

Chapter 2

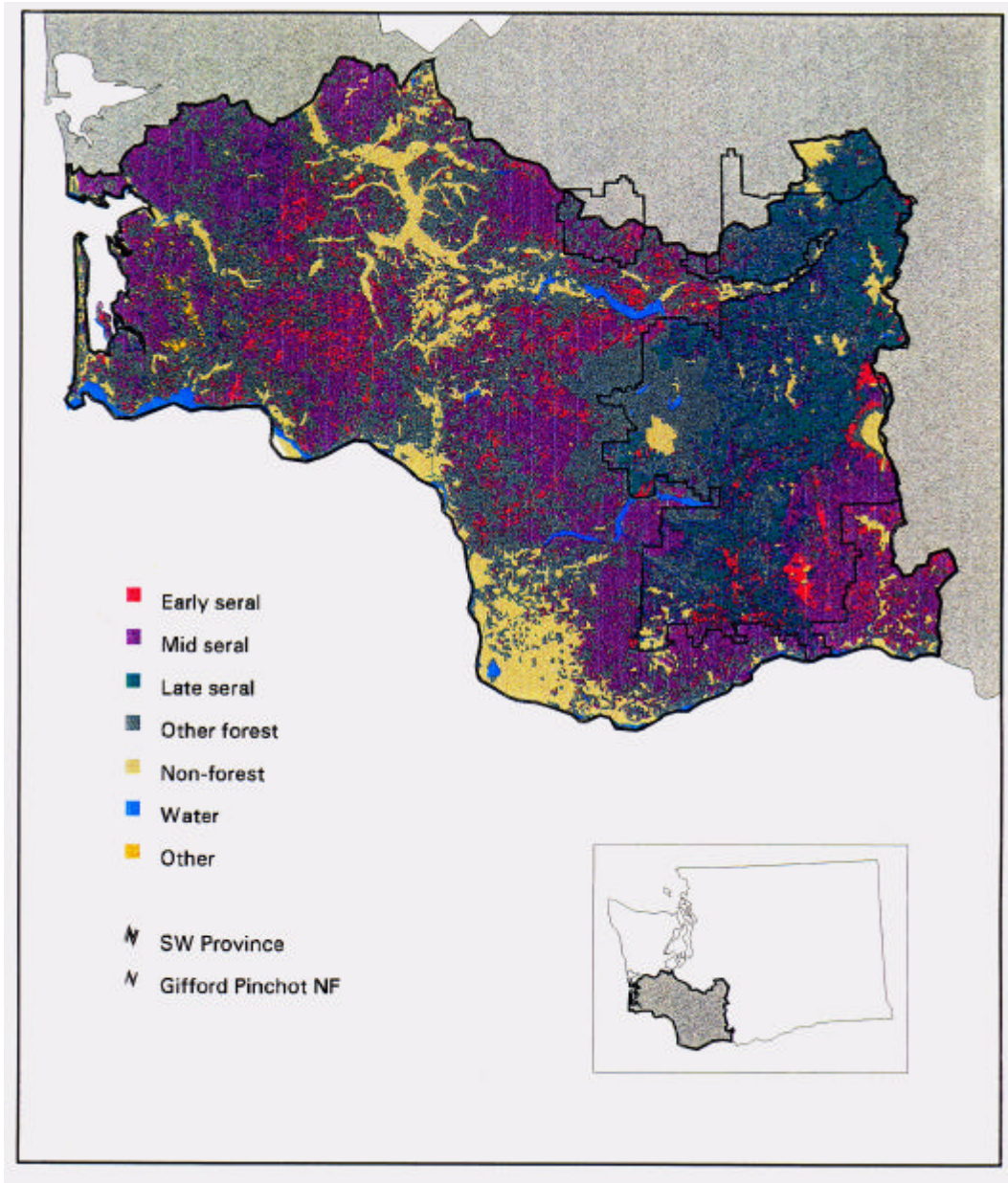
Provincial Setting

Chapter 2

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Map 2-1 Southwest Washington Province Seral Stages



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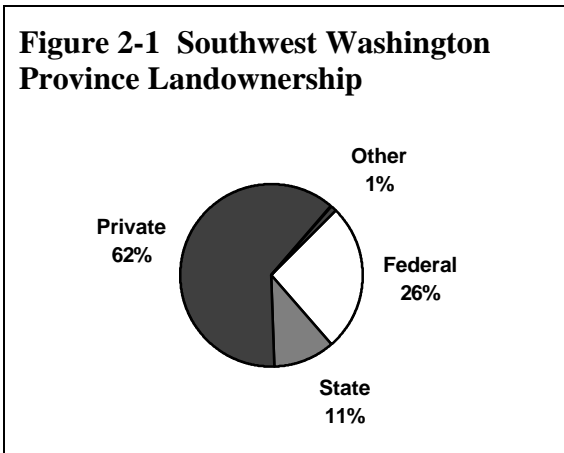
Provincial Setting

The Gifford Pinchot NF occupies 1.4 million acres of land in southwestern Washington. Most of the Forest is located in the Southwestern Washington Province. The remainder (5 percent) of the Forest is located in the Nisqually and Puyallup River watersheds which are in the Western Washington Cascades Province. The Forest comprises about one quarter of the 5.7 million acres in the Southwest Washington Province.

2-1 Land Use and Ownership

Land use within the Southwestern Washington Province includes urban and suburban development, agriculture and forestry. Intensive private forest management is the most widespread land use. The Gifford Pinchot NF is located in the eastern third of the province and includes mostly forested lands.

Figure 2-1 Southwest Washington Province Landownership



Land within the Province is mostly in private ownership (62 percent), followed by federal (26 percent), State of Washington (11 percent) and other (less than 1 percent)

2-2 Vegetation Conditions

Forest cover data supplied by the Washington Department of Natural Resources was used to provide a provincial context for this assessment. The data was developed from forest canopy characteristics derived from 1988 LandSat satellite imagery. Structural stage definitions used by LandSat differ from those used elsewhere in this Assessment.

Figure 2-2 Provincial Vegetation

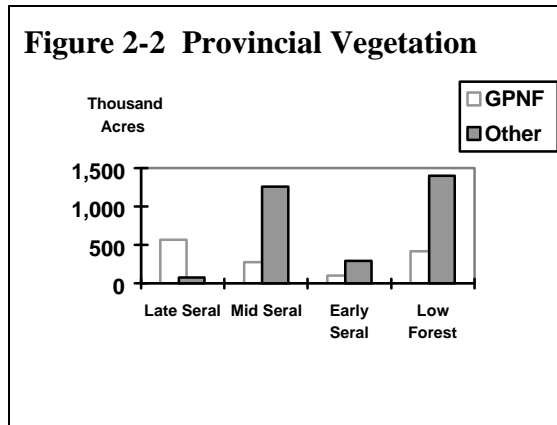


Table 2-1 LandSat Seral Stage Definitions

| Seral Stage | Conifer Crown Closure | Crown Closure >21" DBH | Hard-wood/Shrub Cover |
|------------------|---|------------------------|-----------------------|
| Late Seral | >70% | >10% | <75% |
| Mid-Seral | >70% | <10% | <75% |
| Early Seral | 10-75% | <75% | |
| Low Forest Cover | Includes other lands in forested areas (<10% crown closure of conifer or >75% hardwood; also included are plantations, meadows, etc.) | | |

It should be noted that LandSat late-seral classification does not necessarily equate to late-successional or old-growth habitat. However, it is apparent that within the province most of the forest land which is likely to contain late-successional habitat in the future is on the Gifford Pinchot NF because most non-federal land is managed for other values.

2-3 Province Scale Connectivity

Connectivity at provincial and regional scales is limited by the geographical isolation of Gifford Pinchot NF LSRs from late-successional habitat located on other federal lands. See Map 2-2.

To the south, the Columbia River presents a formidable obstacle to most terrestrial species. It is possible, however, for dispersal of birds, such as spotted owls, to occur across the river. Therefore, it is desirable to foster and maintain old-growth forest conditions as close to the river as possible. The area with greatest potential to contribute to cross Columbia River connectivity is located in the Dog Mountain area where the Forest boundary extends to the river. Presently, there is little late-successional forest on Dog Mountain because of past wildfires. Accelerating the recovery of these stands should be a high priority for LSR management. The Forest should coordinate the development of connectivity habitat with the Columbia River Gorge National Scenic Area.

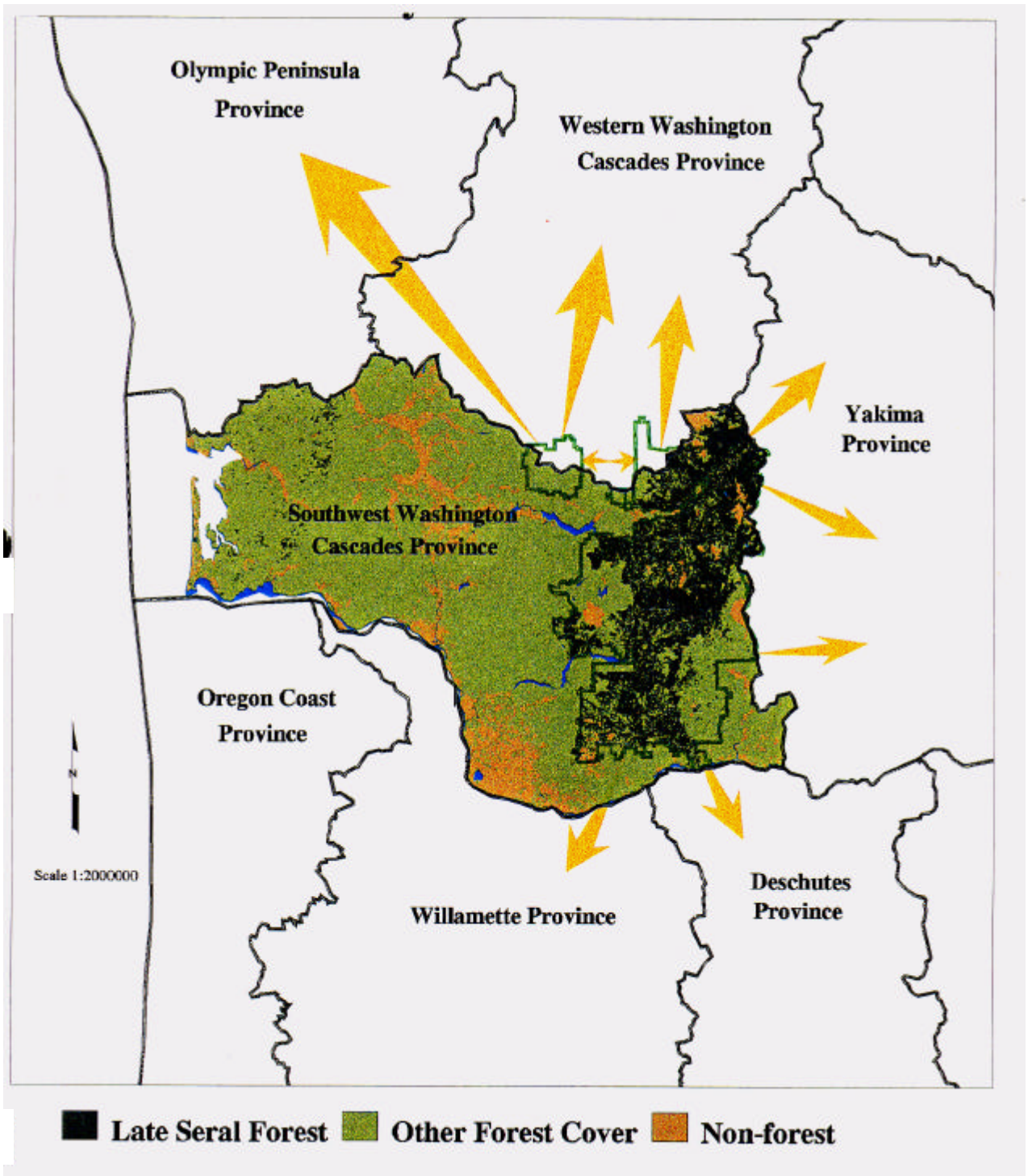
To the east, connectivity to Yakama Indian Nation forest land is broken by high

elevation, alpine and sub-alpine areas but connections exist through the Clear Fork of the Cowlitz/Upper Klickitat valleys in the northern part and across the southeastern corner of the Forest. The land to the east of the Forest becomes progressively drier with less timber cover and diminishing habitat for many late-successional species. The crest of the Cascade Mountains, with its open, park-like subalpine and treeless alpine regions provide little connectivity. The Goat Rocks and Mt. Adams wilderness areas and the Gotchen LSR represent the best connectivity available to Wenatchee National Forest, Yakama Indian Reservation and state lands to the east.

To the north, Mt. Rainier National Park, with its contiguous forest cover around the lower elevations of the mountain, provides connectivity to other federal forest land to the north and east. The Park and the adjacent Glacier View Wilderness also provide connectivity between the units of the Nisqually LSR.

To the west, the only opportunity for late seral connectivity is through the Mineral LSR in the northwest corner of the Forest. It is important because it provides connectivity to the Olympic Province and, to some degree, the Northern Cascade Province. There are known marbled murrelet nesting sites within this LSR. Connectivity between the Mineral and other LSRs is limited by state and private forest land and by non-forest land uses. The best opportunity to improve connectivity in this area is with Washington DNR forest land which lies between the Mineral and Nisqually LSRs.

Map 2-2 Connectivity At The Province Scale



2-4 Disturbance Processes

The current state of any ecosystem is the result of the balance between disturbance and recovery processes. Forest disturbances are natural and human induced processes. The disturbances at work in the forests of the province included fire, wind, floods, insect and disease, volcanic events and human activities. Knowledge of forest disturbances; type, extent, frequency and intensity, is fundamental to accurate interpretation of the dynamics of individual forest stands and the stand mosaic that makes up the landscape.

Historically, land use conversion, wildfires, volcanic activity and timber harvest have had the greatest effect on vegetation change in the province. The combination of fire exclusion and timber harvest practices has changed the species makeup and forest structure now found throughout the province.

Fire

Fires have two primary ignition sources, natural (lightning) or human caused. Historical records document large fire events as early as 1764. Native American burning prior to European settlement was often documented as natural ignitions.

Vegetative conditions across the Forest are greatly affected by the vast forest fires which burned large acreages during the early part of this century. These fires occurred in the presence of strong east winds following periods of summer drought. In 1902, 480,000 acres on and near the Forest burned. The Yacolt Burn accounted for half this acreage, other fires that year over 30,000 acres each were the Lewis River Burn, Siouxon Fire and the Cispus Burn. Similar large-

scale fires occurred naturally or were set in the past and have been of primary importance in the establishment of extensive Douglas-fir forests.

The fire frequency in this province is very similar to those found in other westside forest ecosystems. Wildfires as a disturbance process are less frequent (70 - 400 year intervals) than in eastside ecosystems. Fires in these fire groups tend to be lethal and stand replacing. In the warm, dry plant zone primarily on the eastside, fire is more frequent (5 - 200 years). Historically, these stands tended to be more open and park-like, composed mainly of large diameter ponderosa pine and Douglas-fir. Fires were less intense and usually not stand replacing.

Volcanic Eruptions

The 1980 eruption of Mount St. Helens destroyed vegetation on about 150 thousand acres; 61 thousand acres of National Forest land, 61 thousand acres of state lands and 28 thousand acres of private lands. National Forest lands outside the legislated monument boundary and most of the private and state lands were replanted immediately after the eruption. The 110 thousand acres of National Volcanic Monument was not replanted and ecological processes are allowed to progress at natural rates.

Timber Harvest

Outside of the volcano blast zone, most stands less than 50 years of age originated from timber harvest. Timber harvest in the Pacific Northwest expanded rapidly on private lands in the early 1900. The Puget Sound area was growing rapidly and construction materials were in demand. Demand for timber from the Pacific Northwest was stimulated by the 1906 San Francisco earthquake and fire which destroyed 28,000 wood frame buildings. The first large sale of national forest timber in the Pacific Northwest was a 6 MMBF sale on what is now the Gifford Pinchot National Forest (Hirt 1994). By 1909 over a quarter of the forestland west of the Cascades in Washington had been logged. Total Washington state lumber production peaked in the 1920s. (Williams 1989)

National Forest Timber Harvest

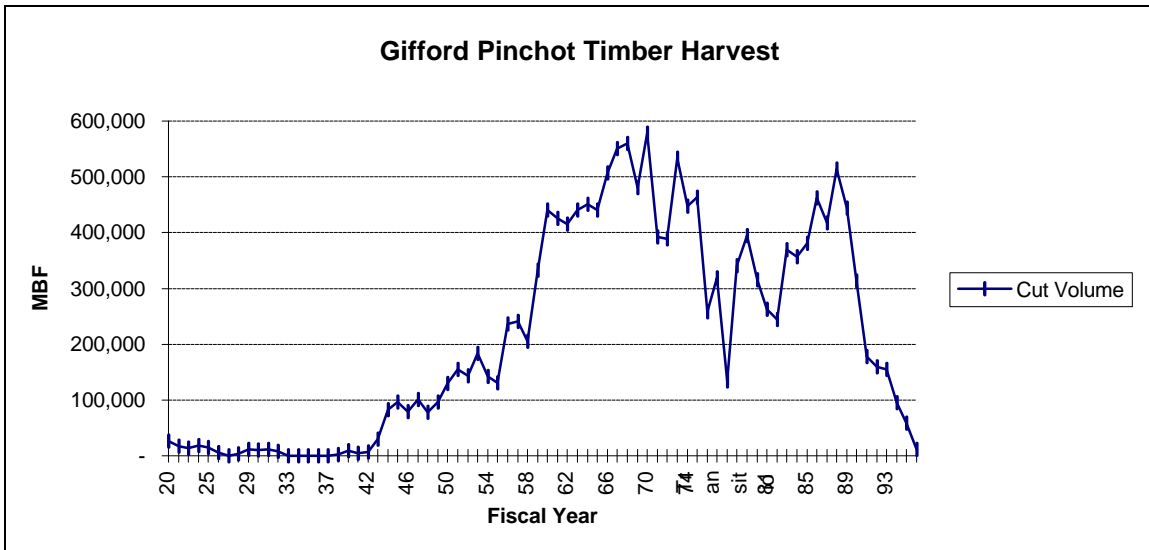
While supplies on private lands were abundant, little harvest occurred on the national forests. From records going back to 1920, the Forest sale level averaged less than 20 million board feet (MMBF) per year between 1920 and

1940. Timber harvest increased steadily after 1940 and fluctuated between 300 and 500 MMBF between 1960 and 1990. Harvest levels peaked in 1970 near 580 MMBF. See Figure 2-3.

After an annual sale level averaging over 400 MMBF during the decade of the 1980s, the Dwyer injunction in 1990 and NWFP reduced the sale level to an average of 28 MMBF between 1991 and 1996. The projected harvest level for the Forest under the NWFP is presently 73 MMBF.

Timber harvest through the 1980s was primarily by clearcutting. Harvest units were usually between 10 and 60 acres in size. Clearcutting was prescribed as the most efficient method for regenerating Douglas-fir. The resulting habitats favored early-seral species, particularly deer and elk. The use of clearcutting and the NFMA 60-acre limit on opening size resulted in a highly fragmented landscape in areas where timber harvest was permitted. The use of clearcutting on the National Forest, as a silvicultural practice, ended with the implementation of the Northwest Forest Plan.

Figure 2-3 Historical Timber Harvest



Literature Cited

Hirt, Paul W. 1994. Historical roots of the current national forest management crisis: a case study of the Gifford Pinchot National Forest. Paper presented at Northwest History Conference. Bellingham, WA.

Williams, Michael 1989. Americans and their forests. Cambridge University Press, NY. p. 309