

An Introduction to Forestry in New Mexico

Glossary of Forestry Terms

Enclosed are three links to different glossaries from different sources. We hope that you will find one you like that has most of the words you are looking for. Our suggestion is to print one up and reference it as you are reading through documents. We have included a glossary from Georgia. You may find one of the ones below to be more encompassing.

<http://www.ncforestry.org/docs/Glossary/term.htm>

http://www.vlt.org/forestry_glossary.html

<http://www.ncfcnr.net/glossary.html>

Forestry is the art, science, and business of managing forest land. This involves reproduction, growing, protection, harvesting, marketing and related environmental values.

- A. Reproduction -- The process by which we establish a new stand of trees. Reproduction can be obtained by natural or artificial means.

- B. Growing -- The silviculture systems practiced to control composition and growth. Thinning, a primary method used to control the composition of the stand as well as improve growth in the stand.

- C. Protection -- The established forest must be protected from wildfire, insects and disease in order to get maximum growth and yield at harvest time.

- D. Harvesting -- The harvesting of a stand of timber can start with the thinning of a young stand to improve growth and generate income as well as the final cut made when the stand has matured and reached its maximum growth and income potential for the landowner.

- E. Marketing -- Is the phase of forestry where product utilization can bring the highest income results from managing timber. Proper harvesting, and delivery of these products are an absolute necessity to good forest management.

The two major levels of employment in forestry.

- A. Professional level -- One who graduated from a four-year college or university with a major in forestry. The professional forester may obtain a master's or doctor's degree. The advance degrees broaden the fields that a forester can work in as well as enhance his chances for success in his field.

B. Non-professional level -- There are many job opportunities in forestry below the professional level. Non-professional forestry workers are usually classified as:

- | | |
|------------------------|-----------------------|
| (1) Forest Technicians | (3) Skilled Workers |
| (2) Forest Aides | (4) Unskilled Workers |

The three primary activities of on the job forestry:

- A. Forest Management
- B. Wood Procurement
- C. Wood Harvesting

1. Forest Management personnel identify, mark, and establish the boundaries of a tract of timber; plant or otherwise regenerate, protect, maintain, and plan for the orderly removal of the forest. This involves surveying, road building, map drawing, mathematical computations, operating heavy equipment in land clearing, planting trees, controlling undesirable species, marking timber, cruising timber, mapping areas to cut, developing management plans and marketing timber, issuing hunting permits, and negotiating leases on selected areas.
2. Wood Procurement personnel locate, evaluate, determine inventories, and buy ample supplies of wood to supply the wood-using industries. Public relations is of major importance to this job area. This involves locating tracts of timber, cruising, determining the worth per unit, determining the value of the total tract, buying timber, and supervising wood removal.
3. Wood Harvesting personnel manage labor, wood, machinery, and capital to make a profit.

Timeless Heritage: A History of the Forest Service in the Southwest 1 Chapter 1 - The Southwest and the Forest Service

Chapter 1 - The Southwest and the Forest Service

Secretary of Agriculture James Wilson's directive of February 1, 1905, held special significance for the people of Arizona and New Mexico. Wilson announced the transfer of the Forest Reserves to the Department of Agriculture as authorized by Congress (H. R. 8460) on that same day. Some 21 million acres of public lands, almost one-eighth of the surface area of Arizona and New Mexico, were now to be administered by a regional subdivision of the Forest Service. "All land," Wilson said, "is to be devoted to its most productive use for the permanent good of the whole people. ... All the resources of the forest reserves are for use."¹ In 1908, Chief Forester Gifford Pinchot appointed Arthur C. Ringland the first District Forester of the newly organized Southwestern district, or district 3. These Forest Service "districts" became "regions" after 1930.

The Forest Service was charged to maintain the permanence of the resources of the National Forests, while providing for their use. The great concern of Congress, as reflected in the Organic Administration Act of 1897, was to continue the prosperity of the agricultural, lumbering, mining, and livestock interests directly dependent upon the

water, wood, minerals, and forage of the public domain.² Over the past three-quarters of a century the use of the renewable and nonrenewable resources of the Southwest had increased at a rapid rate.

The Public Domain

When the United States acquired the territory comprising Arizona and New Mexico by treaty with Mexico in 1848, those lands not owned by private individuals, including earlier Spanish and Mexican land grants, nor reserved by treaty for the various Indian tribes became a part of the “public domain” and open under various laws to settlement, purchase, and use. Only after the American Civil War and the completion of the great transcontinental and regional railroads, such as the Southern Pacific, the Santa Fe, and the Rio Grande Western railroads, did the great change in public use of the land begin. Cutting timber, mining, and raising cattle, for centuries household or domestic operations, had begun to become monolithic corporate enterprises with national and even international markets.

Timber production in Arizona and New Mexico, estimated at some 8 million board feet in 1879, rose to 22 million in 1889, and 67 million in 1900. Cattle grazed on the open ranges of the forests and public domains in ever-greater numbers. Cattle herds, which were estimated at 172 thousand head in 1880, increased to over 1.5 million head by 1890. By 1900, once-lush grasslands were in danger of becoming bare, rock-strewn earth. In 1879, the territory of Arizona urged the sale of all of the territorial timberlands at public auction, and in 1880 Congress authorized the citizens of Arizona and New Mexico to “fell and remove timber from the public domain for mining and domestic purposes.” By 1900 it was becoming painfully clear to south-westerners that the renewable and nonrenewable resources of the Southwest were being depleted?³ In 1891, Congress had given the President the authority to create forest reserves.

Forest Reserves

By the General Provision Act of 1891, Congress authorized the President to designate particular areas of the forested public domain as “reserves,” set aside for future use. The first such reserve was the Yellowstone Timberland Reserve, which later was divided into the Teton and Shoshone National Forests. These reserves, which were increased in number and doubled in size by President Grover Cleveland in 1897, were by law completely closed to public use and were devoid of management or supervision. In the Southwest the 311,040-acre Pecos River Forest Reserve was established in 1892, and the Prescott, Gila River, and Santa Rita Forest Reserves, encompassing millions of acres, were established before 1908.⁴ Although Congress restricted the authority of the President in 1897, authorizing him to establish reserves only to preserve timber, protect watersheds, and provide lumber for local use, use of the forests by southwesterners for grazing, hunting, mining, lumbering, and recreation generally continued with no other constraint but the natural difficulty of access. There was some sense among the older Indian and Spanish communities, in and adjacent to the forest, and among cattlemen, that the ancient traditions of open use and access to the land were simply being reaffirmed by the reserve acts and the Transfer Act of 1905. In these communities, people believed that the land belonged to them, at least for the purpose of grazing, wood gathering, cutting timber, hunting, fishing, or recreation, and that the forest reserves, and now the Forest Service, simply reaffirmed those communal rights.⁵ In assuming authority over those public lands in the Southwest, the Forest Service inherited a great system of canyons, mountains, deserts and grasslands, people, and wildlife that characterize a unique sector of the American physical and cultural environment.

Essential Form and Features

It was a land that, long before the migrating tribes or conquering explorers trekked across it, had assumed the essential form and features, including the flora and the fauna, that greet the 20th-century visitor. In Paleolithic times the remnants of the receding glaciers of the last great ice age began to nourish the growth of the forests of the mountain regions and feed the developing river systems. As the ice age ended, the land away from the mountains became increasingly arid-average annual rainfall is less than 12 inches. In the mountains, which range from 13,000 feet elevation at Wheeler Peak to 5,000 and 7,000 feet in the lower ranges, rainfall averages upwards from 12 to 24 inches annually. The forests and grasslands supported an unusually diverse animal population, ranging from large bears, elk, mountain lions, buffalo, and mule deer to coyotes, jack rabbits, foxes, bobcats, badgers, squirrels, gophers, gila monsters, rats, snakes, scorpions, and tarantulas. On the mountain slopes there were stands of ponderosa pine, Douglas-fir, and Engelmann spruce that grew at elevations of 7,000 to 11,000 feet and enjoyed rainfall of 18 to 25 inches per year. Down the mountainside grew pinyon and junipers, which could thrive with only 12 to 17 inches of rain annually. Still lower were mixed evergreens and scrub oaks, and on the plateaus and valleys, where rainfall fell below 12 inches, was mesquite. The Petrified Forest, a woodland of some prehistoric day, lay strewn along its present site long before the first migrants⁶ ventured into the Southwest.

From Hunters to Farmers

The earliest inhabitants trod lightly on the land and forests. As long as 2,000 years ago the Anasazi (perhaps ancestors of the present Pueblo Indians) made the transition from nomadic hunters to farmers living in permanent dwellings. They used the forests for many purposes. They gathered herbs and seeds, hunted, and secured logs for roof beams, ceiling joists, and other construction needs for the large, multifamily stone buildings they erected. The mountain forests they held in awe as the homes of their gods and goddesses. The Anasazi developed religious rituals that were performed high on the mountains, and they regarded Mt. Taylor and Sandia Peak, among other locations, as sacred. Because they needed firewood for heat only in the harsher winter months and wood for cooking or for pottery kilns, and because they lacked metal tools to cut and shape timbers, the Anasazi made few demands on the forests of the Southwest. Later Indian nations, including the Hopi, Zuni, Apache, and other tribes that came to the region as recently as the 16th century, lived with rather than on the forests. The stands of ponderosa pine, as well as the pinyon and junipers on the lower slopes, remained⁷ virtually untouched for more than 1,000 years.

Spanish Continue Modest Use

The same pattern of modest forest use continued under the Spanish. Beginning with Friar de Niza and Francisco Coronado, missionaries and soldiers crossed and recrossed the Southwest, building missions, forts, and towns at Santa Fe, Albuquerque, Isleta, Las Cruces, Tucson, Tubac, and many other locations. They built mostly structures of stone and adobe that required only hewed wooden beams for the roofs and similar supports. The Spanish used more of the forest for fuel than did the Indians, and they cut pinyon and junipers for fence posts to enclose their sheep and cattle. But these modest uses did not approach the annual growth rate of timber on the mountain slopes. The forests suffered far more damage from lightning, western red rot, mistletoe, and coronation rust than from the inroads of the Spanish. Perhaps more important to the future of the region, though, was the introduction of the range cattle industry by the Spanish. In short, the

pattern of forest growth and decay continued much as it had before the advent of the conquistadores and friars.⁸

Part of Mexico

During the single generation that the Southwest region was part of the Republic of Mexico (1821-48), isolation and lack of transportation stifled any efforts to exploit the forests. Trade with the United States followed principally the Santa Fe Trail, which ran from the Missouri River at Independence, west to the Arkansas River, and on to Santa Fe by way of Raton Pass or more directly across the dry grasslands to the Cimarron River. This trail was a winding, tortuous, dangerous route that took two to three months, depending on the weather, to complete. The value of merchandise doubled enroute, and traders confined their shipments largely to cotton goods, manufactured articles, and tools. The return load was made up of furs, blankets, gold, and silver. Trade with California was equally long, slow, and hazardous. The route ran north of the Gila River to the Colorado River crossing, and on to San Diego across the California desert. A third route ran south to Chihuahua, but it, too, was slow and dangerous, and little commerce came into the region from that direction. The isolation of the land between the Colorado River and the Rio Grande prevented any substantial commerce with the outside world and made subsistence living a necessity.⁹

War In 1846

The declaration of war in 1846 by the United States against Mexico was soon followed by the appearance of an American army commanded by General Stephen W. Kearny. The army speedily occupied Santa Fe, Albuquerque, and other principal settlements along the Rio Grande. Later the same year, Kearny and his army marched along the Gila River to its junction with the Colorado, crossed that stream, and went on to California. Accompanying him was Lt. W. L. Emory, a topographical engineer, whose notes on the expedition provided the best account of the region available in English up to that time. Enroute he described the trees, animals, and birds in the upper Gila Valley as he swung south of the mountains seeking a wagon route for the army trains. He concluded that the entire country had the same physical characteristics and that would-be farmers could not rely on rainfall for agriculture but would have to employ carefully controlled irrigation. As he kept to the lower terrain and avoided the mountain slopes, Emory reported that the region was "destitute" of worthwhile forest trees except on the margins of streams. Indian guides and mountain men could have told him that there were millions of acres of pine, fir, and spruce on the mountains. These, apparently, Emory did not see.¹⁰ The Treaty of Guadalupe-Hidalgo in 1848 transferred the territory between Texas and the Colorado River, as well as California, to the United States. In 1850 the region became the Territory of New Mexico with its eastern border at the present Texas boundary. Arizona became a separate territory in 1863. At once presidents, cabinet members, and members of Congress hastened to propose new routes west over which to build a railroad to the new golden state of California. Among the routes most favored by officials in Washington was a line along the 35th degree of latitude and another along the 32nd degree parallel. Both of these roads would run through the new territory of New Mexico.¹¹

WRITTEN BY BRIAN TOMLINSON – GA FFA MATERIALS

1. **Who was the first logger in the colonies?** Christopher Columbus in the late 1400's to 1500's. He had to be able to repair his ships and their masts in order to make the return trip to Europe.
2. **Who was the first forester?** Gifford Pinchot (Pen – cho) in the 1890's worked for the Vanderbilt family after being sent to Europe to be trained in one of their forestry schools. He managed all the land surrounding Biltmore House outside of Asheville, NC. He also tried to keep from ravaging the land by assigning certain uses for different types of land depending on their soil type, erodability, and how much it had already been farmed.
3. **What was a major problem with trees up until the 1900's?** They were considered weeds to many farmers. The land is not productive if they are not growing a crop on it. Because they are not making any money off of land with trees on it.
4. **What happens when you clear trees from the land?** You lose natural windbreaks and increase wind erosion on the land as well contributes to soil erosion.
5. **What is the single most dangerous industry in the United States?** According to OSHA (the Occupational Safety & Health Administration) logging is responsible for more accidents and deaths than any other profession. This is due to all the heavy equipment, falling trees and limbs, debris being thrown by saws, other high speed moving parts, and the weather associated with harvesting.

Myths & Facts about Forestry

Mark Twain once said that a rumor can race around the world while the truth is just putting its shoes on. The same can be said about myths surrounding the U.S. Forestry. Too often they are mistaken for the truth and discourage common sense solutions to forest controversies. Here are some of the more common myths, and the facts behind them.

MYTH: The early U.S. forest was a carpet of trees that extended from coast to coast.

FACT: The pre-Colombian forest of 1600 covered less than half of the present-day United States.

MYTH: We only have 5% of the original old growth forests left that once covered the Pacific Northwest in the pre-European settlement era.

FACT: This figure wrongly assumes that the coastal Northwest was covered with old trees before the arrival of settlers from the East. According to U.S. government studies, no more than a third of the region's forest was covered with old-growth trees at any time. Natural wildfires, and fires set by native Americans, routinely cleared vast swaths of old forests.

MYTH: Congress authorized salvage logging of dead and dying timber that ignores environmental safeguards.

FACT: Salvage logging cannot proceed without an approved Environmental Assessment as required under the National Environmental Policy Act and a Biological Evaluation as required under the Endangered Species Act.

Moreover, a salvage sale can be stopped at any time -- by a district ranger up to the Secretary -- until the point when the sale is advertised.

MYTH: We are running out of trees.

FACT: We have more trees today than we had in 1970, on the first Earth Day -- even more than we had 70 years ago. In the middle of the last century, for example, Vermont, Massachusetts and Connecticut were about 35% forested; today they are 59%.

MYTH: We're cutting more trees than we're growing for future generations.

FACT: Forest growth has exceeded harvest since the 1940s.

MYTH: We're running out of old growth trees in our ancient forests.

FACT: In the U.S. today, there are 13.2 million acres of old growth, i.e. large trees 200 years of age or older. The vast majority of these trees -- comprising an area the size of New Jersey and Massachusetts combined -- will remain in their natural condition and will never be harvested due to legal and regulatory prohibitions on logging, road building and even fire fighting.

MYTH: We're running out of wilderness.

FACT: The U.S. has permanently protected 104 million acres of land, much of it forested, in the Wilderness Preservation System. It's part of a larger total of 270 million acres that is off limits to all commercial activity, including logging, mining and grazing.

MYTH: Clear-cutting, the practice of harvesting most trees in a given area, destroys the forest.

FACT: Clear-cutting is a sound practice that benefits future forests. By mimicking natural wilderness, clear-cutting is widely recognized by forest scientists and even by conservation groups such as the Environmental Defense Fund, American Forests, and the Society of American Foresters as an ecologically sound technique for reforesting many softwood species. That's because conifer seedlings typically require sunlight from an open canopy and cannot survive in shade.

MYTH: A natural forest supports more ecological diversity than a managed forest.

FACT: Managed forests, even those with some clear-cutting, often produce more biodiversity than completely natural forests, according to the U.S. Forest Service studies in the Lake States and New England. Even tree plantations contain a rich mosaic of plant and animal life.

MYTH: Forest management harms fragile wetlands.

FACT: In fact, good forest management is the environmentally preferred land use for wetlands, as confirmed by the National Wetlands Policy Forum sponsored by the U.S. Environmental Protection Agency.

MYTH: Forest management harms wildlife.

FACT: Forest management helps wildlife. Forest management creates openings that stimulate the growth of food sources -- which is the prime reason why

forest species such as elk, deer, turkey and antelope are far more plentiful today than earlier in the century.

MYTH: More paper recycling will help us avoid the use of "new" wood from harvested trees.

FACT: Even if we could recycle 100% of our used paper, we would still need "new" fiber to replace worn-out recycled fiber and meet the increasing demand for paper products. Recycling extends the use of new fiber, but it will not replace it. Even so, today well over half of all fiber used in paper products comes from recycled paper and from wood waste from sawmill.