Puget Sound Conservation Districts

Area Forester and Forest Stewardship Program Coordinator
Interview Assignment

Hello and thank you for your continued interest a PSCD Area Forester and Forest Stewardship Program Coordinator position. As part of your interview, we ask that you complete the following interview assignment focused on a forest stewardship planning scenario. You will have no more than 25 minutes to complete the assignment before joining the panel for your interview where you will share your answers and thoughts.

The Jones Family Forest Stewardship Plan

You have been working with the Jones family who originally contacted you by email as a result of seeing your social media post marketing of the PSCD Forest Stewardship Program. After answering their questions during a follow-up phone call, the Jones family requested a site visit where upon you learned about their land management objectives and concerns. Over the intervening 3 weeks you performed field and office-based assessments of the property and associated forest resources, including stand delineation and inventory. You have an on-site meeting with the Jones family today to present their forest stewardship plan and to discuss the management recommendations you've prepared in response to their objectives and your assessments. Please review the attached Jones Family Forest Stewardship Plan, prepare answers to the annotated questions highlighted in red text in the Wildfire Section on page 8 of the PDF and the Forest Inventory/Timber/Wood Products Section on pages 13 - 16 of the PDF.

If you experience technical difficulties, Kari Quaas will remain on the line during the first 20 minutes of your Zoom interview session. You can also reach Kari directly by dialing (425) 923-0334 .

Forest Management Plan

JONES FAMILY FOREST

Landowner Information:	
Landowner(s):	
Address:	
Phone:	
Email:	
Property Information:	
Size:	
County:	
Legal Description:	
FSA Farm & Tract #	
Parcel Number(s):	
Nearest Town/City	
Plan Preparer	
Name:	
Title:	
Address:	
Phone:	
Email:	
	2
Date Completed	

**This plan meets the requirements of the NRCS National Forestry Manual Part 536 Subpart B and the NRCS Conservation Activity Plan-106.*

Table of Contents

LANDOWNER OBJECTIVES

Our primary goal while owning this property is to manage the Douglas Fir trees so they can grow as healthy & efficiently as possible for harvest in the future. We plan to control unwanted invasive plant species, such as Scotch Broom, and any harmful insects to insure optimum growth of the existing stand of Douglas Firs. We will prune and thin trees as needed to promote the health of the forest.

a. Forest stand improvement
b. Ecological sustainability

Short 1. Maximize the growth of desired tree species through quality silvicultural operations, including density management and vegetation control. 2. Maintain and improve wildlife habitat across the property. 3. Maintain an adaptive management philosophy and remain flexible and responsive to changes in the market and regulations.
Long 1. Establish and maintain healthy free to grow forests, which are managed for a variety of economic, ecological, and social benefits. These benefits include, but are not limited to, timber production, wildlife, aesthetics, clean air, and clean water. 2. Monitor the progress of the plan; update the plan. 3. Foster cooperative stewardship with adjacent landowners.

General Property Description

The subject property consists of Mason County, which is 14.9 acres. The parcel is located NE of Shelton WA. Access to the site is gained directly from county road Road. Most of this parcel was logged prior to prior to 1990. This parcel is part of a larger well managed forest homestead that has been dived into several lots between the heirs.

Timber types are Douglas Fir. Elevation ranges from approximately 135 feet to 225 feet above sea level at its highest point.

Climate/Weather

The Belfair/Allyn area gets 54 inches of rain, on average, per year. Belfair/Allyn averages 2 inches of snow per year, the July high is around 76 degrees the January low is 35. On average, there are 136 sunny days per year in Belfair. Belfair gets some kind of precipitation, on average, 157 days per year. Precipitation is rain, snow, sleet, or hail that falls to the ground. In order for precipitation to be counted you have to get at least .01 inches on the ground to measure.
The Hood Canal Region is impacted by the Olympic Mountain range, the Pacific Ocean, terrain and the semi-permanent high- and low-pressure regions located over the North Pacific Ocean. In spring and summer high pressure systems dominate the North Pacific Ocean causing air to blow in a clockwise fashion resulting in prevailing winds from the northwest. These flows wrap around the southern end of the Olympic mountain range. In fall and winter low pressure systems take over the North Pacific resulting in a counter clockwise flow of air and prevailing winds primarily from the southwest. These prevailing winds shape the climate of this region. Summers are cool and comparatively dry and winters are mild, wet and cloudy. In winter, the average temperature is 35.4 degrees F and the average daily low temperature is around 35 degrees F. In summer, the average temperature is approximately 60 degrees F and the average daily high temperature is 70 degrees F.

Surrounding Land Uses

Adjacent and surrounding properties consist largely of commercial forestland. Other nearby ownerships include small home sites and non-industrial private forestland (NIPF) as well as scattered state and county owned and managed working forestlands. Commercial timberlands are devoted primarily to commercial timber production while small forestland properties may be managed for a variety of objectives including timber production, recreation, wildlife habitat and aesthetics.

RESOURCE CATEGORY I – FOREST HEALTH/WILDFIRE/INVASIVE SPECIES

Forest Health

The overall forest health condition and tree vigor across the ownership is excellent, except for a 1.46-acre portion which is impacted by root rot. This parcel is part of a larger well managed forest homestead that has been dived into several lots between the heirs.

Insects & Disease

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No forest insects affecting tree health were observed during the development of this plan. Root rot, ***Phellinus weirii,*** is impacting a 1.46 acre portion of the parcel.

Animal Damage

Due to the low level of understory species for food, animal damage was visible on some Douglas fir.

Snags & Downed Logs

This property contains limited snags and down wood. Snags are found in the portion impacted by root rot.

Stocking and Stand Density

There are three distinct areas of timber within the parcels. The eastern portion of the parcel has remnant conifer, Red Alder and Bigleaf maple that were retained for stream buffer at the last harvest. Stocking in this stand is moderate The largest portion of parcel is a well-stocked stand of Douglas fir with diameter ranges of 8 to 15 inches. The southwestern portion of the parcel appears to have been a site of root rot or commercial thinning, and has a low level of Douglas fir stocking.

See Resource Category IV - Forest Inventory/Timber/Wood Products for individual stand data and management recommendations.

Invasive Species

Canopy cover and management activities have limited invasive plant spread into the site.

Wildfire

Interviewee Assignment - In consideration Puget lowland forest resilience and health concerns such as urban / wildland interface challenges and climate change pressures, identify your top 3-5 management recommendations for the *Wildfire* section of the *Jones Family Forest Stewardship Plan*.

Normally, the risk for wildfire across Western Washington is

Management Recommendations

SOIL MAP from NRCS

Map Unit Symbol	Map Unit Name	Acres	Percent
Ab	Alderwood gravelly sandy loam, 8 to 15 percent slopes	7.8	60.1%
Ee	Everett gravelly loamy sand, 5 to 15 percent slopes	0.1	1.1%
Ib	Indianola loamy sand, 5 to 15 percent slopes	2.7	20.8%
Kb	Kitsap silt loam, 5 to 15 percent slopes	1.0	7.9%
So	Sinclair shotty loam, 5 to 15 percent slopes	1.3	10.1%
Totals for Area of Interest		**13.0**	**100.0%**

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Ab- Alderwood gravelly sandy loam

Alderwood gravelly sandy loam makes up 60% of the parcel. These soils are found at elevations of 50 to 800 feet, with mean annual precipitation of 35 to 400 inches, mean annual temperatures of 46 to 52 degrees F and a frost free period of 160 to 240 days annual. Landforms associated with these soils are hills and ridges. This is a moderately well-drained soil with a depth to water table of 18 to 37 inches. Available water capacity of this soil is very low at 2.7

inches. This soil has a *high* potential for seedling mortality based on available water. "High" indicates seedling mortality is likely.

This soil series has a *moderate* rating for soil compaction. Soil compaction tends to reduce water infiltration which affects plant production and composition and increases runoff which generally increases erosion rates. This soil is considered *moderately suited* for mechanical site preparation due to low soil strength. Rutting hazard of this soil is *moderate* meaning ruts are likely. This soil is considered *moderate* for roads as low soil strength can often result in an increased potential for erosion.

Eh -Everett very gravelly sandy loam
Everett very gravelly sandy loam makes up 1.1% of the property. It is found on slopes of 0% to 8%. These soils are found at elevations of 30 to 600 feet, with mean annual precipitation of 35 to 91 inches, mean annual temperatures of 48 to 52 degrees F and a frost free period of 180 to 240 days annual. Landforms associated with these soils are kames and moraines. The overall soil depth is greater than 80 inches. This is a somewhat excessively drained soil with a depth to water table of 80 inches. Available water capacity of this soil is very low at 3.2 inches. This soil has a *high* potential for seedling mortality based on available water.

This soil series has a *moderate* rating for soil compaction. Soil compaction tends to reduce water infiltration which affects plant production and composition and increases runoff which generally increases erosion rates. This soil is considered *moderately suited* for mechanical site preparation due to low soil strength. Rutting hazard of this soil is *slight* meaning ruts are not likely. This soil is to have *slight* restrictions on logging roads as low soil strength can often result in an increased potential for erosion.

Ib—Indianola loamy sand
This soil series makes up 20.8% of the property. Indianola loamy sand soils are typically found on slopes ranging from 5-15 percent and at an elevation ranging from 0 to 980 feet. Soils of this type are typically found in areas with a mean annual precipitation of 30-81 inches and a mean annual air temperature of 48-50 degrees F. Landforms associated with these soils are typically terraces. This is a somewhat excessively drained soil with a depth to water table of more than 80 inches. Available water capacity of this soil is low at 3.9 inches
This soil series has a low rating for soil compaction. Rutting hazard of this soil is moderate meaning ruts are likely to form. This soil has slight impact on road construction roads. This soil has a moderate potential for seedling mortality based on available water.

Kitsap silt loam, 5 to 15 percent slopes -
Kitsap silt loam, 5 to 15 percent slopes makes just under 10.1% of the parcel. These soils are found at elevations of 0 to 500 feet, with mean annual precipitation of 35 to 40 inches. Landforms associated with these soils are hills and ridges. This is a moderately well-drained soil with a depth to water table of 11 to 30 inches. Available water capacity is very high (about 17.3 inches). Depth to restrictive feature is more than 80 inches. This soil has a low potential for seedling mortality based on available water. This soil series has a *moderate* rating for soil

compaction. Soil compaction tends to reduce water infiltration which affects plant production and composition and increases runoff which generally increases erosion rates. This soil is considered *moderately suited* for mechanical site preparation due to low soil strength. Rutting hazard of this soil is *moderate* meaning ruts are likely. This soil is considered *moderate* for roads as low soil strength can often result in an increased potential for erosion.

So—Sinclair shotty loam, 5 to 15 percent slopes
Sinclair shotty loam, 5 to 15 percent slopes make up 10% of the parcel. These soils are found at elevations of 0 to 300 feet, with mean annual precipitation of 25 to 50 inches. Landforms associated with these soils are glacial till plains. This is a moderately well-drained soil with a depth to water table of 18 to 30 inches. Available water capacity is low at 3.7. Depth to restrictive feature is 28 to 42 inches. This soil has a moderate potential for seedling mortality based on available water. This soil series has a *moderate* rating for soil compaction. Soil compaction tends to reduce water infiltration which affects plant production and composition and increases runoff which generally increases erosion rates. This soil is considered *well suited* for mechanical site preparation. Rutting hazard of this soil is *moderate* meaning ruts are likely. This soil is considered *moderately suited* for roads as when found on slopes.

Soil Timber Productivity

Forestland Productivity with Site Index and DNR Site Class–Mason County, Washington						
Soil Type	**Common trees**	**Site Index**	**Base Age**	**Site Index Curve Number**	**Volume Growth Rate (CMAI)**	**DNR Site Class**
		ft	*yrs*		*cu ft/ac/yr*	
Ab—Alderwood gravelly sandy loam, 8 to 15 percent slopes	Douglas-fir	111	50 BH	King 1966 (795)	157	**III**
Ee—Everett gravelly loamy sand, 5 to 15 percent slopes	Douglas-fir	106	50 BH	King 1966 (795)	143	**IV**
Ib—Indianola loamy sand, 5 to 15 percent slopes	Douglas-fir	115	50 BH	King 1966 (795)	157	**II**
Kb—Kitsap silt loam, 5 to 15 percent slopes	Douglas-fir	128	50 BH	King 1966 (795)	186	**II**
So—Sinclair shotty loam, 5 to 15 percent slopes	Douglas-fir	105	50 BH	King 1966 (795)	143	**III**

For Western Washington, the 50-year site index is used

DNR SITE CLASS	TREE HEIGHT @ 50 YEARS
I	137+
II	119-136
III	97-118
IV	76-96
V	1-75
Red alder	The soils major species code indicated Red Alder
ND/GP	No data or gravel pit
NC/MFP	Non-commercial or marginal commercial forest land
WAT	Water body

(Rule note: If the site index does not exist or indicates red alder, noncommercial, or marginally commercial species, the following apply: If the whole RMZ width is within those categories, use site class V. If those categories occupy only a portion of the RMZ width, then use the site index for conifer in the adjacent soil polygon.)

Tree Site Index is a measure of site productivity and is defined as the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site Class is a specific grouping of Site Index values. The lower the Site Class the higher the Site Index values and subsequent productivity. Higher Site Index values mean greater soil productivity and faster tree growth. Higher Site Index often means forest management activities may occur sooner in comparison with less productive sites.

Forest Management Opportunities

1. Limit any forest operations requiring heavy equipment for seasonally dry periods in order to avoid rutting, soil compaction, erosion and damage to tree roots.
2. Monitor roads and open spaces annually for erosion and rutting and treat accordingly.

RESOURCE CATEGORY III – WATER QUALITY/RIPARIAN AND FISH HABITAT/WETLANDS

Stream Type (DNR)	Total Length (ft)	Total Length (mi)
F (fish)		
N (non-fish)		
U (undefined)		

**Calculations based on data gathered from DNR FPARS 2019.*

**A detailed stream classification should be conducted prior to any future timber harvest in and around aquatic areas.*

Summary

Review of aerial photographs and Lidar bare earth imagery found a wetland type vegetation in the eastern section of the parcel. No running water or streams are identified or found on the parcel. The eastern edge of the parcel appears to have been retained for riparian area management as is primarily Alder, Bigleaf maple, Cedar and Western Hemlock.

In general, water quality and aquatic habitat appear good. No evidence of erosion or sedimentation was observed during the development of this plan.

Retention/protection of forest riparian areas associated with water features large and small improves

Management Recommendations

RESOURCE CATEGORY IV – FOREST INVENTORY/TIMBER/WOOD PRODUCTS

Interviewee Assignment - Identify your top two to three recommendations for management of one of the four stands described below and be prepared to describe why you chose these recommendations.

There are four distinct areas for timber management within the parcel. The eastern stand is a riparian corridor with remnant conifer, alder and maple. The central stand is a stand even aged Douglas fir that has been thinned. The western most stand is also an even age stand of thinned Douglas fir that is somewhat more mature than the central stand. The southwestern stand is an area that is suffering from the impacts of root rot and has a mixture of Red alder, Douglas fir and willow. For management purposes, the property has been divided into four stands.

Desired Future Condition

Desired future condition healthy, vigorous and resilient stands capable of producing maintaining forest cover, wildlife habitat and with ultimate harvesting for timber. Forests shall be managed for forest health as well as a continuation of ecological services including clean air, clean water and wildlife habitat. As the forest buffers wetlands and riparian corridors, forest canopy should be maintained in the buffer zones of these areas.

Stand 1

Note to Interviewee - If stand 1 is your selection, identify your top 2-3 recommendations for management of stand 1 and why you chose these recommendations.

Total Acres	Age	Dominant Species	Trees per acre	Average DBH	Average Height ft.	Average LCR	Average Slope %
3.05	50	Douglas Fir	90	17.5	100	40	5

Stand 1 is composed of a well managed even aged stand of Douglas Fir. Average dominant height of Stand 1 is 100 with some trees over 115 feet tall. Average LCR is 40 percent. Understory shrub layer above 4 feet and is composed of salal and evergreen huckleberry. Stand 1 is primarily Site Class III as Designated by the Washington DNR's the 50-year site index.

Stand 1 is a previously thinned stand at timber maturity. Spacing at 90 stems per acre is below optimal for the site with little indication of dieback from inter tree competition. Canopy Closure (CC) the amount of space between tree canopy's is 60%, which is very low for a stand at this age. Tree height at 50 years of age for this site is estimated at 108 feet, with a current average of 100 feet, indicating the trees have reached maturity.

Owners objectives are to manage this stand for forest health and timber

Management Recommendations

Stand 2

Note to Interviewee - If stand 2 is your selection, identify your top 2-3 recommendations for management of stand 2 and why you chose these recommendations.

Total Acres	Age	Dominant Species	Trees per acre	Average DBH	Average Height ft.	Average LCR	Average Slope %
3.39	40	Douglas fir	130	11	90	35	5%

Stand 2 is composed of a well-managed even aged stand of Douglas Fir, which differs from Stand 1 in that trees are smaller in Stand 2. Average dominant height of Stand 1 is 90 with some trees over 100 feet tall. Average LCR is 35 percent. Understory shrub layer above 4 feet and is composed of salal and evergreen huckleberry. Stand 2 is a combination of Site Class II and III as Designated by the

Washington DNR's the 50-year site index.

Stand 2 is nearing timber maturity. Spacing at 130 stems per acre is optimal for the site will little indication of dieback from inter tree competition. Canopy Closure (CC) the amount of space between tree canopy's averages 85%, which is optimal for continue growth of the stand. Tree height at 50 years of age for this site is estimated at 108 to 128 feet, with a current average of 90 feet, indicating the trees will reach maturity within the next 10 years at nominal growth

Owners objectives are to manage this stand for forest health and timber

Management Recommendations

Stand 3

Note to Interviewee - If stand 3 is your selection, identify your top 2-3 recommendations for management of stand 3 and why you chose these recommendations.

Total Acres	Age	Dominant Species	Trees per acre	Average DBH	Average Height ft.	Average LCR	Average Slope %
4.05	80	Alder	120	13	80	50	5

Stand 3 is composed primarily of Alder, Western Red Cedar, Western Hemlock and small amounts of Douglas Fir and Bigleaf Maple. Stand 3 is at canopy closure with a Canopy Closure percentage of 80%. Stand 3 is wetter as indicated by selected wetland species in the understory. No regeneration of timber species is found in this stand.

Stand 3 can be expected to maintain current stem density while all trees in the stand continuing to grow at nominal rates. Stand 3 is primarily classified as Site Class II and III by the DNR.

Owners objectives are to manage this stand for forest health and timber

Management Recommendations

Stand 4

Note to Interviewee - If stand 4 is your selection, identify your top 2-3 recommendations for management of stand 4 and why you chose these recommendations.

Total Acres	Age	Dominant Species	Trees per acre	Average DBH	Average Height ft.	Average LCR	Average Slope %
2.44	40+	Red Alder	220	6	55	40	5

Stand4 is composed of an open stand of Alder, Bigleaf Maple, Madrone and Willow. Aerial photography indicates that the stand was retained when the largest portion of the parcel was logged 35 years previously. Growth pattern in stand indicates root rot is present. There are numerous dead trees and no regeneration of Douglas fir within the stand. Remnant Douglas fir are found within the stand in very low numbers.

Site Index for this Stand is III, however growth patterns indicate soil descriptions for this stand may be inaccurate. Tree density is well below optimal stocking.

Owners objectives are to manage this stand for forest health and timber

Management Recommendations

RESOURCE CATEGORY V PROPERTY ACCESS/ ROADS AND TRAILS

Road Type	Total Length (ft)	Total Length (mi)
Rock		
Native	2188	0.4
Other		

Summary

An unmaintained native earth access road begins at the southwestern corner of the property connecting directly to Road. This access road provides access to two smaller spur roads that are utilized to access properties on the north side of the parcel.

No water quality resource concerns associated with the roads on this parcel. were observed during the development of this plan as the roads are in low use and appear to be serviceable to the parcel.

Forest roads and trails are an important component to a well-managed forest. Monitor roads, even inactive roads, annually for maintenance needs in order to reduce long-term costs and ensure future access.

Management Recommendations

RESOURCE CATEGORY VI WILDLIFE

The best wildlife habitats are diverse, with a mix of tree size, composition, openings and well-developed layers of shrubs and forbs. The subject property contains a variety of terrestrial habitat types that support healthy populations of wildlife. Common large species found throughout this property include Roosevelt elk, Columbian black-tailed deer, black bear and cougar. Smaller species such as bobcat, coyote, raccoon, porcupine, rabbit, opossum and squirrel are also common. Reptiles include garter snakes, salamanders, frogs, and toads. Common bird species of this area include a variety of ducks, raptors, cavity nesters, song birds, owls as well as forest grouse.

Silvicultural treatments can often be tailored to benefit both tree production and wildlife habitat. A key concept in wildlife management is forest succession. Forest succession refers to the process of ecological change in species and vegetative structure of a given location over time. After a disturbance such as logging, fire or wind damage, a series of predictable successional stages occur through the development of a forest. Each stage results in different habitat for wildlife species. In a region dominated by even-aged Douglas-fir forests, maintaining a mix of successional stage (age class) habitats creates for landscape scale diversity and improved habitat conditions and opportunities. For stand level management, retaining defective or dead trees (snags), leaving or creating down logs (coarse woody debris), retaining legacy structures such as wolf trees (large, broad, limby trees with spreading crown of little value) or large stumps can help increase available habitat.

Management Opportunities

RESOURCE CATEGORY VII PROTECTION OF SPECIAL RESOURCES

"As there are no known threatened or endangered species, or cultural resource protection issues on this property; a formal review to identify these resources, if any, and their potential protection requirements, should be conducted by the State Department of Natural Resources if and when the landowner purposes to conduct significant forestry activities which require a DNR-approved Forest Practices Application."

RESOURCE CATEGORY VIII AESTHETICS AND RECREATION

This property is located near small farms and ponds, in an area accustomed to working forestland. Most people would associate this property with that of adjacent industrial working forestland. The walkability of the forest stands, however, lend this property to numerous forms of recreation such as hiking, wildlife observation, and hunting. Consider continued management of the roads and paths as well as the creation of new trails within the property for use in recreation and forest management.

RESOURCE CATEGORY IX SPECIALIZED FOREST PRODUCTS

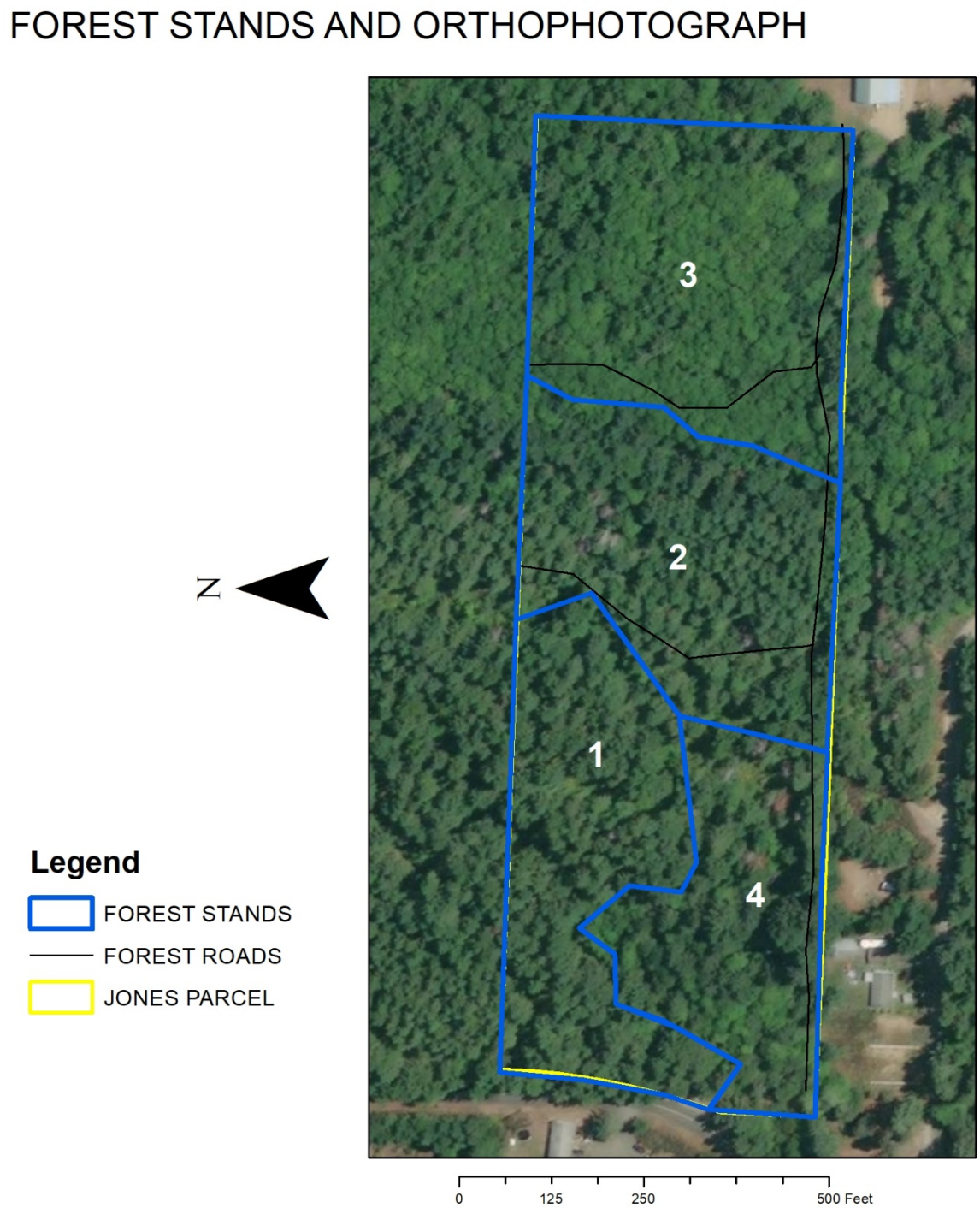
Numerous types of special forest products are available for management on this property including such things as wild edibles, medicinal plants and floral greenery. Should you desire to manage for special forest products in the future, feel free to contact your local Service Forester or WSU Extension Agent.

Management Recommendations

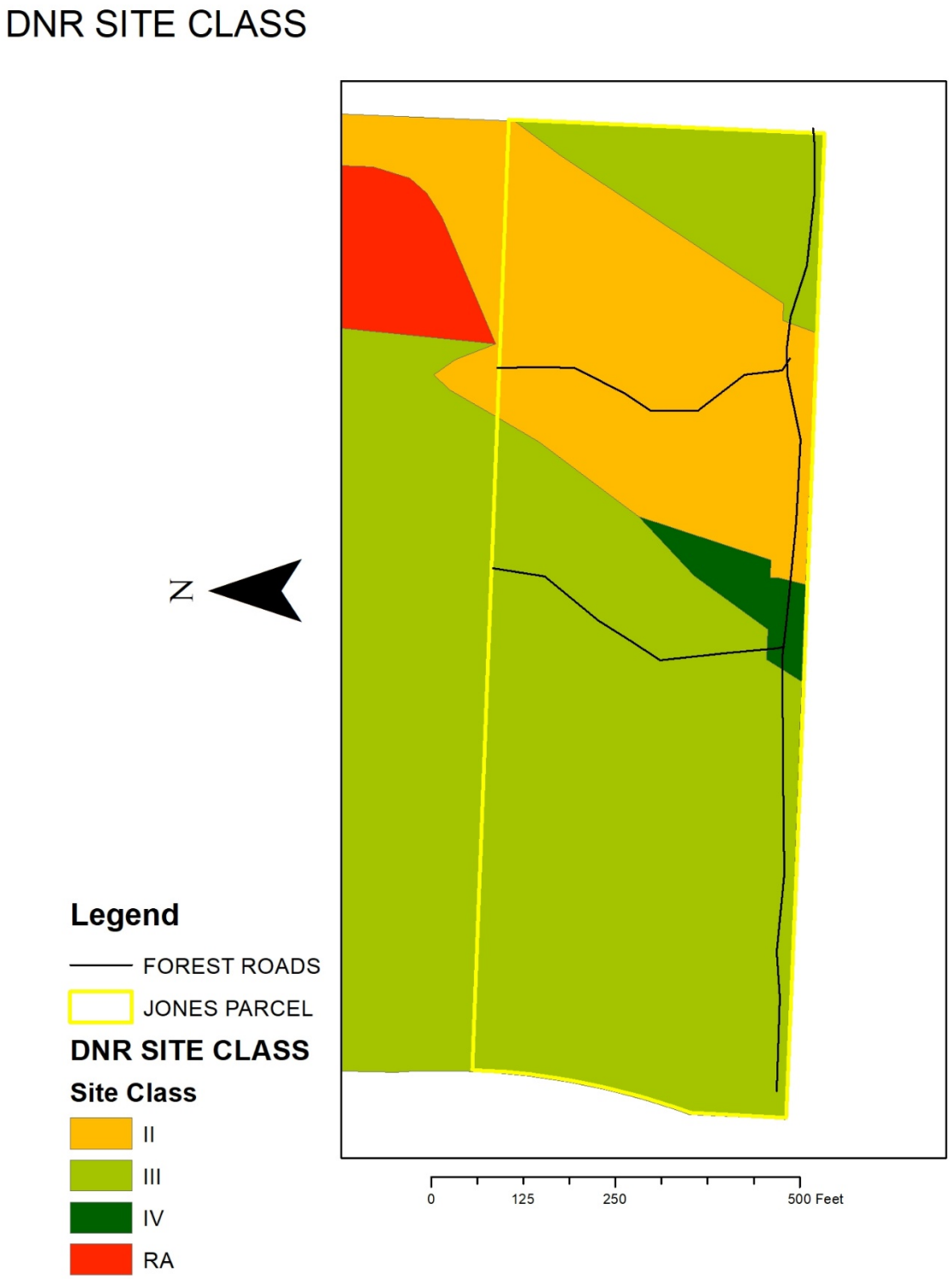
Appendix I: Map(s)

Vicinity Map

Stand Map Ortho

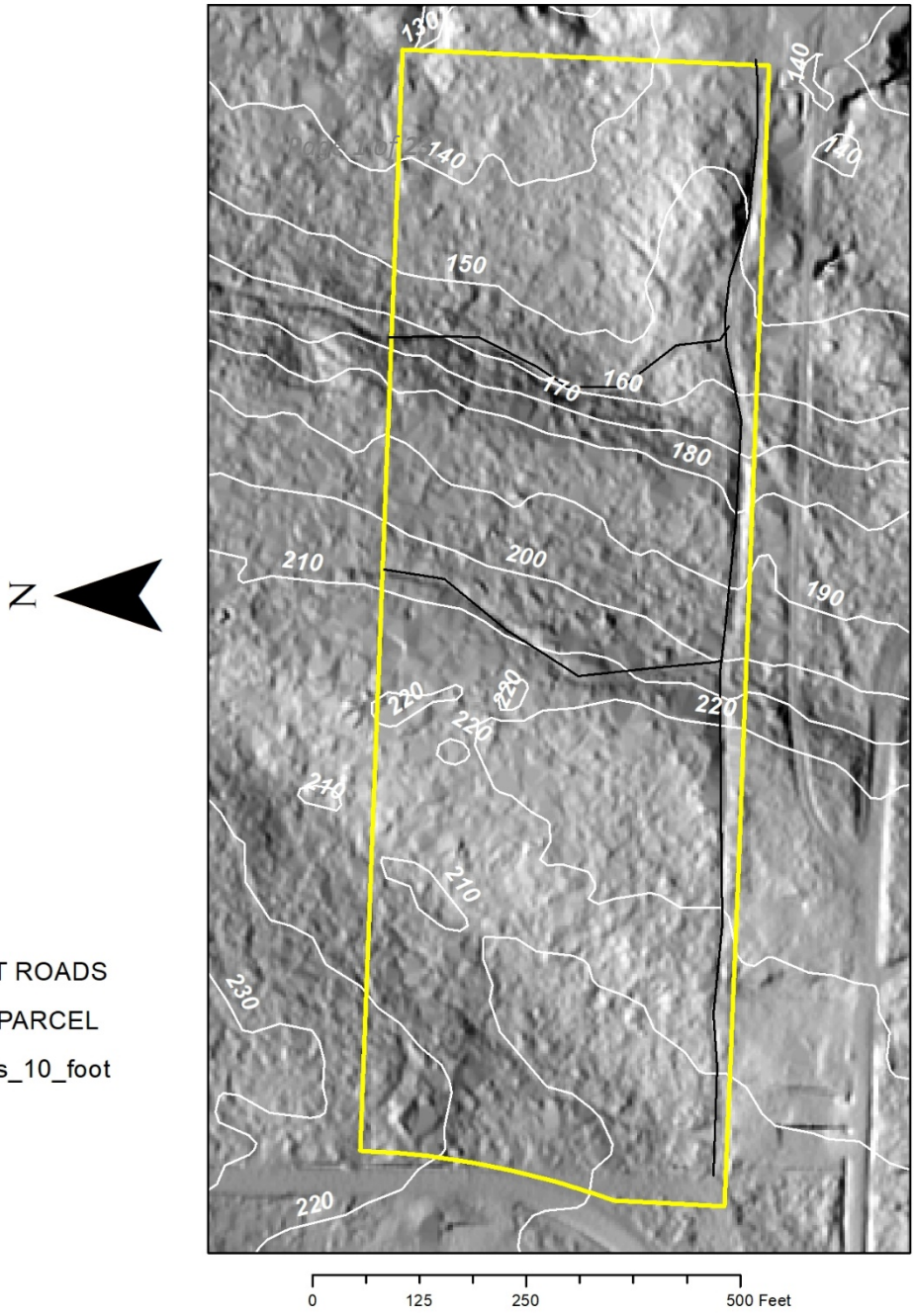


Site Class Map



Topography and Hydrology Map

TOPOGRAPHY AND CONTOURS



Legend

FOREST ROADS

JONES PARCEL

Contours_10_foot

Site Access Map