

CHANGES IN COMMERCIAL FOREST AREA IN OREGON AND WASHINGTON 1945 - 70

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ABSTRACT

Between 1945 and 1970, .nearly, 1 million acres of commercial forest land: in Oregon and Washington were converted to nonforest uses. Road construction was the leading cause; urban and industrial expansion the second most important cause. Other significant causes of forest loss were agricultural clearing, powerline clearing, and construction of reservoirs and other bodies of water. An additional 362,000 acres of commercial forest have been set aside in reserved areas. Several changes in the ownership pattern of forest land have occurred, including an increase in National Forest and forest industry land and a decrease in Indian and farmer-owned land.

KEYWORDS: . Forest ownership, forest conversion.

INTRODUCTION

Forest is the natural vegetative cover over most of western Oregon and Washington and large areas in eastern Oregon and Washington. In many parts of the Pacific Northwest, timber has been and still is the economic mainstay—the basic resource supporting communities. Forests not only provide the raw material for the wood products industries, but they directly or indirectly affect man and the environment in many ways. Commercial and sports fisheries and the shellfish industry can be affected by the condition of watersheds,¹ which in many areas are forest lands. Many species of animals are sensitive to changes in the forest and some could not survive without the forest as a source of food and cover. As population increases, forests are of increasing importance simply for their natural beauty and as quiet retreats where people can escape from the noise and tension of the city.

Since the first settlers came to the Oregon Territory a little over 125 years ago, the composition and appearance of the forest have changed greatly; and its total area has decreased.

This report summarizes information on losses of commercial forest¹ in Oregon and Washington (see tables 1-3). The greater portion of the loss has been caused by physical conversion to roads, urban development, agriculture, powerlines, and reservoirs. These forest losses reduce the wood supply and alter the environment in various ways. Of lesser importance has been the loss of commercial forest land to dedicated Wilderness, Parks, and other reservations. Though these losses also reduce the wood supply, in most cases such reserved forests are in the high mountains and are relatively low in productivity. Reservations do not physically change the forest.

The information in this report was gathered and compiled by the Forest Survey Project of the Pacific Northwest Forest and Range Experiment Station. This information should be useful to legislators, land use planners and managers, and others who need to be aware of what is happening to our forests.

¹Commercial forest land is forest land that is producing, or capable of producing, crops of industrial wood and is not withdrawn or developed for other uses. Commercial forest is capable of growing at least 20 cubic feet of wood per acre per year.

Table 1.--Conversion of commercial forest land to nonforest land by ownership and cause, Oregon and Washington, 1945-70
(In thousand acres)

State and ownership	Roads	Reservoirs	Powerlines	Farm-pasture-Christmas trees	Urban-industrial	Miscellaneous	Total
Oregon:							
National Forest	100	25	15	0	0	(1/)	140
Other public	79	6	8	7	0	7	107
Forest industry	13	1	4	0	0	<u>2/</u> -8	10
Farm and miscellaneous private	23	3	32	22	28	0	108
Total	215	35	59	29	28	<u>2/</u> -1	365
Washington:							
National Forest	33	10	3	0	0	0	46
Other public	22	1	33	<u>2/</u> -18	35	0	73
Forest industry	50	0	38	13	8	0	109
Farm and miscellaneous private	27	9	16	135	214	1	402
Total	132	20	90	130	257	1	630
Oregon-Washington:							
National Forest	133	35	18	0	0	(1/)	186
Other public	101	7	41	<u>2/</u> -11	35	7	180
Forest industry	63	1	42	13	8	<u>2/</u> -8	119
Farm and miscellaneous private	50	12	48	157	242	1	510
Total	347	55	149	159	285	0	995
Percent of total	35	5	15	16	29	0	100

1/ Less than 500 acres.

2/ Minus indicates a gain of forest land.

Table 2.--Area of forest land by land class, Oregon and Washington,
January 1, 1970
(In thousand acres)

Land class	Oregon	Washington	Total
Commercial forest	25,673	18,401	44,074
Commercial reserved forest	647	1,446	2,093
Noncommercial forest ^{1/}	4,026	3,108	7,134
Deferred forest ^{2/}	58	143	201
Total	30,404	23,098	53,502

^{1/} Noncommercial forest is forest land that is not capable of growing 20 cubic feet of industrial wood per year, or is too steep and rocky for harvesting and growing timber crops.

^{2/} Deferred forest is commercial forest land within National Forests that is currently being considered for Wilderness status.

Table 3.--Area of commercial forest land, by ownership, Oregon and Washington, January 1, 1970
(In thousand acres)

Ownership	Oregon	Washington	Total
National Forest	12,003	5,424	17,427
Other public:			
Bureau of Land Management	2,246	48	2,294
Bureau of Indian Affairs	324	1,593	1,917
Miscellaneous Federal	8	168	176
State	800	2,116	2,916
County and municipal	138	169	307
Total	3,516	4,094	7,610
Forest industry	5,206	4,348	9,554
Farmer	2,850	1,866	4,716
Miscellaneous private	2,098	2,669	4,767
All ownerships	25,673	18,401	44,074

PHYSICAL CHANGES IN COMMERCIAL FOREST AREA

Nearly 1 million acres
have been lost since 1945

Since 1945, the loss of commercial forest in Oregon and Washington due to clearing for other uses is estimated to be 995,000 acres (this does not include clearcutting on land remaining in timber-growing use). This is 2.2 percent of the total commercial forest area in 1945. Over 850,000 acres, or 85 percent of the loss, has been in the Douglas-fir region, that is, west of the summit of the Cascade Range in the more productive forests of Oregon and Washington.

Road construction was leading cause
of forest loss in the two States

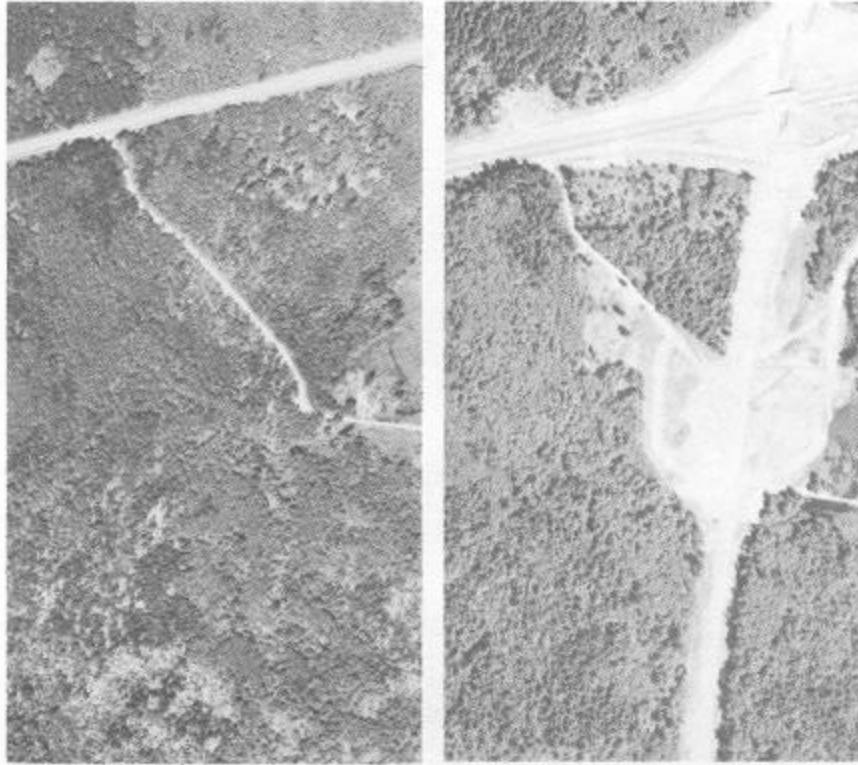
Roadbuilding and widening have accounted for about 347,000 acres, or 35 percent of the total commercial forest loss, in Oregon and Washington (figs. 1 and 2). Roadbuilding since 1945 has been heaviest in the forests of western Oregon, concentrated largely on National Forest and Bureau of Land Management lands. By general ownership class, roads have accounted for:

1. About 72 percent of total losses on National Forest lands.
2. About 56 percent of total losses on other public² lands.
3. About 18 percent of total losses on private lands.

Urban and industrial expansion was
second most important cause of
loss in the two States

Urban and industrial expansion has been the second most important cause of commercial forest losses, accounting for about 285,000 acres, or 29 percent of total losses. Over 85 percent of this was in western Washington (fig. 3). Urban and industrial expansion led road construction as a cause of forest loss for all ownerships over the entire State of Washington.

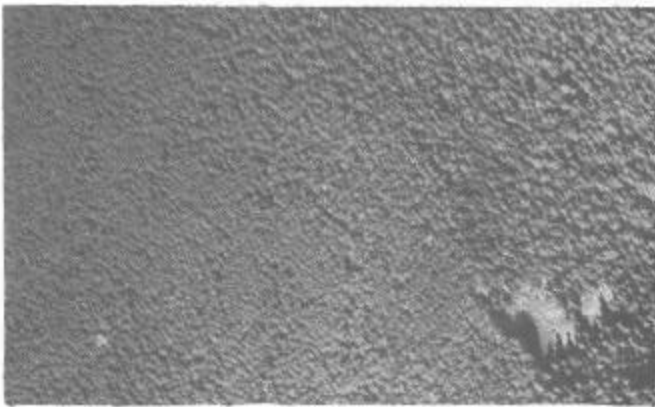
²Other public owners primarily include Bureau of Land Management, Bureau of Indian Affairs, Department of Defense, the two States, counties, and municipalities.



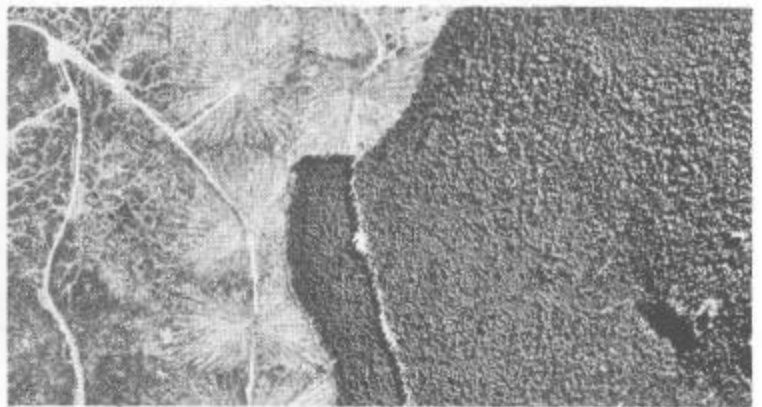
1956

1964

Figure 1.--This highway intersection near Maple Valley, Washington, has replaced about 25 acres of forest. The new road right-of-way is 140 feet wide and occupies 17 acres for every mile of length.



1956



1962

Figure 2.--Over 40,000 miles of permanent logging roads were built in Oregon and Washington between 1945 and 1970. Temporary logging roads and "skid trails," appearing as a network pattern in the 1962 photograph, are not considered as forest loss.

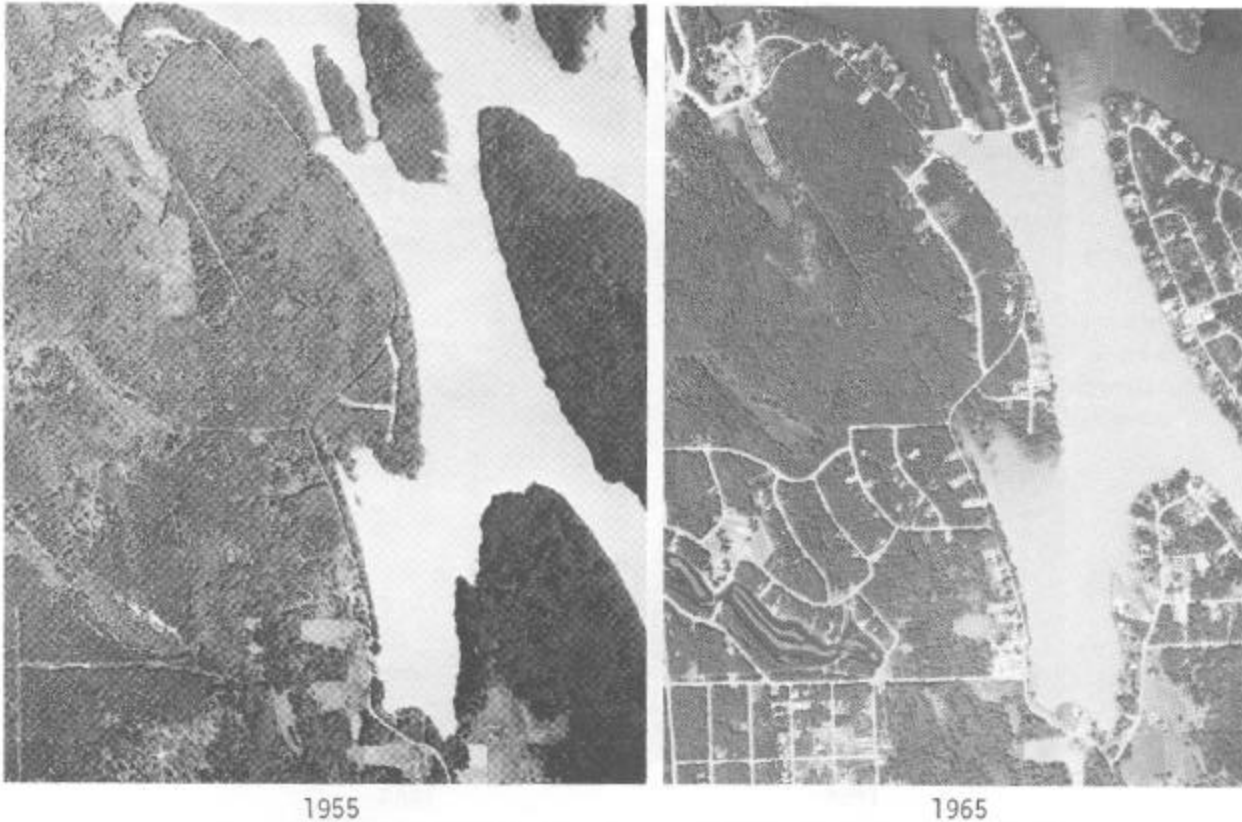


Figure 3.--Urban expansion is rapidly changing the character of the Puget Sound area in western Washington.

As one might expect, urban and industrial expansion was generally confined to private lands, though some commercial forest losses did occur on military reservations, State-owned lands, and other public holdings. Most of the urban and industrial expansion occurred on the farm and miscellaneous private land, though some forest industry-owned land was also developed. Several timber companies have real estate subdivisions and have been converting forest land to home sites. Farmer-owned land is usually sold to a land developer or real estate company before it is developed. Development has historically spread along main transportation routes, but an increasing number of outlying developments are appearing in many areas in both Oregon and Washington (fig. 4) .

Farm and pasture clearings
caused 16 percent of loss

The net loss due to clearings for agricultural use, including livestock grazing and Christmas tree growing, was 159, 000 acres, or 16 percent of total loss. These losses were almost totally confined to western Oregon and western

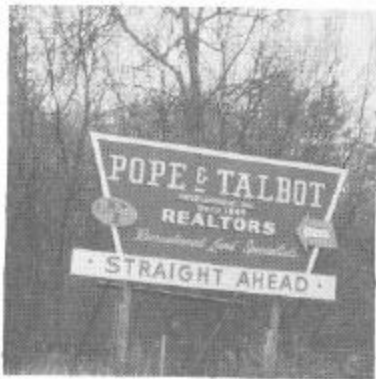
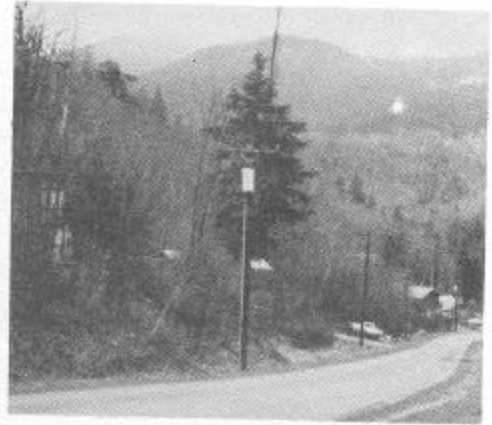


Figure 4.--Urban and commercial developments are no longer confined to main transportation routes and the outskirts of cities.

Washington (fig. 5) and to private lands (except some Christmas tree lands owned by the State of Washington). Included in this category are a few large agricultural clearings by ranchers and farmers, as well as numerous small clearings by nonfarm owners such as those who own 5 to 40 acres of land and need small pastures for one or more riding horses. Losses in eastern Oregon and eastern Washington were nearly offset by gains due to forest reclaiming abandoned fields and pastures.

Powerline clearings caused
15 percent of loss

About 149, 000 acres of commercial forest have been converted to powerline rights-of-way that are at least 120 feet wide (fig. 6). Loss of forest to powerlines was distributed fairly evenly among ownerships, though proportionally somewhat higher on private lands than on public lands. Though many long distance transmission lines are routed over public lands away from cities, they are more numerous near urban and industrial centers where the forest is largely in private ownership.

Reservoirs and other impoundments
caused 5 percent of loss

The loss of commercial forest due to the construction of reservoirs and other artificial bodies of water was about 55, 000 acres. Included are a number of large reservoirs built by power companies and Government agencies (fig. 7), as well as numerous small lakes constructed by individuals and small corporations. In western Washington, some small lakes on private lands have been created as part of real estate developments (fig. 8). Reservoirs are also used for recreation, livestock watering, and irrigation.

Net effect of all other
causes of commercial
forest loss is negligible

All other causes of commercial forest change were lumped together and the results showed a net loss of only a few hundred acres. Included were forest clearings at mine sites, ski runs, dumps, as well as natural changes. Some natural changes noted were loss of forest from landslides (fig. 9.), both loss and gain of forest along streams and near the Pacific coast, and encroachment of forest into natural openings in eastern Oregon and eastern Washington.³

³By Forest Survey standards, an area must be at least 10 percent stocked with trees to be classified as forest.



1956



1964



Skagit County, Washington



Clackamas County, Oregon

Figure 5.--Forest clearings for agricultural purposes have been confined mostly to river valleys in western Oregon and western Washington.



Figure 6.--This powerline right-of-way in northwestern Oregon is 600 feet wide. For each mile in length, it occupies 73 acres of land. A 20-mile-long section of this right-of-way through average forest land removes about 1.4 million board feet of potential annual timber production.



Figure 7.--Dams and reservoirs built for power generation have replaced thousands of acres of forest.



1955



1965

Figure 8.--These two lakes in Pierce County, Washington, have replaced about 20 acres of forest. They are part of a real estate development that was not completed when the photograph was taken.



Figure 9.--This mountainside near Darrington, Washington, was forested before a landslide destroyed the trees. The landslide was triggered by construction of a logging road part way up the slope.

CHANGES IN RESERVED COMMERCIAL FOREST AREA

Since 1945, the total area of commercial forest land set aside in Parks, Wildernesses, Natural Areas, Botanical Areas, and other reservations has increased by 362, 000 acres. These are predominantly public lands, administered by the U. S. Forest Service or the National Park Service, but they also include areas managed by the Bureau of Land Management, the two States, counties, and others.

The following tabulation shows reserved commercial forest area at four points in time in Oregon and Washington.

<u>Year</u>	<u>Oregon</u>	<u>Washington</u>	<u>Total</u>
	- - - - (Thousand acres) - - - - -		
1945	669	1,062	1,731
1953	1,021	1,301	2,322
1963	691	1,347	2,038
1970	647	1,446	2,093

The fluctuation in reserved commercial forest acreage in Oregon between 1945 and 1963 is largely due to changing definitions used by the Forest Service to classify National Forest lands. In the period 1945 to 1953, the Forest Service designated large tracts of land as "limited areas," to be reserved from timber cutting pending further study. Included were Illinois Canyon on the Siskiyou National Forest, Eagle Creek on the Mount Hood National Forest, Umpqua and Diamond Lakes on the Umpqua National Forest, and Waldo Lake on the Deschutes and Willamette National Forests. In the 1953-63 period, some of these limited areas were reclassified as commercial forest. Portions of these former limited areas as well as some other areas in both Oregon and Washington are under study for wilderness and other restricted uses and are currently classified as "deferred" (fig. 10). In the 1953-63 period, some reductions were also made in the existing wild and primitive areas before they were officially designated as Wilderness.

The decrease in reserved commercial forest area in Oregon between 1963 and 1970 is due to the reclassification of the Sky Lakes limited area on the Rogue River and Winema National Forests from reserved to deferred.



Figure 10.--The forests in Wildernesses and other reservations are mostly in the higher mountains where growing seasons are short and soils shallow and rocky. An acre of well-stocked forest land in the high mountains grows less than a third of the volume of wood that an acre in the lower elevations can grow. Once logged, these high mountain sites may be difficult or impossible to reforest. Pictured are the Enchantment Lakes, Snow Lakes, and Mount Stuart, near Wenatchee, Washington, part of an area being studied for possible Wilderness classification.

CHANGES IN OWNERSHIP OF COMMERCIAL FOREST AREA

The pattern of forest ownership has changed considerably in many parts of the Northwest since early settlement and continues to change. Since 1953 these general changes were noted.

National Forests have had an active land exchange program whereby they have consolidated some of their holdings. They have also acquired land from other Government agencies and private landowners. In Washington they have acquired about 12,000 acres. In Oregon they have acquired over 500,000 acres, most of which came from the terminated Klamath Indian Reservation.

Though the trend in Washington has changed recently, Indian lands had been going into private holdings, and Bureau of Land Management lands had been going into State and private ownership.

Commercial forest land owned by forest industry has increased an estimated 500,000 acres in Oregon and Washington, mostly between the early 1950's and mid-1960's. These lands were formerly held by miscellaneous private owners that did not qualify as forest industry by Forest Survey standards (i.e., they did not operate a forest products mill), by farmers, and by various public agencies. Included were some tax-delinquent lands held by the counties. Over 60,000 acres of Indian lands were acquired by forest industry, mostly from the Klamath Indian Reservation.

Farmer-owned commercial forest area has decreased in both Oregon and Washington, the lands going into miscellaneous private and forest industry holdings. Miscellaneous owners include large industrial concerns, land development companies, corporate farms, and thousands of individuals who own land for homesites, recreational use, or speculation. In many areas, land development companies have bought farmer-owned lands, subdivided them into smaller parcels, and offered them for sale for home or recreational sites. At this time, a very large area of these subdivided tracts remain unsold, and many that are sold have not been developed (fig. 11). It remains to be seen what will happen to them.



Figure 11.--A large area of forest land has been subdivided into small tracts.

SOURCE OF INFORMATION

The basic information on changes in commercial forest land area between 1953 and 1970 came from these sources:

National Forest lands, --Information was provided by the Regional Offices in Portland, Oregon; Missoula, Montana (for northeastern Washington); and San Francisco, California (for the Oregon portion of the Klamath National Forest), and by the timber management and lands divisions of the various National Forest Supervisors' Offices.

Bureau of Land Management lands, western Oregon. --Information was provided by the State Bureau of Land Management office in Portland and used to supplement information from Forest Survey plots on Bureau of Land Management land.

Private and all other public lands. --The Forest Survey project has established about 6, 600 permanent plots, 1 acre in size, in a grid pattern throughout the forested areas of Oregon and Washington. These plots are on all lands except National Forests, National Parks, State parks, and county and municipal parks. The plots were examined at different points of time either on the ground or from aerial photographs. Both changes from forest to nonforest and from nonforest to forest were noted and recorded by ownership classes as determined from county assessor ownership records.

Information on changes in forest area set aside for Parks, Wildernesses, and other reservations was obtained from various agencies, including those mentioned above. Information on changes in forest ownership came from various land-owning agencies, as well as county assessor records examined at different points in time.

Information on forest area changes before 1953 came from data compiled for the Timber Resource Review.⁴

⁴*Forest Service, U.S. Department of Agriculture. Timber resources for America's future. Forest Resource Report No. 14, 713 p., Washington, D.C., 1958.*

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1973. Changes in commercial forest area in Oregon and Washington, 1945-70. USDA Forest Serv. Resource Bull. PNW-46, 16 p., illus. Pacific Northwest Forest & Range Experiment Station, Portland, Oregon.

Between 1945 and 1970, nearly 1 million acres of commercial forest in Oregon and Washington were physically converted to nonforest. About 362,000 acres were set aside in Parks and other reservations. General changes in the ownership of forest land also are noted.

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