

Box
7/21/11

FOREST LAND STEWARDSHIP PLAN

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To
Kittitas County
For

*Application for Open Space Timber Tax Status
RCW 84.34*

Legal Description, Tax parcel & Map Numbers:

Lot 1, Anglemyer Short Plat 04-24
P 17593, 21-14-09053-0001 -- 12.25 acres
Lot 1, Anglemyer Plat
P 951116, 21-14-09060-0001 – 3.08 acres
Total :15.33 acres of OS-t

On Morgan Creek road, Ronald

PLAN DATE: June, 2011

Prepared
By
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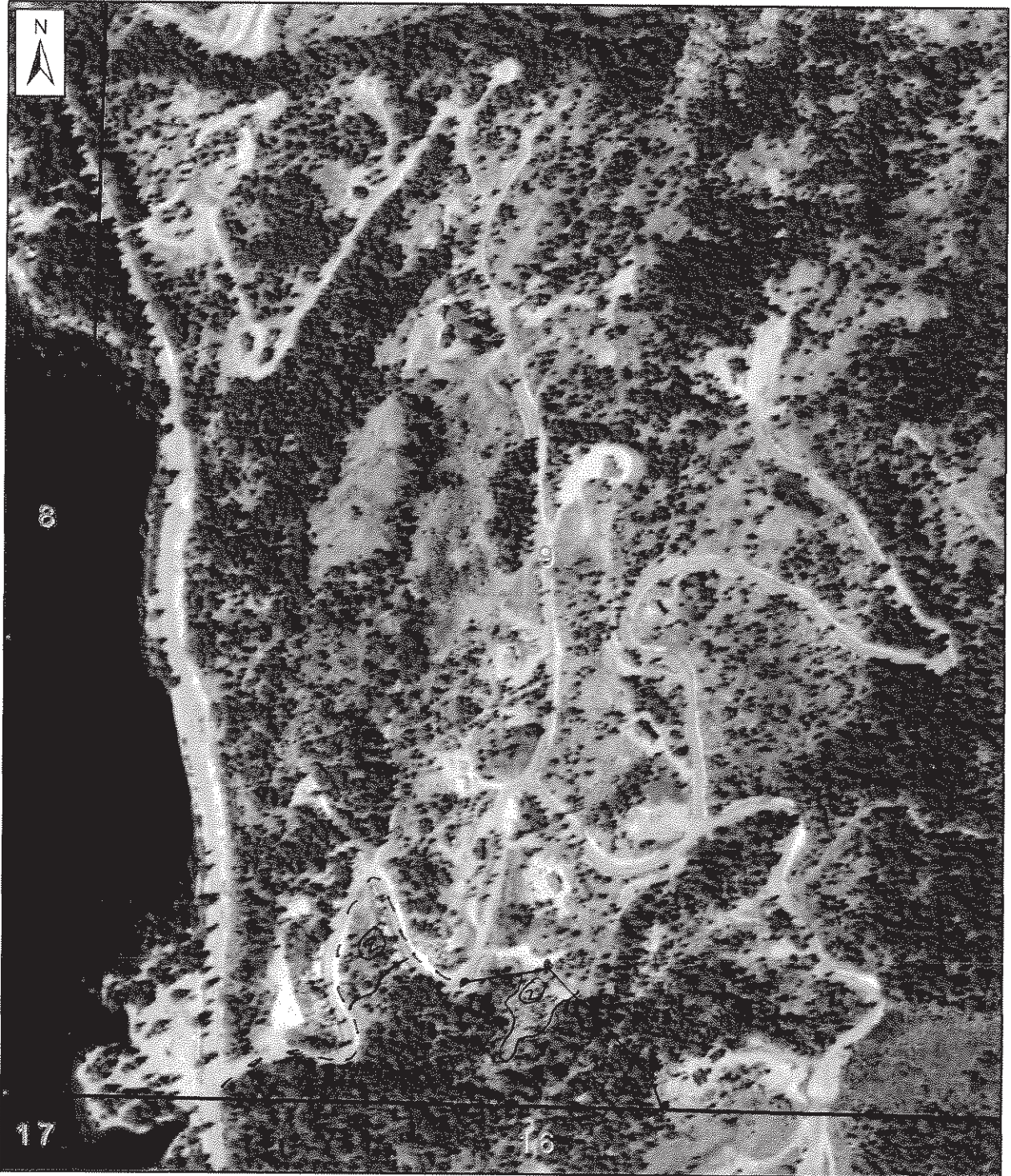
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Aerial Photo

T21N, R14 E, S09, S/2, SW/4

Devin Anglemeyer
Forest Stewardship Plan
Tax Parcel 951116 & 17593 – 15.33 acres
Open Space – Timber
RCW 84.34 June, 2011



Section Line

- ① stand 12 acres
- ② stand 3 acres

0 500 1,000
Feet

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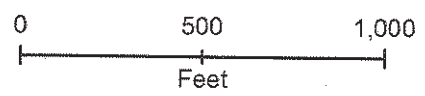
Topographic Map

T21N, R14 E, S09, S/2, SW/4

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RCW 84.34 June, 2011



Road	Section Line	Water Body
Gravel	40' Contour Line	Stream
Paved		



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INTRODUCTION

Acquisition date: 2003

The land is in compliance with Title 76 RCW.

The land is not presently used for grazing.

This plan is being submitted together with a an application for Open Space-timber under RCW 84.34 and Kittitas County Commissioner's Resolution No. 2002-99 [94-25].

This plan includes by this reference the County Wildfire Protection Plan adopted under BOCC Resolution 2009-18 dated 2/18/09 and also by this reference to include County Code Title 12, Roads and Bridges. There are no improvements.

GOALS and OBJECTIVES

The owners are committing to a long term forest management plan. The goals are to:

- Create and maintain a healthy, firesafe forest.
- Growing and harvesting of timber.
- Provide and improve wildlife habitat.
- Protect soil and water resources.

And to comply with the Open Space Timber current use tax statute, Chapter RCW 84.34 and Kittitas County Commissioner's Resolution 2002-99.

The owners intend to gain a working knowledge of applicable forestry and related stewardship practices through information available through WSU Extension Forestry, Washington State Department of Natural Resources, Washington Department of Fish and Wildlife, USDA Natural Resource Conservation Service, and forest land resource consultants.

Plan implementation will assure continued stewardship of all resources inherent with a forested landscape, providing significant natural resource and environmental benefits to the community .

The plan will be reviewed in 5 years and updated as necessary. The owners are aware that RCW 84.34 provides for current use tax status for forest land that is used *primarily for growing and harvesting of timber*. There is a potential tax liability if the land becomes ineligible for current use tax status under RCW 84.34.

LOCATION and LAND USE HISTORY

The property is located approximately 7 miles north of Ronald via the Salmon la Sac Highway and the private Morgan Creek road system. The traditional land use in the area has been timber production, mineral exploration, wildlife habitat and forested watersheds. These uses continue except for mining; most of the private land in the vicinity has been sold in

smaller parcels for rural residential homesites. The property is delineated on the maps and aerial photo accompanying this plan.

LAND FORM, WATER, ROADS and SOILS

Property ranges from 2280 feet near the south west corner to 2650 feet near the southeast corner. The topography is generally steep west facing slopes with gently sloping benches.

Water

Morgan Creek flows east to west through the parcel. The lower reach of Morgan creek is classified as a *Fish* (type F) stream on the State water type maps. Type F streams are those waters that have potential fish habitat as defined in WAC 222-16-010. It is possible that this stream could be re-classified to a *non-fish* (type N) if it were determined there existed physical channel characteristics that constituted a fish blockage or at such point that end of fish habitat were determined. Re-classification of water types can be initiated through the DNR in consultation with WDFW and the Yakama tribe.



Morgan Creek on Anglemyer property

Under the Forest Practices law, Type F streams will have a 3 tier RMZ (riparian management zone) of up to 130 feet, depending on stream width and site class. The rules are complex and can be found on the DNR website or in the DNR "*Forest Practices Illustrated*" available from DNR. Type N streams can be either *type Np* (non-fish perennial) or *type Ns* (non-fish seasonal). The break between Np and Ns can be determined with a more detailed stream survey. Type Np stream require a 50 foot RMZ and a 30 foot ELZ (equipment limitation zone). Type Ns streams do not have an RMZ but do have the 30 foot ELZ. In the ELZ, if more than 10% of the surface is disturbed during a forest practice operation then a mitigation plan is required.

RMZ's are on each side of the stream as measured from BFW (bank full width) or CMZ (channel migration zone), which ever is greater.

Timber harvest is allowed within type F and type Np RMZ's if you meet certain basal area and tree count requirements.



Morgan Creek on Anglemyer property

Roads

Existing access via the County road and Morgan Creek road will meet current forest practice rule standards. It appears likely that some new road construction into the property would be required for timber harvest.



Morgan Creek private road. Anglemyer forest land in background.

Forest Practices Applications

Remember, to harvest trees or build forest roads for timber harvest in the State of Washington a Forest Practices Application (FPA) is required. There are few exceptions. The standard FPA is good for 2 years and is renewable for successive 2 year periods. You may only remove up to 5 MBF per year for personal use without an FPA. All other removals require an FPA. Also, you should become familiar with the County Critical Areas Ordinance.

Soils

Soils are the basic resource. All plant growth is dependent on soil characteristics.

Forest Soils are made up of four main ingredients: *mineral particles, organic matter, water and air*. Soil *texture* refers to the make up of the mineral particle size: sand, silt, and clay. Soils that have a larger proportion of clay and silt are fine textured. A higher proportion of sand results in a coarse texture soils. Finer soils are usually more productive than coarse soils, but don't drain as quickly, are very susceptible to *compaction*, and are more easily eroded than coarse soils. A soil made of roughly equal amounts of sand; silt and clay are referred to as loams. Loams tend to be more fertile, and have good water holding capacity. Organic matter – decaying vegetation and woody material - is an important component of a forest soil. Soils with high organic matter have better *structure* and leads to greater fertility and water holding capacity. Since plant roots (including trees) need air to breath and water to grow, soil texture and structure are very important. More than half of the *feeder roots* of trees and other plants are in the top 6" to 8" of the soil. Soil compaction and other site disturbances reduce soil pore space for air and water and results in lower site productivity.

Forest soils support a wide range of life forms: plants and animals, including large conifer trees, large and small mammals, avian species and microorganisms. The type and quantity of such life depends on the soil parent material, soil, climate, and annual precipitation. All these elements are interrelated, and together make up the forest ecosystem.

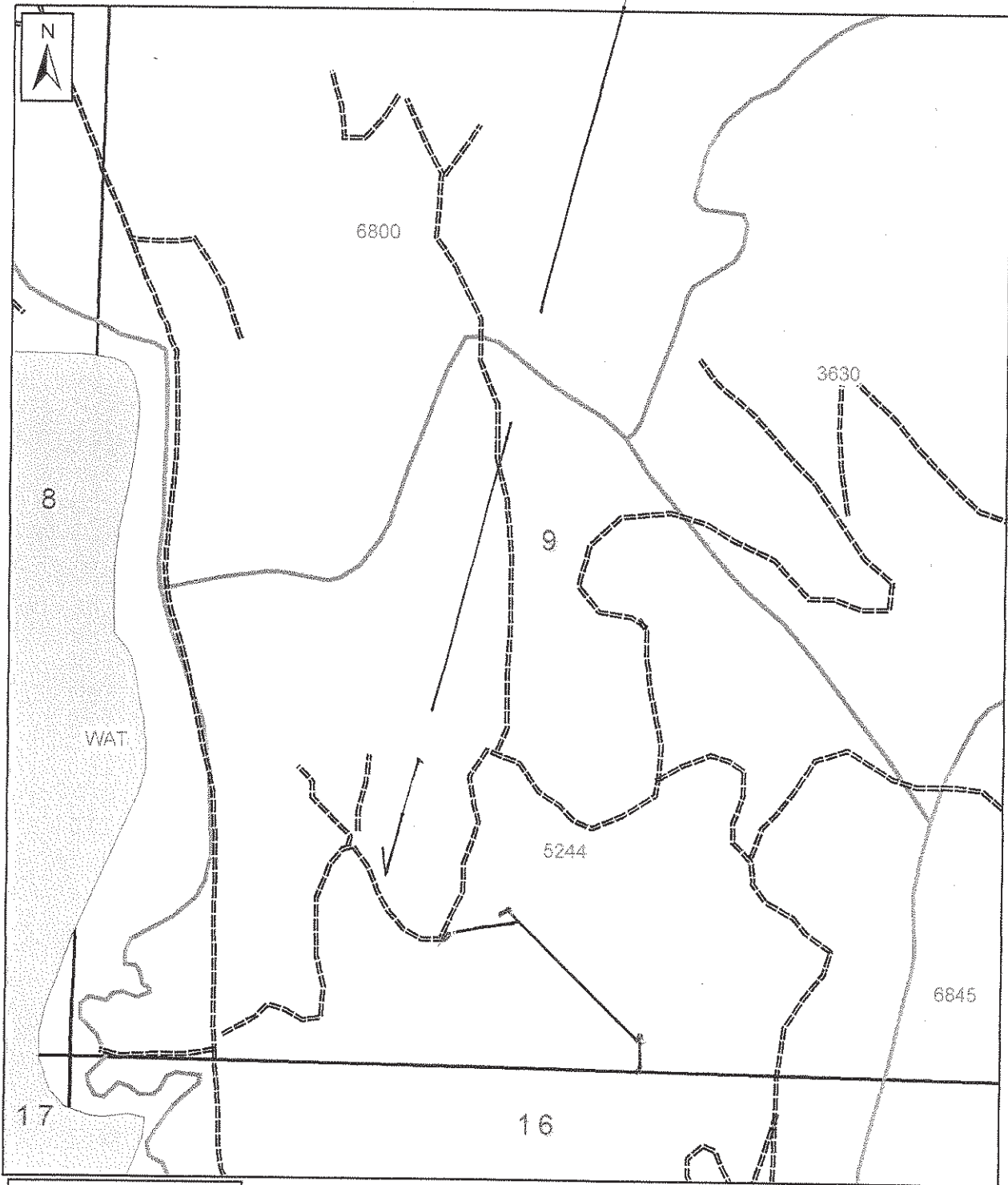
Classifying and mapping soils provides the landowner with an important tool for judging productivity and choosing the proper cultural practices that will not damage the soil resource. Also, soil productivity classification is the basis for the *forestland grades* used by the county assessor to determine assessed value for lands designated under the forest tax and open space laws.

The soil survey map classifies one forest soil series: Natkim Gravelly Sandy Loam.

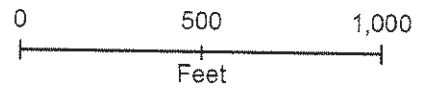
Soil Type Map

T21N, R14 E, S09, S/2, SW/4

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	Section Line
	Road
	Soil Type Line



Phil Hess F&LS

Natkim Gravelly Sandy Loam. (5244– 25-45% Slopes) --

Natkim is a deep (60"+), well-drained soil formed from glacial till, basalt and andesite with a volcanic ash in the top layer. The top soil is a gravelly sandy loam with 7" to 9" of volcanic ash over an extremely cobbly sandy loam. Available water capacity is moderate. Site index is 112 for DF (Douglas fir), 90 feet for GF (grand fir) and 110 for PP (ponderosa pine) meaning these species will potentially reach heights of 112 feet, 90 feet, and 110 feet respectively in 100 years.

The soil compaction potential is rated *medium*, meaning that heavy equipment should not be operated during wet conditions to avoid soil compaction, which will in turn impede seedling establishment and growth rate and health of established trees. Erosion potential is also rated *medium*.

Throughout the property, existing ground cover is sufficient to protect the soil from erosion. Any fresh soil disturbances including should be promptly grass seeded surface from puddling and erosion, and help prevent the invasion of noxious weeds.

The recommended seed mix is:

- 30% Sheep Fescue
- 30% Canada Bluegrass
- 30% Creeping Red Fescue
- 10% Chewings Fescue

Contact Phil Hess for the best place to acquire grass seed mixes.

VEGETATION RESOURCES and MANAGEMENT

The **management goals** for the property are driven by the following objectives:

- ◆ Create and maintain stands of healthy trees for commercial forest products
- ◆ Forest fuels management
- ◆ Maintain and enhance wildlife habitat values
- ◆ Control Noxious Weeds

All of these objectives are inter-connected and include the essential element of managing vegetation to minimize risk of stand replacement and property damaging wildfire. Implementation of this plan will achieve a balance of forest health, forest fuel levels, silvicultural, wildlife habitat values and the other objectives. On-the-ground prescriptions can be customized for site specific vegetation conditions and to fit your use of the property.

Stewardship Principles

It is important to recognize that forest plant communities are in a continuing state of change. This change, referred to as succession, is imperceptible to occasional observation because it occurs very slowly over time. Forests that have not been "disturbed" in many years may appear to be static or permanent, but this is never the case. Disturbance is the most common agent for change – natural as in a wild fire, or human influenced as in a timber harvest. Planned for "change" can enhance habitat, reduce risk of stand replacement wild fire and lead to vegetation management goals. The idea is to work with nature to achieve a desired future condition or values.

Following are descriptions of current stand conditions and management recommendations. The plan should be periodically reviewed and updated to reflect changing conditions.

Stand History - Overview

The Morgan Creek area (the W1/2 of Sec. 9 -21-14) was logged in the late 1990's. On the Anglemyer parcel, the Morgan Cr. RMZ and a major portion adjacent upland forest was not harvested during this latest harvest entry. There may have been early day harvests in the early late 1800's and early 1900's. Stand age is 100 years +.

Current Conditions and Management Recommendations

For current planning and management purposes there are 2 vegetation types or "timber stands" that have resulted from past management activities and natural conditions.

Management recommendations are prescriptions to improve forest health, reduce the risk of stand replacement wildfire and upgrade the forest over time. If, in the future you decide to remove marketable trees, a Forest Practices Application (FPA) is required by the State DNR..

Abbreviations used in the Stand descriptions:

DF = Douglas fir
 PP = ponderosa pine
 GF = grand fir
 TPA = trees per acre
 BA/ac = basal area per acre
 SF/ac = Square feet of basal area per acre
 LCR = Live Crown Ratio (% of total tree height with live green branches)
 DBH = diameter breast height
 MBF = 1000 board feet (M = 1000 in forestry/logging)
 Reprod or regen = young trees that have naturally regenerated or planted.
 WLT's = wildlife trees
 CWD = coarse woody debris
 MT = dwarf mistletoe
 RPI = rings per inch

Tree stocking Basics –

It is easiest to think in term of spacing between trees and/or number of trees per acre (TPA). For example:

<u>TPA</u>	<u>SPACING</u>
10	66 X 66
40	33 X 33
150	17 X 17

However, the size of the trees along with the number of trees is the correct way to determine "stocking" on any given site.

This is why we use basal area (BA) as the metric for tree stocking. Basal area is the amount of area a tree (or stand of trees) occupies in the forest.

Basal area is the square feet occupied by tree stems as measured at DBH (4.5' above the ground). Basal area is expressed in square feet of basal area per acre – BA/Ac. Approx BA/tree = $DBH^2 \times .00545$

Two separate acres can have the same basal area but a different number of trees. The tree diameter (or the average diameter of a stand) is an important variable.

For example: an 8" DBH tree is .349 SF and if the average spacing is 10'x10' then:

$$\text{Average TPA is } 435 \quad \frac{(43,560)}{10 \times 10} = 435 \text{ TPA}$$

And the average BA/acre is $435 \times .349 = 152 \text{ SF BA/acre}$.

The best way to determine BA/acre is with 1/10 acre or 1/20 acre circular plots. Measure DBH of all the trees in the plot and multiply by 10 (or 20) to arrive at TPA and BA/acre.

Stand 1, 12 acres – This is the mature over story stand which includes the Morgan Cr. RMZ.



Stand 1 – was not logged during the late 1990's harvest entry.

Overview of Stand 1 at this location on the upland edge of the RMZ.

Species Mix: 95% DF, 5% GF.

Average Diameter Size: 12" – 14" DBH

Average Basal Area stocking: 340 SF/ acre

Average number Trees per acre: 300 TPA

Height: 85' – 100'

Canopy closure: 75%- 80% with live crown ratios (LCR) ranging from 25% to 40% +.

Sample tree: DF, 17.5" DBH, 107 feet in Ht; 19 RPI, meaning trees are growing about 1" in diameter every 9.5 years.



Stand 1 – upslope from the Morgan Creek RMZ; not logged during the last harvest entry.

Overview of Stand 1 at this location upland from RMZ.

Species Mix: 95% DF, 5% PP.

Average Diameter Size: 14" DBH

Average Basal Area stocking: 130 SF/ acre

Average number Trees per acre: 120 TPA

Height: 85' – 100'

Canopy closure: 60% with live crown ratios (LCR) PP ranging from 25% to 40% +; DF 70% - 80%.

Sample tree: DF, 17.5" DBH, 107 feet in Ht; 19 RPI, meaning trees are growing about 1" in diameter every 9.5 years.



Stand 1 up slope from Morgan Cr. RMZ, just west of previous picture. Trees are vigorous, with good live crown ratios. Dwarf mistletoe in the DF is common.

The partially closed canopy limits the development of a shrub and herbaceous layer to places where sunlight filters through to the forest floor. Shrub species include: oceanspray, hazelnut, snow berry, and rose with vine maple, big leaf maple, willow and cottonwood along the creek. Herbaceous species include: silver crown luina, false solomon's seal, violets, buttercups, arnica, pinegrass, bromes, and fescues.

Stand 1 Management Recommendations. –

This is a very nice stand and does not require any immediate silvicultural treatments to maintain forest health. The old growth characteristics provide valuable habitat diversity in this rural development area.

A commercial thinning entry to remove heavily mistletoed Doug fir would improve overall future health of the stand. However, I recommend the stand remain "as is" for the foreseeable future.

Stand 2, 3 acres. This stand is the portion that was logged during the late 1990's harvest entry.



Stand 2 – Douglas fir trees in the residual overstory have low vigor, with weak, poorly formed crowns. Many are dead and dying or have blown down from a combination of factors but mainly environmental stress from the logging and root disease.

There is a well developed shrub layer of oceanspray, hazelnut, willow, snowberry, spirea, rose. The herbaceous layer is dominated by pinegrass, bromes and fescues.

The stand was not planted after logging but there is a component of PP and DF natural regeneration.

Stand 2 Management recommendations-

The stand is marginally stocked with young trees but will meet tree stocking requirements under RCW 84.34. However, supplemental planting to ponderosa pine seedlings is recommended and will assure this portion of the property will continue to qualify for OS-t. The advanced shrub layer is competing with existing seedlings. Control of this competing vegetation will help the young trees survive and grow and is also recommended.

FOREST HEALTH

As with any forest property there are risks. Common or likely in this area are bark beetles, defoliators, root diseases, and mistletoes. All of these are a possible health concern for trees on your property, especially mistletoe and root disease and defoliators. Fire is a risk on any forested landscape.

It is important to recognize that insect and diseases are a natural part of a healthy forest ecosystem. In a healthy forest there is a balance between insects and pathogens and the forest trees.

It is also important to recognize that native conifers of the Pacific Northwest have the highest levels of genetic variation found in plants. Our trees exhibit large genetic differences in seedling survival, form, growth rate, and disease susceptibility. The large tree may not be the oldest. It may be a fast growing younger tree and definitely one to save. Size is more a function of rate of growth than age. So, when selecting to cut, as in thinning look at genetic characteristics such as height and fullness of crown and leave the best. The objective is to improve stand conditions for future growth and health.

Western Spruce Budworm (will affect Douglas fir)

SBW is severe to the east on Sasse ridge but it is not yet evident on the lower slopes. If the current SBW epidemic continues, it is only a matter of time until it occurs in the W1/2 of Sec. 9. It is widespread on the east slope of the Cascades. This defoliating caterpillar like insect has been present in Kittitas County forests since the early 1980's, and no doubt even before then and may be a risk to DF on this property. Population build-up runs in cycles, usually during periods of low precipitation.

Key Points –

- 1) It is a defoliating insect (eats the needles) and does not necessarily always kill the trees.
- 2) It will weaken trees and make them more vulnerable to bark beetles.
- 3) Needles will appear blighted or scorched on the tips. Needles will be bound together with webbing at branch tips.
- 4) The caterpillars are about 1" with green markings and white spots on the sides. Appear in the spring or early summer.

Manage stands of DF to reduce impacts with proper tree spacing and species diversity.



SBW defoliation in Middle Fork Teanaway, 2010



Advance SBW defoliation in Liberty Area - 2010

Dwarf Mistletoe

Mistletoe is present in the DF in Stand 1.

Basic Mistletoe Facts:

- 1) It is a parasitic plant depending on a tree host for water and nutrients.
- 2) It is specific to each species of tree. It only survives on living trees. When the tree or branch dies, so does the mistletoe.
- 3) The spread is relatively slow in single layer stands. The spread is usually downward.
- 4) Mistletoe survives by stealing water and nutrients from the tree. By itself, it is rarely a tree killer but it does weaken the tree and it will be more susceptible to bark beetle attacks in overstocked stands.
- 5) Mistletoe results in a branching deformity, but these "brooms" provide nesting and hiding cover for birds and small mammals. The "fruiting body" is a food source.

Complete eradication is impossible. The best approach is to control by cutting heavily infected trees during thinning, or pruning the mistletoe branches in the overstory and any young trees that become infected.



DF mistletoe in Anglemyer Stand 1.

Understanding Root Diseases

Root diseases are present in Stand 2 has evidenced by weak, thinning crowns and blow down Douglas fir. DF and GF are most susceptible; PP and WL are more resistant.

Research has confirmed that these organisms are native and a natural part of a healthy forest ecosystem. In a healthy forest there is a balance between the fungus and trees. The trees and the fungus have evolved with each other and pre-settlement periodic low intensity fires they lived in balance with each other.

There are 3 primary root rot fungi in the area: *Armellaria*, Laminated and Annosus, with the first two being most common. Root rot pockets are easy to identify in the forest. There will be patches of dead trees, some broken off or fallen with the root wad exposed. Often there will be a heavy patch of vine maple, oceanspray, hazelnut or alder which have responded to more sunlight reaching the forest floor.

Selective harvest will aggravate the spread of root rots because fresh stumps are quickly colonized by the fungus. The roots of these stumps in contact of roots of adjacent green trees allows the fungus to spread to these green trees and they will be dead within a year or two. In other words a "flush" of infection and mortality usually follows colonization of stumps created by selective harvesting infected trees. In any event, it is safe to say the fungus once present on a site will always be present. Normally, the fungus spreads very slowly from infected trees to adjacent trees. This may take years.

In areas that have been clear-cut and planted it is common to see pockets of dead young trees or just an individual dead tree. This is an indication the fungus is surviving in old stumps.

Host species vary in their susceptibility but all coniferous species are moderately too highly susceptible until they are 12 to 15 years old. After this age, some species become less susceptible to mortality, especially pines and western larch. If root disease is discovered on your property, it will most likely be in stands heavy to GF. Choosing to manage for PP and WL is logical management option. If you notice infected trees, keep in mind the pocket could be $\frac{1}{4}$ acre and up to 2 acres in size. Cutting what appear to be infected trees will only aggravate the spread of the fungus to adjacent healthy trees, *unless* you cut all the susceptible trees in the pocket (GF and DF) and leave the PP and WL or dominant DF that have well formed, full crowns.

If you are unsure of the extent of pocket contact your forester.



Weak, thinning crowns, as in this DF, are an indication of root disease.

FI RE PROTECTION and FIRE-WISE

Fire is an inherent risk on any natural landscape. Kittitas County is a "FireWise" community, which is a program emphasizing practices designed to minimize the risk of fire to structures in the forest-urban interface.

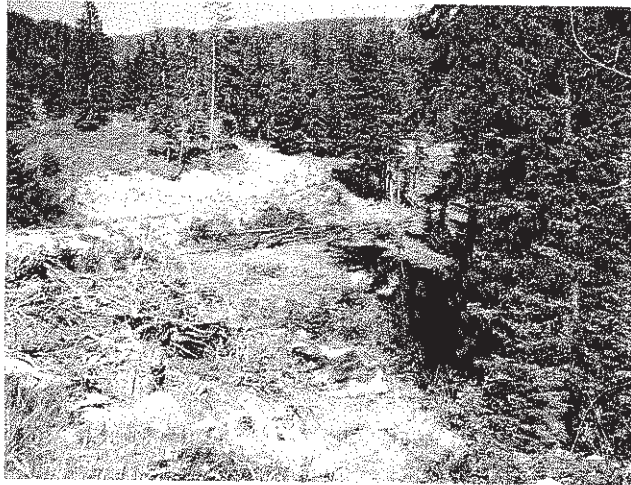
The County has completed a Community Wildfire Protection Plan (CWPP) for the entire County, [BOCC Resolution 2009-18 dated 2/18/09]*.

A Local, neighborhood CWPP should be a high priority for the Morgan Creek area; these plans are usually initiated through local landowner coalitions (or core groups) and involve the local Fire District, DNR and USFS.

Participation in a CWPP is strongly recommended. The program will reduce (but not eliminate) the risk of a property damaging wildfire and assure the property is in compliance with the County's "Defensible Space" formula.

In the event structures are planned for, you should incorporate a written defensible space plan in the site plan and prior to site preparation and building permit.

*Note: * This is available on the Kittitas County CDS website. I recommend you download and become familiar with this document, prior to the public hearing on your OS-t application.*



It is recommended that the large residual slash piles in Stand 2 be disposed of .

NOXIOUS WEEDS

Knapweed is common in the area but is not noticeable on your property.

The acceptable herbicide prescription recommended by the County Weed Board is available on their website. This treatment is effective in our area when applied at the knapweed rosette stage in May-June. Localized infestations can be treated with a regular garden type weed sprayer using the recommended herbicide at the right stage of development.

WILDLIFE HABITAT

The shrub/herbaceous layer is well established and is providing good diversity of habitat for a wide range of wildlife species and birds.

Another important wildlife habitat category are snags and coarse woody debris (pieces or patches of logs and large branches on the ground). Snags include both dead standing trees and those live trees with high levels of decadence or defect. Both hard and soft snags and down woody material in various stages of decay are important. Nearly all life forms in the forest begin with decaying wood.

In this area there are over 60 species of birds and small mammals that are dependent on snags for some or all of their life requisites and an equal number of species dependent on coarse woody debris. A cavity is excavated in a recently dead tree by woodpeckers, or "primary excavators". These cavities are later used by a maximum of 27 bird and 18 mammal species, who are "secondary cavity users" because they can't excavate a cavity. Birds help control forest insects that may be detrimental to tree health.



This is an example of DF wildlife trees (snag) in Stand 2. Woodpeckers will create cavities in search of insects. These cavities are then used by a large group of secondary cavity nesters.
 Save your Wildlife Trees! *"Birds Eat Bugs"*



The decaying wood process provides habitat for many species of fungi, moss, lichens, invertebrates, reptiles, and amphibians that form an integral part of a healthy forest. Nearly all life forms in the forest begin with decaying wood. The decaying wood provides microsites for beneficial mycorrhizal fungi and a long term, time release source of humus, organic matter, phosphates and nitrogen all desirable for healthy tree growth. Also, decaying wood acts as a reservoir for water storage by slowly releasing moisture throughout the summer.

This is example is in Stand 1 upslope form the RMZ.

SUPPLEMENTAL INFORMATION ATTACHMENTS

Kittitas County Noxious List

If you have any questions or comments, please contact the plan preparer
 Phil Hess, Consulting Forester 509-952-0678
 Email: hessphil@msn.com

2011 KITTITAS COUNTY NOXIOUS WEED LIST

Common Name	Scientific Name	Common Name	Scientific Name
CLASS A NOXIOUS WEEDS		CLASS B NOXIOUS WEEDS	
buffalobur	<i>Solanum rostratum</i>	Austrian fieldcress	<i>Rorippa austriaca</i>
common crupina	<i>Crupina vulgaris</i>	blackgrass	<i>Alopecurus myosuroides</i>
cordgrass, common	<i>Spartina anglica</i>	blueweed	<i>Echium vulgare</i>
cordgrass, dense-flowered	<i>Spartina densiflora</i>	Brazilian elodea	<i>Egeria densa</i>
cordgrass, saltmeadow	<i>Spartina patens</i>	bugloss, annual	<i>Anchusa arvensis</i>
cordgrass, smooth	<i>Spartina alterniflora</i>	bugloss, common	<i>Anchusa officinalis</i>
dyer's woad	<i>Isatis tinctoria</i>	butterflybush*	<i>Buddleja davidii</i>
eggleaf spurge	<i>Euphorbia oblongata</i>	camelthorn	<i>Alhagi maurorum</i>
false-brome	<i>Brachypodium sylvaticum</i>	common catsear	<i>Hypochaeris radicata</i>
floating primrose-willow	<i>Ludwigia peploides</i>	common fennel	<i>Foeniculum vulgare</i>
flowering rush	<i>Butomus umbellatus</i>	common reed (nonnative)	<i>Phragmites australis</i>
garlic mustard	<i>Alliaria petiolata</i>	Dalmatian toadflax	<i>Linaria dalmatica</i>
giant hogweed	<i>Heracleum mantegazzianum</i>	Eurasian watermilfoil*	<i>Myriophyllum spicatum</i>
goatsrue	<i>Galega officinalis</i>	fanwort	<i>Cabomba caroliniana</i>
hawkweed, European	<i>Hieracium sabaudum</i>	gorse	<i>Ulex europaeus</i>
hawkweed, yellowdevil	<i>Hieracium floribundum</i>	grass-leaved arrowhead	<i>Sagittaria graminea</i>
hydrilla	<i>Hydrilla verticillata</i>	hairy willowherb	<i>Epilobium hirsutum</i>
johnsongrass	<i>Sorghum halepense</i>	hawkweed oxtongue	<i>Picris hieracioides</i>
knapweed, bighead	<i>Centaurea macrocephala</i>	hawkweed, mouseear	<i>Hieracium pilosella</i>
knapweed, Vochin	<i>Centaurea nigrescens</i>	hawkweed, orange	<i>Hieracium aurantiacum</i>
kudzu	<i>Pueraria montana var. lobata</i>	hawkweed, polar	<i>Hieracium atratum</i>
meadow clary	<i>Salvia pratensis</i>	hawkweed, queen-devil	<i>Hieracium glomeratum</i>
purple starthistle	<i>Centaurea calcitrapa</i>	hawkweed, smooth	<i>Hieracium laevigatum</i>
reed sweetgrass	<i>Glyceria maxima</i>	hawkweed, yellow	<i>Hieracium caespitosum</i>
ricefield bulrush	<i>Schoenoplectus mucronatus</i>	herb-Robert	<i>Geranium robertianum</i>
sage, clary	<i>Salvia sclarea</i>	hoary alyssum	<i>Berteroa incana</i>
sage, Mediterranean	<i>Salvia aethiops</i>	houndstongue	<i>Cynoglossum officinale</i>
shiny geranium	<i>Geranium lucidum</i>	indigobush	<i>Amorpha fruticosa</i>
silverleaf nightshade	<i>Solanum elaeagnifolium</i>	knapweed, black	<i>Centaurea nigra</i>
Spanish broom	<i>Spartium junceum</i>	knapweed, brown	<i>Centaurea jacea</i>
spurge flax	<i>Thymelaea passerina</i>	knapweed, diffuse	<i>Centaurea diffusa</i>
Syrian beancaper	<i>Zygophyllum fabago</i>	knapweed, meadow	<i>Centaurea jacea x nigra</i>
Texas blueweed	<i>Helianthus ciliaris</i>	knapweed, Russian	<i>Acroptilon repens</i>
thistle, Italian	<i>Carduus pycnocephalus</i>	knapweed, spotted	<i>Centaurea stoebe</i>
thistle, milk	<i>Silybum marianum</i>	knotweed, Bohemian	<i>Polygonum bohemicum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>	knotweed, giant	<i>Polygonum sachalinense</i>
variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>	knotweed, Himalayan	<i>Polygonum polystachyum</i>
velvetleaf	<i>Abutilon theophrasti</i>	knotweed, Japanese	<i>Polygonum cuspidatum</i>
wild four-o'clock	<i>Mirabilis nyctaginea</i>	kochia	<i>Kochia scoparia</i>
CLASS C NOXIOUS WEEDS		lawnweed	<i>Soliva sessilis</i>
absinth wormwood	<i>Artemisia absinthium</i>	lepyrodiclis	<i>Lepyrodiclis holosteoides</i>
babysbreath	<i>Gypsophila paniculata</i>	longspine sandbur	<i>Cenchrus longispinus</i>
black henbane	<i>Hyoscyamus niger</i>	loosestrife, garden	<i>Lysimachia vulgaris</i>
cereal rye	<i>Secale cereale</i>	loosestrife, purple	<i>Lythrum salicaria</i>
common groundsel	<i>Senecio vulgaris</i>	loosestrife, wand	<i>Lythrum virgatum</i>
common St. Johnswort	<i>Hypericum perforatum</i>	oxeye daisy	<i>Leucanthemum vulgare</i>
common tansy	<i>Tanacetum vulgare</i>	parrotfeather	<i>Myriophyllum aquaticum</i>
field bindweed	<i>Convolvulus arvensis</i>	perennial pepperweed	<i>Lepidium latifolium</i>
fragrant waterlily	<i>Nymphaea odorata</i>	perennial sowthistle	<i>Sonchus arvensis</i>
hairy whitetop	<i>Cardaria pubescens</i>	poison-hemlock	<i>Conium maculatum</i>
hawkweed, common	<i>Hieracium lachenalii</i>	policeman's helmet	<i>Impatiens glandulifera</i>
hawkweeds, nonnative spp.	<i>Hieracium spp.</i>	puncturevine	<i>Tribulus terrestris</i>
hoary cress	<i>Cardaria draba</i>	rush skeletonweed	<i>Chondrilla juncea</i>
jointed goatgrass	<i>Aegilops cylindrica</i>	saltcedar**	<i>Tamarix ramosissima</i>
old-man's-beard	<i>Clematis vitalba</i>	Scotch broom	<i>Cytisus scoparius</i>
scentless mayweed	<i>Matricaria perforata</i>	spurge laurel	<i>Daphne laureola</i>
smoothseed alfalfa dodder	<i>Cuscuta approximata</i>	spurge, leafy	<i>Euphorbia esula</i>
spikeweed	<i>Hemizonia pungens</i>	spurge, myrtle*	<i>Euphorbia myrsinites</i>
spiny cocklebur	<i>Xanthium spinosum</i>	sulfur cinquefoil	<i>Potentilla recta</i>
thistle, bull	<i>Cirsium vulgare</i>	swainsonpea	<i>Sphaerophysa salsula</i>
thistle, Canada	<i>Cirsium arvense</i>	tansy ragwort	<i>Senecio jacobaea</i>
white cockle	<i>Silene latifolia ssp. alba</i>	thistle, musk	<i>Carduus nutans</i>
yellowflag iris*	<i>Iris pseudacorus</i>	thistle, plumeless	<i>Carduus acanthoides</i>
yellow toadflax	<i>Linaria vulgaris</i>	thistle, Scotch	<i>Onopordum acanthium</i>
cornflower (bachelor's button)*	<i>Centaurea cyanus</i>	water primrose	<i>Ludwigia hexapetala</i>
horseweed (marestail)*	<i>Conyza canadensis</i>	white bryony	<i>Bryonia alba</i>
russian thistle*	<i>Salsola iberica</i>	wild carrot	<i>Daucus carota</i>
* Control required in designated areas		wild chervil	<i>Anthriscus sylvestris</i>
Highlight indicates known presence in Kittitas County		yellow archangel	<i>Lamiastrum galeobdolon</i>
**If you are aware of any noxious weeds that are not		yellow floatingheart	<i>Nymphoides peltata</i>
highlighted, please contact the Kittitas County Weed Board		yellow nutsedge	<i>Cyperus esculentus</i>
		yellow starthistle	<i>Centaurea solstitialis</i>

The Noxious Weed List of Kittitas County (RCW 17.10.090) is comprised of all Class A and Class B noxious weeds described in the 2011 Washington State Noxious Weed List (WAC 16-750) and the Class C weeds listed above