I. EXECUTIVE SUMMARY

A. The Purpose of a Forest Management Plan

This forest management plan is to provide the landowner with the basic information regarding the timberland within parcels 180710230020 and 180709140010. There are recommendations and suggestions for continued forest stewardship of this resource. The hope is with planning guidelines and periodic management activities, this resource will continue to increase in volume and value.

B. Forest Management Activities

Parcels 180710230020 and 180709140010 total approximately 27.5 acres with two distinct timber types consisting of an approximately 7 year old stand of Douglas-fir at approximately 400 trees per acre with an average diameter of approximately 2.5 inches, and an approximately 55 year old stand of primarily red alder with an average diameter of approximately 17 inches with a small component of larger mixed conifers left from the previous harvest.

This Forest Management Plan suggests the implementation of vegetation management, planting, thinning, pruning and harvesting to improve the quality and production of these forest lands. These recommended activities will increase the value and quality of the landowner's investment.

C. Available Help and Services

The Pacific Northwest has a long history of forest management and producing quality timber. Assistance is available to landowners from Federal, State, and County agencies, in many cases at no expense to the landowner. If private consulting service is wanted, the landowner can contact Cascade Resource Management, who prepared this plan, at 360-507-8628.

D. References Resources

The primary source of information to the private non-industrial forestland owner is the Department of Natural Resources (DNR). The DNR headquarters office is located in Olympia and there are 6 regional offices located throughout the state. The regional office for this parcel's area is located in Enumclaw, Washington at 360-825-1631. The stewardship program information can be obtained from the Resource Protection Division at 360-902-1706.

E. General Overview

The area where parcels 180710230020 and 180709140010 are located consists of properties comprised of timberland, agriculture and residential use. Much of the

surrounding area is owned by Weyerhaeuser, and the remaining parcels are privately owned. Satsop Road W runs along the southwest border of the property, and West Fork Satsop River runs along the north boundary. Access is provided from a gate on the north side of Satsop Road W approximately 1.45 miles after the turn off from Middle Satsop Road. Approximately 550 feet of forest road is past the gate. Landowner will need to be contacted for access through the gate. The forest roads are privately maintained once leaving Satsop Road W.

The topography consists of a small ridge on the east portion of the property, and the rest is a northeast facing slope that drops into the river for most of the length of the property. The lot is site class II according to the Washington Department of Natural Resources Site Class Map with available soils being of the Aabab, Hoquiam, and Zenker series.

Timber type 1 is approximately 7.2 acres of approximately 7 year old stand of Douglas-fir at approximately 400 trees per acre with an average diameter of 2.5 inches with an average height of 14 feet. Timber Type 2 is an approximately 20.3 acre 55 year old stand of primarily red alder at approximately 200 trees per acre with an average diameter of 17 inches and an average height of 60 feet with a small component of larger Douglas-fir, Western hemlock, and Western redcedar left from the previous harvest that range from approximately 18 to 24 inches diameter and 80 to 100 feet tall. Timber Type 2 was primarily timber, riparian and streamside management zone, and should be continued to be used as such.

II. PROPERTY OVERVIEW

A. General Property Description

Parcels 180710230020 and 180709140010 consist of approximately 27.5 acres of timberland in Grays Harbor County located on the north side of Satsop Road W, approximately 4 miles north of the town of Brady, Washington. This location can be found from Highway 12 in Brady, WA by following Satsop Road W north for 3.6 miles where its veers left at its intersection with middle Satsop Road, then continues for another 1.4 miles to the property on the north side of the road. The legal description includes the N1/2 N1/2 SW1/4 Section 10, E1/2 SE1/4 NE1/4 Section 09 Township 18 North, Range 07 West, Willamette Meridian. The primary access is a gated, privately maintained road located on the north side of Satsop Road W approximately 1.4 miles after its intersection with Middle Satsop Road. The land owner will need to be contacted for gate access. The property can be accessed form roadside as well. Property and gate GPS location is 47.05956 -123.54849. The two parcels were recently subdivided from two larger Weyerhaeuser parcels. The parcels contain two distinct timber types. Timber type 1 is approximately 7.2 acres of approximately 7 year old stand of Douglas-fir at approximately 400 trees per acre with an average diameter of 2.5 inches with an average height of 14 feet. Timber Type 2 is an approximately 20.3 acre 55 year old stand of primarily red alder at approximately 200 trees per acre with an average diameter of 17 inches and an average height of 60 feet with a small component of larger Douglas-fir, Western hemlock, and Western redcedar left from the previous harvest that range from approximately 18 to 24 inches diameter and 80 to 100 feet tall. Due to its location next to West Fork Satsop River and tributaries as well as the location of the roadside, timber type 2 was primarily timber, riparian and streamside management zone, and should be continued to be used as such.

B. Topography

The topography within parcels 180710230020 and 180709140010 consist of a small ridge on the east portion of the property, and the rest is a northeast facing slope ranging from 50 to 60 percent that drops into the river for most of the length of the property. The elevation ranges from approximately 80 to 200 feet based on a 40-foot contour interval map generated by the Washington Department of Natural Resources.

C. Timber Stands (see Exhibit 2)

Parcels 180710230020 and 180709140010 consist of two distinct timber types.

Timber Type 1— Timber type 1 approximately 7.2 acres and contains a 7 year old stand of Douglas-fir at approximately 400 trees per acre with an average diameter of 2.5 inches with an average height of 14 feet. This stand is well established and overstocked, and is ready to be pre commercially thinned.

Timber Type 2— Timber Type 2 is an approximately 20.3 acre 55 year old stand of primarily red alder at approximately 200 trees per acre with an average diameter of 17 inches and an average height of 60 feet with a small component of larger Douglas-fir, Western hemlock, and Western redcedar left from the previous harvest that range from approximately 18 to 24 inches diameter and 80 to 100 feet tall. Due to its location next to West Fork Satsop River and tributaries as well as the location of the roadside, timber type 2 was primarily timber, riparian and streamside management zone.

D. Tax Designation

There are approximately 27.5 acres in parcels 180710230020 and 180709140010, 21.3 of which will remain in Designated Forest Land tax designation as long as the property is being managed for the production of timber. Any plans to develop all or part of this parcel in the future will require those portions of this property to be removed from the Designated Forest Land classification. The remaining 6.2 acres are not being managed for timber production, and are in a Riparian Management Zone.

Note:
26.5 Ac. qualify for DFL because The RMZ acres are grandfathered in from The original application. (If This were a "new" application Then we would not allow the RMZ as DFL.
JB

d in the preparation of this management plan

ashington. Published by the United Stated
rvation Service in cooperation with
artment of Natural Resources. Issued in June

lth and Vigor of Your Forest. Prepared by Don
Extension Forester and Don Theoe, Washington
vardship Forester. Distributed at the Southwest
September 13, 1997.

r Management Tool. Published by Oregon
consultation with Extension Foresters at
University of Idaho. PNW 184, Reprinted in April 1979.

III. FISH AND WILDLIFE

This property has a number of native animals and birds utilizing it for habitat and feeding purposes. Big game species include black tail deer, black bears, elk, and an occasional cougar. A heard of elk was noticed on the adjacent property during the site visit. Coyotes, raccoons, mink, opossums, rabbits, mountain beaver, porcupine, moles and mice can also be found on the property. Birds include hawks, eagles, ruffed grouse, geese, and a variety of song birds. There are no endangered or threatened species known to exist on the property.

IV. HYDROLOGY

West Fork Satsop River flows along the north border of the property, with 3 tributaries flowing into it from adjacent properties. Surface water runs over the forest floor with some infiltrating the permeable soils, and the rest flowing into West Fork Satsop River and its tributaries. West Satsop River then flows south into Satsop River, then the Chehalis River which flows into Grays Harbor.

V. SOILS INFORMATION

The soils information used in this forest management plan was compiled from the "Soil Survey of Pierce County Area, Washington, 1974." The manual with this information is available to the public from the Natural Resources Conservation Service office. The soil series for this property include Aabab, Hoquiam, and Zenker.

The soils within the timber production are mainly forestland. Logging roads require adequate surfacing material for year round use. Rock for road construction is not readily available on this unit.

AABAB SERIES

Aabab soils are on river and stream terraces and proglacial lakes on till plains at elevations of 10 to 500 feet. Slopes are 0 to 5 percent. These soils formed from mixed sedimentary alluvium derived from sandstone and siltstone. They occur in a coastal marine climate with cool, wet winters and cool, dry summers. Mean annual precipitation ranges from 75 to 120 inches. The mean January temperature is 38 degrees F., mean July temperature is 60 degrees F., and the mean annual temperature is 49 degrees F. The growing season (28 degrees F.) is about 160 to 220 days. Somewhat poorly drained; slow runoff; slow permeability. Timber production, agriculture, wildlife habitat, and recreation are the principal uses. Native vegetation is red alder, western redcedar, western hemlock, and Sitka spruce. Understory species are salal, swordfern, buttercups, and various mosses and grasses.

HOQUIAM SERIES

The Hoquiam series consists of deep to cemented till, well drained soils that formed in old alluvium deposited over glacial drift. These soils are on ground moraine positions in uplands and have slopes ranging from 1 to 65 percent. The mean annual temperature is about 50 degrees F., and the mean annual precipitation is about 100 inches. Soil location includes Grays Harbor County, Washington; 12 miles northwest of Montesano; 100 feet west of the Donovan Corkery Road, 1 mile north of its intersection with the Wishkah-Wynoochee cutoff road. Hoquiam soils are on broad ridge tops and shoulder slopes of ground moraines in uplands. Slopes range from 1 to 65 percent. These soils formed in old reworked sedimentary alluvium deposited over deeply weathered piedmont glacial drift of early Pleistocene age. Elevation ranges from 100 to 900 feet. They are in a humid marine climate with cool, wet winters and cool, dry summers. Annual precipitation ranges from 80 to 130 inches. The mean January temperature is 38 degrees F., the mean July temperature is 62 degrees F., and the mean annual temperature is 50 degrees F. The growing season (28 degrees F.) is 200 to 240 days. Well drained; moderate permeability to the cemented glacial till, very slow permeability through it; slow runoff in un-cleared areas. Principal uses are timber production, watershed, wildlife habitat and recreation. Vegetation is primarily a mixed forest of Douglas-fir and western hemlock with scattered western redcedar and red alder. Understory species include western swordfern, western brackenfern, salal, red huckleberry, salmonberry, vine maple and cascara.

ZENKER SERIES

Zenker soils are on colluvial mountain slopes deeply incised by many small drainageways forming a parallel pattern. Slopes are 8 to 90 percent. Elevation ranges from 50 to 1,700 feet. These soils formed from sandstone. The climate is characterized by cool, wet winters and relatively cool summers. The average annual precipitation ranges from 70 to 120 inches. The average January temperature is 37 degrees F.; the average July temperature is 62 degrees F.; and the average annual temperature is 46 to 50 degrees F. The growing season (28 F.) is 200 to 240 days. Well drained; moderate to rapid runoff; moderate permeability. Timber production. Native vegetation is mostly Douglas-fir and western hemlock and minor amounts of red alder, western redcedar, Sitka spruce, and bigleaf maple with an understory of vine maple, western swordfern, Oregongrape, salmonberry, western brackenfern, red elderberry, salal, red huckleberry, Oregon oxalis and starflower.

VI. MANAGEMENT PLAN

The timber stands were examined in January 2014. Based on measurements and observations made in the field, it is recommended that the following forest management activities be completed in the next few years.

NOTE: These recommendations are to serve as a guide only. All management decisions and activities need to be completed to take full advantage of market conditions, budget considerations, and return on investment.

Timber Type 1

2014—2015: Timber type 1 can be pre commercially thinned. Stocking levels above 350 to 400 trees per acre in young Douglas-fir stands are considered to be overstocked. Pre-commercial thinning will reduce competition for nutrient and sunlight, increasing the growth rate and growth form of the remaining trees. The leave tree requirement should be 250 to 300 trees per acre.

2025—2028: Timber type 1 can be commercially thinned. This thinning will remove smaller diameter and slower growing trees. The leave tree requirement will be 160 trees per acre. The thinning will result in more available nutrients to the leave trees and increased growth. The commercial thinning will enable the dead, damaged, and broken topped trees to be removed from the site. The leave trees will recover and increase the volume production and increase the value of the timber resource. Damage to the leave trees and soil compaction should be minimized.

2028—2031: Timber type 1 can be pruned. Pruning removes all of the dead branches in the lower 2/3 of the tree. Removal of these branches will create clear wood in the future and produce a much higher value log and final harvest. Be sure to stay out of the upper 1/3 of the tree crown to prevent significant impacts on the growth of the tree. Only prune to maximum height of 18 feet, the taper and form of the tree will not produce the higher quality wood above 18 feet. The height of pruning is also connected to producing clear wood for plywood veneer.

2045—2048: Timber type 1 can be commercially thinned. This thinning will remove smaller diameter and slower growing trees. The leave tree requirement will be 110 trees per acre. The thinning will result in more available nutrients to the leave trees and increased growth. The commercial thinning will enable the dead, damaged, and broken topped trees to be removed from the site. The leave trees will recover and increase the volume production and increase the value of the timber resource. Damage to the leave trees and soil compaction should be minimized.

2079—2082: Timber type 1 is nearly 75 years old and is at the end of the rotation. When the final harvest is complete, the next rotation begins with reforestation.

Timber Type 2

Timber Type 2 consists of approximately 20.3 acres which includes the area along West Fork Satsop River. The previous landowner left a wide buffer along the river during the last harvest. The area along the river is currently being managed as a riparian area, streamside management zone, and timber production. According to Washington State Department of Natural Resources Forest Practices Rules and Regulations, the buffer width left on West Fork Satsop River could be reduced to 118 feet, which would create potential harvest opportunities for the landowner. Riparian management zones provide for crucial wildlife habitat, as well as shade to cool the water, and the potential for woody debris recruitment to the drainage structure. The landowner will maintain the 118 foot buffer along the river and can manage the remaining portions of the timber type. Of the 20.3 acres in this timber type, total acreage in required buffer will consists of 6.2, leaving the remaining 14.1 acres of this timber type to be managed as forest land.

Stream side management plays an important role in stream bank stability. All timber harvest activities must comply with current Washington State Department of natural Resources Forest Practices Rules and Regulations. A more comprehensive review of the stand will need to be made to determine the possibilities of harvest. The author of this plan can be contacted for assistance in finding out about harvest within timber type 2.

Management activities include removal of the mature timber in areas which can be harvested in compliance with the Forest practices Rules and Regulations. Interplant with conifer seedlings which provide long term timber production and address the wildlife enhancement needs of the landowner and the surrounding area. In addition to planting trees, the landowner can contact the Washington Department of Fish and Wildlife to assist them with wildlife habitat improvement projects. Periodically, the state has cost-share programs available to assist landowners with projects to improve the TFW values of their property. Information on the cost-share programs is available through the Natural Resource Conservation Service (NRCS). This information is also available through the Small Landowner section of the Department of Natural Resources in Olympia, Washington.

All management activities will be completed in a step by step process. Unlike large timber areas, the management activities in this timber type will be sensitive to conditions which may restrict activities due to wildlife or weather conditions.

Other Considerations

Some red alder was noted growing on the forest roadsides. Chemical or mechanical treatment of the red alder should be considered to prevent it from overgrowing the road. Early treatment of the red alder will prevent its establishment and will ultimately reduce the cost of roadside management.

VII. Special Forest Products

Special forest products can provide additional opportunities for forest land management. The products can be produced to maximize the benefits and use of the property.

This property currently has several plant species which can be viewed as special forest products. Some plants include sword ferns, Maiden hair ferns, salal, Oregon grape, and vine maple. All of these plants are used frequently in floral enterprises.

Special forest products are very valuable and vary from one location to another. To become part of this special market, the recommendation is to contact the author of this plan or other forestry consultants to assist in meeting the needs of the market and the landowner.

VIII. APPENDIX

A. Maps

1. Exhibit 1: Vicinity map for the property
2. Exhibit 2: Timber Type Map
3. Exhibit 3: Soil Type Map and Description
4. Exhibit 4: Aerial Photography

B. Related Material

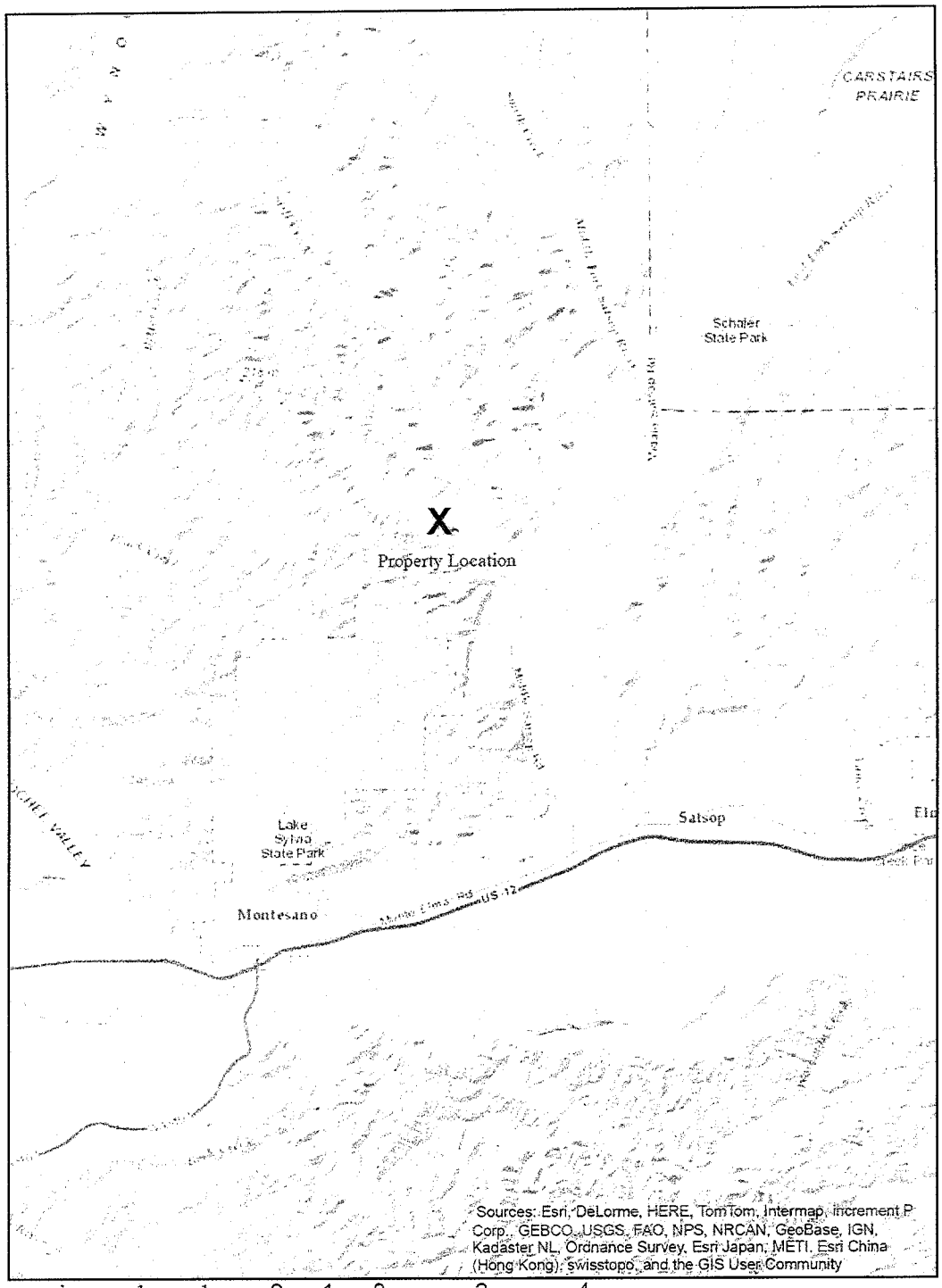
Promotional material titled *Join the Action Group for Small Woodland Owners*, as published by Washington Farm Forestry Association, Olympia, Washington.

How to Prune Forest Trees. An excerpt from "The Forest Steward", a printing of the national Arbor Day Foundation, May-June 1997.

Cascade Resource Management, Professional Foresters
Phone: 360-507-8628

Exhibit 1

Vicinity Map



This map is not to be used as a record of survey. Parcel lines are approximate.

2 1 0 2 4 Miles

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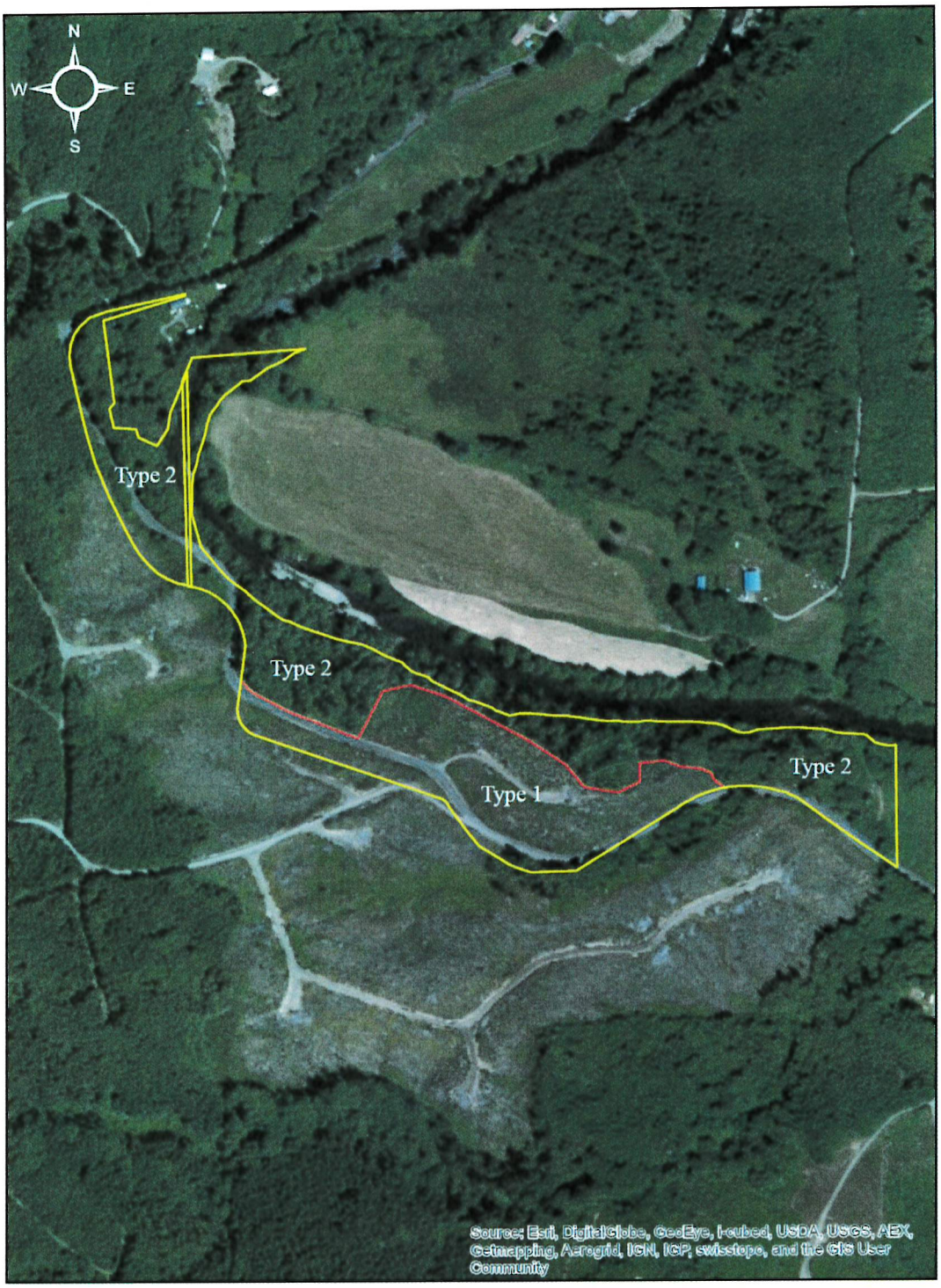
Grays Harbor County, Washington

Cascade Resource Management, Professional Foresters
Phone: 360-507-8628

Exhibit 2

Timber Type Map



Parcels: 180710230020
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0 250 500 1,000 1,500 2,000 Feet

Grays Harbor County, Washington

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