



Northwest Management, Inc.
Natural Resource Management

P.O. Box 1103 • Deer Park, WA 99006

Brian J. Vrablick

Office: (509) 276-4699 Mobile: (509) 999-8484

E-mail: nwmanage@msn.com

Web: www.consulting-foresters.com

Home office: P.O. Box 9748, Moscow, ID 83843 (208) 883-4488

Forest Stewardship Plan

For

Silver Beach Homes



September 1, 2002



Prepared by:



Northwest Management, Inc.

206 West 1st Street, Suite A

P.O. Box 1103

Deer Park, WA 99006

(509) 276-4699

www.managea.msn.com

www.consulting-foresters.com

FOREST STEWARDSHIP PLAN

LANDOWNER INFORMATION

Silver Beach Homeowners' Association
Patricia Coats, President
44039 Silver Beach Road
Loon Lake, WA 99148

PROPERTY LOCATION

The legal description is NE $\frac{1}{4}$ SE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$, excluding platted parcels, Section 3, Township 29 North, Range 41 East, W.M. totaling approximately 64 acres.

PLAN PREPARED BY



Brian J. Vrablick, Certified Forester
Northwest Management, Inc.
206 W. 1st, Suite A
Deer Park, WA 99006-1103
(509) 276-4699
nwmanage@msn.com

July 15, 2002

TABLE OF CONTENTS

LANDOWNER INFORMATION	1
PROPERTY LOCATION	1
DESCRIPTION OF LANDOWNER OBJECTIVES	1
GENERAL PROPERTY DESCRIPTION	1
HISTORICAL OVERVIEW	1
PRESENT DAY	2
TOPOGRAPHY.....	2
WEATHER	3
SURROUNDING LAND USE	3
RESOURCE CATEGORY I: FOREST HEALTH	3
INSECTS AND DISEASES - OVERVIEW	4
MECHANICAL AND ANIMAL DAMAGE	7
RESOURCE CATEGORY II: TIMBER AND WOOD PRODUCTS	8
PURPOSE AND SCOPE	8
STAND SUMMARY AND MANAGEMENT PRESCRIPTIONS	8
RESOURCE CATEGORY III: SOILS	13
RESOURCE CATEGORY IV: RIPARIAN AREAS AND WETLANDS	15
RESOURCE CATEGORY V: FISH AND WILDLIFE HABITAT	16
HABITAT COMPONENT DESCRIPTIONS.....	17
MANAGEMENT RECOMMENDATIONS.....	18
RESOURCE CATEGORY VI: THREATENED AND ENDANGERED SPECIES AND CULTURAL RESOURCES	20
RESOURCE CATEGORY VII: AESTHETICS AND RECREATION	20
RESOURCE CATEGORY VIII: SPECIAL FOREST PRODUCTS	20
MANAGEMENT TIMETABLE	21
STAND MAP	22
2000 AERIAL PHOTOGRAPH	23
STEVENS COUNTY SOIL MAP	24
APPENDIX	25
FOREST STEWARDSHIP PLAN SIGNATURE PAGE.....	25
FOREST STEWARDSHIP PLAN SUMMARY CHECKLIST	25
ADDITIONAL INFORMATION.....	25

LANDOWNER INFORMATION

Silver Beach Homeowners' Association
Patricia Coats, President
44039 Silver Beach Road
Loon Lake, WA 99148

PROPERTY LOCATION

The legal description is NE $\frac{1}{4}$ SE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$, not including platted parcels, in Section 3, Township 29 North, Range 41 East, W.M. totaling approximately 64 acres.

The Silver Beach property is located on the west side of Loon Lake in a prominent peninsula extending north from the west shore.

DESCRIPTION OF LANDOWNER OBJECTIVES

The objectives for management of the property have been identified as follows:

- 1. Responsible stewardship based on long-term ownership and sound forest management.**
- 2. Maintain a high aesthetic value throughout the property.**
- 3. Develop and maintain a healthy and vigorous forest.**
- 4. Through good stewardship and sound forest management provide optimum habitat for many different wildlife species.**
- 5. Reduce the risk from wildfire in all areas of the property.**
- 6. Return non-productive timberlands to timber production.**

GENERAL PROPERTY DESCRIPTION

Historical Overview

Prior to European settlement, many ponderosa pine forests contained widely spaced, large diameter trees. Forests in this condition are difficult to find today. Man's effort to suppress and control wildfires over the past 90 years has allowed forests to become crowded with younger trees. Fire resistant large diameter pine and larch trees were removed during timber harvests as the area was settled.

The structure and species composition of pre-European ponderosa pine forests was strongly influenced by fire. Fires were frequent, occurring approximately every 5-15 years. Most fires

were low intensity, burning only the grasses, forbs, brush, and small trees. A fire maintained-forest is open and park-like. When these low intensity fires did occur, the thick bark of mature ponderosa pine and western larch protected them from heat damage. As a result, most large trees survived these periodic fires. When debris accumulated in the forest, the fire intensity increased and individual mature trees and small groups of larger trees would burn, resulting in openings in the forest. Sunlight loving ponderosa pine and western larch seedlings would regenerate in these newly created openings.

In the absence of periodic fire, young trees, grasses, and shrubs proliferate beneath mature trees. As the forest becomes dense, competition between trees for light, water, and nutrients increases and stresses individual trees. Stressed trees have less resistance to damaging insects and diseases. Soil moisture requirements and the ability of a particular tree species to grow in shade (shade tolerance) are two important factors that determine which tree species regenerate beneath the overstory trees. Where moisture is adequate, and shade is present, Douglas-fir will become established. Ponderosa pine and western larch do not reproduce successfully in full shade.

Historic, or improper, harvesting practices have removed the mature ponderosa pine and western larch leaving young ponderosa pine and Douglas-fir to replace them. Over time this practice effectively converts a forest once dominated by mature ponderosa pine and western larch to a forest dominated by small diameter ponderosa pine and Douglas-fir. This process is commonly referred to as a conversion. The stands are converted from an "old growth" mature ponderosa pine stands to a grand fir and western red cedar dominant in the overstory and immature Douglas-fir and ponderosa pine in the understory. In a fire free environment with the absence of harvesting, grand fir will eventually dominate a stand as the mature and over-mature Ponderosa pine and western larch die out.

A shift in stand structure and species composition and forest structure can have several negative aspects. One is increased risk of a high-intensity wildfire. This is due to two reasons; an increased amount of fuel and an addition of ladder fuels to the forest. The ladder fuels (layers of vegetation) allow the fire to leave the ground and climb into the forest canopy, killing parts or all of the tall (over-story) trees. Douglas-fir is vulnerable to defoliation and mortality from several forest insects (spruce budworm, Douglas-fir engraver, Tussock moth), root diseases (*Armillaria* sp., *Phellinus* sp.), several fungi, and Dwarf mistletoe.

Present Day

Recent management activities that have occurred on the property include salvaging timber due to snow breakage, and thinning overstocked areas. After the salvage operation was completed, fire hazard abatement activities were implemented. Areas around the cabins and in the common area were pre-commercially thinned, pruned and debris was chipped. There were numerous forest health issues resulting in several portions of the property being treated during the salvage operation. Other management activities are recommended in this plan in order to improve the productivity and health of the forested area.

Topography

The Silver Beach property is located on the southwest shoreline of Loon Lake. The slope ranges between 20% and 60% with an average slope of 30%. The area near the cabins and lake are

fairly steep sloping down towards the water. The area in the center of the property is rolling hills with slope from 10 to 30%. Slopes increase, as you get closer to the west property line. The parcel has an eastern aspect with some northeast and southeast also represented. The steepest portion of the property is in the southwest corner with an average slope of 50%. The elevation ranges between 2400 and 2750 feet.

Weather

The approximate average annual precipitation is 21 inches and the average annual air temperature is approximately 46 degrees Fahrenheit. The frost-free season ranges from approximately 105 to 125 days.

Surrounding land use

The property is located approximately 2 miles southwest of the town of Loon Lake, Washington. Loon Lake is primarily a high-density recreational area. The surrounding areas are primarily used for recreation and residential housing. Areas to the south are primarily agricultural properties and small non-industrial private forest owners. Some industrial, state and federal forestland is in the area as well.

RESOURCE CATEGORY I: FOREST HEALTH

A healthy forest is:

- 1) Resilient to natural and human disturbance;
- 2) Biologically diverse;
- 3) Able to provide a sustained habitat for vegetation, wildlife, and humans.

Trees require adequate light, water and nutrients to maintain their health and grow to their biologic potential. If one or more of these elements are missing or insufficient, the tree experiences stress. Stressed trees are vulnerable to insect pests, disease problems and reduced growth rates.

The abundance of sunlight in the forest is managed by controlling the number, size and density of trees. The optimal amount of sunlight varies with individual tree species present and management goals for the property. For example, ponderosa pine and western larch require full sunlight to reproduce successfully. Grand fir and western red cedar can reproduce in heavy shade. Douglas-fir and western white pine are able to reproduce in partial shade. Tree thinning is the primary method used to control forest density, species composition and tree growth. Pre-commercial thinning is applied in young forests before trees have commercial value. The objective is to cut less desirable trees and create additional growing space for the remaining trees. Cut trees are left in the forest. Commercial thinning is implemented when trees are larger, older and have commercial value. Cut trees are removed and sold to wood products manufacturers. Before tree thinning is implemented a forester prepares a silvicultural prescription. The prescription details the goals of the thinning project and describes how, where and when the work will be accomplished.

The inland northwest typically experiences dry summers. During this period trees depend on moisture stored in the soil to maintain their growth. Deeper soils, and cooler aspects (north and

east) benefit tree growth because they store greater amounts of water that is available later into the growing season. Where soils are shallow, or the aspect is hot and dry (south and west) tree growth slows during drought periods due to a lack of soil moisture. Shade-intolerant (light loving) species are adapted to grow on hot, sunny areas (south and west aspects) and are more resistant to drought. Shade-tolerant species grow in cool, moist forests found on north and east aspects and adjacent to riparian areas. Shade-tolerant species are less resistant to drought. Thinning reduces the total number of trees competing for water allowing residual trees are able to obtain soil moisture for a longer period during the growing season. Forest productivity is often enhanced when dense (over-stocked) forests are thinned to reduce competition for soil water.

The availability of nutrients in the soil will influence the potential for tree growth. Nutrient availability is influenced by soil type and the abundance of organic material present in the soil. Fertilizer can provide an added boost to the health and growth of a forest on some soil types. Forestry activities such as slash disposal, prescribed burning and erosion control are managed to maintain or improve nutrient availability.

The primary forest health problem in Eastern Washington forests is over-stocking (too many trees per acre). Over-stocking causes tree stress because neighboring trees must compete intensively for light, water, and nutrients. This is a problem on portions of the property where branches from adjacent trees touch or overlap each other. Leaving the larger dominant and co-dominant trees and cutting the smaller diameter, suppressed trees will improve the health and grow rate of remaining trees.

Insects and Diseases - Overview

There are several forest health agents common to the region; dwarf mistletoe, western gall rust, root rot, pine bark beetles, pine engraver beetles, and physical damage from weather and animals. All agents affecting your forest are native to the area. Eliminating impacts to individual trees is nearly impossible, but minimizing their scope and impact throughout a forest area is achievable. A brief description of these agents follows, as well as current problems and their management recommendations. For additional information, see the appendix.

Dwarf Mistletoe

Dwarf mistletoes are small, leafless, parasitic plants that grow on branches and stems of conifers. They are usually 1 to 5 inches tall and mostly green, yellow, brown or orange in color. A host tree is typically infected by only one species of mistletoe. Bunched growths of branches (witches' brooms) and swollen branches are frequently caused by mistletoe so they are good places to look for mistletoe shoots.

Female plants produce seeds that spread the disease. Both sexes damage trees. Seeds are produced in small berries. During late summer berries burst and seeds can travel horizontal distances of 10 to 35 feet. The sticky seeds attach to branches and infect them. Birds can distribute seeds, but most infection is from nearby infected trees.

The time it takes mistletoe to kill a tree depends on several factors. Damage tends to develop

slowly until the tree is heavily infected. Trees are usually killed within about 10 to 15 years once they become heavily infected throughout the crown.

Control of dwarf mistletoe involves reducing the amount of mistletoe to a low level. Heavily infected trees are cut. Lightly infected trees can have branches pruned. All live branches up to the highest infected branch should be cut off. Infected trees can be retained if they are isolated from healthy trees or surrounded by resistant tree species within 40 feet.

If the disease is so advanced that most trees need to be cut, planting mistletoe resistant trees is a good alternative. Douglas-fir for example can be replaced with ponderosa pine.



Mistletoe control is generally a long-term process with activities usually focused around harvest or thinning operations to reduce cost. The first step is to select heavily infected trees for removal during current or future harvests. Second, remove infected young trees during non-commercial thinning operations. Third, prune infected branches off of trees which are left behind but have light infections. Lastly, monitor for mistletoe outbreaks every three to five years.

Western Gall Rust

Western Gall Rust is a fungus that infects ponderosa pine and lodgepole pine. You can identify this fungus by looking for galls (round swellings) or cankers (deformities) on the branches and bole of infected trees. This disease mainly causes stem malformation, breakage, reduced growth, and tree killing (particularly in younger trees). In large trees it may persist for 50 years or more before death.

Currently, there is a minor amount of gall rust scattered in pockets throughout the stands. The impact from the disease is minimal. This disease is windborne and may travel several miles to infect other pines. Due to this high spread area, complete elimination of this disease is unlikely. Eradication of heavily infected trees during current and future harvests is recommended.

Pine Bark Beetles

Four different pine bark beetles affect the pine trees in our area. The four beetles are western pine beetle, mountain pine beetle, red turpentine beetle, and pine engraver beetle. The most important bark beetle enemy of Douglas-fir is the Douglas-fir beetle. The beetles generally favor trees that are water stressed. Trees can become water stressed during a drought or by having too many trees in an area (overstocked). The bark beetle bores through the bark and lays its eggs in the cambium layer between the bark and the wood; the cambium is full of sugar and nutrients that feed the larvae.

Trees killed by bark beetles can often times be recognized as red trees in the stand that appear suddenly. A tree can turn from green to red within weeks. However, other indicators would have been present for months. These indicators are things such as pitch tubes, boring dust, or frass on the

bark of the tree.



Red trees themselves are usually not a forest health risk. They are just an indicator of what has happened in your stand and what may happen in the future.

The western and mountain pine beetles are considered major tree killers in eastern Washington. Both prefer trees greater than 6 inches in diameter. Trees that they attack usually die.

The red turpentine beetle generally attacks only the bottom six feet of the tree. It usually attacks a tree that is under stress or has already been attacked by another beetle. The exception is if a timber harvest has recently occurred the turpentine beetle will attack the stump of the harvested tree and sometimes trees near those stumps. A tree attacked by only the red turpentine beetle will normally not die unless attacked several years in a row.

Pine engraver beetles are slash-breeding insects. The beetles primarily attack fresh, green material on the ground greater than 2" in diameter. Examples would be logging slash, tops of trees broken during wind or ice storms, and non-commercial thinning debris (trees cleared around new homes or developments is a prime example). Once green material hits the ground, it is a food source for 3-6 months. After that time frame the sugary layer under the bark turns sour. The pine engraver beetle generally attacks slash in May during its first flight. Another flight will occur 8 weeks later. This second flight will look for green slash; if it is not available they will look for stressed trees and attack the top of the tree. Normally the top 5-20 feet of the tree is attacked. The top will die, but not the whole tree. Usually another beetle will come in and finish off the weakened tree.

In general, to minimize pine engraver attacks, do not create logging or thinning slash greater than 2" in diameter between January and June. If logging is conducted during these times the following suggestions should minimize a pine engraver problem.

- 1) Proper utilization of all material down to two inches in diameter.
- 2) Pile and burn material greater than two inches within 6 weeks if possible.
- 3) Chip or remove material greater than two inches in diameter within 6 weeks.
- 4) Form a green chain of fresh slash; this option provides a continuous supply of food for the beetle through their entire breeding season, keeping them out of standing trees. ***This option requires precise timing and should only be conducted by someone with experience.***

Douglas-fir beetle outbreaks are usually initiated by catastrophic events such as blowdown, or winter breakage. Downed or weakened trees are attacked and beetles build up large populations. The next year, new generations emerge and attack susceptible trees in surrounding stands. Damage in standing trees is greatest in dense stands containing a high percentage of large, mature Douglas-fir.

Salvage of down or weakened Douglas-fir is a primary tool in preventing Douglas-fir outbreaks. When attacks have already occurred removing standing green or faded infested trees will help reduce or prevent further damage in the area. The risk of Douglas-fir beetle damage is reduced when dense mature stands are commercially thinned.

Root Rot

Root diseases are the most damaging group of tree diseases. Diagnosis and identification is based on:

1. Circular groups of dead and dying trees. Root diseases tend to kill a few trees each year, look for dying trees at the edge of a group with dead trees towards the center.
2. Thinning tree crowns. Crowns of root diseased trees fade in color, thin from the inside of the tree crown towards the edge. Diseased trees may produce a stress cone crop, though much of the seed is not viable. Young trees are killed more quickly than older ones.
3. Symptoms and signs in roots and root crowns. Trees with advanced root disease may have basal resin flow, wood discoloration and decay, and presence of fungal tissue.

Root disease is managed by promoting the establishment and growth of resistant tree species. Not all conifer species are equally susceptible to root disease. Many young stands can be grown to merchantability if disease tolerant species are favored.

Dead and dying trees can be salvaged however rates of disease spread and tree mortality may not be reduced. There is some evidence that partial cutting increases the rate of mortality in root-diseased stands.

Mechanical and Animal Damage

Most of the mechanical damage found on the property was due to snow breakage and minor damage from animals.

Snow breakage occurs when the air temperature stays low enough that the snow cannot melt and slough from the tree crowns. The trees become brittle from cold temperatures and the weight of a significant snowfall can fracture the main stem of the tree. The number of trees damaged in an area can be significantly higher in areas where the overstory is sparse or widely spaced.

The weather conditions needed to create significant snow damage occurred on the property in late November and early December 2001. A sanitation/salvage harvest is the most economical action to take in cleaning up the debris before insects invade the damaged trees and then spread to neighboring healthy trees.

Animal damage is usually from porcupines killing the tops of pine trees, rodents killing small seedlings, and deer rubbing their antlers or browsing small trees. I found evidence of all of these agents. Currently, none of these are having a significant impact on your forest.

No action is currently needed to control the deer damage or porcupine damage. However, porcupines could become a problem in the next 5 to 25 years. In addition, if tree planting occurs as proposed, deer browsing will need to be monitored.

To minimize future windfall problems, proper selection of leave trees during harvesting operations is very important. When leaving trees, leave dominant or co-dominant trees that have a good live crown ratio and root system.

The damaged trees were salvaged during a harvest operation in the winter of 2001-02. Trees that were broken, sprung, or with significant defect were selected for harvest.

RESOURCE CATEGORY II: TIMBER AND WOOD PRODUCTS

Purpose And Scope

Through the implementation of the recommended silvicultural practices, the management objectives for this property can be achieved. This section of the plan will describe past management activities for each stand, the stand structure and condition, preferred management regime, and future management activities.

Stand Summary And Management Prescriptions

This section describes each stand's physical and biological characteristics. These characteristics are evaluated to determine the best course of management for the stands. Best management practices are determined based upon the goals outlined earlier in this plan. Although several stands are similar, each stand is evaluated and considered separately.

STAND 1

Stand 1 is located in the north portion of the property. A main ridge runs north/south through this stand. The overstory is dominated by 70 to 90 year old Douglas-fir. Western larch and ponderosa pine are common in the northern 2/3 of the stand. Grand fir is present but not common. Most of the grand fir can be found in the south part of the stand. The trees range from 6 to 20" DBH with an average of 13". Spacing of the overstory trees is somewhat patchy particularly in the northwest portion of the stand. The regeneration and pole/sapling components of this stand are dominated by Douglas-fir. The average tree has a DBH of 2 inches, average height is 14' and average crown ratio is 50%. Insect and disease problems are isolated. Several root rot pockets have been identified.



Due to the presence of root rot, Douglas-fir and grand fir are not the preferred species in this stand. Future management activities should promote the establishment of western larch and ponderosa pine.

A sanitation/salvage harvest was implemented in the winter of 2001-02. The silvicultural prescription for this stand was developed considering the following objectives.

Treatment Objectives

- Improve the health of the forest through the removal of broken, damaged, and dying timber, while protecting natural privacy screens provided by this stand.
- Enhance wildlife habitat qualities of the stand, primarily by recruiting snags and down logs.
- Reduce wildfire fuel loading to acceptable levels producing a fire-safe stand of timber.
- Implement periodic fertilization to mitigate the lack of decomposing soil wood.
- Reintroduce natural grasses and other native plants.

Preferred Management Regime

The management of this stand included the implementation of a sanitation/salvage harvest removing single trees that were broken by snow damage. This type of harvest concentrated on leaving the healthy ponderosa pine wherever possible. The harvest system utilized for this stand was a conventional system.

Areas that had naturally regenerated were pre-commercially thinned to a 12 foot by 12 foot spacing shortly after the sanitation/salvage harvest. The entire stand was pruned. The debris created by these activities was chipped on site. These post-harvest activities were funded using Fire Hazard Reduction cost share monies.

Planting is considered the desirable alternative for regeneration allowing for an increase in the genetic stock of the species present in the stand. Ponderosa pine is the desired species for planting in this area. This is also a good way to reintroduce native grasses and other plants to control erosion and invasion of noxious weeds. The process of leaving healthy overstory trees and planting understocked or non-stocked areas will begin the process of moving toward a fully stocked healthy forest.

Some of this stand is heavily stocked with poor quality regeneration and sapling components. These trees should not be managed as the future crop trees. Thinning areas that are overstocked, selecting only the best quality trees will enhance the growth of the leave trees in this stand. A short-term increase in the fuels can be expected in an area that is thinned. This risk will be eliminated by hand piling and either burning or chipping the fuel on site.

STAND 2

This stand is located in the center portion of the property along the east property line. The stand is dominated by medium to large size Douglas-fir and grand fir. Ponderosa pine and western

larch are common in the stand. The age of this stand ranges from 60 to 250 years old with an average age of 90. The average DBH is 16", average height is 74 feet and a 40% crown ratio. West and northwest aspects dominate the site. Spacing of the overstory trees is fairly uniform. The regeneration and pole/sapling components of this stand are dominated by Douglas-fir. The average tree has a DBH of 1.5 inches, average height is 10' and average crown ratio is 50%.

Treatment Objectives

- Improve the health of the forest through the removal of broken, damaged, and dying timber.
- Enhance wildlife habitat qualities of the stand, primarily by recruiting snags, down logs, and improving the diversity and forage value of the shrub layer.
- Reduce wildfire fuel loading to acceptable levels producing a fire-safe stand of timber.
- Maintain the old growth component in the stand.
- Reintroduce natural grasses and other native plants.

Preferred Management Regime:

The preferred management regime is to initiate a sanitation/salvage harvest removing single trees that are either broken, damaged, or dying. This harvest will prefer the healthy ponderosa pine and western larch as the leave trees wherever possible. The preferred harvest system for this stand is a conventional harvest system.

Areas with natural regeneration should be pre-commercially thinned to a 12 foot by 12 foot spacing following this harvest. The debris created by these activities will be hand piled and burned on site when cost share dollars are available.

In poorly stocked areas, planting is considered the desirable alternative. The planting of these areas will result in adding to the genetic diversity in this stand. Ponderosa pine is the desired species for planting in this stand.

STAND 3

This stand is located in a band running from the northwest corner to the southeast corner of the property. The stand is dominated by small to medium size Douglas-fir and western larch on the north end of the stand and grand fir and Douglas-fir on the south end of the stand. Ponderosa pine is common in the stand. The age of this stand ranges from 60 to 90 years old with an average age of 70. The average DBH is 11", average height is 72 feet and a 40% crown ratio. West and northwest aspects dominate the site. Spacing of the overstory trees is fairly uniform. The regeneration and pole/sapling components of this stand are dominated by Douglas-fir. The average tree has a DBH of 1.5 inches, average height is 8' and average crown ratio is 50%.

Treatment Objectives

- Improve the health of the forest through the removal of broken and damaged timber and by thinning the stand to provide for increased tree vigor.
- Enhance wildlife habitat qualities of the stand, primarily by recruiting snags and down logs.
- Reduce wildfire fuel loading to acceptable levels producing a fire-safe stand of timber.
- Implement periodic fertilization to mitigate the lack of decomposing soil wood.
- Reintroduce natural grasses and other native plants.

Preferred Management Regime:

A sanitation/salvage harvest should be employed where all broken and dying timber is removed. The desired harvest will individually select healthy Douglas-fir, western larch, and ponderosa pine at 20 to 30 foot spacing as the leave trees in this stand. The harvest system that is desired for this stand is a conventional ground based skidding.

Areas with natural regeneration should be pre-commercially thinned to a 12 foot by 12 foot spacing following this harvest. Portions of the stand should be pruned. The debris created by these activities will be hand piled and either burned or chipped on site

In poorly stocked areas, planting is considered the desirable alternative. The planting of these areas will result in adding to the genetic diversity in this stand. Ponderosa pine is the desired species for planting in this stand.

STAND 4

This stand is located in the southwest corner of the property. Stand 4 is best managed with an emphasis on wildlife habitat. The combination of heavy brush and the poor quality trees provides good habitat for many different wildlife species. The west portion of this stand was harvested during the summer of 2002. Broken trees, lodgepole pine, and suppressed Douglas-fir was selected for removal. The residual stand is dominated by medium to large size Douglas-fir, grand fir, and western larch. The most defective grand fir was left standing to provide future snags and to minimize the visual impact of the timber harvest. Ponderosa pine is common along the ridge. The age of this stand ranges from 75 to 125 years old with an average age of 92. The average DBH is 16", average height is 78 feet and a 40% crown ratio. West and northwest aspects dominate the site. Spacing of the overstory trees is fairly uniform. The regeneration and pole/sapling components of this stand are dominated by grand fir and Douglas-fir. The average tree has a DBH of 2.5 inches, average height is 15' and average crown ratio is 50%.

Treatment Objectives

- Improve the health of the forest through the removal of broken, damaged, and dying timber which has merchantable value.
- Maintain visual quality of the stand.
- Enhance future wildlife habitat value of the stand.
- Return non-stocked and poorly stocked timberland to production.
- Reduce fuel loading to acceptable levels producing a fire-safe stand of timber.
- Reintroduce natural grasses and other native plants.

Preferred Management Regime:

For long-term forest management this stand should be converted from primarily a fir stand into a pine/larch stand. Due to the dramatic change in the aesthetic appearance associated with this practice, this alternative is not being recommended. The current management of this stand included the implementation of a sanitation/salvage harvest removing the trees that were broken by snow damage or dying from root rot. This harvest left the best quality trees and ponderosa pine wherever possible. Highly defective grand fir was also left standing; cutting these trees

down would have been silviculturally correct, but these trees have very little merchantable value and a high value for wildlife. A conventional harvest system was employed during this entry.

Some of the areas with natural regeneration should be pre-commercially thinned to a 12 foot by 12 foot spacing following this harvest. Thickets should be left for hiding and/or thermal cover for wildlife. Portions of the stand should be pruned. The debris created by these activities will be hand piled and either burned or chipped on site.

In poorly stocked areas, planting is considered the desirable alternative. The planting of these areas will result in adding to the genetic diversity in this stand. Western larch and ponderosa pine are the desired species for planting in this stand. Some western white pine could be planted in the southern portion of the stand.

Thinning: A good thinning program will meet one or more of 6 objectives:

- 1) To use or sell trees that would otherwise die naturally and eventually decay;
- 2) To redistribute the total fiber growth of the stand to fewer trees of higher quality, thereby increasing the value of usable fiber;
- 3) To provide money to pay off investments, such as reforestation, pre-commercial thinning, and other stand improvement activities;
- 4) To enhance non-timber resources like wildlife, water quality, recreation, aesthetics, and grazing;
- 5) To provide more frequent income opportunities;
- 6) Reduce fire hazard.

Thinning alters forest development. Species composition is controlled when desirable tree species in good health are retained and less desirable tree species in poor condition are removed. Desirable trees accumulate volume at an increased rate due to their improved growth and reduced mortality from insects and disease. Leave trees are more fire resistant and reach commercial size in less time. Individual trees increase in value at a greater rate due to increase in diameter and merchantability. Thinned forests tend to be more open and aesthetically pleasing to many forest landowners. Many cut trees are genetically inferior. Removing them improves the genetics of the forest over time.

The type of thinning selected by a forester will depend on landowner ownership goals and the age, size, condition, and species composition of the forest area. The cardinal rule when thinning is to improve the timber stand's health and potential for future growth. Late summer and fall are the best times to carry out thinning operations. Trees are less susceptible to bark damage at this time. Slash that results from thinning has less potential to attract bark beetles during this time period.

Pruning: Pruning the lower limbs off a tree encourages the production of higher value knot free wood, called clear wood. It is an investment in the individual tree and the future high quality wood. Pruning also reduces the chances of a ground fire reaching the canopy of the individual tree or adjacent trees by using ladder fuels; the lower limbs of trees that are close to the ground or shrubs which may act as a ladder from the ground to the tree.

Pruning for high quality wood is most cost effective in young healthy forest stands. Young trees heal their wounds faster than older trees. Pruning when branches are small reduces knot size. Young trees have more time to grow clear wood thus increasing their potential value. Young trees are easier to prune and thus less expensive to prune. It is important to never remove more than 50% of a tree's live crown. For example, if you have a small tree that is twenty feet tall and has green limbs top to bottom then you can prune the lower ten feet without impacting the tree's health. If a tree is twenty feet tall and has green limbs from the top down to six feet off of the ground (14 feet live crown) then you can remove seven feet of live crown, which would give you a pruning height of thirteen feet (6 feet of dead branches plus 7 feet of pruning green limbs).



Fertilizing: Adding nutrients by fertilizing will increase growth in many instances. Foresters will consider soil type, tree age and species, and forest health to determine if fertilizing is likely to produce cost effective benefits. Where appropriate fertilizing has potential to increase tree growth and enhance a tree's ability to resist insects and disease. Generally, Eastern Washington forests respond well to both nitrogen and potassium. The amount of each nutrient needs to be determined on a site-by-site basis but normally is approximately 200 pounds of nitrogen per acre and 100 pounds of potassium per acre. Fertilizer applications will improve tree vigor and growth for eight to ten years, with most of the benefit occurring in the first five years.

Monitoring: Periodic evaluation of forest condition is important. The goal is to catch problems when they are small and easy to remedy. In addition to the health of the forest, foresters and landowners should evaluate the condition of understory vegetation (weed infestations, planted areas), and capital improvements (roads, bridges, fences). It is also important to review the management goals for the ownership. Ownership situations change, as does the forest itself.

RESOURCE CATEGORY III: SOILS

There is one primary soil type and one minor soil type present on the property. Each soil type and their attributes are described in the following paragraphs.

Moscow Silt Loam, 25 to 40% Slopes

The Moscow soil is moderately deep, well drained, and found on foot slopes of mountains. This soil is formed mainly from residuum and colluvium derived from granite and is mantled with volcanic ash and loess in the upper part. An organic mat usually about 1 ½ inches covers the soil surface. Typically this soil is found around 2200 to 4000 feet in elevation.

The average annual precipitation is between 29 inches, and the average soil temperature is 43°F. There are typically 80 to 100 frost-free days. The available water holding capacity is moderate and permeability is also moderate. Runoff is rapid and the hazard of erosion is high for the Moscow soil. The effective rooting depth is 20 to 40 inches.

The native vegetation is conifers, shrubs, forbs, and grasses. Douglas-fir is the most common conifer found in this soil type. The site index for Douglas-fir on the Moscow soil is 94, resulting in the possible production of 68 cubic feet per acre per year. The main concern with timber production and harvesting for the Moscow soil is the steepness of slope. Equipment limitation is severe in relation to the steepness of the slope. Delay of regeneration in canopy openings may occur where invading brush species crowd out tree seedlings.

Moscow Silt Loam, 40 to 65% Slopes

The Moscow soil is moderately deep, well drained, and found on foot slopes of mountains. This soil is formed mainly from residuum and colluvium derived from granite and is mantled with volcanic ash and loess in the upper part. An organic mat usually about 1 ½ inches covers the soil surface. Typically this soil is found around 2200 to 4000 feet in elevation.

The average annual precipitation is between 29 inches, and the average soil temperature is 43°F. There are typically 80 to 100 frost-free days. The available water holding capacity is moderate and permeability is also moderate. Runoff is rapid and the hazard of erosion is high for the Moscow soil. The effective rooting depth is 20 to 40 inches.

The native vegetation is conifers, shrubs, forbs, and grasses. Douglas-fir is the most common conifer found in this soil type. The site index for Douglas-fir on the Moscow soil is 94, resulting in the possible production of 68 cubic feet per acre per year. The main concern with timber production and harvesting for the Moscow soil is the steepness of slope. Equipment limitation is severe in relation to the steepness of the slope. Delay of regeneration in canopy openings may occur where invading brush species crowd out tree seedlings.

Moscow-Rock Outcrop complex, 0 to 30% Slopes

The soils in this complex are found on foot slopes and ridgetops of mountains. The slopes are complex, with about 65% Moscow silt loam, 0-30% slopes, and 20% rock outcrop. An organic mat about 1 ½ inch thick usually covers the soil surface. This soil is found at 2200 to 4000 feet in elevation. The average annual precipitation is between 29 inches, and the average soil temperature is 43°F. There are typically 80 to 100 frost-free days. The available water holding capacity and permeability is moderate for this soil. Runoff is medium and the hazard of erosion is moderate. The effective rooting depth is 20 to 40 inches.

The native vegetation is conifers, forbs, shrubs and grasses. Douglas-fir grows well in these soil types. The site index for Douglas-fir on the Moscow complex soil is 94, resulting in the possible production of 54 cubic feet per acre per year. The main concerns with timber production and harvesting for the Moscow complex soil is the steepness of slope and hazard of rutting and soil compaction when the soil is moist. Equipment limitations are moderate in relation to slope steepness. Regeneration in open canopies can be delayed due to invasion of brush species. Rock outcrops causes a limitation to the even distribution of reforestation.

Mobate Gravelly Loam, 30 to 65% Slopes

The Mobate soils are shallow, well drained soils and found on foot slopes and side slopes of mountains. These soils are formed mainly from residuum derived from granite, with an admixture of volcanic ash and loess in the surface layer. An organic mat of 1 inch usually covers the soil surface. Typically, the soil is found on levels of 2500 to 4500 feet in elevation.

The average annual precipitation is about 29 inches, and the average soil temperature is 44°F. There are typically 80 to 100 frost-free days. The available water holding capacity is low and permeability is moderate. Runoff is very rapid and the hazard of water erosion is very high for Mobate soils. The effective rooting depth is 14 to 20 inches.

The native vegetation is conifers, forbs, shrubs and grasses. The most common conifer found growing in this soil type is ponderosa pine. The site index for ponderosa pine on this soil type is 81, resulting in the possible production of 35 cubic feet per acre per year. The main concern with timber production and harvesting for the Mobate soils is the steepness of slope. Canopy openings may delay regeneration where invading brush species that are not controlled will hinder the establishment of tree seedlings. Low available water capacity will influence the seedling survival chances.

SOIL IMPLICATIONS

Most of the property has gentle slopes and the soils have slight erosion potential, excluding the southeast corner, which is steeper and has unstable soils with severe erosion potential. Seasonal wetness is a consideration for most areas of the property. Due to the soil characteristics, the timing of harvesting activities and the type of harvest system become a major concern. Unstable soils on variable sloped ground can lead to failures if the timing of the harvest and type of harvest system are not carefully planned. Other areas of concern with these soils are soil rutting and compaction. For these reasons the timing of harvest must be carefully considered. To reduce the impact, harvesting should occur only during the time of the year when the soils are dry or frozen.

The type of harvest system, which is appropriate to these types of soil constraints, is variable depending on the stand. The gentler ground, which encompasses most of the property, is well suited for either a conventional or a mechanized harvest system. The area in the southeast corner with 30% slope also could utilize a conventional or mechanized harvest system, but might be better suited to a cable yarding system due to the severe erosion potential. Each area will need to be individually evaluated when the harvest units are identified.

Soil disturbance can lead to site occupancy of non-native noxious weeds. Minimal disturbance on hillsides is necessary to avoid excessive plant competition in all stands. Due to low moisture availability, planning the regeneration of the stands will need to be carefully considered to avoid extreme mortality problems in some areas.

Most areas have the potential for producing grasses, forbs, shrubs, and conifers; thus, producing quality forage for both wild and domestic ungulates.

RESOURCE CATEGORY IV: RIPARIAN AREAS AND WETLANDS

Riparian areas are defined as areas adjacent to free water where the vegetation of that area, the vegetative community, is directly affected by the free water. These areas include streams, rivers, ponds, seeps, springs, and wetlands; the presence of water is the main factor of a riparian system that distinguishes it from the surrounding uplands. The additional water available in a riparian system supports lush vegetation, which helps to retain water in the system. During periods of high runoff, such as snowmelt in the spring, intermittent streams will carry water and sediment into the receiving perennial streams.

Riparian areas are beneficial to the ecosystem and the landowners in many ways. With proper management, vegetative cover filters sediment from streams. Large organic debris in streams also filters sediment and slows the water's velocity, thus reducing its ability to move sediment downstream. Trapping these sediments contributes to the rich soil found in riparian areas, further supporting the vegetative community. Grasses, shrubs, and trees in the riparian area catch and hold sediments and pollutants that come from adjacent fields and forests. Sediments are removed from water, improving the quality and clarity. Healthy riparian areas slow water flow, reduce the likelihood of downstream flooding, filtering and spreading the water, and stabilize stream banks during high water events.

Riparian areas are home to a variety of wildlife and bird species that find food, shelter, and relief from temperature extremes. Fish need healthy riparian areas for sustained cool water and aquatic food and vegetation. Loss of vegetation is one of the most serious changes affecting the riparian area. The impact can be great, because until regrowth occurs, the land is subject to increased erosion, decreased water quality, and wildlife use will be altered.

RESOURCE CATEGORY V: FISH AND WILDLIFE HABITAT

All forest-dependent wildlife require food (including water), shelter from inclement weather (both summer and winter), and cover from predators for breeding, rearing of young, and feeding. The mixture of forest vegetation types and landforms determines suitability of habitat for each particular wildlife species. A diverse mixture of tree and shrub species, sizes, and age classes, as well as dead and dying trees in the form of snags and coarse woody debris (fallen trees and large logging debris) will increase wildlife species diversity and abundance. The presence of water and associated vegetation (riparian zones) in proximity to diverse forest habitats enhances biological diversity.

Diverse and persistent forest, shrub, and herbaceous plant stands arranged with consideration to special habitat features such as water, edge, snags, openings, and other features will increase year-round wildlife use of the property. While this property already contains many of these attributes, enhancing riparian and wetland areas will increase use by wildlife. While species diversity – the number of different species – may not significantly increase, wildlife abundance – the total number of individuals of a species in the area – could be increased with additional plant diversity and the amelioration of riparian conditions.



As mentioned earlier, wildlife species have a set of specialized requirements, including food, water, and cover. If one of these requirements is in short supply, overall effectiveness of the habitat is reduced. A requirement in short supply is referred to as a limiting factor. Limiting factors are comparable to the staves in a barrel – if one of the barrel staves reaches only part-way

to the top, then the barrel will only hold water up to that level. The barrel staves represent different habitat aspects of food, water, and cover. A habitat's effectiveness or ability to support wildlife is based on its most limiting factor.

Wildlife habitat can be protected, enhanced, and even created with appropriate management done in conjunction with other forest management activities. A brief explanation of some of the important habitat components follows along with management recommendations.

Habitat Component Descriptions

Cover

High plant diversity across a landscape provides cover requirements for many species. Cover requirements also differ within a species depending on time of year and the activity of the animal, much the same as our "habitat requirements" change from the dinner table to the kitchen. Cover can be broken down into sub-components of thermal and security cover; these differ in their functions, but may occupy the same site.

The vegetation that provides thermal cover is generally denser than security cover. Thermal cover provides animals protection from the elements by providing them with warmer conditions in winter and cooler conditions in summer. Thermal cover requirements vary with species, ranging from conifer thickets for deer and elk, to the grass cover used by smaller mammals such as mice and voles.

Security cover provides animals protection from predators. Uses include resting, loafing, and bedding areas, feeding areas, travel corridors, and areas for rearing young.

The most effective habitat includes components of thermal and security cover in proximity to the other main habitat components of food and water. Interspersion of the important components increases an animal's ability to travel between and use the various areas for feeding, security, and reproduction. A local area may be improved for wildlife without increasing the amount of any food or cover resource, if the interspersion of the needed resources is increased. In addition, the interspersion of the various habitat components can produce "edge habitat."

Snags and Coarse Woody Debris: About one-third of forest wildlife species are dependent on snag (standing dead trees) and coarse woody debris (down logs and trees). More than 60 of these species use cavities (holes excavated in trees) created primarily by woodpeckers for denning, nesting, and shelter. Most cavity nesters prefer the harder and larger diameter snags; those that are in the earlier stages of decay. The taller and larger diameter snags benefit more species, for a longer period of time, than the smaller snags. However, small diameter and shorter snags (including stumps at least 3 feet in height) are also utilized for feeding and cover. Snag dependent wildlife also use live trees with substantial amounts of decay. This includes broken tops, large dead and/or broken branches, cracked or damaged boles, heart rot, and mistletoe and rust brooms. Brooms (clumps of deformed branches) caused by these pathogens are readily used by platform nesters such as hawks, owls, eagles, and ospreys and as shelter for mammals such as squirrels and pine martens. Most wildlife species that use snags will use trees with substantial



decay. Many of these defective trees will last for long periods of time and although they have little economic value, they have excellent value to snag-dependent wildlife.

Coarse woody debris goes through a similar decay cycle and use pattern with the larger diameter and longer length hard logs lasting longer and being used by more wildlife species than the smaller and softer pieces of coarse woody debris.

Ideally, these two components should be scattered throughout forested stands. Where past management has allowed, both snags and coarse woody debris are found in good numbers. Deficiencies exist in many portions of the forest.

Food

High plant diversity also offers a broad variety of foods needed by different species. Deer, moose, and elk vary in their food choices. White-tailed deer commonly browse the tips of woody trees and shrubs, and forage on broad-leaved forbs when they are available. Elk graze herbaceous plants such as grasses, clover, and alfalfa, feeding on browse when it is readily available. Moose are primarily browsers, preferring the tips of woody trees and shrubs, especially willows and red-osier dogwood. They will also consume a variety of broad-leaved forbs, depending on availability.

Water

The need for water varies between species, ranging from the strong association and absolute water requirement of amphibians and aquatic mammal, to species that require only minimal amounts for drinking water. Waterfowl, including migratory ducks and geese, use open water for escape areas from predators, and also feed on aquatic insects, crustaceans, and plants. Shorebirds, such as snipe and herons, use shallow water areas for feeding and will nest along the shorelines. As stated earlier, the addition of wetlands and the enhancement of riparian conditions will increase wildlife abundance, and will improve the potential for increased wildlife diversity.


Understory Vegetation:

This consists primarily of grasses and forbs in sunnier locations and berry producing shrubs and hardwood trees where sufficient sunlight and moisture is present. Some shade tolerant understory conifers also comprise this habitat category. Ground nesting and foraging birds and the majority of mammals use this habitat feature for food, shelter, and cover. Understory vegetation is scattered throughout the property except where the forest canopy has closed and eliminated sunlight to the forest floor.

Management Recommendations

These management recommendations are consistent with overall management goals for the property. They are designed to protect and enhance wildlife habitat and accomplish forest management objectives.

Snags and Coarse Woody Debris

- ⇒ Retain as many snags and defective trees as possible in each stand for cavity and snag-dependent wildlife. Mark or identify trees to be retained prior to timber harvests; consider creating snags during harvest. Low value trees should be used for snag creation (but not existing “wildlife trees” that have existing substantial defect). Trees with low economic value that contain obvious defect useful to wildlife should be retained wherever possible. Created snags can include size ranges from high stumps (at least 3 feet in height and at least 10 inches in diameter) up to those that are at least 16 inches in diameter and at least 30 feet tall. Snags can be created from conifers by girdling at the point of desired breakage, with a chainsaw, or with a mechanical harvester at time of tree harvest.
- 
- ⇒ Retain all existing pieces of coarse woody debris if possible. Large treetops and butt ends that are bucked during harvest can be retained for coarse woody debris. This component can also be created from poor quality trees that are at least 20 feet long and at least 10 inches in diameter at the small end. When small amounts of blowdown occur between harvests, consider leaving a portion of the individual tree or large pieces of trees for wildlife. The large size pieces (>12” diameter) are best.
- ⇒ Enhance nesting habitat by erecting 1-2 small to medium nest boxes per acre. Other potential habitat improvements include creating a hawk nest platform in the top of a defective tree. Copies of nest box specifics are included in the appendix.

Understory

- ⇒ Retain understory vegetation wherever possible. Sites disturbed through harvest and management activities and exposed to increased sunlight may be seeded to a wildlife forage seed mix (enclosed).
- ⇒ Planting shrub species such as blue elderberry, serviceberry, chokecherry, and mockorange can be undertaken to enhance species diversity and berry production. This would help all wildlife species, particularly birds.
- ⇒ Planting hardwoods such as quaking aspen in draws and adjacent to riparian areas improve aesthetics and future wildlife habitat, especially for grouse.

Multi-purpose Management

- ⇒ During thinning operations consider a variable density thinning pattern to mimic natural events. This involves applying an uneven spacing between trees as well as retention of different tree sizes and species. Some patches (at least 50 feet in diameter) should be

thinned heavily to favor development of shrubs and ground cover and some patches (also at least 50 feet in diameter) should be thinned very lightly or not at all to retain shelter and cover for those species using this layer of forest vegetation. These variable density units should be scattered throughout the landscape. Existing snags that may pose safety problems may be retained in the middle of unthinned or lightly thinned patches.

RESOURCE CATEGORY VI: THREATENED AND ENDANGERED SPECIES AND CULTURAL RESOURCES

The Department of Natural Resources TRAX System indicates that there are no endangered species or cultural resources on the property at this time.

RESOURCE CATEGORY VII: AESTHETICS AND RECREATION

To improve the aesthetics of the property several activities should be undertaken in the next 10 years as part of this Forest Stewardship Plan. A sanitation/salvage harvest of both stands would improve the stands' health, reduce the number of dying trees, and improve the aesthetics of the stands. Pre-commercial tree thinning and tree planting will improve the productivity and aesthetics of the property. Shrub planting will improve the aesthetics from within the boundaries of the property. Following the timber and wildlife objectives will also have a positive effect on the aesthetics of the property and increase wildlife viewing opportunities.

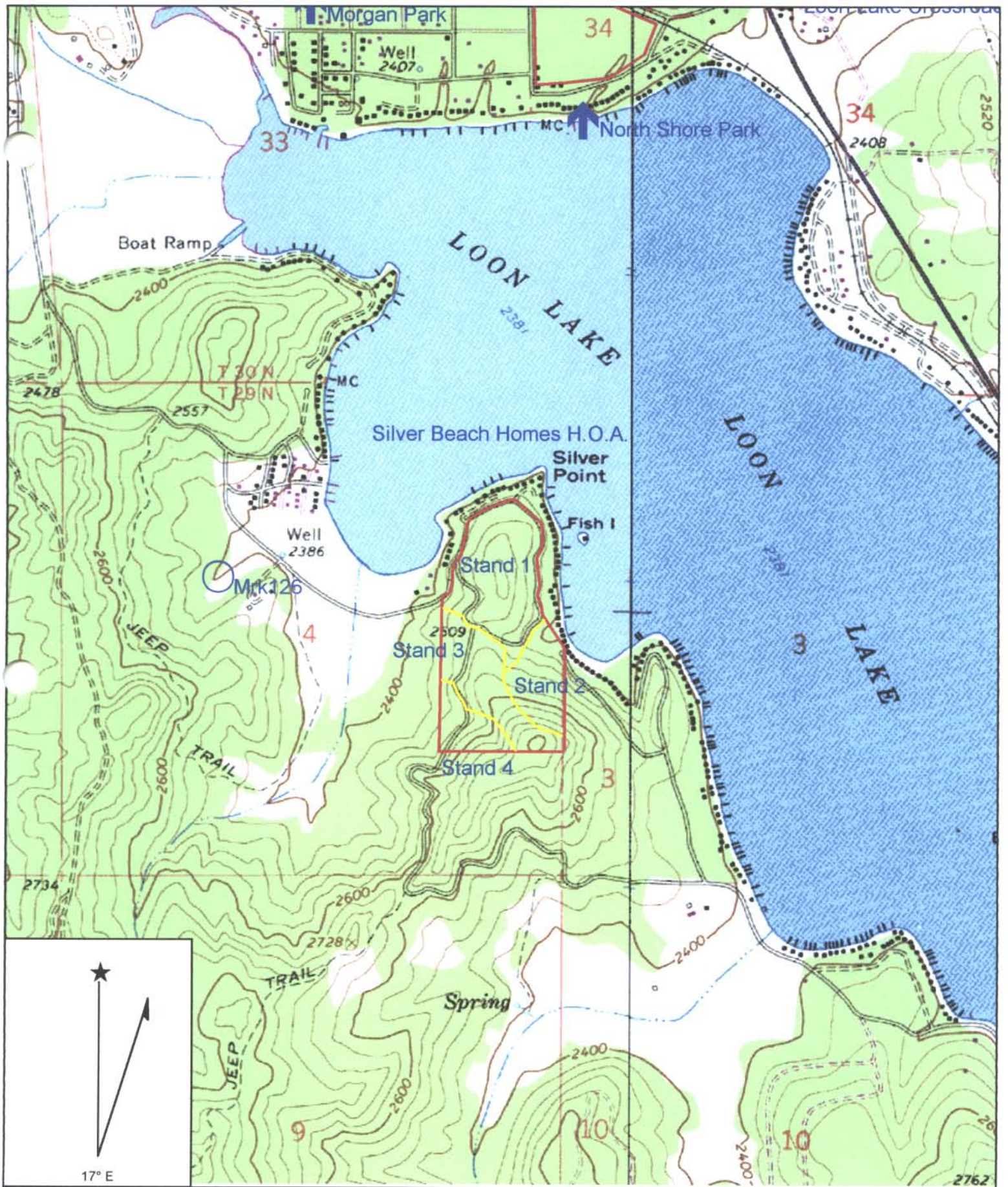
RESOURCE CATEGORY VIII: SPECIAL FOREST PRODUCTS

No significant special forest products are known on the property.

MANAGEMENT TIMETABLE

Schedule of Management Activities on the Silver Beach Homes Property

Approximate Schedule Date	Activity
2002	Finish Forest Stewardship Plan Salvage Harvest in portions of Stand 1, 3, and 4 Fire Hazard Abatement in Stand 1 Fire Hazard Abatement in portions of Stands 3 and 4
2003	Tree Planting in Stands 1 and 3 Planting of Native Grasses and Other Native Plants
2004	Sanitation harvest in Stand 2
2005	Tree Planting in Stand 2 Evaluate and Treat Non-native Noxious Weeds
2006	Evaluate 2003 tree planting Resume pruning in Stand 1
2007	Monitor forest health. Resume pruning in Stand 3 and 4
2008	Evaluate 2005 tree planting Install Nest Boxes
2009	Clean Nest Boxes
2010	Clean Nest Boxes
2011	Monitor forest health Clean nest boxes
2012	Clean Nest Boxes Update Forest Stewardship Plan



Name: SPRINGDALE
 Date: 9/17/2002
 Scale: 1 inch equals 1324 feet

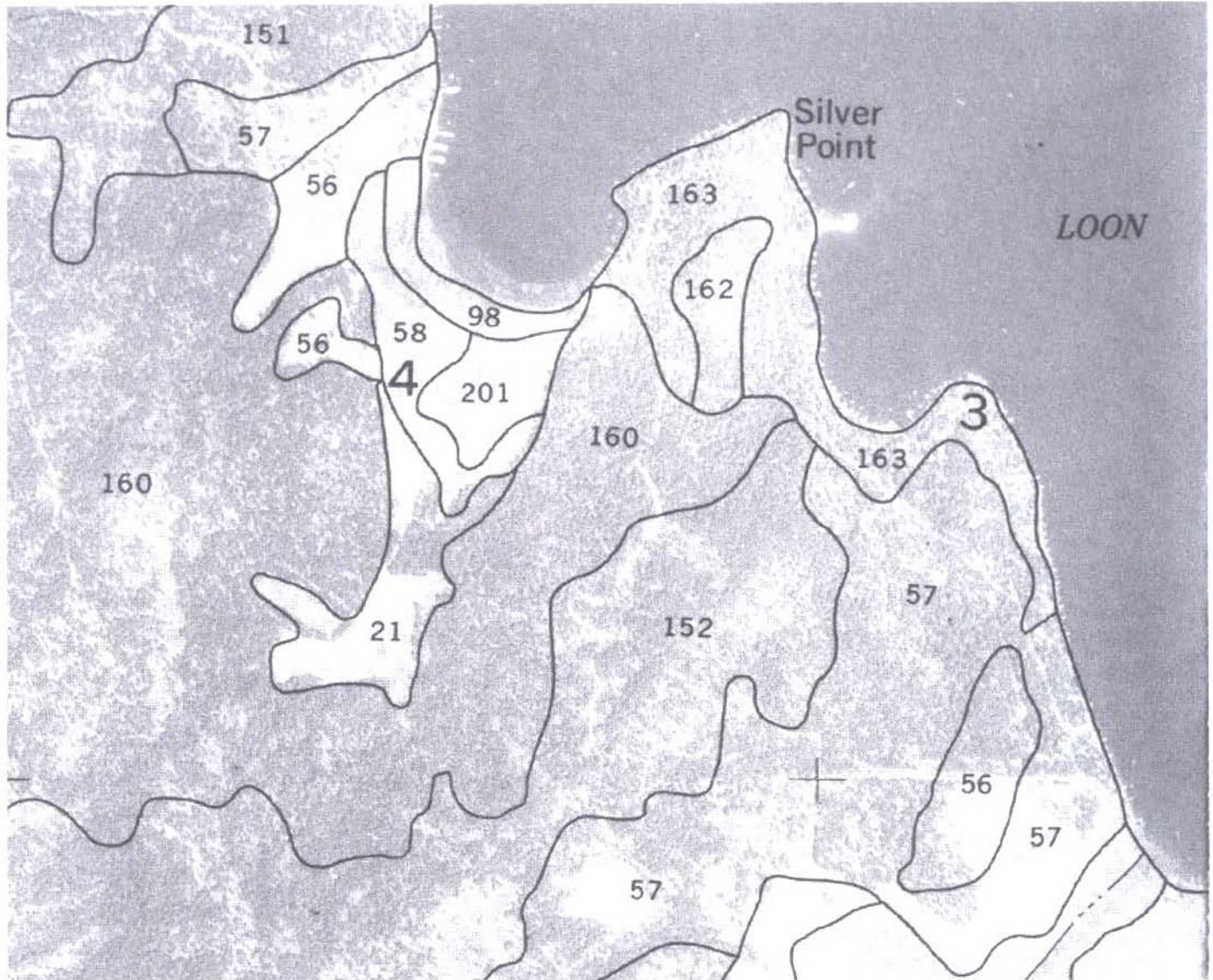
Location: 048° 02' 31.6" N 117° 37' 50.2" W
 Caption: Silver Beach Homes
 Forest Stewardship Plan
 Property Map

2000 AERIAL PHOTOGRAPH

7-12-00 12" FL NE-C-2000 14-1-96



STEVENS COUNTY SOIL MAP



- 152 Mobate Gravelly Loam, 30 to 65 percent slopes
- 160 Moscow Silt Loam, 25 to 40 percent slopes
- 161 Moscow Silt Loam, 40 to 65 percent slopes
- 162 Moscow – Rock Outcrop complex, 0 to 30 percent slopes

APPENDIX

Forest Stewardship Plan Signature Page

Forest Stewardship Plan Summary Checklist

Additional Information

Forest Health Handouts

Woodland Fish and Wildlife Handouts

Grass Seed Mixture

Bird Box Plans

Washington Farm Forestry Handout

FOREST STEWARDSHIP PLAN SIGNATURE PAGE (attach this page to the plan)

PLAN PREPARED BY (Primary author, if more than one):

Brian J. Vrablick
 Signature
Brian J. Vrablick
 Print Name
Area Forester
 Title
Northwest Management, Inc.
 Agency/Company
206 W. First, Suite A
 Address
Deer Park WA 99006-1103

9-10-02
Date

Plan Preparer Is:

- Private Natural Resource Professional
- Agency Representative
- Landowner Who Completed Coached Stewardship Planning Course
- Landowner Who Is a Natural Resource Professional

(509) 276-4699
Phone

List other professionals, and their affiliations, who contributed to this plan. If this was a "Coached Plan", list natural resource professionals who serve as "coaches".

Jim Botterff - Stewardship Wildlife Biologist

LANDOWNER SIGNATURE: The contents of this plan are acceptable to me/us. I/we intend to manage this property in a manner consistent with the objectives of the Forest Stewardship Program and to implement this plan to the best of my/our ability.

Patricia A. Coats
Landowner signature(s)
9/19/2002
Date

PATRICIA A. COATS
Print Landowner name(s)
9/19/2002
Date

APPROVAL SIGNATURE:
I have reviewed this plan and approve it as meeting the standards for a Forest Stewardship Plan.

Cliff Thresher
Signature of Designated Service Representative
9-20-02
Date

CLIFF THRESHER
Print Name of Designated Service Representative

Stewardship Coordinator
Title
P.O. Box 190 Colville, WA, 99114
Address
WA DNR NE
Agency
(509) - 684-7474
Phone

FOREST STEWARDSHIP PLAN SUMMARY CHECK LIST/10-YEAR MANAGEMENT TIMETABLE
 (attach this page to the Forest Stewardship Plan)

This summary check list describes resource protection and/or enhancement practices for the next ten years, as summarized below:

CHECK ALL THAT APPLY:

	Protection Measures Recommended					Enhancement Practices Recommended					NOTES/COMMENTS:
	No Action Needed	0-3 Years	4-7 Years	7-10 Years	Not Applicable	No Action Needed/Desired	0-3 Years	4-7 Years	7-10 Years	Non Applicable	
RESOURCES											
Forest Health							X				Winter Salvage Completed
Timber/Wood Products		X						X			Plant seedlings
Soils/Erosion Control/Water Quality		X					X				Grass seeding
Riparian Areas, Wetlands					X					X	
In-Stream Fisheries Habitat					X					X	
Wildlife Habitat							X	X			
Threatened/Endangered Species	X					X					
Historical/Cultural Resources					X					X	
Aesthetics/Recreation							X	X			
Agro-Forestry/Special Products					X					X	