day. One important aspect of the MUSY was the creation of multiple-use planning, which brought a number of new specialists such as soil scientists and wildlife biologists into daily land management decisions.

## Work Programs

In 1963, the Forest Service became involved with the Accelerated Public Works (APW) program that was designed to put unemployed men (there were still no women on these projects) to work on projects to develop or improve national forest resources. The 1963-64 program provided immediate work for over 9,000 men on more than 100 national forests in 35 States. It also brought increased business to many communities adjacent to national forests—providing much-needed boosts to their economies. APW projects included working on camp and picnic areas; planting trees; thinning timber stands; improving fish and wildlife habitat; and constructing or improving roads, trails, fire lookouts, and other facilities.

A new work program for young, unemployed youth began in 1964 and was called the Job Corps. The Job Corps was designed to give young men (young women were admitted later) from deprived backgrounds basic schooling, training in skills, and valuable job experience before they returned to their home communities. It resembled the older CCC program of the Great Depression—participants were involved in firefighting, community work, building construction, and forestry activities on the national forests. In 1989, the Job Corps program celebrated its 25th anniversary, having served more than 1.4 million youths.



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*Ojibway Job Corps Enrollee and Ottawa National Forest Fish Biologist Taking Water Samples, Ottawa National Forest (Michigan), 1967*

## Wilderness and Wild and Scenic Rivers Acts

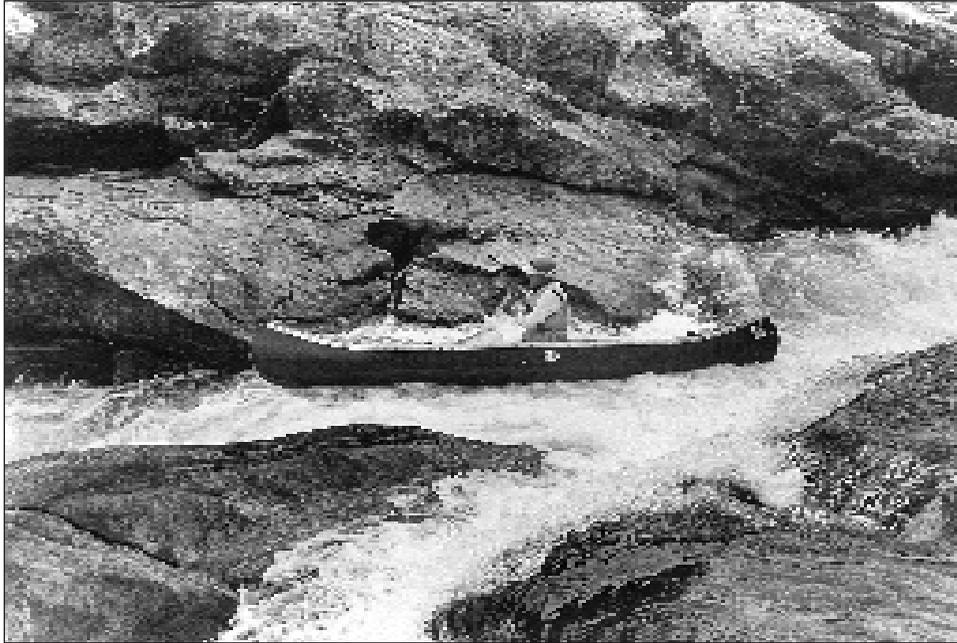
After years of struggle, the Wilderness Act of 1964 was signed into law. This unique law established a National Wilderness Preservation System of more than 9 million acres—incorporating the existing Forest Service wilderness areas and creating several new ones. One provision in the Wilderness Act called for evaluation of any national forest areas that were without roads (hence the name “roadless areas”) that might be considered for future wilderness status. In 1967, the Forest Service undertook a Roadless Area Review and Evaluation (RARE) to identify and study these “*de facto* wildernesses.”

The Wild and Scenic Rivers Act of 1968 authorized a number of important, distinctive rivers to be classified as wild, scenic, and recreational. Today, the Forest Service manages more than 4,000 miles of such rivers on nearly 100 rivers or river segments.

*John Muir  
Wilderness,  
Sierra National Forest  
(California),  
1963*



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*Canoeing on the Wild and Scenic Chattooga River, Sumter National Forest (South Carolina), 1986*

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## WILDERNESS ACT AND HOWARD ZAHNISER

Passage of the Wilderness Act of 1964 involved decades of work on the part of many people both inside the Forest Service and from a variety of interest groups. As early as the 1910's and 1920's there were several important proponents of wilderness designation in the national forests. Three men are considered pivotal in these early years and all were Forest Service employees: Aldo Leopold, Arthur H. Carhart, and Robert Marshall. Their efforts were successful at the local level in creating administratively designated wilderness protection for several areas across the country. At the national policy level, there was a series of policy decisions (L-20 and U Regulations) in the 1920's and 1930's that made wilderness and primitive area designation relatively easy, but what was lacking was a common standard of management across the country for these areas. Also, since these wilderness and primitive areas were administratively designated, the next Chief or Regional Forester could "undesignate" any of the areas with the stroke of a pen.

Howard C. Zahniser, executive secretary of the Wilderness Society (founded by Bob Marshall), became the leader in a movement for congressionally designated wilderness areas. As early as 1949, Zahniser detailed his proposal for Federal wilderness legislation in which Congress would establish a national wilderness system, identify appropriate areas, prohibit incompatible uses, list potential new areas, and authorize a commission to recommend changes to the program. Nothing much happened to the proposal, but it

did raise the awareness for the need to protect wildernesses and primitive areas from all forms of development.

In 1955, Zahniser began an effort to convince skeptics and Congress to support a bill to establish a National Wilderness Preservation System. He sought to rally public opinion through writing in *The Living Wilderness* and other publications, as well as organizing many talks to citizens groups across the country. Drafts of a bill were circulated the next year. By the late 1950's, it seemed that the wilderness bill would eventually become law, but there were still many legislative battles to be fought. At the same time, the Multiple-Use Sustained-Yield Act (MUSY) was also being pushed through Congress. Some have suggested that the Forest Service strongly supported MUSY to counteract the wilderness legislation. After the passage of MUSY in 1960, there were also many who felt that there was no need for a separate wilderness bill because wilderness was one of the many multiple uses allowed in the act. Senator Hubert H. Humphrey (D-MN) became a major supporter of the wilderness bill, but State water agencies, and mining, timber, and agricultural interests were very much opposed. The Forest Service and, ironically, the National Park Service were also both initially opposed to the bill. The wilderness bill, which was stalled for several years in Congress, finally came out of committee with a compromise that allowed mining in national forest wildernesses until 1984.

Ironically, Howard Zahniser, who pushed so hard for the act, died on May 5, just a few months before the bill became law. Doug Scott, policy director of the Pew Wilderness Center recalled Howard's last days. "Zahnie [as he was affectionately known] wasn't there to see it [the wilderness bill]...Just 2 days after testifying at [the final congressional hearing], Zahnie died at the age of 58...But, his widow, Alice, and Olaus and the incomparable Mardy Murie stood at Lyndon Johnson's side when the wilderness law was passed." President Lyndon Johnson signed the bill into law on September 3, 1964. Because of Zahniser's relentless efforts, he has often been called the "Father of the Wilderness Act."

The act designed 9.1 million acres of wilderness, mostly from national forest lands. Overnight, all of the existing Forest Service wildernesses became part of the National Wilderness Preservation System. A team of Forest Service wilderness managers met soon afterward in Washington, DC, to come up with implementing regulations for these new congressionally established wildernesses. What they thought would be an easy task took many months as they found that there were no consistent or agreed-upon ways to manage the existing wildernesses. Part of the Wilderness Act of 1964 also set up procedures to evaluate existing primitive and roadless areas for possible inclusion into the wilderness system. For the next 20 years, the roadless areas reviews (RARE and RARE II) would play an important and controversial role in Forest Service management of the national forests.

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## **Using Litigation To Settle Disputes With the Forest Service**

A controversy erupted in the mid-1960's in the Sierra Nevada mountain range of California. Walt Disney Enterprises proposed a ski development on the Sequoia National Forest that was designed to make the Mineral King area a destination resort. Several organizations fought the development, which would also have affected the nearby Sequoia National Park. A lawsuit was filed by the Sierra Club (Sierra Club v. Morton), but the organization eventually lost the case, yet it set precedent that organizations could use litigation in settling disputes with the Forest Service. The ski area was never developed.

## The Environmentalism and Public Participation Era, 1970-1993

There was growing, widespread public concern that new laws and regulations were needed to preserve and protect the environment.

Several of these laws derived from a new environmental awareness brought about by Rachel Carson's book *Silent Spring* in 1962, which documented the overuse of pesticides, especially DDT. The use of chemicals, such as herbicides and pesticides, came into contention on the national forests, leading to numerous demonstrations, lawsuits, and occasional violence by those in favor and those opposed. These controversies led the Forest Service to reconsider many of the agency's land management practices.

### National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 (NEPA), signed into law January 1, 1970, mandated that environmental impacts of proposed Federal projects be comprehensively analyzed. An important part of the act made it mandatory that agencies seek public participation on projects, from the planning stage to the review-of-documents stage. These requirements were quickly incorporated into the many projects that were underway on the national forests. Earth Day, on April 22, 1970, foreshadowed the beginnings of a new and fundamentally different conservation-environmental movement.

*Public Participating in Forest Planning, 1989*



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## NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

On January 1, 1970, President Richard M. Nixon signed the National Environmental Policy Act of 1969 (NEPA)—the culmination of years of struggle by special interest groups and the authors of the act—Senator Henry M. Jackson and Congressman John D. Dingle. The act required that an environmental impact statement (EIS) be prepared when any Federal agency proposed a “major Federal action significantly affecting the quality of human environment.” The bill had not provoked any major controversy in Congress, and it only received cursory comment from legal journals and the public. But it was to have profound implications for every Federal land management agency.

NEPA established a three-member Council on Environmental Quality (CEQ) as a part of the Executive Office of the President. The CEQ is required to assess the Nation’s environmental quality annually and review all Federal programs for compliance with NEPA. Section one of NEPA states that the Federal Government’s policy will be “to use all practical means—to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of Americans.”

The NEPA requirement for producing EIS’s on major Federal projects was felt to be the minimum necessary to describe all the planned activities, alternatives to each proposed action, and consequences of implementing each alternative to the affected Federal agencies and the public. Provisions of the act, as well as its implementing regulations, require public involvement, opportunities for the public to comment, and the agency’s responses to these comments in the EIS. After more than 25 years of NEPA, Federal agencies have published thousands of EIS’s running from a few pages to many volumes on environmental projects.

NEPA’s driving force today is through the EIS process. While some have criticized the NEPA process as long and costly, its public involvement and participation have resulted in more informed decisions and agencies now employ new natural resource specialists to help the agency and the public understand the implications of its decisions on the natural and human environments. Court challenges to Federal decisions have caused an increase in litigation. From the standpoint of special interest groups, NEPA has been both a burden and a godsend: A burden in terms of cost and time for project startup and a godsend in terms of better decisions based on expected consequences and impacts.

NEPA has opened a whole new avenue for citizen involvement in Federal land management planning and decisionmaking. The NEPA process has been so successful that processes patterned after it are being used in other countries such as Australia and the Philippines.

## Controversies Over Clearcutting

Although intensive forestry and protection of the land had taken on even more importance with the adoption of many new forest practices and procedures, certain intensive forestry practices became a problem. In the late 1960's, a controversy developed over the management of Montana's Bitterroot National Forest, when residents became concerned about the scenic and reforestation problems being caused by clearcutting and terracing on steep slopes. In 1970, Montana's Senator Metcalf called on Arnold Bolle, Dean of the Forestry School at the University of Montana, to investigate the allegations and prepare a report. Bolle's committee report was critical of Forest Service operations, which was consistent with several internal reports by the regional office in Missoula.

*Aerial Spraying*



USDA Forest Service

*Skycrane with  
Logs, Willamette  
National Forest  
(Oregon)*



USDA Forest Service

On the other side of the country, a legal decision against the Forest Service for clearcut logging on the Monongahela National Forest (*Izaak Walton v. Butz*) called the interpretation of the Organic Act of 1897 into question. The results of this legal decision caused an extensive review of forest management by the Forest Service and later by Congress in 1972. Congressional hearings would later set the stage for the National Forest Management Act of 1976 (NFMA).

## CLEARCUTTING ON THE NATIONAL FORESTS

Clearcutting (felling and removing all the trees from a specific area) has been a long-standing technique used extensively in the United States and most other countries. During the late 1800's and continuing through today, many people opposed to logging, in general, have focused on clearcutting. It has also been the focus of intensive discussion about the proper method to harvesting trees for their wood.

It was at George Vanderbilt's Biltmore Forest Estate (now part of the Pisgah National Forest) in the 1890's that Gifford Pinchot first harbored ideas about "new forestry"—clearcutting vs. selective logging and leaving young trees standing during harvesting, as recounted in Pinchot's 1947 autobiography *Breaking New Ground*: "The old way of lumbering at Biltmore, and everywhere else, was to cut out all the young growth that would interfere with cheap and easy logging, and leave desolation and a firetrap behind.... We found that large trees surrounded by a dense growth of smaller trees could be logged with surprisingly little injury to the young growth, and that the added cost of taking care was small, out of proportion, to the result. To establish this fact... was of immense importance to the success of Forestry in America." Thus from the beginning of professional forestry in America, there was concern about logging methods that involved both ecology and economics.

The first major controversy involving clearcutting erupted in the Adirondacks of New York State in 1900-03. At the Cornell Demonstration Forest, Bernhard Fernow, chair of the Cornell School of Forestry, intended to convert the broadleaf forest into a conifer forest. The Adirondacks case came under public scrutiny, with Fernow eventually losing his position at Cornell as a result of the controversy, and the school of forestry closing.

During the 1910's and 1920's, clearcutting was emphasized as the most desirable method of logging on national forests. As most logging operations were then either railroad or river log drives, the clearcutting decision was practical for the timber purchaser. At the time, huge blocks of national forest were sold to timber companies with the idea that extracting the standing timber from a watershed would take decades. But there were researchers, especially in the dry pine forests and elsewhere, who were advocating selective logging.

In October 1934, after reviewing several research studies, Regional Forester C.J. Buck directed the national forests in western Oregon and western Washington to begin timber harvesting by selective logging, rather than by clearcutting in Douglas-fir areas. Basically, there was a fundamental disagreement among Forest Service and academic researchers over the clearcutting issue. Two University of Washington forestry professors, Burt P. Kirkland and Axel J.F. Brandstorm, argued that "selective timber management" was economically advantageous as loggers did not have to take every

tree and that selective logging did not lay the landscape bare. Forest Service researchers Leo Isaac and Thornton T. Munger, however, argued that selective logging was a short-term economic gimmick used during the Depression that would, in the long run, deplete the forests as only the prime trees would be taken from a stand, leaving the less desirable species on site. They also argued that selective logging practices damaged the trees that remained on the site and that clearcutting was much better. The selective logging method was used in the Pacific Northwest Region Douglas-fir area until the early 1940's, when C.J. Buck was forcibly transferred to the Washington Office and the policy changed to clearcutting.

Research work continued in the Pacific Northwest and by the early 1950's there was enough evidence to convince most professional foresters that clearcutting was the most desirable method to harvest trees in the Douglas-fir region. These data were compelling from both the economics standpoint and the ecological standpoint that the seedlings required direct sunlight to grow. However, the research work overlooked several important aspects or consequences of clearcutting: The visual disruption of the forest for at least a decade until the young trees grew tall and the aspect of having a monoculture of genetically similar trees. Even "hiding" clearcuts behind a row of standing tall trees and an effort to "educate" the public to the advantage of clearcutting did not overcome the ill feelings toward this method of tree harvesting. Many people, then and now, believe that clearcutting is of economic advantage, rather than an ecological or tree regrowth necessity.

In the late 1960's, Montana's Bitterroot National Forest, in a burst of timber harvesting in response to the national needs for wood, began clearcutting then terracing the cutover steep slopes for better seedling regeneration. This caused a controversy. The Bitterroot's retired Forest Supervisor led protests, the *Missoulian* carried a series of news articles, and Senator Metcalf commissioned a University of Montana Study team to study the alleged mismanagement. The university team—led by Arnold Bolle, dean of the school of forestry—was instrumental in bringing the Bitterroot's clearcutting issue to national attention.

Another clearcutting controversy on West Virginia's Monongahela National Forest contributed significantly to the management debate. The Izaak Walton League, an outdoor and fishing organization, filed a lawsuit on behalf of several turkey hunters, on the premise that the 1897 Organic Act did not allow clearcutting. In 1973, the Federal District Court ruled against the Forest Service. After the Fourth Circuit Court of Appeals also ruled against the agency in August 1975, the Forest Service and Congress decided that something had to be done to change the old law to allow timber harvesting.

These two battles resulted in a series of congressional hearings over clearcutting and forest management in general. Senator Frank Church of Idaho offered an analysis report on clearcutting that resulted in the "Church Guidelines" for limiting the size of clearcuts. The Forest Service voluntarily

agreed to stay within the guidelines. Clearcuts would not exceed 40 acres. The final result of the controversy was passage of the National Forest Management Act of 1976 (NFMA).

The problems with clearcutting have persisted. The Forest Service is still trying to back away from this controversial method. In 1992, the Chief of the Forest Service proposed a policy, with seven criteria, that would eliminate clearcutting as a standard practice and reduce clearcutting by as much as 70 percent from the 1988 level. However, backlash from environmental groups and the timber industry continue to make headlines over clearcutting and this policy. Ivan Doig in his classic 1975 article “The Murky Annals of Clearcutting” wrote: “Professional foresters were honestly disagreeing about silvicultural alternatives, but mostly on economic grounds...All in all, [it should]...serve as a classic lesson that disputes over the use of our forests are not going to be decided on ecological merit alone. Nowhere near it.”

## Youth Conservation Corps, Young Adult Conservation Corps, and Related Programs

In 1970, a 3-year pilot Youth Conservation Corps (YCC) program began—it became fully established in 1974. It was designed to further the development and maintenance of natural resources by America’s youth between the ages of 15 and 19. The young male *and female* YCC members, from all parts of the country and all walks of life, spent the summer months working on conservation projects on the national forests.



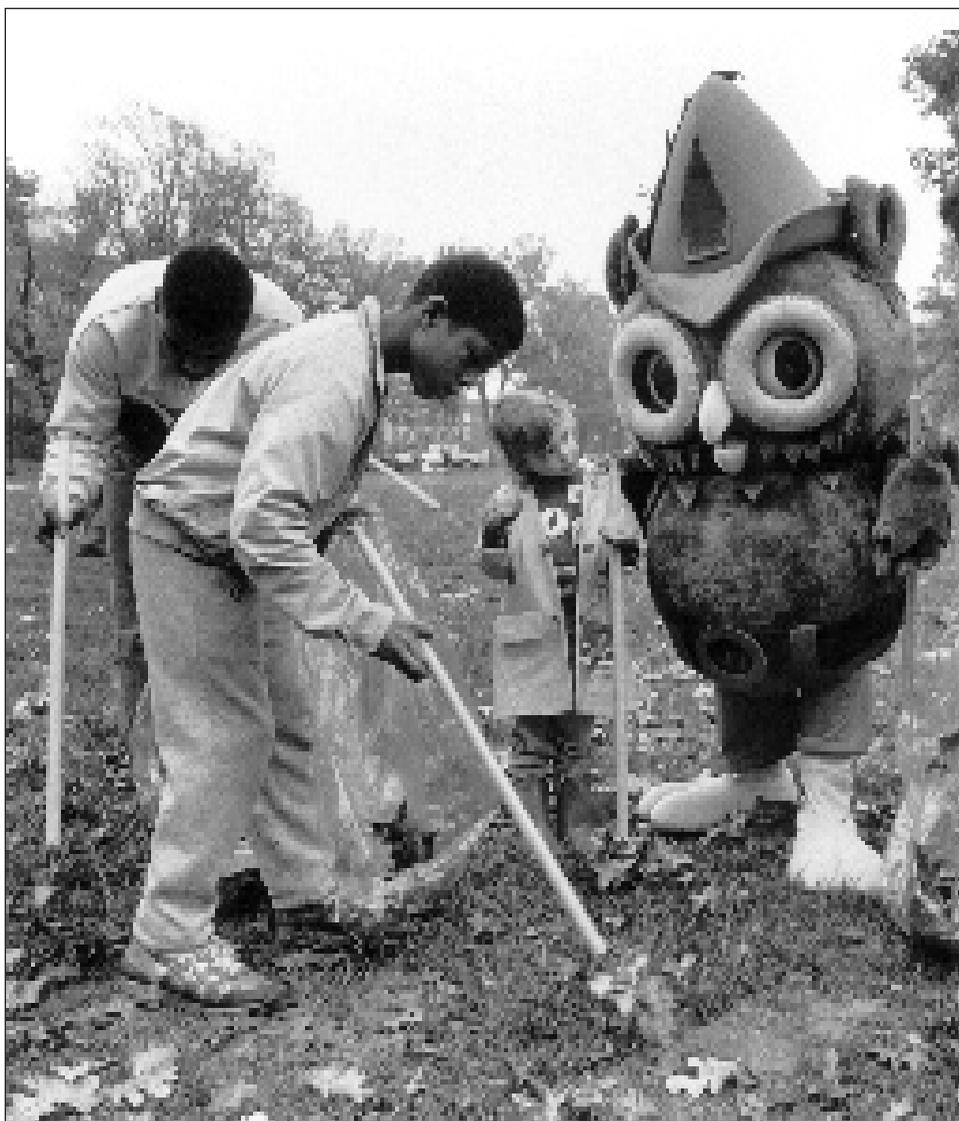
*YCC Members  
Prepare a Lake  
Area for Public  
Use*

USDA Forest Service

During 1977, another new youth employment program arrived—the Young Adult Conservation Corps (YACC). This program was intended to further the development and maintenance of natural resources by America’s young adults (both male and female) between ages 16 and 23. The Forest Service provided many opportunities for enrollees to work on important projects on the national forests. This program was short-lived because its funding was eliminated in 1981.

Woodsy Owl, the symbol of antipollution and wise use of the environment, was introduced in 1971 with the slogan “Give a Hoot, Don’t Pollute.” Just as with Smokey Bear, the Woodsy symbol and slogan are protected by law except as authorized for antipollution programs. In 1997, Woodsy’s image was updated and his message became “Give a hand, Care for the Land.”

*Woodsy with  
Children*



USDA Forest Service

In 1971, the President signed the Alaska Native Claims Settlement Act that authorized the transfer of 44 million acres of land in Alaska from the Federal Government to various Alaska Native corporations in exchange for the Natives extinguishing aboriginal title to the remaining lands Alaska Natives traditionally used and occupied.



### **John R. McGuire— Tenth Chief, 1972-1979**

John Richard McGuire was born on April 20, 1916, in Milwaukee, Wisconsin. While serving as Chief from 1972 to 1979, McGuire made changes to strengthen State and Private Forestry's and Research's role in implementing the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 and the National Forest Management Act (NFMA) of 1976. McGuire faced increasing opposition for forestry practices being

carried out on the national forests. Most notable were the congressional hearings over clearcutting on the national forests—a result of controversies on Montana's Bitterroot National Forest and on West Virginia's Monongahela National Forest.

McGuire was instrumental in requiring the Forest Service to review, and then change, forest management practices and modify and integrate its methods of land management. Major issues facing Chief McGuire were the Roadless Area Review and Evaluation (RARE) and RARE II decisions; mounting controversy over the management of the national forests; new congressional direction that mandated planning at the forest, region, and national levels through RPA and NFMA; and special interest groups' increased reliance on litigation to influence the management of the national forests.

John R. McGuire wrote:

Perhaps the greatest challenge facing forestry today is the calendar—namely the arrival of the 21st century. My question is, will American forestry be ready to meet the 21st century?

A major determinant of how well American forestry prepares for the 21st century will be cooperation in resources management. This means cooperation among Federal, State, and private ownerships; cooperation across long-standing professional barriers; and cooperation with new and different arrangements of people and organizations, a trend which is becoming more evident with each passing year. The interested general public is surprisingly knowledgeable about natural resources. Yet people still need to hear forestry's message—that sound forestry practices can provide both protection and use.

## National Forest Volunteers

The Volunteers in the National Forests Act of 1972 authorized the Forest Service to recruit and train volunteers to help manage the national forests. A highly successful and visible program, many of the volunteers are retired people who enjoy working outdoors and with the public in a wide variety of capacities ranging from being campground hosts to assisting with archaeological digs.

*Volunteer  
Helping Hikers,  
Sumter National  
Forest (South  
Carolina), 1986*



USDA Forest Service

*Senior Community Service Employment  
Program Enrollee Uses a Dado for a Sign  
on the Colville National Forest (Washing-  
ton)*



USDA Forest Service

## RARE and RARE II

As the Wilderness Act of 1964 provided, the draft Roadless Area Review and Evaluation (RARE) report was completed in 1972. This controversial wilderness review process evaluated some 55.9 million acres of land and 1,449 roadless areas for possible inclusion into the National Wilderness Preservation System. The final report was published in 1973, with 274 of the roadless areas (12.3 million acres) selected for possible wilderness designation by Congress. The decision became immediately embroiled in controversy. A lawsuit in California over a roadless area that had not been selected resulted in the Assistant Secretary of Agriculture and the Chief of the Forest Service ordering a new study of all roadless areas, called RARE II, in 1977.



*French Pete  
Drainage  
Wilderness  
Controversy,  
Willamette  
National For-  
est (Oregon)*

USDA Forest Service

## Endangered Species Act of 1973

The Endangered Species Act of 1973 provided for protection of rare, threatened, and endangered animal and plant species. It established Federal procedures for identifying and protecting endangered plants and animals in their native, critical habitats. It declared broad prohibitions against taking, hunting, harming, or harassing the listed species. The intent of the act was to restore endangered species to levels where protection would no longer be needed. Implementing this act would have drastic consequences on the management of national forest timber and road construction programs during the 1980's and 1990's.

*Northern  
Spotted Owl*



USDA Forest Service

## **National Forest Planning**

The early to mid-1970's saw a continued major national forest planning effort under the Multiple-Use Sustained-Yield Act of 1960. By the mid-1970's, unit plans (ranger district level) and several forest plans were being developed. Many national forests created planning teams to assist in the multiple-use planning of their many resources. New Forest Service specialists were hired because of the planning needs—wildlife biologists, soil scientists, landscape architects, and hydrologists.



*Monitoring  
Fish Popula-  
tions, Ouachita  
National Forest  
(Arkansas)*

USDA Forest Service

In 1974, the Forest and Rangeland Renewable Resources Planning Act (RPA) became law. The act provided that beginning in 1976, the Forest Service would develop a program or assessment every 5 years that outlined the proposed expected national forest production of various resources. With the RPA program in hand, the Forest Service would go to Congress to obtain the necessary funding to implement its program. This act represented Congress's first legislative recognition that management of our natural resources could only occur with long-range planning and funding—not planning and funding on a year-to-year basis.



*Hydraulic  
Monitor Mining  
Nozzle*

USDA Forest Service

The Bolle Report (about Montana's Bitterroot National Forest) and a court decision against the Forest Service in the Monongahela National Forest clearcutting case spawned the NFMA. The NFMA amended RPA and also repealed major portions of the Organic Act of 1897. NFMA mandated intensive long-range planning for the national forests—the most comprehensive planning effort in the western world. NFMA specifically incorporated public participation and advisory boards, various natural resources, transportation systems, timber sales, reforestation, payments to States for schools and roads, and reporting on the incidence of Dutch elm disease.

A committee of scientists created NFMA's implementation regulations, which became final in 1979, and an intensive new forest planning effort began. The Forest Service hired many new specialists, many of them women, to address the various provisions of NFMA—including public affairs specialists, economists, archeologists, sociologists, geologists, ecologists, and operations research analysts. The Forest Service also began an extensive public involvement effort to prepare the new plans. In 1997 and 1998, a new committee of scientists met to evaluate and recommend changes to NFMA and the revised forest planning regulations.

*Clearcutting  
Patterns on the  
Shelton Ranger  
District, Olympic  
National Forest  
(Washington),  
1957*



USDA Forest Service

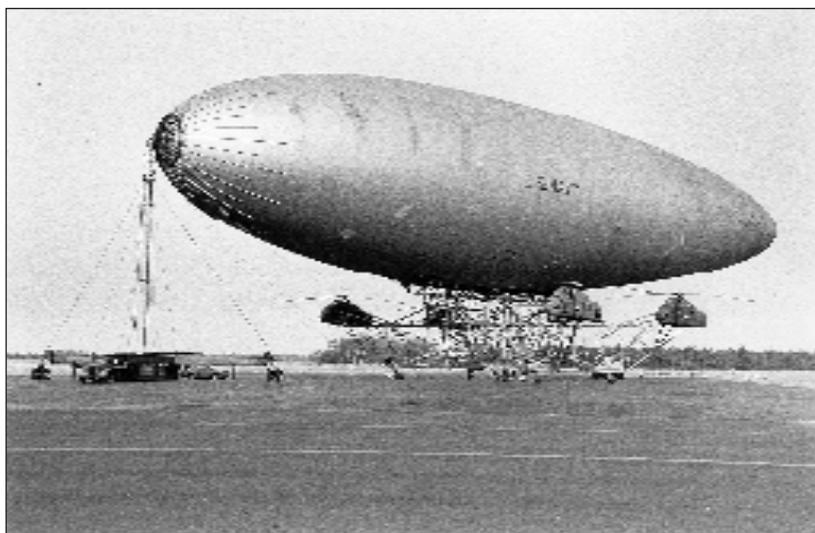
In the late 1970's, RARE II once again launched the Forest Service into the public arena. The draft RARE II report, published in 1978, led to many public demonstrations and letter-writing campaigns. The final RARE II report, published in January 1979, recommended that Congress add 15 million acres (only 12.3 million acres were recommended in RARE) to the National Wilderness Preservation System. However, roadless decisions and wilderness legislation would have to wait until Congress acted. Today, after a series of congressional acts that established new wildernesses, the Forest Service manages over 35 million acres of wilderness. This is approximately 18.4 percent of the entire National Forest System.

Bidding for national forest timber reached an all-time high in 1979 and 1980, just before a wood-products "depression" hit the timber industry. Because of very high interest rates, the new-home market became very depressed, with the demand and price for lumber products falling to almost record lows. Timber companies could not economically harvest the timber they had purchased at high prices. Nationally, a number of timber companies struggled, some going bankrupt, until the economy picked up in the mid- to late 1980's. The Forest Service experimented with a lighter-than-air balloon and tethered helicopter mix, which was referred to as a "helistat," to transport logs from remote areas. After many attempts, the effort failed.



USDA Forest Service

*Regional Forester Dick Worthington at RARE II Press Conference, Pacific Northwest Region (Portland, Oregon), 1979*



USDA Forest Service

*Experimental Helistat Balloon with Four Helicopters, Oregon*

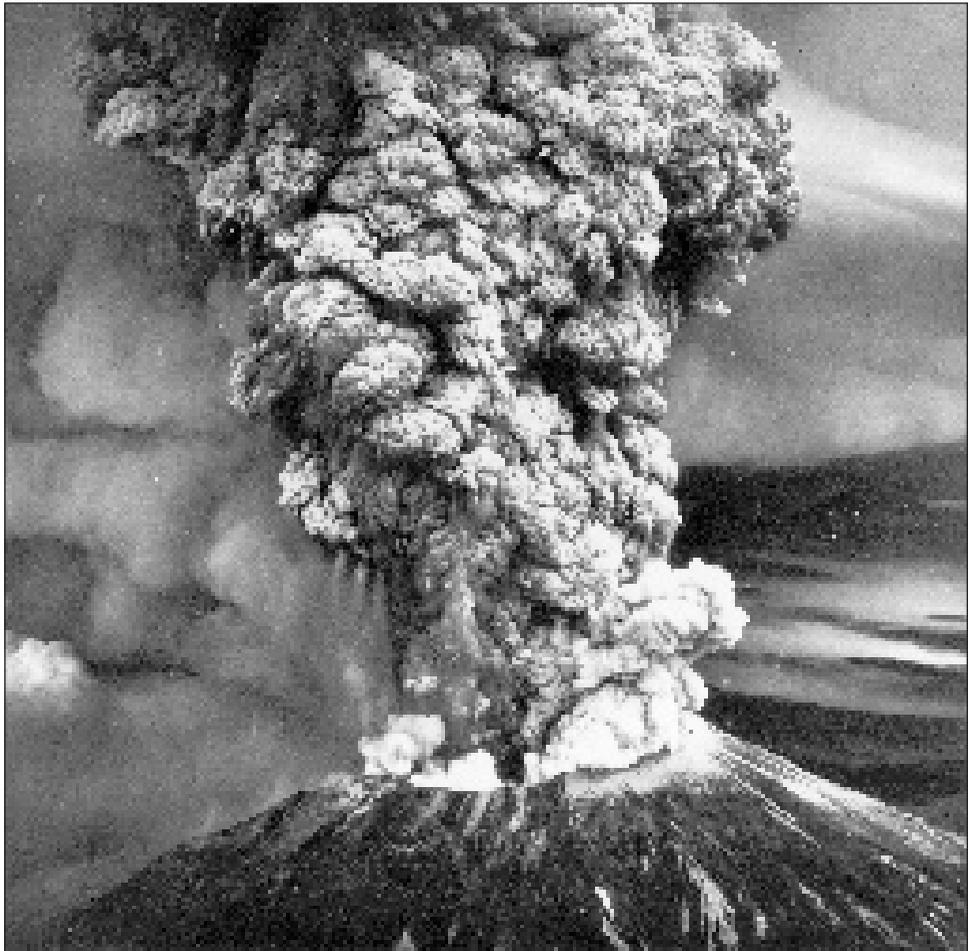
In the late 1970's and early 1980's, the illegal growing of marijuana on the national forest lands caused numerous management problems. Many of the national forests responded to this problem and other lawlessness by hiring law enforcement specialists, who have worked closely with other Federal, State, and local authorities.

In the Pacific Northwest, Mount St. Helens on Washington State's Gifford Pinchot National Forest rumbled to life with a huge volcanic explosion on May 18, 1980, that sent ash around the world. President Jimmy Carter visited the Forest and was instrumental in establishing the Mount St. Helens National Volcanic Monument in 1982.



USDA Forest Service

*Mount St. Helens Before and During the May 18<sup>th</sup> Eruption, Gifford Pinchot National Forest (Washington), 1980*



The Forest Products Laboratory designed a new strong, lightweight system for wood construction. Called the timber truss-frame, the system has been widely used by the home construction industry since the 1980's.



*Forest Products Laboratory's Timber Truss-Framed Construction*

USDA Forest Service

## NATIONAL FOREST MANAGEMENT ACT OF 1976

Congressional hearings began in the early 1970's on the clearcutting controversies on the Bitterroot and Monongahela National Forests, as well as a Federal court decision over the Organic Act of 1897. By the mid-1970's, arguments in Congress revolved around how specific any new law should be to direct the Forest Service in the management of the national forests. Some members wanted broad statements that would give land managers discretionary authority that would cover any possibility; others wanted language to mandate specific actions on the ground. In 1989, former Chief R. Max Peterson would say: "It became obvious to most that neither Congress nor anyone else could possibly write management prescriptions that would fit the many physical situations on national forests....This led to a recognition that the legislation would have to set forth a process rather than specify answers."

NFMA was signed into law on October 22, 1976. NFMA amended Resources Planning Act of 1974 (RPA) to provide a comprehensive blueprint for managing the national forests. One of the NFMA's provisions was that the Secretary of Agriculture appoint a committee of scientists—not officers or employees of the Forest Service—to provide scientific advice and counsel on how to implement its intent. It took almost 3 years for these implementing regulations to become final.

The regulations required the beginning of a long-range planning process for each national forest. Other NFMA requirements mandated public involvement in the planning process, a redefinition of sustained and nondeclining yield, and clearcutting, which the act defined as an acceptable practice. Another requirement was to “preserve and enhance the diversity of plant and animal communities...so that it is at least as great as that which would be expected in a natural forest.” NFMA also gave full statutory status to the National Forest System—many of the national forests had been established in a series of Presidential proclamations from 1891 to 1907.

An act similar to NFMA was passed and signed into law for the Bureau of Land Management (BLM). This 1976 act, the Federal Land Policy and Management Act, has similar provisions requiring long-range planning on the BLM-administered lands.

In 1998, a second committee of scientists was formed to rewrite the NFMA regulations, which were felt by many to be outdated. The committee recommended many changes to the regulations. Draft regulations were announced in the summer of 1999, along with a public review period. The final regulations were printed in 2000.



### **R. Max Peterson— Eleventh Chief, 1979-1987**

The first nonforester Chief since Gifford Pinchot, Ralph Max Peterson was born near Doniphan, Missouri, on July 25, 1927. Peterson was the first engineer to hold the position. He served as Chief from 1979 to 1987, during a time of increasing turmoil and criticism of the Forest Service.

Major accomplishments during this era were establishing regulations for implementing the National Forest Management Act of 1976 (NFMA), dealing with the aftermath of the RARE II decision, addressing the “timber depression” and housing slump of the early 1980’s, responding to a rapidly rising concern about the use of herbicides and pesticides on the national forests, supporting various wilderness bills before Congress, addressing a growing concern about the logging of old growth and below-cost timber sales (especially in Alaska), and developing ways to meet the needs of threatened and endangered species. Agency funding was reduced, which resulted in a substantial reduction in the number of employees. Although the public’s trust that the Forest Service could effectively manage the national forests fell because of the multiple issues, Peterson was able to oversee the changing management of the national forests during these trying times.

R. Max Peterson wrote:

The public's sudden interest in environmental and resource issues in the 1960s and 1970s is well known to all of you. The national forests were of particular interest and concern for several reasons. National forests are located in 44 states and within a one-day drive of 90 percent of the U.S. population. They provide more outdoor recreation, more hunting and fishing, more timber harvest, more hydroelectric power, and more wilderness than any other public or private land system. In addition, they are a source of high-quality water and a number of important strategic minerals, and provide significant domestic livestock grazing. In short, the resources of these lands are wanted by a large number of diverse users who see them as critical to meeting their future needs. Many also see their own desired use as either exclusive of other potential users or at least incompatible with them. In any language, that spells controversy.

## Internal Struggles

A sex discrimination lawsuit against the Forest Service's Pacific Southwest Region (California) resulted in a 1980 "consent decree." The decree accelerated advancement of women and minority employees to management and line officer positions. In 1985, Geri B. Larson was named the Forest Supervisor of the Tahoe National Forest in California—the first female forest supervisor in Forest Service history.



*Geri B. Larson, First Woman Forest Supervisor*

*Charles “Chip” Cartwright, First Black District Ranger on the Gifford Pinchot National Forest (Washington), 1983*



USDA Forest Service

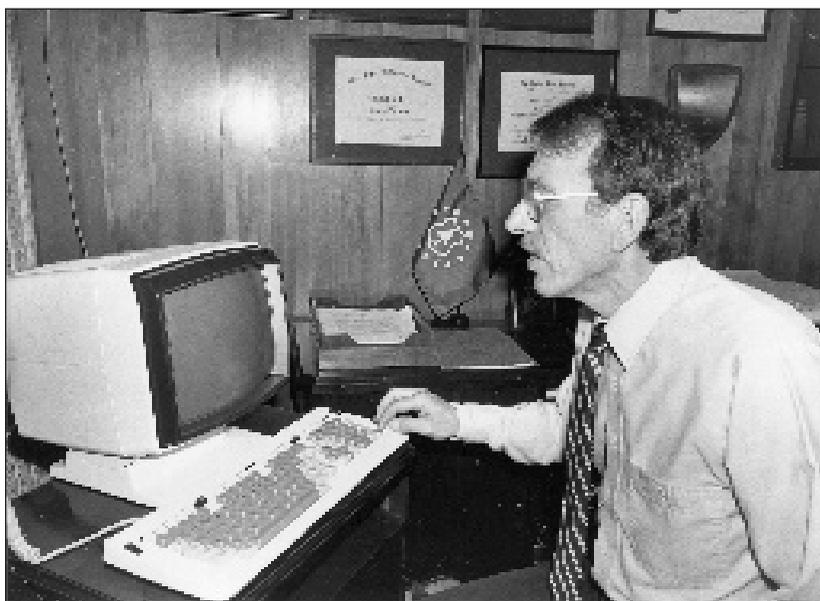
*Forester Lea Dotson Examines New Growth on Loblolly Pine, Sumter National Forest (South Carolina), 1986*



USDA Forest Service

Budget cuts in the mid-1980's reduced the number of Forest Service employees and eliminated a number of positions that were created in the late 1970's. In the 1990's, reducing the national deficit became a priority of the Clinton administration. There have been several attempts over the years to reorganize the agency, but little came of them. The most recent attempt was to revamp most of the regions, as well as to reduce the organizational complexity and number of employees. The reorganization of the regions was not accomplished because of congressional opposition, while other aspects were implemented. Today, the Forest Service has around 28,100 permanent employees, down from 35,400 in 1992.

Much of the long-range land and resource management planning was placed in the hands of forest specialists. Public controversy erupted over the management requirements for wildlife, water and soils, old-growth timber, disposition of remaining roadless areas, road construction costs, and below-cost timber sales in the NFMA planning process. The Forest Service made a decision in the early 1980's to use a particular linear programming model, FORPLAN, on each national forest for the new forest planning effort. The Forest Service adopted the Data General computer system, which electronically linked all agency locations—Washington Office, research stations, regions, national forests, and ranger districts. It has recently adopted an IBM/UNIX-based system to replace the Data General.



*Regional Forester James Torrence Using the Data General Computer System, Pacific Northwest Region (Oregon)*

USDA Forest Service

Beginning in 1984 with the Oregon and Washington Wilderness Acts, which contained much-sought-after “release language” for remaining roadless areas, a number of State-by-State wilderness bills passed Congress (16 additional State-wide wilderness bills were passed in 1984). Still long awaited are wilderness bills for the important States of Idaho and Montana, which contain millions of acres of unroaded lands.

In 1985, to stall the so-called “Sagebrush Rebellion,” the Reagan Administration proposed that the Forest Service and the BLM interchange certain lands in the West for ease of management. This proposal aroused great public outcry, even after a major revision, and was tabled by Congress. In the 1990's the new “Wise Use” or “Property Rights” or “County Supremacy” movement replaced the Sagebrush Rebellion. County commissioners in Nye County, Nevada, and Catron County, New Mexico, have put new emphasis on local control over Federal land. There have also been a rash of bombings and threats to Forest Service facilities and employees. However, following the Oklahoma City bombing, this violent extreme has seemingly cooled.



## F. Dale Robertson— Twelfth Chief, 1987-1993

F. Dale Robertson was born in Denmark, Arkansas, on July 17, 1940. Soon after his appointment as Chief in 1987, Robertson had to face a public wary of everything the Forest Service had to say or proposed to do. Especially troubling was the growing controversy about the harvest of old-growth timber (ancient forest) trees in the Pacific Northwest and the protection of several species of animals and plants that fell under the Endangered Species Act of 1973.

He appointed several task forces to consider all options, but when the decisions were made, they did not satisfy everyone.

Several new resource programs were developed under Robertson's leadership, including the highly successful "Rise to the Future," a program designed to enhance the production of fish on the national forests. Robertson led the Forest Service's effort to find new and creative ways to manage the national forests especially by emphasizing the noncommodity (nontimber) resources, new forestry, new perspectives, and the new era of ecosystem management. Robertson, and his Associate Chief, George Leonard, were reassigned from the Forest Service to the Department of Agriculture on October 29, 1993, after they faced increasing criticism by the Clinton Administration that the Forest Service was not changing fast enough.

F. Dale Robertson wrote:

Here are what I perceive as our strengths: First, our basic mission of "caring for the land and serving people" is very important. Our mission is a winner and naturally attracts strong public support. Second, I truly believe we have the best group of people ever put together in one large organization. We're the best at what we do. We know our jobs and do them well. Third, we collectively have more knowledge about the management of natural resources than any other organization. No one can match our capability, knowledge, and know-how. Fourth, we have a strong organization with a rich culture and good core values. Fifth, we are rich in land and resources.

Even though the national forests and grasslands represent only about 8½ percent of the United States, in many ways, they are the 50 percent lands:

- We have 50 percent of the Nation's big game animals;
- 50 percent of the coldwater fisheries;
- 50 percent of anadromous fish spawning grounds along the West coast;
- 50 percent of the Nation's standing softwood sawtimber;
- More than 50 percent of the precipitation in the West;
- 43 percent of the Federal market share in outdoor recreation;
- About 80 percent of the Wilderness;
- More than 50 percent of the Wild and Scenic Rivers in the lower 48 States;
- In the grazing business, we don't come anywhere close to 50 percent, but we still play an important role in meeting the Nation's needs.

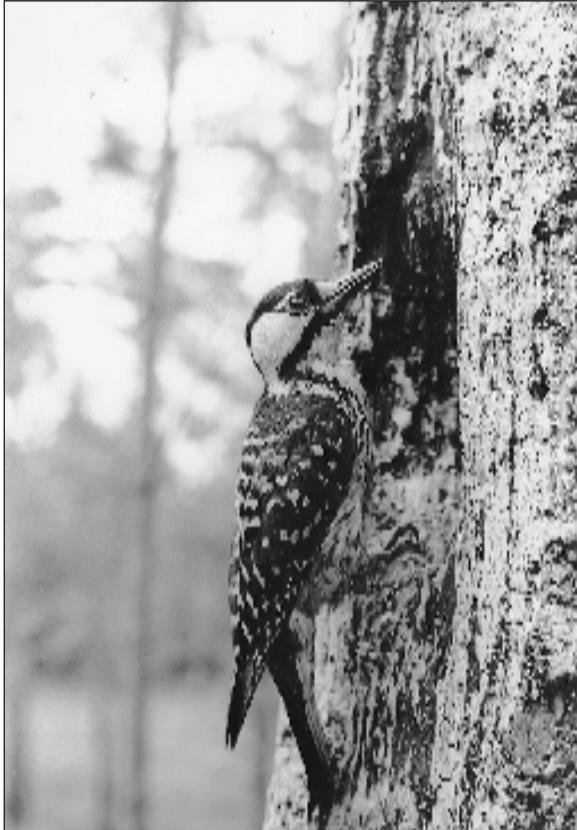
The national forests and grasslands are a tremendous economic and environmental asset to the country and a strength of the Forest Service. So when you add all of these strengths—our mission, the capability of the Forest Service people, our knowledge and know-how, our rich culture and strong core values, and being rich in land and resources—it's pretty impressive.

## Owls and Other Wildlife

There has been growing public concern over unique wildlife, several species of which were threatened or endangered, that lived or nested on national forests around the country. In the West, spotted owls, marbled murrelets, grizzly bears, caribou, Pacific salmon, and wolves caused concern, while Texas and the Southeast were concerned about the red-cockaded woodpecker. Other regions have different species of wildlife and plants that are unique to certain areas. In 1987 and 1988, various environmental groups sought to have the spotted owl listed with the Department of the Interior's U.S. Fish and Wildlife Service as a threatened or endangered species. A judge later declared that the Fish and Wildlife Service had not provided sufficient information about its decision not to list the bird. Subsequently, the U.S. Fish and Wildlife Service declared its intent to restudy the issue, and in June 1990, it declared the spotted owl threatened in western Washington, western Oregon, and northern California.

Other plant and animal species inhabiting the national forests have joined the spotted owl as species to be considered for threatened or endangered status. Considerable controversy has arisen over the reintroduction of the wolf into the Yellowstone ecosystem. Other concerns have been expressed over many animal and plant species in various parts of the national forests, including the bald eagle, peregrine falcon, eastern timber wolf, Puerto Rican parrot, Mount Graham red squirrel, steelhead trout, bull trout, and other species.

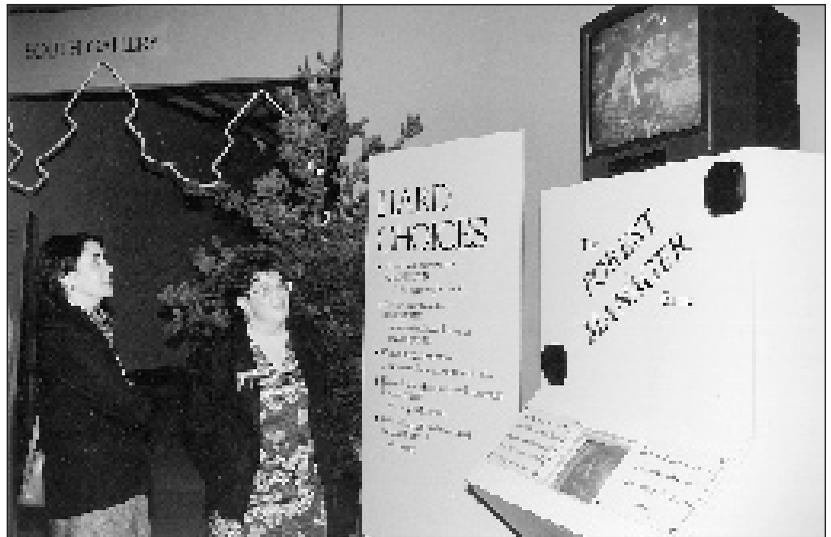
*Red-Cockaded Woodpecker*



USDA Forest Service

The latest round of forest planning, in which every Forest Service region and national forest developed comprehensive, NFMA-directed forest plans, was basically completed by the end of 1990; however, numerous appeals and lawsuits by the timber industry and environmental and other groups have delayed the implementation of many of these plans. On some national forests, appeals and lawsuits have been successfully resolved through a negotiation process in which the contending parties sat down and discussed options and eventually came to an agreement.

*Visitors at Old Growth Exhibit “Playing” the Forest Manager Game, 1991*



USDA Forest Service

## WILDLIFE AND THE NATIONAL FORESTS

Adapted from Terry West's  
*Centennial Mini-Histories of the Forest Service* (1992)

Interest in wildlife was an important part of the conservation movement of the late 19th century. Although wildlife did not have the economic importance of other resources such as timber, forage, and water, nor did it capture the public's attention as much as efforts to preserve scenic waterfalls or geysers, big game species were perhaps the most endangered resource of that period.

Reformers such as George Bird Grinnell, founder of *Field and Stream* magazine, and Theodore Roosevelt, a cofounder of the Boone and Crockett Club, were alarmed by the fate of big game in the Western States. When Roosevelt sponsored Gifford Pinchot for membership in the club, Pinchot was able to expand the notion of forest conservation to embrace the cause of big game protection. Yet, when the Federal forest reserves were transferred from the Department of the Interior to the Department of Agriculture in 1905, the Forest Service apparently did not see much of a relationship between national forest administration and wildlife. An emphasis on timber resources set the future tone of the agency.

Moreover, the agency had to be cautious about regulating game animals and birds on the forest reserves (which were renamed national forests in 1907) for fear of trampling States rights and giving its western critics reason to disband the reserves. The policy of the Forest Service was to "cooperate with the game wardens of the State or Territory in which they serve..." according to the first book of directives issued by the agency in 1905 (*The Use Book*). Two years later, a provision in the Agricultural Appropriations Act of 1907 made it a law that "hereafter officials of the Forest Service shall, in all ways that are practicable, aid in the enforcement of the laws of the States or Territories with regard to...the protection of fish and game."

The agency helped pioneer the field of wildlife management and stimulated many of the States to begin or improve their own programs. Hunters and anglers were the largest group of recreationists visiting the national forests, so it was natural for the Forest Service to focus its attention on fish and game animals. Federal game refuges created on national forests to conserve wildlife were helpful in increasing populations of game animals, and these animals could then be hunted on adjacent lands. The growth of deer populations led to conflicts between hunters and ranchers. Recreational hunters wanted more game animals; ranchers, concerned with forage depletion, wanted fewer. In the 1920's, the Forest Service effort to reduce the overextended mule deer populations on the Grand Canyon Federal Game Preserve (Kaibab National Forest) went to the Supreme Court. The agency won a limited victory in 1924 when the Court found that Forest Service employ-

ees could hunt excess game to “prevent property damage,” that is, to protect the forage resource from overgrazing by deer.

It was there, in the Southwest, that Aldo Leopold, a Forest Service employee from 1909 to 1928, developed his concept of wildlife management that led to the first textbook, *Game Management* (1933). Leopold favored the eradication of predators as a step in bringing back big game populations. However, after killing a wolf he realized that predators were important to the natural balance of deer populations.

In 1929, the Forest Service hired its first wildlife biologist, Barry Locke, who was stationed in the Intermountain Region. He left 2 years later to serve as Director of the Izaak Walton League. At first, the economic depression of the 1930's halted wildlife programs for lack of budgets. The public works programs later developed to provide employment in areas such as natural resources conservation, including wildlife habitat improvement. Much of this work was done by the millions who served in the Civilian Conservation Corps.

By 1936, the year Dr. Homer Shantz became first director of wildlife management, 61 people were assigned to wildlife work in the Forest Service. The national forests in the Southeast grew rapidly in number during the Depression through Federal purchase of severely cutover and eroded private lands. The management challenge for these lands was to make the recovering forests suitable places for wildlife. From this goal came the slogan: “Good timber management is good wildlife management.”

In the Pacific Northwest, the Forest Service found that public concern over elk protection superseded demand for timber production. It involved a lengthy battle with the Park Service over the management of Mt. Olympus National Monument, which was established in 1909 to protect the Roosevelt elk (named after Teddy Roosevelt). Forest Service officials argued that the best use of the monument, then managed by the Forest Service, and surrounding national forest land was to open the area to forest (timber) management, which would provide employment and recreation for the local population. The controversy came to a boil during the mid-1930's when the Forest Service and the Bureau of Biological Survey recommended that the elk population in the monument be reduced by shooting to prevent overgrazing, disease, and starvation. Citizens were outraged, especially the editor of the *Seattle Post-Intelligencer*, whose wife was the daughter of President Franklin Roosevelt. When Roosevelt visited the area in 1937, he had already decided to include the monument and adjacent national forest system lands in a new Olympic National Park (established by Congress in 1939).

In the late 1940's, agency involvement in wildlife was reduced following the improvement of State fish and game programs and the rise of timber harvesting on national forests. Problem areas surfaced as squirrel hunters in the Southern Region, upset over loss of oak trees exclaimed in 1956: "You kill the hardwoods, we'll kill the pine." In the 1960's, turkey hunters on the Monongahela National Forest complained of clearcuts in their favorite hunting areas. The result was a lawsuit, congressional hearings, and passage of the National Forest Management Act of 1976. This law required the Forest Service to conduct its planning to ensure a diversity of plant and animal species and, therefore, is responsible for the rapid increase in wildlife personnel in the late 1970's.

The Forest Service was not created to protect wildlife, but its rangers realized that if they did not manage these animals' habitats, nobody else would. Thus, the agency became an early leader in the field of game management. Passage of the Endangered Species Act of 1973 gave additional authority to land managers to protect individual species and habitats for threatened and endangered wildlife, fish, and plant species. The Forest Service caught up with this new reality with publication of *Wildlife Habitats in Managed Forests—The Blue Mountains of Oregon and Washington* (1979), edited by future Chief Jack Ward Thomas. It was the first agency book to provide "concrete direction for the management of game and nongame species alike."

## Yellowstone Fire in 1988

As a result of the terrible fires that spread through Yellowstone National Park and adjacent national forest lands in the summer of 1988, the Forest Service and the National Park Service received considerable public pressure to change their policy of letting some fires burn

naturally (the so-called "let-burn" policy). After much public and scientific debate about fire's proper role in the environment, and after viewing the subsequent "re-birth" of the park and adjacent national forests, the agencies have modified their policies to put out fires more quickly, but still to allow some natural fires to burn under strictly controlled conditions.



USDA Forest Service

*Hell Roaring Fire in Yellowstone National Park, 1988*

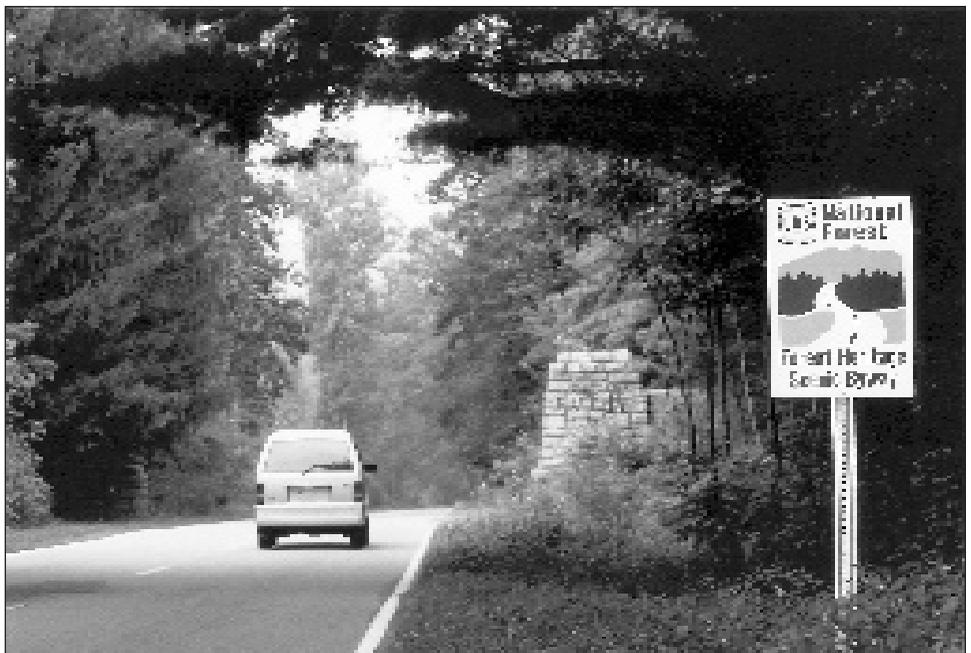
## Development of Partnerships

A series of new programs were developed at the Forest Service's national level in the late 1980's and early 1990's. The Challenge Cost-Share Program, established by Congress in 1986, has provided the means for the Forest Service and the private sector to share management and financial costs for projects on the national forests.

Currently, several thousand cooperative wildlife habitat enhancement projects on the national forests are carried out by the Forest Service, other Federal and State agencies, and nonprofit organizations—like Ducks Unlimited, Rocky Mountain Elk Foundation, and many others. The habitat enhancement program grew from \$2.5 million in fish and wildlife habitat improvements in 1986 to more than \$17 million in Federal funds that were matched by \$23 million from partners in 1996 to accomplish 2,135 projects.

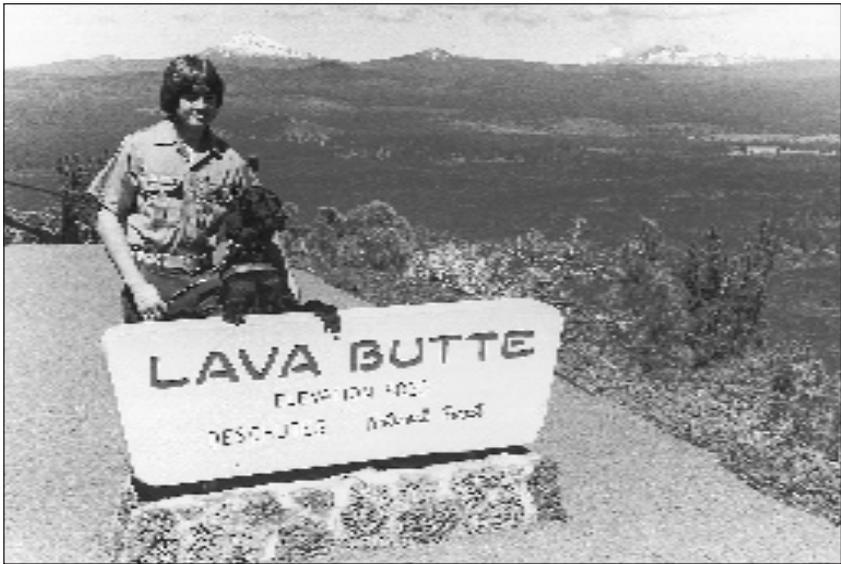
The Presidential initiative “America's Great Outdoors” was designed to encourage cooperation between the Forest Service and the private sector in developing and improving recreational facilities and opportunities for the public. Another popular program, in conjunction with other Federal agencies, is the “Scenic Byways” program, which has designated about 7,700 miles of national forest roads and highways for recreational pleasure—often scenic roads that have ample opportunities for scenic vistas, unusual geologic and forest features, bicycle and hiking trails, rest stops, picnic areas, campgrounds, boating, fishing, and wildlife viewing. In Alaska, the Alaska Marine Highway (the Alaska Ferry System) has also been designated a Scenic Byway.

*Pisgah National Forest Scenic Byway (North Carolina)*



USDA Forest Service

Several other initiatives have been developed to encourage recreational pursuits on the national forests, as well as to improve the natural resources. One of these has been the successful “Rise to the Future” program, which was designed to enhance fish production and encourage fishing on the forest lakes and rivers. Others include “Taking Wing,” a waterfowl and wetland program to enhance habitat on national forests and support the North American waterfowl plan; “Animal Inn,” a program to communicate the importance of managing dead standing timber and fallen trees for wildlife habitat; and “Join Us,” a program to strengthen public-private partnership in fisheries and wildlife management.



*Joe Meade  
and Guide  
Dog  
“Missy,”  
Deschutes  
National  
Forest  
(Oregon),  
1977*

USDA Forest Service

## **International Forestry**

In 1990, Congress directed the Forest Service to assume a greater role in international environmental affairs. International Forestry, a new “leg” of the Forest Service (along with the National Forest System, Research, and S&PF), was established in 1991 to coordinate and cooperate with other countries on matters dealing with forestry and the environment. Although previous programs had worked closely with other countries to provide expertise and experience in these matters, the International Forestry program area has given higher priority to engaging in dialogue and cooperation with other countries to solve global resource problems. The 1992 signing of the Forest Principles and Agenda 21 at the United Nations Conference on Environment and Development (UNCED)—the “Earth Summit”—was coordinated by this new branch of the agency. Due to reorganization of the Forest Service and funding cuts, the International Forestry program was reduced from a Deputy Area to a Staff that reports directly to the Chief in 1997 and renamed the Office of International Programs. The program continues to work with countries on natural resource management internationally. It focuses current programs on Indonesia, Brazil, Canada, Mexico, the newly independent states since the breakup of the former Soviet Union, and Russia.

*Institute of Tropical  
Forestry, Puerto Rico*



USDA Forest Service

International Programs is also the home of the Disaster Assistance Support Program (DASP), which assists with support personnel and humanitarian relief on international disasters, both natural and human-caused.

## INTERNATIONAL FORESTRY

Adapted from Terry West's 1991 Paper:  
"USDA Forest Service Involvement in Post-World War II International Forestry"

It may be said that Forest Service's involvement with foreign forestry began after the Spanish-American War of 1898. U.S. Army Captain George P. Ahern organized the Philippine Bureau of Forestry in 1900 and invited USDA Bureau of Forestry director Gifford Pinchot to visit and offer advice in 1902. Creation of the Luquillo (now Caribbean National Forest) forest reserve in Puerto Rico in 1903 further involved the Forest Service in tropical forestry. The Forest Products Laboratory (Madison, WI) began a program of tropical wood research shortly after being founded in 1910, with employee Eloise Gerry writing the first of a series of research reports on South American forests and woods of commerce in 1918.

In 1928, the McSweeney-McNary Forest Research Act authorized the establishment of a forest experiment station in the "tropical possessions of the United States in the West Indies." That act and wording led to the establishment of the Tropical Forest Experiment Station in Rio Piedras, Puerto Rico, in 1939. Today, the expanded International Institute of Tropical Forestry (IITF) has responsibility for programs in international forestry, State and private forestry, and research and development.

It was the onset of World War II that set the basis for increased U.S. involvement in international forestry. During the war, U.S. Government defense needs led the United States to foster studies of forest conditions in selected Latin America countries. Teams of foresters were dispatched to South America in search of sources of cinchona bark to meet wartime quinine needs to treat malaria.

After World War II, foreign aid projects became the concern of international forestry in the Forest Service. During that period, two organizations involved U.S. foresters in forestry projects: The United Nations Food and Agriculture Organization (FAO) and the U.S. Agency for International Development (USAID).

FAO was born in 1943 when President Franklin D. Roosevelt convened a conference to consider ways to organize international cooperation on agriculture. FAO's agenda excluded forestry until a group led by the Forest Service managed to get it added during FAO's first conference in 1945.

For years, foresters struggled to persuade developmental agencies that forestry was a critical element in land use planning. The basic problem was that most of these agencies were concerned primarily with agricultural production to feed the world's growing population. It was left to the Forest Service to promote forestry wherever its staff could find a forum.

There were other forestry opportunities with the International Cooperation Administration (ICA), a semi-autonomous agency with the U.S. Department of State. Early ICA forestry work was small-scale—one person assigned to a country. For example, in the early 1950's Forest Service employee Eugene Reichard served as forester for Colombia and Bolivia. Nonetheless, this agency was a primary conduit for Forest Service participation in international forestry.

In 1950, President Truman announced bilateral technical assistance to newly independent countries and to other developing nations. The Forest Service was called upon to provide two kinds of help: 1) Recruiting foresters and technical leaders for assignment overseas, and 2) receiving foreign nationals for academic studies or on-the-job training in forestry and related areas. Over the next two decades (1950 to 1970) the Forest Service furnished over 150 professionals for long-term assignments or short-term details to technical assistant programs overseas; in the same period over 2,500 foreign nationals went through Forest Service training programs.

In 1958, the unit became known as the Foreign Forestry Service in the Office of the Deputy Chief for Research, with A.C. Cline designated as its director in 1959. Two new sections were added in 1961: 1) Technical support of foreign programs, and 2) training of foreign nationals. In 1987, the program filled over 800 requests for technical consultation from

50 countries. The same year, 35 Forest Service employees served on 1-year assignments in 20 foreign nations, with 8 others on short-term projects rendering technical assistance in such areas as recreational planning, range management, land use planning, forest industries, and nursery development.

Following publicity over the environmental impact of tropical deforestation, the 1980's saw an increased public interest in international forestry. Chief R. Max Peterson in 1980 wrote of "our increasing need for involvement in forestry problems beyond our own domestic programs." The movement accelerated with a flurry of publications. USAID acted early with its Forest Resources Management Project in 1980 that led to the Forestry Support Program (FSP) in the Forest Service and a joint USAID/Peace Corps Initiative.

A decade later, the 101st Congress passed legislation—the Global Climate Change Prevention Act and the International Forestry Cooperation Act—that greatly expanded the role of the Forest Service in international resource management. The Global Climate Change Prevention Act directed the Secretary of Agriculture to establish an Office of International Forestry under a new and separate Deputy Chief in the Forest Service. Jeff Sirmon was selected as the first Deputy Chief.

Since 1985, International Programs have included the Disaster Assistance Support Program (DASP) and Disaster Assistance Response Teams (DART). DASP assists with support personnel and humanitarian relief on international disasters—both natural and human-caused—including fires, floods, famine, earthquakes, and civil strife. DART are deployed by the U.S. Agency for International Development's Office of Foreign Disaster Assistance (USAID/OFDA) to assist OFDA in providing disaster prevention, preparedness, and emergency response to developing nations in Africa, Asia, Latin America, the Caribbean, and the Pacific regions. The objectives of the DART response teams, which are comprised of volunteers, are consistent with the Strategic Plan for International Cooperation signed by the Forest Service in 1995, the International Forestry Cooperation Act of 1990, and the Global Climate Change Act of 1990. Over the last 15 years, many relief teams have been sent to African countries, including Angola, Namibia, Somalia, Rwanda, Sudan, and South Africa, as well as to assist with disasters occurring in Peru, Yugoslavia, and many other nations throughout the world.

In 1997, the position of Deputy Chief for International Forestry was eliminated and International Forestry became the Office of International Programs, reporting directly to the Chief. The program continues to work with countries on natural resource management issues internationally and to support DASP and DART. It focuses current programs on Indonesia, Brazil, Canada, Mexico, the newly independent states in the former Soviet Union, and Russia.

## Ecosystem Management and the Future Era, 1993-Present

The foundation for ecosystem management, based on the ecology of the land, air, water, plants, animals, and people, was introduced by Chief Dale Robertson in 1992. It was a logical conclusion to the earlier management ideas called “new forestry” and “new perspectives.” Although the ideas had been talked about for decades, this was the first effort to apply the principles to the 191 million acres of the National Forest System.

In early April 1993, President Clinton and Vice President Gore, along with five cabinet members, met representatives of the public in Portland, Oregon, to discuss the spotted owl and timber harvest situation in the Pacific Northwest and northern California. Never in the history of the agency had the administration put such emphasis on resolving problems in the national forests and adjacent BLM districts. The result of the Forest Conference was the calling of the top forest researchers to develop in 60 days a credible scientific solution to managing the Federal forests under a comprehensive ecosystem management plan for the Pacific Northwest.

The Federal scientists and managers, also known as the Forest Ecosystem Management Assessment Team (FEMAT), produced a comprehensive ecosystem management assessment (FEMAT report) and management plan (Supplemental Environmental Impact Statement) for the Pacific Northwest. Similar analyses are being worked on for forest areas in other Forest Service regions. The Interagency Columbia Basin Ecosystem Management Project (ICBEMP) in 1997 included an assessment and plan for managing the Federal forest and grazing lands of a huge area covering much of central and eastern Washington and Oregon, northern Idaho, and western Montana. Other large-scale assessments have been produced, including the Sierra Nevada Ecosystem Project (SNEP) in the Pacific Southwest Region (1996) and the Southern Appalachian Assessment (1996). Other long-term assessments, like the Greater Yellowstone, are in the process of study.

The Forest Service, under the leadership of wildlife researcher Chief Jack Ward Thomas, quickly adopted ecosystem management—where the long-term sustainability of ecosystems was the management goal for the National Forest System rather than board feet of timber, dollars in the Treasury or counties, and jobs in the communities.

Chief Mike Dombeck, after his appointment as Chief in 1997, changed the emphasis of ecosystem management through the “Natural Resource Agenda.” Basically, the agenda emphasized four areas of management: 1) watershed health and restoration, 2) sustainable forest management, 3) national forest roads, and 4) recreation. In keeping with the intent of the Organic Act of 1897, this new agenda put protecting the national forests as the primary goal of management, followed by providing abundant, clean water, and finally allowing multiple-resource management on the areas that can sustain intensive activities. On October 13, 1999, President Clinton announced that the Forest Service would study the road/roadless area issue again and provide a solution for public review.

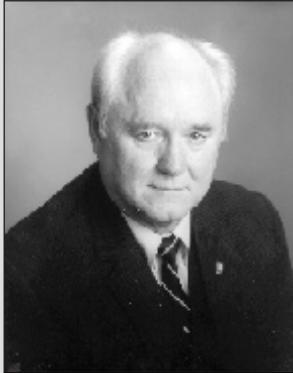


## ECOSYSTEM MANAGEMENT

Ecosystem management, the driving force behind current policy of the Forest Service, USDI Bureau of Land Management, and other Interior agencies, combines philosophy, conservation, ecology, environmentalism, and politics. Although the term “ecology” has been around since the 1800’s, management using an ecological framework is relatively recent. Aldo Leopold’s book *A Sand County Almanac* (1949) and Rachel Carson’s book *Silent Spring* (1962) influenced many people to look at the broader picture of the interaction between people and the environment. In 1970, Lynton Caldwell published an article that perhaps for the first time advocated using an ecosystem approach to public land management and policy. Then in the late 1970’s, Frank and John Craighead pioneered efforts to use broad ecosystems in the management of grizzly bears in the Yellowstone National Park and surrounding national forests. By the late 1980’s, many researchers and public land managers were convinced that an ecosystem approach to manage public lands was the only logical way to proceed in the future. The following 10 elements contain what ecosystem management means for public and private land management (thanks to the work of Edward Grumbine):

1. *Multiple Analysis Levels*—Use different levels of analysis, from the site-specific location to the broad watershed perspective or even larger.
2. *Ecological Boundaries*—Define ecosystems by analyzing and managing them across political and administrative boundaries.
3. *Ecological Integrity*—Protect the total natural diversity, ecological patterns, and processes. Keep all the pieces.
4. *Data Collection and Data Management*—Require more research, better data collection methods, and up-to-date information.
5. *Monitoring*—Track results of management actions. Learn from mistakes. Take pride in successes.
6. *Adaptive Management*—Use adaptive management, a process of taking risks, trying new methods and processes, experimentation, and most of all remaining flexible to changing conditions or results. Encourage better public participation and involvement in planning, decisionmaking, implementation, and monitoring.
7. *Interagency Cooperation*—Work with agencies at the Federal, State, and local levels, as well as the private sector, to integrate and cooperate over large land areas to benefit the ecosystems.
8. *Organizational Change*—Change how the various agencies work internally and with partners to encourage cooperation and understanding, as well as advance training for on-the-ground employees. Expand partnerships and cooperation with other agencies and the public.
9. *Humans Are Part of Ecosystems*—People are a fundamental part of ecosystems, both affecting them and affected by them. Involve people at all stages in the analysis and decisionmaking phases.

10. *Human Values*—The human attitudes, beliefs, and values that people hold are significant in determining the future of ecosystems as well as the global environment. Seek balance and harmony between people and the land with equity across regions and through generations by maintaining options for the future.



### **Jack Ward Thomas— Thirteenth Chief, 1993-1996**

Jack Ward Thomas was born in Fort Worth, Texas, on September 7, 1934. Amid controversy about how new Chiefs should be appointed, Thomas was given the job in October 1993 as a political appointee with the assurance that he would be converted to a career appointment through the Senior Executive Service (through which Chiefs Peterson and Robertson were appointed). Soon after his becoming Chief,

Thomas had to address a demoralized agency, with the public in opposition to practically anything that the Forest Service proposed to do.

The controversy about the Northwest Forest Plan for the spotted owl region (western Washington, western Oregon, and northern California) was especially troubling. Yet Thomas, a Forest Service wildlife researcher his entire career, led several efforts to resolve conflicts over management under the Endangered Species Act of 1973, especially relating to spotted owls. Chief Thomas was greeted with suspicion by some, but was hailed by others. During his relatively short tenure as Chief, he moved quickly into implementation of ecosystem management for all the National Forest System lands.

Jack Ward Thomas wrote:

We don't just manage land—we're supposed to be leaders. Conservation leaders. Leaders in protecting and improving the land...with a broad view of natural resource leadership, and that includes people, because people are part of ecosystems....The Forest Service is going to be a leader in ecosystem management...right now it's more a concept than a practice....What does ecosystem management mean? It means thinking on a larger scale than we're used to. It means sustaining the forest resources over very long periods of time. And from that will flow many goods and services, not just timber. Ecosystem management is not just a timber sale; it's putting the timber sale into a bigger picture, including the watersheds, wildlife, roads, and people's needs and values....Wood production will continue to be a significant part of our program, but we will look more at

multiple variables, not just production. We will be more proactive on wildlife programs, fish programs, and recreation programs...we have to involve the citizens of this country...We are going to have to improve our technical skills across the board.... We need to be prepared to move into the 21st century or we'll be left in the dust.



### **Michael P. Dombeck— Fourteenth Chief, 1997-2001**

Michael P. Dombeck was born on September 21, 1948, in Stevens Point, Wisconsin. He spent 12 years with the Forest Service primarily in the Midwest and West. In his last Forest Service post before he became Chief—National Fisheries Program Manager in the Washington Office—he was recognized for outstanding leadership in developing and implementing the fisheries programs and forging partnerships. He then spent a year as a Legislative Fellow working in the U.S. Senate with responsibility for natural resource and Interior appropriations issues. Dr. Dombeck was named Acting Director of the Bureau of Land Management (BLM) in February 1994.

After less than 3 years as Acting Director, he was selected as the new Chief of the Forest Service in January 1997. During his tenure, he focused on two major objectives: Creating a long-term vision to improve the health of the land through the “natural resource agenda” and improving customer service through a program entitled “collaborative stewardship.”

After less than 3 years as Acting Director, he was selected as the new Chief of the Forest Service in January 1997. During his tenure, he focused on two major objectives: Creating a long-term vision to improve the health of the land through the “natural resource agenda” and improving customer service through a program entitled “collaborative stewardship.”

Mike Dombeck wrote:

We are a better, stronger, and healthier Nation due to the work of the Forest Service. In the past, because there were fewer people and demands on the land, we could achieve many of our goals with less conflict. Getting from point A to point B wasn't all that difficult. We helped define the starting point and decided how to get to the endpoint. That has grown more complex as society has changed and become more complex. Today, we are faced with competing demands, new pressures on the land, and greater challenges than ever before.

There is an ongoing debate in this Nation over how national forests and rangelands should be managed. That's just fine. In fact, it is healthy. Debate and information are the essence of democracy. The people we serve, all of the people, are now more fully engaged in defining how to move from point A to point B. Our task is not to dictate the course or the outcome. Rather, we need to be the facilitators, the suppliers of knowledge and expertise, the educators and communicators who help people search for solutions.

But as the debate swirls, we cannot forget our successes or the essential services that we provide daily to people and communities. An important part of our job is to articulate our successes. The most enduring and powerful maxim of business is that “money flows to things people want.” People want their cultural heritage protected, clean air and water, healthy forests and rangelands, good hunting and fishing, sustainable supplies of timber and forage, etc. The one sure way to guarantee that we will have continued downsizing and declining budgets is by not telling people our story. We need to communicate our successes.

My expectation is that everything we do—every environmental impact statement we write, every timber sale, recreation plan, mining plan, or allotment management plan we approve—will not compromise the health of the land. I want to make it very clear that no Forest Service program has dominance over another. Timber is not more important than wildlife and fisheries. Nor is wildlife and fisheries more important than timber or recreation, or cultural resources, and so on.

We will care for the land and serve people by listening to all our constituents and by living within the limits of the land. I call this commitment to healthy ecosystems and working with people on the land “collaborative stewardship.” Our task is to help bring people together on the land. That's what collaborative stewardship is all about. We are the professionals, scientists, and managers who can work hand-in-hand with State agencies, tribal governments, regulatory and other Federal agencies, conservationists—all who use and care about public lands and natural resources to assure the most efficient and effective conservation management possible.

Our vision cannot be stated better than in the dedication of *Breaking New Ground* by Gifford Pinchot, published in 1947. “To the men and women of the Forest Service, whose courage, devotion, and intelligence have made it and kept it the best organization in the Government of the United States.”

## Changes in the National Forests— Over 100 Years of Progress

There have been thousands of changes to the national forests over the last 100-plus years. The most significant change has been the establishment of the USDA Forest Service to administer our national forest heritage. The creation of the national forests marked the end of the frontier in American life. The purpose of the Federal Government changed from that of giving or selling the public domain to reserving and managing the public forest lands for the people of the United States and for future generations. Following are some of the important changes that have occurred on the 191 million acres of national forests and grasslands.

### **National Forests and National Grasslands**

Prior to 1891, there were no national forests—or forest reserves as they were first called—and no national grasslands. Today, there are 187,811,680 acres of national forests; 3,839,174 acres of national grasslands; and 813,965 acres of purchase units, land utilization projects, research and experimental areas, and related lands—a total of 192,464,819 acres of land administered by the USDA Forest Service for the people of the United States.

### **National Forest Receipts**

In the late 1800's, the forested public domain land, some of which became the national forests, was not on the State and county tax rolls and thus contributed nothing to local, State, and Federal funding. Currently, the Forest Service collects \$967.8 million in receipts. In addition, the national forests contribute to the States and counties more than \$229,035,000 as part of the receipts collected from timber sales, grazing, recreation, mineral extraction, and special use authorizations (including firewood, plants, Christmas trees, cabins, resorts, and outfitters and guides). These funds, used for schools and roads, generally represent 25 percent of the receipts collected during the year, the other 75 percent are deposited to the U.S. Treasury.

### **Fire**

Before 1905, an estimated 30 million acres of forest area were burned each year. Currently, the amount of fire damage is approximately 1.9 million acres per year on all ownerships.

### **Grazing**

Before 1905, many millions of sheep and cattle grazed the public domain forest lands. Today, the Forest Service administers approximately 50 million acres of rangeland in 33 States. Currently, 8,783 grazing allotments (around 9.3 million head months) contribute \$7.0 million to the Forest Service receipts, annually.

### **Timber**

Before 1905, very little timber was harvested from the lands destined to become national forests. Most of the timber that was harvested was used by homesteaders, miners, and railroads. By 2002, the national forests produced about 1.7 billion board feet of timber generating \$164 million in gross revenues.

### **Reforestation**

Prior to 1905, there was no reforestation on cut-over or burned-over areas. One hundred years later, the Forest Service is planting trees on 277,900 acres annually. There will always be forests for future generations.

### **Fishing**

Before 1905, there was minimal fishing on waters in what would become the national forests. Currently, fishing contributes 18.9 million visitor days annually on 2.3 million acres of lakes, ponds, and reservoirs; 128,000 miles of fishable rivers and streams; and 16,500 miles of coasts and shorelines. The Forest Service also administers millions of acres of streamside (riparian) habitats. In 1996, recreational fishing generated \$8.5 billion worth of economic value.

### **Hunting**

Prior to 1905, hunting was minimal on what would become the national forests, with much coming from hardy outdoor recreationists on extended trips or on areas near homesteads and cities. Today, hunting on the national forests contributes around 19.4 million visitor days annually and the Forest Service administers millions of acres of wildlife habitat while the States control the numbers of huntable animals.

### **Minerals**

Prior to 1905, the value and dollar amount of minerals removed from public domain timberlands was not known—but in some cases, it was substantial. Presently, there are about 7,000 active mining claims on approximately 5.9 million acres of National Forest System lands and another 1,000 or so pits and quarries that provide common variety minerals such as sand, gravel, stone, and pumice. In 1998, about 10 million barrels of oil, 150 billion cubic feet of natural gas, and 115 million short tons of coal were produced on National Forest System lands.

### **Recreation and Tourism**

Before 1905, recreation was quite limited on what would become the national forests, with much recreation use being for weeks or months at a time in the mountain peak country, popular hot springs, and easily accessible camping and fishing places. Today, recreation use on the national forests is enormous, with more than 860 million visits (or about 341 million recreation visitor days) contributing about \$47.6 million to the Treasury each year. There are 140 ski areas, 485 resorts, over 4,000 campgrounds, 73 major visitor centers, and 4,100 private businesses, which provide more than 139,000 jobs on and adjacent to the national forests.

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## **Soil and Water Resource Improvements**

Before the national forests existed, destruction or massive changes to waterways caused by uncontrolled development from mining, grazing, and timbering developments were rampant on the public domain. In 1998, restoration for fish habitat was accomplished on about 1,600 miles of streams and 9,500 acres of lakes, with another 38,500 acres of land improvements.

## **Trails**

Prior to 1905, there were few trails in or through the mountains, and most of those were older American Indian trails, hunter or game trails, or stock drive-ways. Currently, there are more than 133,000 miles of national forest trails, fewer than several decades back but considerably more than 100 years ago.

## **Roads**

Before 1905, there were only a few roads—mostly private, toll wagon roads—on what would become the national forests. A little over 100 years later, there are 381,000 miles of roads, ranging from dirt roads to interstate highways and 7,700 miles of National Scenic Byways in 30 States. In 1998, the Forest Service decommissioned almost 2,100 miles of unneeded roads.

## **Wilderness**

Prior to 1905, the national forest areas in the West were practically all untracked wilderness areas; in the East, what would become national forests were mostly lands that had been cut, burned, or farmed. By 1996, there were 387 congressionally designated wilderness units in the National Wilderness Preservation System. This amounts to 34.8 million acres of wilderness (about 1 acre in 6 of the National Forest System). The Forest Service manages 75 percent of the designated wilderness within the lower 48 States, or about 63 percent of all wildernesses in the National Wilderness Preservation System.

## **Wild and Scenic Rivers**

In 1905, the rivers on what would become national forests were almost entirely wild, with a few rivers or creeks diverted for irrigation and mining operations. Over a century later, Congress has recognized more than 4,348 miles or 946,118 acres on the national forests as part of the National Wild and Scenic Rivers System.

## **National Monuments**

Prior to 1905, there were no national monuments managed by the Forest Service. The Antiquities Act of 1906 authorized the President to establish national monuments. Between 1906 and 1933, about a dozen national monuments were established on the national forests. Those monuments were transferred to the National Park Service in 1933. Since then, two national monuments have been established in Alaska and two others in California. Two national volcanic monuments have been established in Washington and Oregon. The national acreage for the Forest Service is now 3.8 million acres. In addition, the Forest Service manages several monuments for the National Park Service.

### **Wildlife Habitat Restoration**

Before the National Forest System was established, wildlife habitat was often changed or destroyed by the many activities—some illegal—on the public domain forest lands. In 1998, the Forest Service restored over 167,000 acres of terrestrial habitat, including nearly 42,000 acres within rangeland ecosystems.

### **Forest Research**

Prior to 1905, there were basically no organized research studies on forests. Today, the Forest Service supports approximately 3,005 research studies concerned with the national forest resources.

### **Forest Service Employees**

Before 1905, a handful of Government employees in the Department of Agriculture were paid to study the forestry situation in America. In 2002, the Forest Service employed about 30,000 permanent full-time positions (about 38 percent women and 16 percent minorities) and another 14,700 temporary positions, which range from archeologists to wilderness guards.

### **Special Employment Programs**

Prior to 1931, there were no special employment programs on the national forest lands. Today, the Forest Service has 18 Job Corps centers, with 8,976 students between the ages of 16 and 22 employed on conservation projects and education programs. Job Corps students accomplished almost \$18.5 million worth of work on national forest projects. YCC employed another 894 enrollees on the national forests during the summer months, returning \$1.14 in work for each dollar appropriated. The Senior Community Service Employment Program (SCSEP) has about 5,873 low-income persons, 55 or older, participating in national forest and other Forest Service projects, returning \$1.45 in work value for each appropriated dollar.

### **Volunteers in the National Forests**

Before 1905, (and the next 30 years) there were no “official” volunteers on the lands that became national forests. However, over 100 years later, 90,678 volunteers have contributed work valued at \$38 million. Volunteers often serve as hosts to oversee the daily operation of the many Forest Service recreational facilities.



## Dale N. Bosworth— Fifteenth Chief, 2001–Present

Dale N. Bosworth became the 15th Chief of the Forest Service on April 12, 2001. Bosworth held positions as regional forester for the Intermountain and Northern Regions before he was chosen to be Chief of the Forest Service. During his time as Chief of the Forest Service, he has reorganized the agency to give more authority and dollars to the regions and national forests, to better respond to “analysis paralysis” (the efforts by some to slow Forest Service work through numerous appeals and lawsuits), and to implement the National Fire Plan 2000. During

Bosworth’s tenure, the increasing danger to communities from wildfires and heavy “fuel loads” in forests became major issues. The fires of 2002 were very difficult for the Forest Service, especially in terms of acres burned and money spent on firefighting.

Dale Bosworth wrote:

*On the national forests...long-term ecosystem health drives everything we do. It determines whether or not—and where and how—we decide to cut trees. Our vegetation management projects are guided by the principle that what we leave on the land is more important than what we take away....Some people say we ought to leave the land alone to heal itself. But it is an illusion to think that just leaving nature alone will restore the open old-growth pine forests....Competition for limited resources will keep the dense trees that are there now small forever—or until they are destroyed by insects or fire. In fact, the original open forests were probably never entirely natural; studies suggest that they evolved together with American Indians and their land management practices, particularly burning....Our American Indian heritage teaches the need for active management.*

*I think we can find common ground for deciding at the local level what our priorities and treatments should be. Today, we have amazing new opportunities for collaboration. New technologies such as the Internet allow us to work together with partners all across the landscape....If we work together based on shared goals for the land, everyone benefits. Ecologically, we can benefit the land by restoring ecosystems to something more resembling their condition at the time of European settlement. Socially, we can benefit our local communities by helping people make themselves safer from wildland fire. Economically, we can benefit our citizens by providing jobs and by helping them take advantage of local business opportunities to utilize excess trees and brush.*

*When you think about it, the national forests and grasslands are a great unfinished experiment. We as a Nation are testing a hypothesis—the hypothesis that a great system of public lands can provide benefits to many different people, for generation after generation, forever and ever...The jury is still out. People all over the world are watching and waiting to see if what we are doing is the right thing. A lot is at stake. From an article in *Fire Management Today* (based on his 2002 McClure Lecture at the University of Idaho).*

## Summary— 100 Years of Forest Service Management

The philosophical foundations of preserving and using the natural resources on Federal land have many deep roots that date to the 19th century. After the decisions made by Congress in the 1890's, the National Forest System has grown to more than 191 million acres. This land, owned by the people of the United States, has been managed by the USDA Forest Service since 1905. Forestry, as worked out by Gifford Pinchot, the first Chief of the Forest Service, is synonymous with conservation of forests and other natural resources over the long term. Its equivalent today is ecology-based management.

Management of the national forests has undergone significant change over the last 100-plus years. Protecting forests through Presidential and congressional actions was essential in the early 1890's, as was trying to get congressional approval and funding to manage these entrusted lands. During the first part of the 20<sup>th</sup> century, protection of the newly created national forests from fire and abuse was of paramount importance. The Great Depression created opportunities for the national forests and the Forest Service to play a major role in helping people survive economically through conservation work programs and projects.

Following World War II, the national forests began playing an increasing role in the production of timber products, but led to controversy about the “weight” of timber production in the mix of uses coming from the public forest lands. The Multiple-Use Sustained-Yield Act of 1960 was the first important law to redirect the agency to consider all uses—not just timber. Quickly following was the Wilderness Act of 1964, which set aside vast areas of congressionally protected national wildernesses.

Controversy was only beginning as battles over clearcutting and roadless areas plagued the agency—resulting in a series of new laws, including RPA, NFMA, and a series of environmental protection laws, such as the Clean Water and Clean Air Acts and the National Environmental Policy Act of 1969. The Forest Service has had to incorporate new kinds of management into the administration of the national forests—the most recent changes have been the embracing of ecological management, national fire planning, partnerships, and collaborative stewardship.

The future is murky. There are powerful interest groups that want the Forest Service and the national forests to revert to an intensive management era to protect and preserve jobs and use the trees and other natural resources to the fullest extent possible. While at the other end there are those who want the resources totally preserved, to have a “zero-cut” of the trees, and to keep people out of the national forests—a policy even more restrictive than that of the national parks. Other special interest groups want to increase their “share” of the resource uses available on the national forests. All groups seem to believe that science and more data will “prove their case.” But the reality is that decisions about the future management of the national forests, as well as the use of the natural resources, are essentially political in nature. Data and the scientific method can only give answers to questions, not set policy and practices.

Discussions over the years by various Administrations and Congress have centered on moving the Forest Service and the national forests from the Department of Agriculture back to the Department of the Interior. Other proposals have put forth the notion of having one Federal agency, such as a Department of Natural Resources, to administer all the national forests and parks, wildlife refuges, BLM lands, and others. These ideas, as well as competing ideas about the proper role of the Federal Government in owning and managing lands, will be discussed again.

Without the foresight and dedication of a great number of people during the late 19th and early 20th centuries, there would be nothing to debate today. The national forests would have long ago been carved into millions of private ownership plots and extensively logged and changed forever. The national forests are our legacy for future generations. For 100 years, the Forest Service has been the manager of the national forests. It has not always been easy or without controversy. To survive into the next century, the Forest Service will have to continue incorporating the public needs and new ideas of management, just as it has for the first 100 years.

## Further Reading

Any number of books discuss the beginning and current operations of the USDA Forest Service. A short list of readings should include:

- Fedkiw, John. 1999. *Managing Multiple Uses in National Forests, 1905-1995: A 90-Year Learning Experience and It Isn't Finished Yet*. FS-628. Washington, DC: USDA Forest Service.
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