

FOREST STEWARDSHIP PLAN

Landowner:

Name
Street Address
Olympia, WA 98512

Property Location:

Section, Township, Range
Parcel No.

Plan Preparer:

Landowner

Name
Address
Phone
E-mail

Assisted by:

Name
Title
Company
Address
Phone
E-mail

Plan Prepared: Date

Landowner's Objectives

Short term:

- To realize some immediate income from the property through the periodic sale of alder saw logs.
- To improve the vigor of the conifer stands through thinning of hardwoods and replanting of harvested areas with a mix of conifer species.

Long term:

- Periodic harvest and sale of the timber on the property depending on market conditions.
- Manage the forest stands to improve timber growth and wood quality. We are interested in a long-term sustainable forest.
- Enhance wildlife habitat in ways that are compatible with commercial forest management and maintaining the aesthetic qualities of the property.

General Property Description

This 40-acre property is located in the northwest $\frac{1}{4}$ of the southwest $\frac{1}{4}$, Section XX, Township XX North, Range XWest, WM. It is identified by the Thurston County Assessors Office as Parcel No. XXXXXXXX, and is located approximately 1 mile northwest of the intersection of XXth Lane SW and XXXXX Creek Rd SW, Thurston County, WA. Access to the property is achieved over maintained gravel roads, and the current owners maintain roads on the property that provide easy access to the forest (located on attached map).

The parcel is rectangular in shape, averaging approximately 1320 feet on a side. Its western boundary abuts Washington State Department of Natural Resources land (Capitol Forest). The nearby portion of State forest was harvested and replanted approximately 20 years ago. To the north, east, and south are other 40-acre parcels. The one to the north consists of a 5-acre house site, with 35 acres set aside as designated forestland. The significant portion of the parcel to the south was clear-cut approximately 25 years ago, but a small forest buffer was maintained along the common boundary. The property on the east side remains in second-growth forest with no structures or harvest activities for at least 25 years.

Elevation of the property ranges from 540 to just under 700 feet above sea level, and drainage is generally to the northeast, east, and southeast. Slope angles on the western half are mostly less than 15%, while those on the eastern portion are up to 30%, based on information provided on the Thurston County website (www.geodata.org). There is a small wetland on the western part of the property, and surface water runoff occurs only after significant precipitation events (located on attached map).

The current owners acquired the land on November 27, 1995. According to the previous owner of the property, xxxxxxxx, no logging on this property has occurred for at least 20 years prior to this sale date.

Area 1: In the southeastern part of the property, where the slopes are moderate, there is an area of approximately 10 acres that is dominated by mature alders (located on attached map). Based on data from four belt transects (1600 ft² each) set up in this part of the property, the alder make up 60% of the stand, with an average DBH of just under 12 inches (n=29). Mike Nystrom, Stewardship Forester with Washington State Department of Natural Resources cored one of these alder trees during a site visit in November 2006. The tree had a DBH of almost 13 inches and an age of approximately 55 years. Most of the remaining trees are conifers, primarily Douglas fir and western hemlock, with a few western red cedars. Other hardwoods include big-leaf maple and bitter cherry. A number of trees in this area are quite large. While not a statistically significant sample, some of the large trees include: western red cedar, 36 inch DBH; big-leaf maple, 24 inches DBH; Douglas fir, 20 inches DBH, and western hemlock, 14 inches DBH. Total merchantable tree count for this area is estimated at 325 trees of timber value (alder, big-leaf maple, Douglas fir, hemlock, and cedar) per acre, based on the belt transects. The understory is dominated by sword fern, with salmonberry and Dull Oregon grape common. There

is almost no salal. Other common species in this area include vine maple, cascara, hazelnut, elderberry, devil's club, and red huckleberry.

Area 2: The majority of the property (approximately 26 acres) consists of a variable-age stand dominated by alder, with a few conifers and other deciduous trees, some quite large (located on attached map). One hemlock had a DBH of 34 inches. Based on data from six belt transects (1600 ft² each) set up in this part of the property, the alder make up 85% of the stand, with an average DBH of just under 7 inches (n=88). The remaining trees are primarily conifers, with Douglas fir dominant. Mike Nystrom cored one Douglas fir with an age of approximately 55 years. Sword fern is still an important understory plant, but salal is also important. Other common understory species include: cascara, vine maple, bitter cherry, salmonberry, ocean spray, red huckleberry, Dull Oregon grape, and hazelnut. A few large black cottonwoods are found in the wetlands. Density for timber species for this area (alder, big-leaf maple, Douglas fir, hemlock, and cedar) was estimated at just over 450 per acre, based on the belt transects.

Area 3: Along the sides of a steep ravine near the eastern part of the property, is an area of approximately 4 acres that is dominated by large conifers, primarily Douglas fir and hemlock, plus some big-leaf maple (located on attached map). Mike Nystrom cored one of the Douglas fir, which had a DBH of 24 inches and yielded an age of 85 years. A few large alders and western red cedar are also found in the area. Some of the trees are quite large. Again, although not a random sample, examples of the large trees include: Douglas fir, 52 inches DBH; western hemlock, 32 inches DBH; and big-leaf maple, 28 inches DBH. Based on three belt transects (1600 ft² each), almost 75% of the trees were conifers, with an estimated 200 stems per acre. For species found in the plots, Douglas fir had an average DBH of 26 inches (n=6), hemlock 11 inches (n=9), and big-leaf maple 17 inches (n=4). Here, too, sword fern is the most common understory plant, but due to shade is less densely spaced than in area 1. Dull Oregon grape, red huckleberry, hazelnut and vine maple also grow here. Salal is rare.

Resource Description and Recommendations

Forest Health: The majority of the trees on the property appears healthy, and will be routinely monitored. There is no evidence of animal damage at this time, although bear scat has been observed occasionally along roads and trails. Currently, the roads are rarely used, so they are mowed two or three times a year, which controls invasive species. Invasive plants are not a problem at this time. No Scotch broom has been found to date. Holly trees are found at a few locations, along with some thistle, primarily along roads. There are also a few small patches of Himalayan blackberry adjacent to the road. These are cut back during periods of road mowing.

Timber and Wood Products: Here are the management options for each of the areas described above.

Area 1: Many of the alders in this part of the property are merchantable at this time. Alder is a relatively short-lived species, usually beginning to decline in vigor after sixty years. It is also subject to damage by ice storms and other weather-related events. Drought and tent caterpillar infestations will increase the mortality in these stands as well. There are several options for managing the alder stands. For producing conifers, small patch cuts or a clear cut usually gives the best reforestation results. Thinning these stands often stimulates the growth of the under story brush species, while not providing enough growing space for conifers. The landowners have not made any definite plans to harvest, but are researching options. A sustainable forest over the long run is a strong driver in all plans, so creating a mosaic of different age classes is a definite consideration.

Option 1) In order to grow Douglas-fir full sun light is needed, so at minimum two to three acre patch cuts or larger should be considered. (Alder could be harvested leaving the scattered conifers to provide structure for the future forest and for future high-quality large saw timber). A larger harvest area will improve the economic feasibility, which will likely result in a higher income. Following harvest, the area would be replanted with 300 to 400 trees per acre (12x12 to 10x10 feet spacing). Douglas-fir would be planted in the middle of the unit, with the edges planted in the more shade-tolerant western hemlock and western red cedar. A harvest of this type will attract wildlife, so protecting the planted western red cedar will be necessary. They can be protected with mesh tubes or sprayed with a big-game repellent. The trees will need weeding and continued wildlife protection for the first ten years or so. Non-commercial thinning would occur on this site about twelve to fourteen years after planting, with a commercial thinning possible between 25 and 30 years of age.

Option 2) The landowners could harvest over half the alder stems or canopy, and under plant with western red cedar and hemlock. Stocking densities would be about the same as Option 1. More effort would need to be put into controlling competing vegetation, and growth would be slower. A second entry to do salvage would have to be done carefully, so as not to damage the planted seedlings.

Given current alder prices, this area would merit consideration for harvest in the next few years. Most of the slopes in this stand are gentle to moderate, and road access is good. Once the large alders are removed, the area will be replanted with a mix of Douglas fir, western red cedar and hemlock.

Area 2: Trees are too densely spaced on this part of the property, so thinning is the first priority. Just over 15% of the alders measured during the sampling were ≥ 10 inches DBH, so some of the trees are marketable. As access is good, harvesting these trees could offset some of the costs of thinning. Some portions of the property are stocked with non-merchantable species, damaged or poorly-formed

trees. This part of the forest will require some additional work to delineate what needs to be done in each part. A guideline for the non-commercial thinning in the dense alder patches is included with this plan. These areas will still be fully stocked after thinning. Other areas that are opened up sufficiently will be planted with a variety of conifer tree species, depending on the amount of light and the site-specific growing conditions.

As this part of the property is treated, Douglas fir, hemlock and western red cedar will be planted.

Area 3: Although many of the Douglas fir, hemlock and big-leaf maple have DBH > 24 inches, this area has slopes as high as 30%, and road access is poor, except along the western side at the top of the slope. Special care would be needed to harvest any of the trees. Trees in this area fully occupy the site and some thinning from below would be possible, and would ensure that the dominant trees continue to grow well. Care should be taken to avoid damaging the site. Timing of harvest depends on markets and the owners' financial needs. Prior to harvest the DNR's forest practices forester should be contacted and asked to visit the property to ensure that any harvest meets forest-practices-law standards.

Soils: All of the soils on this parcel have been designated as the Tenino series (please see the attached soils map. *Note: The information that follows on soils is copied or summarized from the Soil Survey of Thurston County, Washington – done by the NRCS in cooperation with the Washington State DNR and Washington State University.* According to the Soil Survey, the western half of the property is mapped as Tenino gravelly loam, 3 to 15 percent slopes, and the eastern half is designated Tenino gravelly loam, 15 to 30 percent slopes. As their soil characteristics are virtually identical, according to the Soil Survey, for the purposes of this plan the two soils are described as a single unit, except where noted.

This moderately deep, well-drained soil is on terminal moraines. It formed in glacial till over glacial outwash. The native vegetation is mainly conifers and hardwoods. Typically, the surface layer is dark reddish-brown and dark yellowish brown gravelly loam about 11 inches thick. The upper 10 inches of the subsoil is dark brown gravelly loam, the next 15 inches is dark yellowish brown gravelly loam, and the lower 4 inches is a weakly cemented, strongly compacted, yellowish brown hardpan. The hardpan crushes to very gravelly loam. The substratum to a depth of 60 inches or more is dark yellowish brown extremely gravelly sandy loam. Depth to the hardpan ranges from 25 to 40 inches.

Permeability is moderate above the hardpan in the Tenino soil, very slow in the pan, and very rapid below the pan. Available water capacity is moderate. Effective rooting depth is 25 to 40 inches. Runoff is slow on the gentler slopes of the Tenino soil and medium on the steeper slopes, with water erosion slight to moderate, depending on slope angle. From a forest-practices standpoint, these soils have only slight logging system limitation, although they are subject to compaction. Wind throw potential is low, so thinning is a viable option for future management plans. As there is likely to be only a medium response from fertilization, it is probably not worth the investment.

On the basis of a 100-year site curve, the mean site index for Douglas fir on Tenino series soils is 154. On the basis of a 50-year site curve, it is 122, or Site Class II (<http://www.dnr.wa.gov/forestpractices/rules/wac222-16.pdf>). The highest average growth rate of an unmanaged, even-aged stand of Douglas fir is 163 cubic feet per acre per year at 60 years of age.

Water Quality, Riparian and Wetland Areas:

During the winter, a wetland area of approximately one acre develops pools of standing water midway along the western side of the property, filling in depressions left by retreating glaciers (located on attached map). During very wet winters, this wetland persists well into the summer dry season. A small pond (approximately 100 feet by 35 feet) forms in a swale near the southeast boundary of the property (located on attached map). This natural depression appears to be due to glacial scour or due to blockage from a small landslide. During the heavy rains that occurred in November 2006 the average depth of the water was about 2 feet. Water would need to rise another 3 feet to spill down the drainage. These two wetland areas provide valuable wildlife habitat, and would be protected from any forest practices activities. The northern part of the property drains into the Stony Creek watershed, while the southern part drains into Pants Creek. No significant perennial or ephemeral stream channels have been observed on the property over the last 10 years.

Fish and Wildlife Habitat: This property has a variety of wildlife habitats and has been relatively undisturbed for at least 30 years. It appears that natural regeneration has taken place subsequent to past timber removal, so the property retains much more diversity in terms of both species and structure than the adjacent Capitol Forest land, which was clear cut and replanted with Douglas fir. The diversity of the property includes different mixes of tree species, age and size classes, and different tree and canopy densities. Standing snags (several observed with DBH > 40 inches) are common throughout the property, and there is clear evidence of current use by woodpeckers and other cavity-nesting birds. Large, downed wood is common, with several pieces greater than 48 inches observed during a reconnaissance walk around the property. The wetland area on the western part of the property also provides standing water for much of the year, which enhances its value as habitat. The understory also retains much of its original diversity, which provides a variety of food, shelter and cover.

No fish-bearing streams exist on the property, and none of the proposed harvesting or thinning activities will likely affect fish habitat.

Threatened and Endangered Species and Cultural Resources: A DNR TRAX check of the property shows that there is a threatened or endangered species on or in the vicinity of the property. Prior to harvesting timber, the landowner will contact Noel Nordstrom of the Washington State Department of Fish and Wildlife at 360-902-2412 to determine if this species will require special consideration in a harvest practice. This would be covered as part of any forest practices application.

TRAX shows that there are no known cultural or historical sites on the property.

Aesthetics and Recreation: As this property is adjacent to Capitol Forest and a 35-acre parcel that is Designated Forest land, harvest and thinning of trees is consistent with current land uses in this part of Thurston County. Public recreation is not an option on this property. The landowners walk the property several times a month as personal recreation and to check on trespassing and illegal dumping.

Agro-Forestry/Special Forest Products: Salal and other floral greens are common, especially in the flatter, upland areas of the west and north parts of the property. These products are in demand commercially and could be sold. The landowners are uncertain whether they will pursue this option.

MANAGEMENT TIMETABLE

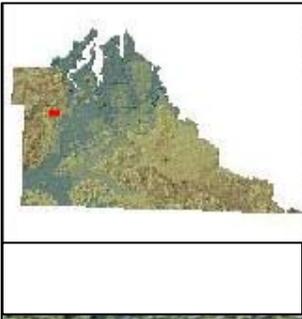
The following tasks will be conducted over the next 10 years. As the forest on this property appears healthy and fully stocked with a mixture of hardwood and conifer species, the timber could be left to grow for the next 10 – 15 years or more without loss of value.

2007: Set up permanent representative survey plots in the three types of stands to monitor forest health, and assess the impacts of forest practices as they occur. One of the landowners hopes to enroll in a Forest Stewardship Coached Planning class to learn more about forest management and sampling.

2008 - 2012: Decide if timing is right to begin harvesting mature alder in Area 1. Upgrade the road to accommodate heavy equipment. This 10-acre portion of the property could be harvested over two or three seasons during the dry summer months. Care would be taken to avoid damaging significant leave trees, so some forest structure would be retained. Once harvested, the area would be replanted with a mixture of Douglas fir, western red cedar and hemlock the following spring.

2013 – 2023: Systematically harvest portions of Area 2 using the variable density approach. This technique retains clumps, creates openings up to 1 acre, and patches of both more heavily thinned and lightly (or not at all) thinned trees, which would mimic the patchiness of the forest as it exists today.

2024 and beyond: At this time, as the stand matures, harvesting of trees will take place on a rotational basis, with approximately 5 acres logged by various means and prescriptions every 10 years. This schedule will minimize disturbance to the wildlife habitat, preserve the aesthetics of the property, and provide for a sustainable supply of timber.



Forest
Management
Plan

Base map: 2002
aerial photo from
geodata.org

