

PHILLIPS CREEK PARCEL
FOREST STEWARDSHIP PLAN
For The
Chandler Grande Ronde Ranch, LLC



View: North edge of parcel on Middle Ridge looking southwest into Phillips Creek.

Prepared December 20th, 2015
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PREFACED SUMMARY of FINDINGS

For the
PHILLIPS CREEK PARCEL 10-YEAR PLAN; 2015-2025

Latitude 45 degrees, 34 minutes, 31 seconds North, Longitude 118 degrees, 1 minutes, 45.8 seconds West; At Sanderson Springs road entrance / property line gate.

**Legal Description: Township 1 North, Range 38 East of the Willamette Meridian
Tax Lot 2400 – All or portions of Section 10, 11, 12, 13, 14.**

Middle Grande Ronde Watershed

Parcel Size: 2,388 acres

Forest Acres: 1730

Property Tax Class: Exclusive Farm Use / Vacant.

Land use Classification: Vacant / Farm Use

Wildland Fire Protection District: Oregon Dept. of Forestry

Elevation: 3600 feet (ave.) / 3000 to 4000 feet (range)

Seed zone: 863

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PARCEL MAPS

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- Parcel Soil Type Map

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STEWARDSHIP PLAN SIGNATURE PAGE

PHILLIPS CREEK PARCEL

FOREST STEWARDSHIP PLAN

INTRODUCTION

Creative Resource Solutions, LLC prepared this forest stewardship plan for the Chandler Grande Ronde Ranch, LLC by request from the landowners and members of the LLC. This plan's intended use is for guiding the landowners management of their timberlands in Union County, Oregon. The Stewardship Planning program is strictly voluntary. The Forest Stewardship Plan program is administered by the Oregon Department of Forestry. The office for this area is located in La Grande, Oregon.

LANDOWNER OBJECTIVE

The owners have an interest in managing and improving several of the resources the property offers. In particular, there is interest in managing the forest fiber resource to keep it healthy and sustainable. Maintaining resource value and benefit over the long-term is the primary objective. At present, the resource amenities the property is capable of producing is below potential. While managing for economic benefit by increasing resource outputs, there are resource values (wildlife, water, etc.) that can be provided for and improved which will provide environmental benefits. By increasing and maintaining quality forage and fiber production using a holistic approach over the long term should benefit all resource values. One example of this; promoting better forest conditions through stocking control and monitoring that allow for fully stocked, healthy stands of trees. This in turn will provide long term wildlife forage and cover, increase snow-pack, reduce catastrophic fire potential and the cycle will be continued throughout the range of resources. Simply stated: This is a holistic view that recognizes all resources as intermingled.

The owners understand the importance of maintaining healthy forests to provide future generations of forest cover and how to manage for desirable and diverse species mixes. Monitoring of conditions, forest culturing and harvesting methods will be directed at maintaining a desirable species mix with full stocking that provides for positive and vigorous growth and reduces disease. To accomplish these goals, and provide economic and aesthetic benefits, shorter harvest cycles of 10 years, or less, are anticipated to continue positive growth, capture mortality / value and maintain aesthetic appeal. In addition to improving existing tree growth, the owner would like to reduce fire hazard, increase forage base and maintain forest acres.

Summary of Goals

1. Manage resources in an environmentally and economically sustainable manner.

2. Increase / promote value of long-term ownership: The parcel is a long-term family ownership and improvements are intended to provide future returns.
3. Forest Health / Aesthetics: Maintain the natural beauty of the area by growing healthy trees for the foreseeable future - this includes thinning dense stands, and reducing poor vigor and diseased tree numbers.
4. Reduce noxious weeds. Increase levels of preferred forage species and diversity.
5. Improve grazing control and utilization.

HOW TO USE THIS PLAN

This plan is intended to be a guide for the landowner to use in reaching the desired level of forest management on their property. It also provides information to manage other resources on the parcel. The owner has the final decision as to what management practices will be carried out and the timing of those activities. The goals listed above are identified and addressed by specific resource area in this plan.

The forestland has been inventoried. The text section entitled "Stand Description / Recommendations" includes a brief summary of the management recommendations.

Descriptions of each soil type are included and described in detail. The appendices of this plan contain reference material and detailed descriptions of the information contained in this plan. In addition, it contains general background information on several forestry-related subjects.

Agencies capable of providing assistance and additional information for specific resource areas and the phone numbers are also included.

WHERE to GET ASSISTANCE

Financial Assistance:

Farmers, ranchers and small woodland owners may obtain cost-share assistance for activities such as non-commercial thinning, slash piling, and tree planting. Fuel reduction, pond and water development, stream and riparian improvement monies are also available through several agencies. Cost-share rates and total amounts per ownership are dependent upon county location and activity. These programs are limited annually by the availability of funding by county.

There are numerous agencies that provide technical assistance to woodland owners on a wide variety of forest topics. Technical assistance is available from several state or federal agencies and from related resource professionals. These agencies are partners in providing assistance and often share personnel and information resources.

Oregon State Forestry:

- Union County contact: Service Forester
Oregon Dept of Forestry 611 20th St. La Grande, OR 97850 Phone: 541-963-3168
<http://www.oregon.gov/ODF/northeastoregon/pages/index.aspx>

Additional Local Assistance / Source of Information (Union County):

- Oregon Department of Fish and Wildlife
District Office 107 20th St. La Grande, OR 97850. Phone: 541-963-2138
www.dfw.state.or.us
- OSU Extension Service
10507 N. McAlister Rd, La Grande, OR 97850. Phone: 541-963-1010
<http://www.extension.oregonstate.edu/union>
- Union County Farm Service Center (FSA, SWD, NRCS)
1901 Adams Avenue, La Grande, OR 97850. Phone: 541-963-4178
www.nrcs.usda.gov

The benefits of these agencies and their programs support landowners, the state, and the nation. Through them landowners attain a better position to realize their forest ownership objectives. The state achieves a better position to address statewide and rural economic issues, improve threatened and endangered habitat, and improve water quality and quantity conditions. The nation enjoys an increased and more stable forest products supply, sustainable wildlife and fish populations, and an improved water supply for rural and urban needs.

PROPERTY LEGAL DESCRIPTION

The property covered by this Forest Stewardship Plan is owned and managed by the Chandler Grande Ronde Ranch, LLC. The parcel is located in Union County, Oregon. The property tax class is Exclusive Farm Use and Designated Forest. The land use classification is Farm Use vacant designated forest.

The legal description is as follows: *Township 1 North, Range 38 East of the Willamette Meridian, All in Tax lot 2400. Section 10, all except the SE ¼ of the SE ¼.*

Section 11, ALL. Section 12, ALL.

Section 13, the N ½ and the N ½ of the SE ¼.

Section 14, the N ½ of the NE ¼ and the SE ¼ of the NE ¼.

2,388 acres m/l.

PROPERTY DESCRIPTION / HISTORY

Most of the property was purchased by Myron and Ethel Chandler from Bernal and Carmi Hug on November 21, 1949. The SE ¼ of the NE ¼ of Section 14 was purchased by Myron and Ethel Chandler from Lawrence and Eleanor Starr on April 15, 1953. Transfer of management to Terri Chandler, Clay Chandler, Marsha Chandler Garoutte, Michael Chandler, Monika Chandler and Peter Chandler was completed on December 31, 2010.

The ownership is approximately 72% forested. Topography, fire exclusion, grazing and past harvesting have all played a role in creating the present cover types and property characteristics (see “Stand Descriptions”). The historic use of resources has been primarily for domestic forage (grazing) and timbering.

All of the property has been harvested in the past. During the early 1970's the ranch was under timber contract with Boise Cascade. It was not until the later part of the '70's that timber management and harvesting was conducted under the auspices of the owners. The last significant harvest occurred in the early 2000's in the southeast portion of the parcel. At present, a forest thinning and sanitation is occurring on Middle Ridge and fire salvage is occurring along Middle Ridge and north of Bailey Creek as a result of the August 2015 Phillips Creek Wildfire. Across the ownership the forest stands are relatively similar in age, between 30 and 70 years old with scattered trees between 80 to 120 years in age.

There are numerous small ponds on the parcel and three perennial fish-bearing streams that run through the parcel. The confluence of these larger drainages gives the topography of the parcel a canyon effect with long ridgetops that are narrow. As a result, about half of the timber on the parcel must be harvested with alternate (cable or helicopter) yarding systems that are more complex and expensive than tractor yarding.

The property supports Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), white fir (*Abies concolor*), western larch (*Larix occidentalis*), Englemann spruce (*Picea engelmannii*), western white pine (*Pinus monticola*), black cottonwood (*Populus trichocarpa*), quaking aspen (*Populus tremuloides*), water birch (*Betula occidentalis*), western juniper (*Juniperus occidentalis*) and lodgepole pine (*Pinus contorta*). Shrubs of note are Scouler willow (*Salix scouleriana*), ocean-spray (*Holodiscus discolor*), Rocky Mountain maple (*Acer glabrum*), common snowberry (*Symphoricarpos albus*), red osier or dogwood (*Cornus sericea*) and several wild rose species (*Rosa spp.*).

Access to the property is good to the heart of the parcel via Phillips Creek Road (Forest Service road) or through private parcels from the south at the end of Sanderson Springs Road (County). Also, access to the Middle Ridge portion of the parcel is gained through Hancock Lands off the Phillips Creek Road or from the north from Public (Forest Service) land. Within the ownership all spur roads are native surface. The surface of these roads are relatively stable and do not contribute large quantities of sediment to waters of the state.

Property fence line locations appear relatively accurate with the legal parcel boundary description of the parcel, except along the Forest Service boundary. Range and parcel boundary fence condition is not good and will require updating and repair as well as being properly located on the property line with USDA Forest Service.

Due to the property location with respect to the Grande Ronde Valley and the Blue Mountain Range, the area provides excellent habitat for wildlife throughout most of the year. Dominant big game use is from elk, black bear, bobcat, mountain lion, wolves and deer. Upland game bird (quail / grouse / turkey) and birds of prey (hawks / owls) habitat is evident on the property. The presence of trees, shrubs, creeks and ponds provide a variety of additional songbird, and small mammal habitat.

DESIRED FUTURE CONDITION

The desired future condition of this ownership will be achieved through recognition of the wide range of resource values found on the property, their limits, and holistic management of those resources. Through recognition and monitoring of the resource values mentioned in this Plan, the owners will be able to ensure that these resources are maintained, increased or improved. For example, through salvage, tree thinning and planting, the forest species composition and tree density is modified so that timber value, growth, health and quality of forest cover will be improved. Healthy forest stands in turn will help maintain water quality, wildlife cover, maintain aesthetics, etc., and the cycle continues throughout the range of resources. This holistic view of the resources as being intermingled allows for more than one resource area to benefit from a single activity.

The desired future condition is to achieve and maintain sustainable productivity for long term property returns, using a holistic management approach, from the forest and range cover types on the parcel. It is desirable that an aesthetically pleasing environment is provided while allowing for economic return.

TAX and BUSINESS MANAGEMENT

All activities on the parcel whether timber harvesting or general improvements, may have tax implications. Ownership status may also have an estate tax liability. Planning activities with tax liability in mind, before the activities begin or are completed will help reduce any “surprise” tax or tax “shock”. Estate or legacy planning for the parcel is also a good idea to consider if retaining the parcel within the family is one of the objectives.

Tax credits are available for some forest activities, however all timber harvesting will create a harvest tax liability. Planning these activities with a competent certified public accountant and / or personal representative is good business management.

Record keeping of all transactions (expenditures and income) is the first step to good property management. As tax laws evolve and change, good records may help reduce tax liability over time and increase potential revenue.

Depending on timber management strategy, some landowners are inclined to apply for the Small Tract Forest Option that changes the manner in which the land is taxed. For an application go to the Dept. of Revenue website at www.oregon.gov/DOR/TIMBER/docs/390-001.pdf.

More information for applying can be obtained by contacting the Union County Assessor at 1001 4th Street, Suites A & B, La Grande OR 97850. Phone: 541-963-1002

SPECIAL SITES

Cultural, Geological, Biological, or Ecological sites of unique or special significance are noted below.

Cultural Assessment

No prehistoric archaeological or historic cultural sites are known to exist. A confidential site assessment and / or data base search may be requested from the State Historical Preservation Office (SHPO) by contacting Dennis Griffin, State Archaeologist at 503-986-0674 or dennis.griffin@state.or.us.

Biological Assessment

Species of biological significance are known to reside on the parcel. Refer to the “Threatened and Endangered Species” section for related search websites.

Ecological Assessment

No plants of ecological significance are known to reside on the parcel. Refer to the “Threatened and Endangered Species” section for related search websites. Mushrooms are found on the parcel and several trespass incidents are known to have occurred as a result of eager mushroom hunters.

Geological Assessment

The geology of the parcel is common to the Grande Ronde Valley and northeastern Oregon. No significant geological sites exist on the parcel.

HIGH CONSERVATION FOREST / RARE SPECIES

Every forest has some degree of environmental and social value. The value it contains may include rare species, recreational sites or resources used by local residents or an individual landowner. Where these values are considered to be of outstanding significance or critical importance the forest may be defined as a High Conservation Value Forest. This term was first used by the Forest Stewardship Council to certify sustainable managed forests.

This parcel does not, by definition, contain any forest stand or rare species critical to surrounding habitat types.

SOILS MANAGEMENT PROBLEMS

The condition of the soil on the property is stable. In most cases, soil management problems are associated with areas that are frequently disturbed creating a bare mineral soil condition, devoid of vegetation. Areas where persistent or constant bare mineral soil exists will allow for soil instability during high moisture events that produce water run-off. This is due to lack of root structure, plants or organic cover that prevents soil movement. This type of bare mineral soil

condition typically also leads to plant composition / noxious weed problems. Because many undesirable plants are pioneering by nature, they take over recently disturbed growing sites.

Potential soil management problems are typically associated with native surface roads and trails. This is particularly true where roads do not have proper drainage features incorporated into the road surface. Also, livestock trails or areas of heavy use where animals congregate may contribute to erosion and establishment of noxious weeds. Presently, the amount of travel on parcel roads does not exceed the ability of grass vegetation to keep native road surfaces stable. As forest management activities occur, spot rocking and rolling dips would be a minimum recommendation rather than putting a rock surface on the entire length of all spur roads. Areas where livestock or wildlife congregate may be mitigated by salting to draw animals away, fencing impacted sites to protect resources or reducing length of grazing period.

Any future land management activities should be aimed at reducing soil impacts by operating during periods of dry or frozen soil conditions. In addition, future ground disturbing activities (harvesting - heavy equipment use) should make use of existing skid trails and roads where possible, to prevent unnecessary soil disturbance, compaction and subsequent erosion. When harvest operations are completed skid trails should have water bars at a minimum and preferably also be seeded with a native forest grass seed mix to further prevent erosion and help maintain or increase desirable grass cover.

For more information, see *“Logging Systems and Roads,” “Forest Health”* or *“Forage Resource Management”*.

SOILS INFORMATION

The soil survey for Union County describes the seven major soil types and twelve total soil types found on the property. The following is a general description of the soil types, productivity and limitations of the soils found on the property.

Most of the soil types are forest soil types. The dominant soil types are the Klicker series (Map symbol 33E, F, 34F and 35E) with 45 percent coverage of the parcel. Tolo (Map symbol 59E, F) at 25% on the parcel. (See *Soil Type Description Table* for illustration). The site index on the Klicker forest soil types is 71 to 84 for Ponderosa pine, the best tree species to grow for these soils. The site index for Tolo soil types is 75 to 80 for growing Douglas-fir or western larch. Adequate soil depth and ample moisture on all the soil types, represent good growing sites for this region.

The basic component of all the soils on the property is silt and loam. Each soil type is some variant of a silt loam or a stony silt loam, which means they are well drained but do not have a high moisture holding rate. Erosion hazard is typically moderate on slopes less than 30 percent and high on slopes over 30 percent due to the potential for moisture runoff to carry topsoil down slope. Erosion during dry periods is higher than usual due to the silt component and maintaining

ground cover is the best way to mitigate dry season erosion. Mass sliding and rill erosion is common to all soil types found on slopes exceeding 35 percent. Compaction is severe during periods (winter and spring) of high soil moisture for all soil types. Ground disturbing activities should be limited to dry or frozen soil conditions to minimize negative impacts. Soil compaction aids tree pathogens by stimulating root and heart rots and minimizing soil moisture-holding capacity. Maintaining ground cover in the form of live vegetation or woody debris on steep slopes, as well as grass seeding, will also help minimize erosion where the potential for this is high.

Soil Type Description Table

Soil Name / (Map Unit Number)	Percent Coverage by Soil Type	% Range of Slope	Erosion Hazard	Common Use / Type	Estimated Productivity Rate *
Anatone (4E)	3	2-35	M	Range	0.3T/ac
Anatone – Bocker (5E)	2	2-35	M	Range	0.3T/ac
Gwinly –Rockly (18 E/F)	18	5-40 / 40-70	M-H	Range	0.3T/ac
Klicker (33E/F, 34F)	42	2-40, 40-65	M-H	Forest / Range	300 bf/ac / 0.7T/ac
Klicker-Anatone (35E)	3	5-40	M	Forest / Range	250 bf/ac / 0.7T/ac
Tolo (59E / 59F)	25	12-35 / 35-65	M- H	Forest	500 bf/ac
Veazie-Voats (66)	2	0-3	L	Range	0.5T/ac
Watama-Gwinly (69C)	5	2-12	M	Forest / Range	350 bf/ac / 1.0T/ac

* Productivity rates are listed as follows: Forest - bf/ac = board feet per acre per year. Range = Tons per acre. Based on a total of 2,388 acres.

For additional soil information visit www.nrcs.usda.gov>oregon>or625_text.pdf

FORAGE MANAGEMENT PROBLEMS

This section deals with problems found within all cover types as they all support some level of forage. The property perimeter fence is not entirely functional and in need of replacement or repair, particularly since the Phillips Creek Fire. It appears that domestic grazing will continue to be an option in the future. Periods of livestock grazing need to be defined to protect the soil and range resources. The range condition is fair and may be improved with grass seeding and noxious weed removal. Regular wildlife grazing does not appear to have negatively impacted the range condition.

The presence of hounds-tongue (*Cynoglossum officianale*) which is toxic to livestock, cheatgrass (*Bromus tectorum*) and knapweeds (*Centaurea spp.*) is noted on the parcel. Minimizing these less desirable species is possible through targeted grazing with goats or sheep, hand pulling and / or spot spraying herbicides during late spring and early fall of each year. Specific management

recommendations can be found in the Pacific Northwest Weed Management Handbook. Areas with high disturbance to vegetative cover such as old burn piles, landings, livestock feeding and holding areas and roads typically have the greatest concentration of these species since they pioneer readily under full sun and bare mineral soil conditions. Checking these areas in April / May and September / October applying a broadleaf herbicide will reduce the presence of undesirable weeds. The timing of the spring application is more critical to ensure that herbicide application is early enough to prevent plants from seeding out, but mature enough to identify plants and have the herbicide be effective. Hounds tongue in particular is best controlled with a fall herbicide application. It takes two years for hounds tongue to mature and produce seed. The first year plants (florette) are easy to identify and timing of herbicide application is not as critical since there is plenty of time to kill the plant before going to seed. For any noticeable results, a spring /fall application should be repeated for at least three years and typically a five year plan is best to address emergence from the seedbank.

FORAGE RESOURCE AND MANAGEMENT

Cover type *G* will only produce forage and it is not the most productive on the parcel as some of the forest cover types and the soils that support them also supports the best forage for grazing. The native forage vegetation found on most soil types is known for moderate productivity and the presence of native shrubs is common.

Overgrazing any of these soil types reduces the proportion of preferred forage plants and less desirable plants become established and range seeding is not well suited to some of these soil types due to stony and steep soil condition.

With suitable range fencing and grazing control on the parcel, the range condition may be better controlled to benefit range health and quality. Historically range fences were not maintained and neighbors benefitted from the open range. Future attempts at controlling livestock grazing on the parcel with fences should take into account parcel use from wildlife. Fence design should be tailored to ease impacts on wildlife. (see *Wildlife Habitat Recommendations*). These measures will also benefit the life-span of the fence and amount of maintenance required to keep it functional. This is because the deer and elk are part of the landscape and their movement patterns need to be considered.

A more detailed grazing plan will be appended to this plan by 2016.

THREATENED AND ENDANGERED SPECIES

Habitat exists on the property for threatened and endangered wildlife species that would require special attention or protection, however no nest or den sites were noted during field surveys or inquiry of state data. Should any T&E species be identified, potentially harmful or site-disturbing activities will be halted, until mitigation measures can be developed in cooperation

with the appropriate regulatory agency. Wolves are a listed species that have been sighted and are using this area. With wolf populations on the rise, there is an ever increasing chance for sightings on the property. Also, steelhead are found in Phillips Creek and Little Phillips Creek which are used for spawning and rearing. This population is listed as threatened.

A comprehensive listing and status of either federally or state listed (or both) in Oregon can be found on the Oregon Department of Fish and Wildlife website at: http://www.dfw.state.or.us/wildlife/diversity/species/threatened_endangered_candidate_list.asp.

NatureServe has an on-line database that can be searched at the county level for rare species [<http://www.natureserve.org/explorer/servlet/NatureServe>].

WILDLIFE HABITAT / RECOMMENDATIONS

In general, there is a range of habitat that may serve a wide variety of wildlife during different seasons. The opportunity or potential to see a wide variety of wildlife is high. Due to the relatively large habitat type and size of the parcel, the opportunity to hold or maintain wildlife populations is high.

The property currently offers habitat for a variety of wildlife. The forest stands are relatively young but as they grow and continue to mature, the varied tree sizes and densities on the property will continue to offer habitat diversity to a wide range of species and in several ways. Mule deer, white-tail deer, elk, bear, mountain lion, fox, bobcat, coyote, wolf, turkey, sparrowhawk, red-tail hawk, goshawk, pileated woodpecker, several species of owls, eagles, tree squirrel, chipmunk, grouse, quail and many songbirds are known to reside near or on the property. Big game habitat consists of hiding cover, forage and browse. By maintaining or providing for a fully stocked forest condition, hiding cover will continue to be provided. Forage condition is good and opportunity for browsing potential is higher now than it has been for many years due to the recent thinning harvests and recent wildfire. Forested sites make ideal feeding areas for wintering big game when snow depth covers the grasses, because tree crown coverage buffers the depth of snow by means of interception.

The forest stands and brush component offer a wide variety of habitats for large game birds and birds of prey. Grouse and quail prefer dense trees and / or underbrush. These areas offer both feeding and cover sites that provide a margin of safety from predators. Raptors such as hawks, roost and nest in large dead or decadent trees, but feed in areas that have openings in the crown cover. Turkeys have similar use habits and will benefit from the increased invertebrate population and browse from increased sunlight on the forest floor. Squirrels, other small rodents and swifts nest in large decadent trees, which at present are in short supply. Management activities should recognize the effectiveness of snag habitat as well as live tree retention for cover. Owls, depending on species, will nest and / or roost on large trees as well as within. Cavity nesters include bats, squirrels, pileated woodpeckers and sapsuckers. The use of cavities

for nest sites by all of these species indicates a need for large tree snag recruits if the habitat needs of these species are to be met in the future. Raptors and owls play an important role in keeping rodent populations in check and insect populations in decadent trees provide forage for bears and woodpeckers. Bats and birds help reduce insect populations by preying on them for food. By preserving or providing for snag recruits, this segment of habitat will remain intact and functional on the property.

Fences are typically an obstacle to many young game animals and older animals as well. Sadly, many range fence plans do not take into account the deadly and damaging effect fences have on wildlife. Since most of the property has some old pasture fences, over time, they should be updated or removed to provide better grazing control and reduce potential injury to wildlife and livestock.

Locations where game paths cross fences the wires may be lowered or a board (1"x4") may be nailed to the top wire. Also, the use of smooth wire may protect wildlife or reduce the possibility of injury. Another method used in conjunction with those mentioned above is using drop-down fencing in areas of main wildlife travel corridors. These drop-gate style sections of fence reduce damage to wildlife during winter or off-season grazing periods. Any or all of these options may be used in conjunction to reduce barriers and injury to wildlife. These practices not only protect wildlife from injury, they serve to reduce the amount of damage and subsequent repair that is required to maintain fences in a forest setting.

Elk and deer will typically use the parcel from late spring to early winter, depending on snow depths each season. The parcel likely first gets used for calving and fawning. As the season progresses, ungulates typically will seek cool areas. Elk in particular prefer cool weather to hot weather and may seek higher elevations during peak summer temperatures.

In general, by increasing the forage base for all of the creatures mentioned above, the predator population will also benefit. Having more feed for deer and elk will provide hunting opportunities for mountain lion, coyote, bear and gray wolves.

Use of the parcel by predators likewise changes with use by prey (elk and deer) through the seasons. Bears will come out of dens and start on a diet of grass to get their system going after a long winter nap. Within a week or so, they will begin looking for more substantial meals such as grubs under logs and rocks and bulbs or roots in open fields or hillsides. Ultimately, bears, mountain lions, coyotes and wolves will look for opportunity when calving and fawning season begins. Bears will only have an advantage the first week or two, but the other predators will be able to have better success for a much longer period of time.

Arguably the most important aspect to all habitat and habitat type is the availability and quality of water. Spring development, pond improvement and stream condition has a large impact on overall habitat effectiveness. Springs and ponds add to habitat effectiveness and use since all creatures depend on water. Protecting the water sources and increasing use potential will provide for better quality and quantity of water that may be used by wildlife.

In summary: Wildlife need forage, cover, water and prefer areas where they are not disturbed. The size of this parcel in context to a particular species habits and size of territory plays a role in how they use the property. The extent to which some or all of these criteria are met will ultimately determine how often and how long a particular species will use the parcel.

RIPARIAN HABITAT / FISHERIES

The small ephemeral (Type “N”) streams on the parcel are tributaries to Bailey, Phillips and Little Phillips Creek that all flow southeast through the parcel and are respectively classified as a small, large and large type “F” (fish-bearing) stream. After joining Little Phillips creek east of the parcel, Phillips Creek flow continues southeast about five miles where it joins the Grande Ronde River, a major anadromous fishery. Both forks of Phillips Creek support steelhead runs linking the parcel to an important fishery.

The condition of the riparian habitat was noted as being in good condition. The riparian zone will benefit from large wood inputs over time and has been recognized as a separate cover type. This is due in part to the distinct forest cover found along these streams and how these areas are managed and regulated by state forest practice rules designed to protect and enhance streams. Riparian shrub species are present and these support the stream banks. The native shrubs, conifers and hardwoods along or near bodies of water provide habitat for a variety of animals and birds in addition to moderating water temperatures, adding woody material and stabilizing stream banks. This is an essential element of riparian health and something to consider when managing brush from a recreational or stream access perspective.

AESTHETIC / SCENIC RESOURCE

The primary use of the parcel is for, growing trees, grazing and recreating. The scenic values are important to the owners because they want to own and recreate on property that is appealing. A forested view shed that provides grazing values is desirable. The canyon effect of the parcel lends itself to many different views of both the parcel and the surrounding area. All management activities will be considered from an aesthetic resource perspective to ensure that the parcel continues to provide a visually pleasing landscape. Full site stocking of trees that are healthy is a major consideration for promoting an aesthetically pleasing environment. Managing healthy trees by providing stocking control also improves the amount of forage that may be grown. Slash from harvest or thinning activities should be mulched and / or piled and burned to reduce fuels and improve aesthetics. Spur roads or skid trails should be seeded to grass to promote faster recovery where mineral soils are exposed.

RECREATION

There is opportunity for hiking, hunting, gathering forest resources, biking and wildlife viewing on the parcel, to name a few activities. Providing for these recreation opportunities is a lower priority because the ability of family members to recreate with any frequency is limited due to a variety of reasons. However, it is important that forest planning take into account the frequent use by people. Location of snags, although important from a wildlife standpoint need to be planned to reduce potential damage to property structures and individuals living, working or recreating on the parcel. Likewise, development of fences and other property improvements should heed wildlife requirements.

FOREST HEALTH / PEST MANAGEMENT

The first and foremost criteria to maintaining healthy and productive forest stands is to recognize the limitations of a growing site in terms of productivity and being familiar with forest pests and pathogens that may impact your trees. Knowing how many trees can be grown on any given acre of land can help prevent overstocking, loss of tree vigor and unnecessary susceptibility to forest pests and pathogens. Also, by recognizing forest pests and pathogens, periodic harvesting can address the removal of host trees so that pest and pathogen populations are kept below epidemic levels. Within any given forest stand the presence of pest or pathogens may be found at endemic levels, which is natural and should be expected. The main focus should be aimed at keeping these damaging agents from becoming epidemic. The following is a description of tree damaging agents, by species and general diseases that affect all species, found on the property.

For both insect and disease information visit the USDA field guide and associated forest insect and disease leaflets (FIDL's) at: http://www.fs.usda.gov/detail/r6/forest-grasslandhealth/insects-diseases/?cid=fsbdev2_027376. Also, OSU Extension Service and ODF have online information at: http://extension.oregonstate.edu/union/sites/default/files/EM_8980_June_2009_ConiferGuide_OregonState_0.pdf. and <http://www.oregon.gov/odf/privateforests/pages/fhpests.aspx>.

Douglas-fir: Currently, armillaria root rot (*Armillaria mellea*) is causing a fair amount of damage. Armillaria may be found, or is more apparent, where tree stress is an issue. However, this fungus must be present in the soil before the stressing event or events begin. Armillaria is generally encouraged by negative soil disturbing events and may lie dormant in old stumps for many years. Poorly planned grazing or logging practices, particularly those contributing to soil compaction, can exacerbate this pathogen. Historic logging practices on the parcel did not give consideration to soil moisture condition. Removal of infected host trees and planting or encouraging growth of non-host species is the most cost effective method of dealing with this fungus.

Ponderosa pine: for this species, the greatest potential pest is bark beetles. Engraver beetles (*IPS* spp.) and red turpentine beetle (*Dendroctonus valens*) pose the single greatest threat of catastrophic timber stand damage. This is typically due to tree stress from high tree densities (overstocking) or a combination of stressing events that predispose these pine stands to beetle infestations. When overstocking on a site occurs, the trees become stressed from lack of available nutrients and emit a pheromone that attracts bark beetles. This problem is easily corrected when beetle populations are endemic by reducing (harvesting / cutting) the number of trees per acre. This allows the remaining trees to grow freely or under a condition that allows for more moisture, nutrients and light. Trees that are free to grow do so at a rate that does not predispose them to infestation because they are able to produce ample sap. The production of this sap is a tree's defense system, which drowns the bark beetles or "pitches them out" when they attempt to bore into the cambium and phloem layer beneath the tree-bark.

Western gall rust (*Endocronartium harknessii*) is present at endemic levels but appears to be causing reduced tree vigor throughout the parcel. Periodic sanitation harvest of infected trees will remove or reduce this disease, improve general species vigor, prevent the spread to adjacent or understory trees and reduce opportunity for bark beetle populations to increase.

Western dwarf mistletoe (*Arceuthobium camplypodum*) may be found throughout pine stands on the parcel. Past thinning and sanitation efforts have been aimed at removing the most affected hosts and reducing the impact from this parasite.

Western larch: The only major pathogen that commonly adversely affects this species locally is western larch dwarf mistletoe (*Arceuthobium laricis*). This parasite is currently at endemic levels on the property and not causing significant damage to commercial timber values. Any changes in this status should be easily corrected through salvage harvesting and removal of host trees.

White fir: Many root and heart rots affect these species. The most prevalent in this region is rust red stringy rot. Rust red stringy rot (*Echinodontium tinctorium*, AKA - Indian paint fungus) on the property has infected most of the older true fir on the property. A vigorous timber stand and / or rotations under 100 years are the best management strategy for keeping fir species healthy. Salvage harvest of infected or poor growing trees, favoring non-host species and stocking control will address the problem with heart rots. The fir engraver (*Scolytus ventralis*) has been moderately successful in causing mortality. As with all bark beetles, reducing or maintaining endemic populations of beetles is directly proportional to controlling the tree population on a given acre of land. Trees grown at high densities cannot be supported by a timber growing site forever and decadent trees are not able to supplant repeated beetle attack. Since moisture and nutrient inputs are fixed, the number of trees per acre must change because there is not enough to go around. The change always occurs in the form of mortality or preferably a harvest where the owners decide which trees survive. In the case of decadent trees it must be recognized that true fir are relatively short lived and the silver lining is the snag habitat that dying or decadent trees provide for wildlife. *Armillaria mellea* (discussed above) is a major cause of fir tree mortality on the parcel and will need to be addressed through salvage and tree planting of non-host or lesser host tree species. The parcel tree component has a high percentage

of true firs. Reducing this percentage and increasing other species will be beneficial to controlling many insect and disease pathogens that affect fir tree species.

Lodgepole pine: Ips, mistletoe and gall rust problems discussed in the Ponderosa pine section above, hold true for the lodgepole pine trees on the parcel.

Western white pine: White pine blister rust (*Cronartium ribicola*) was introduced to the nation and has found a perfect host in western white pine. As this species occurs on the parcel naturally, future planting of this species should use seed stock resistant to the disease. There is no viable control of this disease.

FOREST STAND DESCRIPTION/RECOMMENDATION

There are thirteen forest vegetative cover types on the parcel. One non-forest cover type is grassland (Map symbol *G*), and accounts for 658 acres of the parcel. There are twelve forest cover stand types that total 1730 acres. Odd numbered stand types are dry, pine dominated forest stand types. Even numbered stand types are mixed conifer types that occur on dry-cool to moist-cool sites.

From the late 1970's to present, management of the forest resource has been aimed at controlling the increase of white fir within forest stands. The natural cycle for the mixed conifer forest stands is to climax with true fir species and then be toppled by disease, replaced by fire and start the cycle over with young shade intolerant / fire tolerant species of larch and pine. Since wildfire is much less frequent today, silvicultural practices through timber harvest have been aimed at achieving similar results without the risk of losing other resource attributes. White fir is selected against during harvest activities in all stand types to promote longer lived and more disease and fire resistant species of Douglas-fir, western larch and ponderosa pine.

Forest Stand Type 1 –46 acres Stand Description: Ponderosa pine stand. Seed zone 863 / Elevation 3500 feet.

This forest stand is composed of Ponderosa pine with a very minor amount of Douglas-fir. The plant association representing this type is Ponderosa pine / snowberry, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is gentle sloped, and aspect predominantly south which provides for a warm and dry climate. The soil is stony Klicker. This is a medium productivity site, 300 bd. ft. / ac. / yr. potential, and site index 80 for Ponderosa pine. The timber stand averages about 80 years old and is stocked with an average of 50 trees per acre. Basal area ranges from 30 to 80 square feet with an average basal area of 70ft²/ac. Tree ages range from 50 to about 100 years old. Current growth rates are a moderate growing condition with an average growth of 20/20^{ths} of an inch per ten years. This growth rate is the desired growth rate.

Management Recommendation:

A sanitation / thinning harvest is recommended in the next few years. The last harvest was about ten or twelve years ago and captured a lot of mortality through commercial thinning. The next harvest should be scheduled to further reduce disease, improve growth after it slows and release natural regeneration. Focus on reducing the smaller, inferior tree component; particularly where tree crowns are limited and disease is present. The mature trees should be thinned to a stocking level of about 25 to 35 trees per acre or 50 square feet of basal area. Retain the healthy trees and remove the smaller trees with poor crowns or that have physical evidence of disease. This means that typically trees 12 to 20 inches DBH are harvested and the healthy 16 to 30 inch trees are retained since the age difference is negligible: The larger trees simply grew faster than their smaller neighbors. Residual slash from the harvest needs to be piled on landings and burned as soon as possible to prevent bark beetle spread.

Forest Stand Type 2 –400 acres**Stand Description: Douglas-fir, mixed conifer.****Seed zone 863 / Elevation 3200 feet.**

This forest stand is composed of Douglas-fir (65%), white fir (5%), ponderosa pine (15%), western larch (10%) and lodgepole pine / Englemann spruce (5%). Most of the gentle topography within this type have been harvested within the past 15 years. The plant association representing this type is white fir / twinflower, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography and aspect are variable but most of this type may be harvested by conventional tractor methods. Minor, steep slope, skyline or helicopter ground is noted as “2A” and has not been harvested for about 40 years. The soil is mostly Klicker with some areas of Tolo. This is a medium-high productivity site, 350 bd. ft. / ac. / yr. potential, and site index 80 for Ponderosa pine or Douglas-fir depending on aspect. The timber stand averages about 70 years old, stocked with an average of 90 trees per acre with an average basal area of 100ft²/ac. Tree size ranges from sapling to 36 inch DBH and tree age ranges from 10 to about 100 years old. There is minor mortality occurring in all size, age classes and species of trees. Small to medium size saw-timber comprises most of the trees size in this type. Current growth rates are good where more recent harvesting has allowed for better growing conditions. This type is dominated by Douglas-fir and dwarf mistletoe is the most prevalent parasite problem.

On Middle Ridge, all of the tractor harvest ground within this type was thinned summer of 2015. By virtue of reducing the white fir component in these stands, they remain dominated by Douglas-fir. All other areas of this type are in need of stocking control in the next two to ten years.

Management Recommendation:

A sanitation / thinning harvest is recommended in the next few years. This activity should focus on reducing the true fir tree component; particularly where signs of scolytus and armillaria damage are present. Favor pine and larch species that are healthy to replace white fir or mistletoe infested Douglas-fir. Retain mature firs only if crown density is robust and full. The immature tree segment of this type should retain the healthy trees and remove the smaller trees with poor

crowns or that have physical evidence of root rot damage. Residual slash from harvesting should be piled and burned to reduce fire hazard potential on the parcel. If a pulp market is viable some of the smaller trees may be utilized.

Forest Stand Type 3 – 49 acres

Stand Description: Medium density, pine dominated stand.

Seed zone 863 / Elevation 3200 feet.

Most of this type has not been harvested for about 40 years. The resultant forest stand is composed of Ponderosa pine (90%), Douglas-fir (8%) western larch (1%), and white fir (1%). The major plant association representing this type is Ponderosa pine - snowberry, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is fairly steep, mostly requiring alternate harvest systems (as denoted “3A”) and aspect predominantly south. The soil type is Klicker. This is a moderate productivity site, 300 bd. ft. / ac. / yr. potential, and site index 75 for ponderosa pine. The timber stand averages about 70 years old and is stocked with an average of 50 trees per acre. Basal area ranges from 40 to 80 square feet with an average basal area of 50ft²/ac. Tree ages range from 40 to about 120 years old. Small to large size saw-timber comprises the tree size throughout the type. Sparse natural regeneration is present throughout the stand.

A large portion of this type burned in the Phillips Creek Fire and is now typed as stand “21” on the skyline areas as they are not harvested and the minor tractor salvage areas have been re-typed as type “5”.

Management Recommendation:

A sanitation / thinning harvest is recommended in the next few years, however most of this remaining type is on skyline logging ground. It will require a high value market to have the logs pay their way to a landing AND the type is small enough that it must be harvested with adjacent skyline types to make it feasible. This activity should focus on reducing the smaller, inferior tree component; particularly where tree crowns are limited and disease is present. The mature trees should be thinned to a stocking level of about 40 trees per acre or 50 square feet of basal area. Retain the healthy trees and remove the smaller trees with poor crowns or that have physical evidence of disease, in particular, mistletoe or gall rust. Residual slash from the harvest needs to be piled on landings and burned as soon as possible to prevent bark beetle spread.

Forest Stand Type 4 – 141 acres

Stand Description: Medium density mixed conifer stand.

Seed zone 863 / Elevation 2800-3400 feet.

This type is a mixed conifer stand that has been thinned within the last twenty years. The resultant forest stand is composed of white fir (40%), Douglas-fir (25%), western larch (20%), ponderosa pine (5%), Englemann spruce (5%) with minor lodgepole pine and western white pine (5%). The major plant association representing this type is White fir / twinflower, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is rolling gentle to

moderate sloped, and aspect predominantly north and east. The soil types are Klicker and Tolo silt-loam. Past harvest, especially on skyline ground (Type 4A), removed most of the larger and older white fir trees due to poor health and disease. These are high productivity sites, 350 to 500 bd. ft. /ac./ yr. potential, and site index 80 or better for ponderosa pine on the Klicker soil and the same for Douglas-fir on Tolo soil. The timber stand averages about 50 years old (20 - 80 year range) and is stocked with an average of 100 trees per acre. Basal area ranges from 50 to 180 square feet with an average basal area of 80ft²/ac. Sapling to small size saw-logs (4 – 20 inch DBH) comprises most of the trees size throughout the type. The average diameter is 11 inches DBH. Minor root rot and some forest insect pests are causing continued mortality in the white fir.

Management Recommendation:

This is the highest priority stands to salvage harvest on the parcel. It may take a few more years before the skyline type may be feasible to harvest. On tractor ground, time thinning with good pulp and pole markets if possible. Monitor yearly for growth and health attributes. The present stand density is acceptable but root rot and the heavy composition to true fir make this stand highly susceptible to increasing tree mortality from bark beetle. Favor larch and pine species that are healthy to replace white fir or Douglas-fir with mistletoe, particularly where crowns are thinning noticeably. Remove trees with poor crowns or that have physical evidence of root rot damage. It may be beneficial to identify portions of this type for small patch cuts and reforest with non-host species to prevent continued losses to root rot mortality. Slash should be mulched and / or piled and burned as soon as possible so residual slash from harvesting does not add to fire hazard potential on the parcel.

Forest Stand Type 5 – 43 acres

Stand Description: Medium density pine stand.

Seed zone 863 / Elevation 3200-3400 feet.

Most of this type has not been harvested for about 20 years. The resultant forest stand is composed of Ponderosa pine (85%), Douglas-fir (10%) western larch (5%). The major plant association representing this type is Ponderosa pine - snowberry, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is fairly steep, requiring some alternate harvest systems (as denoted “5A”) and aspect predominantly south. The soil type is Klicker. This is a low to moderate productivity site, 200-250 bd. ft. / ac. / yr. potential, and site index 75 for ponderosa pine. The timber stand averages about 70 years old and is stocked with an average of 35 trees per acre. Basal area ranges from 10 to 70 square feet with an average basal area of 40ft²/ac. Tree ages range from 40 to about 90 years old. Pole to medium size saw-timber comprises the tree size throughout the type. Sparse natural regeneration is present throughout the stand. Portions of this type were burned over during the Phillips Creek Fire. As a result of fire salvage, the lower stocking rate has re-typed this from Type 3 to Type 5.

Management Recommendation:

These are low priority areas for harvest. Monitor this type for stand health. Due to the small size of stands, they will be treated with adjacent stands for efficiency should the need arise. The low

volume of the stands are best manipulated through selection harvest. Planting is not optimal due to shallow and rocky soil characteristics.

Forest Stand Type 6 – 706 acres

Stand Description: Medium density mixed conifer stand.

Seed zone 863 / Elevation 2800-3800 feet.

This type is a young mixed conifer stand that have been thinned within the last twenty years. It is the largest stand type on the property as a result of multiple salvage and thinning harvests. The resultant forest stand is composed of white fir (70%), Douglas-fir (15%), ponderosa pine (5%) western larch (5%), lodgepole pine (2%) and Englemann spruce (3%). The major plant association representing this type is White fir / twinflower, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is relatively flat, and aspect predominantly north and east. The soil types are Klicker and Tolo silt-loam. The last harvest, especially on skyline ground (Type 6A), removed most of the larger and older white fir trees due to poor health and disease. These are high productivity sites, 350 to 500 bd. ft. /ac./ yr. potential, and site index 80 or better for ponderosa pine on the Klicker soil and the same for Douglas-fir on Tolo soil. The timber stand averages about 50 years old (20 - 60 year range) and is stocked with an average of 220 trees per acre. Basal area ranges from 30 to 140 square feet with an average basal area of 60ft²/ac. Sapling to small size saw-logs (4 – 20 inch DBH) comprises most of the trees size throughout the type. The average diameter is 8 inches DBH. Most of the stands are growing at reasonable rates, however root rot and some forest insect pests are causing continued mortality in the white fir.

Management Recommendation:

Most of this type is comprised of poles and small logs and will require some stocking control over the life of this management plan. It will take a few more years before the skyline portion may be feasible to harvest. On tractor ground, time thinning with good pulp and pole markets. Monitor yearly for growth and health attributes. The present stand density is good but root rot and the heavy composition to true fir make this stand highly susceptible to increasing tree mortality, particularly through periods of drought. Plan on tractor harvests over the next few years and likely at least ten years to treat any skyline stands (6A) and get some control of disease. Favor larch, pine and Douglas-fir species that are healthy to replace white fir. Remove trees with poor crowns or that have physical evidence of root rot damage. It may be beneficial to identify portions of this type for small patch cuts and reforest with non-host species to prevent continued losses to root rot mortality. Slash should be mulched and / or piled and burned as soon as possible so residual slash from harvesting does not add to fire hazard potential on the parcel. There are many small islands of sapling and small pole size trees within this type that need pre-commercial thinning. Attempt to treat all size classes with each harvest entry in order to maintain good growth at the stand level.

Forest Stand Type 8 –23 acres

Stand Description: Young, high density mixed conifer stand.

Seed zone 863 / Elevation 3200-3600 feet.

This small type is a young mixed conifer stand that has not been harvested within the last ten years but has had portions of the stand pre-commercially thinned. During the last harvest, most of the mature trees were removed and the residual forest stand is composed of white fir (75%), ponderosa pine (5%) Douglas-fir (15%) and western larch (5%). The major plant association representing this type is White fir / twinflower, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is fairly gentle, and aspect predominantly north and east. The soil type is deep Tolo silt-loam. These are high productivity sites, 500 bd. ft./ac./ yr. potential, and site index 85 for Douglas-fir or larch. The timber stand averages about 25 years old (10 - 35 year range) and is stocked with an average of 500 trees per acre. Basal area ranges from 20 to 100 square feet with an average basal area of 70ft²/ac. Sapling to small poles (1 – 12 inch DBH) comprises most of the trees size throughout the type. The average diameter is 6 inches DBH. Current growth rates indicate a good growth condition with a declining average of 24/20^{ths} of an inch per ten years. Tree health is only fair as root rot and some forest insect pests are causing mortality.

Management Recommendation:

Monitor yearly for growth and health attributes. The present stand density is high with root rot and the heavy composition to true fir make this stand highly susceptible to increasing tree mortality. Plan on more pre-commercial thinning and perhaps a pulp entry to capture mortality. Favor larch and pine species that are healthy to replace white fir. Remove trees with poor crowns or that have physical evidence of root rot damage. Slash should be mulched and / or piled and burned as soon as possible so residual slash from harvesting does not add to fire hazard potential on the parcel.

Forest Stand Type 10 – 4 acres

Stand Description: Fire salvage reforestation site.

Seed zone 863 / Elevation 3600 feet.

This type is a mixed conifer stand that was salvage logged Fall of 2015 where most of the mature forest was burned by wildfire. The resulting stand condition is understocked. Species composition is roughly white fir (5%), Douglas-fir (45%), ponderosa pine (25%) and western larch (25%). The major plant association representing this type is White fir / twinflower, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is relatively flat and aspect variable. The soil type is deep Tolo silt-loam which is a high productivity site, 400 to 500 bd. ft./ac./ yr. potential, and site index 80 for Douglas fir or ponderosa pine on the minor south exposures. The forest stand averages about 60 years old (30 - 70 year range) and is stocked with about 15 trees per acre. Basal area average of 20ft²/ac.

Management Recommendation:

Get these areas back into production. Trees area ordered to plant these areas with ponderosa pine, western larch and Douglas-fir seedlings during the Spring of 2015. Planting on a 12 foot

spacing and follow up with spot herbicide treatment will reduce competing vegetation effect and allow for faster tree establishment.

Forest Stand Type 20 – 145 acres

Stand Description: Wildfire skyline mixed conifer.

Seed zone 863 / Elevation 3200-3600 feet.

This type is a mixed conifer stand, on steep growing sites that experienced mild to severe fire mortality from the 2015 wildfire. No salvage has been possible due to the shortage of line logging contractors and the depressed log market. The resultant forest stand is going to range from total loss of tree cover to low stocking of mature tree cover (5 to 20 trees per acre). The major plant association representing this type is White fir / twinflower, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is steep, and aspect variable. The soil types are Klicker and Tolo silt-loam.

Management Recommendation:

Plant the areas that burned with the greatest intensity and have the best soil types / productivity. Plant pine, Douglas-fir and larch on a twelve foot spacing. Follow up with a spot application of velpar to reduce plant competition and help with tree establishment.

Forest Stand Type 21 – 98 acres

Stand Description: Wildfire skyline pine.

Seed zone 863 / Elevation 3000-3600 feet.

This type is mostly a low volume pine stand, on steep growing sites that experienced mild to severe fire mortality from the 2015 wildfire. No salvage has been possible due to the shortage of line logging contractors and the depressed log market. The resultant forest stand is going to range from total loss of tree cover to low stocking of mature tree cover (5 to 15 trees per acre). The major plant association representing this type is ponderosa pine / snowberry, as classified by *Plant Associations of the Blue and Ochoco Mountains*. Topography is steep, and aspect southerly. The soil type is Klicker. Some of the surviving trees may naturally seed portions of this stand type.

Management Recommendation:

Planting is an option, although the growing sites are rocky and shallow soil types. Planting the more productive sites in Stand 20 is a better investment. Plant pine, on a twelve foot spacing. Follow up with a spot application of velpar to reduce plant competition and help with tree establishment.

Forest Stand Type A – 1.0 acre
Stand Description: Aspen Patch
Seed zone 863 / Elevation 3500 feet.

This type is a clump or small patch of Aspen. It is surrounded by mixed conifer forest type. Over time, these clumps will naturally convert to full mixed conifer forest cover as the aspen is shaded out. These are high productivity sites capable of producing, over 300 bd. ft. /ac. / yr. and site index 80 for ponderosa pine. Aspen is not a commercial tree species, however, these patches are relatively small and add a lot of aesthetic value and diversity for wildlife. Thus making them unique and important additions to the property.

Management Recommendation:

If the aspen are not desirable, simply allow the conifers to encroach on the clumps and the aspen will die out over time. If the aspen are desirable, maintain some or all of the clump, remove conifers within and around the edges to promote aspen growth and regeneration. Tree removals may take place during scheduled harvest activities. Past harvesting has been aimed at promoting this aspen patch.

Forest Stand Type RF –74 acres
Stand Description: Riparian Forest
Seed zone 863 / Elevation 3200 feet.

This forest type is a result of both forest practice rules and the physical environment found along the larger and fish-bearing streams on the property. This cover type has not only mixed conifer species but also a high concentration of black cottonwood. It is recognized as a separate cover type since management is dictated by state riparian rules to promote larger tree retention and buffer any activity within 20 feet of the high water mark. Outside the 20 foot buffer, between 50 and 100 square feet of basal area per 1000 feet of stream segment are required. These requirements are intended to improve water quality and fish habitat. Activities on adjacent forest types should take into consideration the importance of riparian needs and requirements dictated by state forest practice rules.

HARVEST SYSTEMS, ACCESS and ROADS

The high gradient topography and current road locations allow for logging on the parcel to be accomplished through conventional (tractor / crawler) methods and cable or helicopter yarding on the steep terrain. Logging systems are typically dictated by slope of the terrain. The distinction between logging systems is made for the safety of equipment operators as well as protection of natural resources. On sustained slopes over 50 percent, skyline or helicopter yarding is the method used to remove trees from the forest and deliver them to a landing. The landing is where whole trees or sections of trees are further manufactured (limbed and bucked) into logs that are then ready to be loaded on a logging truck and hauled to a milling facility. On slopes less than 50 percent, conventional harvesting equipment is used to move trees from the forest to a landing.

The property has good access from the improved Forest Service, Phillips Creek Road through the central portion, Middle Ridge Road in the northeast and Sanderson Springs Road from the south. Right-of-ways (ROWS) have been granted to make full use of each of these road systems. Phillips Creek Road requires commercial use permit from the US Forest Service for log hauling. Use of the Middle Ridge and Sanderson Springs road systems are based on reciprocal ROW's for all types of use. Use of Middle Ridge benefits the ranch and Hancock Management benefits from ROW's off of Sanderson Springs. Also, a ROW was granted by neighbor, Rodger Phelps on the end of Sanderson Springs Road in lieu of riding privileges. The Craig family also has a reciprocal ROW since the road system passes through both ownerships.

During harvest activities, the steep terrain requires access using dedicated spur roads through the parcel. Since they are native surface they may only be used on a seasonal basis, when soil conditions are dry or frozen, in order to prevent road failure and excessive damage. The practice of minimizing or eliminating wet soil condition travel on the seasonal roads and trails through the property will benefit the soil resource and seasonal road surface integrity. There are minor signs of rutting and washing on these roads at present and evidence that past travel activity did not mind the soil condition.

One bridge has been installed on the Bailey Creek haul route to remove a culvert that was serving as a blockade to fish passage. This was the only culvert on roads managed by the ranch. The only remaining culverts are under the Forest Service Road (Phillips Creek) that drain all of the draws entering Phillips Creek. All other creek crossings are fords that appear to work well for the limited amount of traffic.

If better developed all-season roads for continual use are desired in the future they should incorporate a rock surface, such as the Forest Service road, and have rock armored rolling dips for adequate drainage. Rolling dips are drainage features that work well on open roads and are passable by all manner of traffic. Rolling dips are similar to a water bar: Water is directed away and off of the road. Unlike a water bar or culvert, rolling dips are incorporated into the road base and armored with gravel or rock to prevent failure from rutting or being flattened from continual use. Most often, even the use by wildlife and livestock will cause water-bars to fail on roads. Another benefit to using rock-armored rolling dips is the fact that they replace culverts and eliminate the chance for plugging of a culvert that may otherwise rut or wash out a section of road.

The post-harvest practice of water barring skid trails after logging and seeding them with grass is acceptable. This will prevent excessive moisture runoff on exposed soils. Future ground disturbing activities (harvesting - heavy equipment use) should make use of old skid trails and roads where possible to prevent unnecessary soil disturbance. While harvest activities are taking place the opportunity should be taken to make road improvements. There are many easily accessible rock sources on the ranch and this approach will improve existing roads in conjunction with other activities and help achieve reduced soil loss and an improved transportation system in a timely and coordinated manner.

WILDFIRE PROTECTION / FUEL MANAGEMENT

The best way to handle a forest fire is to *prevent* one from occurring. Conducting activities, using fire-safe equipment, within the operational periods specified by the Oregon Department of Forestry will help prevent a potential fire from starting. If a fire is started or observed it should be reported immediately by dialing 911 or the local Oregon Department of Forestry for Union County (541-963-7171).

After the extreme 2015 wildfire season and having the Phillips Creek Fire burn over 300 acres of the ranch resulting in varying degrees of damage the scars from this event will serve as reminders for many years.

Prevention only accounts for human activities within the scope of your ownership. Since the parcel borders many private landowners and neighbors the national forest on the north side, there are many directions from which a fire start may come. Since natural fire events are a part of the landscape, fuel management and planning for potential fire starts is the other part of the equation. Due to the need for commercial thinning in stand Types 4 and 6 and pre-commercial thinning in stand Types 6 and 8, there is a high density of available fuel for a fire event and a greater chance of a stand replacement fire where most or all of the trees are destroyed. Thinning will help keep individual trees healthy and allow for growing space, in addition to gaining a better chance of preventing an uncontrollable fire event. When vegetation is managed, particularly large vegetation such as trees, controlling fuel for a potential fire event should be considered. How fuels (live or dead vegetation) are situated across a landscape and the steep topography will be a major deciding factor on how a fire will behave. Topography (slope and aspect) may not be altered even though it has a lot to do with how a fire will react to available fuel (trees, down logs, etc). Vegetation, and how it is arranged across the landscape, may be altered to reduce the potential negative effects of fire. In simplest terms, *space* is the key to altering fuel loads and reducing fire hazard. Space between trees and slash (fuel), whether it is a gap between ground fuel and tree limbs (ladder fuel), or an area such as a road that breaks up fuel continuity, helps reduce fire hazard. The amount of fuel (typically measured by tons per acre) will increase potential fire hazard much the same way that a barn full of hay bales increases the risk of having an uncontrollable fire in contrast to a barn with few or no bales of hay. This fuel is a heat source when ignited. By reducing available fuels from forest stands, the amount of potential heat generated is also reduced. Thus, making fire suppression efforts more likely to succeed.

All harvest or thinning activities should address slash accumulation and disposal issues. Because of proximity to other developments and high human activity in the area, extra precaution should be taken to insure against potential fire starts. It is recommended on all projects that any resulting slash is mulched or piled for burning at appropriate times of the year. Mulching slash and excess brush will create a natural fertilizer for the site and the mulched slash will decompose faster because it is making contact with the ground. *Most state cost-shared thinning and fuel treatment activities require that slash is piled or mulched, which limits fuel management practices to these two methods if using state assistance.*

In the event of a fire, it is best to have a properly maintained road system with good access to the property and water sources such as ponds. Water availability will increase the potential for suppressing any fire starts. Maintaining roads or trails by preventing brush encroachment will help provide defensible spaces to promote suppression efforts as well as access for fire crews and vehicles *when* a fire event occurs.

PROPOSED ACTIVITIES 2016 – 2026

Following is a summary of planned activities for the next ten years. Each activity is priority ranked:

- (1) = High, conduct annually or within three years.
- (2) = Medium, conduct within three to five years.
- (3) = Low, conduct as ongoing, needed or desired improvement.

- (1) Plant type 10, fire salvage area, to promote forest production. Spring 2016 & 17.
- (1) Commercial thinning harvest in Forest Type 4, west of Phillips Creek. Year 2016-17.
- (1) Pre-commercial thinning in Forest Type 8. Year 2016-18.
- (2) Plant type 20 & 21 for forest production. Spring 2017-20.
- (2) Salvage in types 2, 4, and 6 to capture mortality. Year 2018 – 2025.
- (2) Commercial thinning harvest in Forest Type 4, SE of Phillips Creek. Year 2018-19.
- (3) Thin / salvage type 1 and 3 as needed (2020-25)
- (3) Improve range forage through grass seeding. As desired.
- (2) Maintain / update perimeter and pasture fences. Year 2016-18.
- (1) Monitor for presence and manage noxious weeds. Annually.
- (1) Monitor for continued fuel hazard reduction. Annually.
- (1) Improve water availability; pond holding capacity and spring water sources.
- (3) Improve road surface and drainage features. 2017-2025
- (1) Develop Grazing Plan and append to forest management plan. 2016

Additional items of concern must be addressed as they arise based on actual current forest stand and parcel conditions. Environmental variations must also be recognized. As such, all out-year planning is limited to current stand conditions and anticipated future outcomes. In addition, market conditions will play a role in the timing of stand management and the effect this has on the landowner must be accounted for in the planning process.

REGULATORY COMPLIANCE

Most forest activities require a notification to ensure compliance with current forest regulations. Compliance is particularly important where there is risk of wildfire associated with a forest activity. Notification of activities reduces personal risk exposure to actions that may otherwise be deemed negligent. It is highly recommended that, as an active landowner and resource manager,

a copy of the Oregon Forest Practice Rules be obtained or downloaded from the internet;
<http://www.oregon.gov/odf/privateforests/pages/fpaguidance.aspx>.

STATE OF OREGON
PERMIT and NOTIFICATION REQUIREMENTS

Oregon Revised Statute, ORS 477.625 states that every person conducting an operation using power-driven machinery shall first obtain from the State Forester a written permit for the calendar year. “Operation” means any industrial activity, development, and improvement on or within one-eighth mile of forest land. “Forest land” means any forested land, woodland, brushland, cutover land, and land clearing which during any time of the year contains enough flammable forest growth, slash, or debris to constitute a fire hazard.

Operations requiring permits are:

1. Logging
2. Sawmilling
3. Clearing of land on rights-of-way
4. Thinning and/or pruning
5. Well drilling
6. Blasting
7. All uses of fire in any form

Oregon Revised Statute, ORS 527.670 states that an operator, timber-owner, or landowner, before commencing an operation, shall notify the State Forester. “Operation” means any commercial activity relating to the growing, harvesting, or processing of forest tree species. In addition, this notification will be required at least 15 days prior to commencement of the operation.

Operations requiring notifications are:

1. The harvesting of forest crops
2. Road construction or reconstruction of existing roads
3. Site preparation
4. Application of insecticides, herbicides, rodenticides, and fertilizers
5. Clearing forest land for change to non-forest use
6. Treatment of slashing after completion of operations
7. Pre-commercial thinning or release

Both the “Permit to Operate Power-Driven Machinery” and the “Notification of Operation” can be filled out on the same form at offices of the State Forester. The local office for these permits is located at: Oregon Dept. of Forestry, 611 20th St. La Grande, OR 97850. Phone: 541-963-3168

ASSISTANCE for ACTIVITIES

A wide variety of assistance is available to land owners planning improvement activities on their property. Financial cost-share assistance is available for riparian improvements, tree planting, pre-commercial thinning, fuel hazard reduction, range improvements and many other activities. Educational and technical assistance is also available on a wide variety of resource topics.

NRCS PLAN APPROVAL

Completing this forest management plan is the first step in completing an approved Conservation Activity Plan (CAP) – Forest Management (also known as a Forest Management Activity Plan) through the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). An approved CAP improves your priority in accessing voluntary technical and financial assistance available through NRCS and local Soil and Water Conservation District programs.

CONCLUSION

The overall forest condition is fairly good. Stand types 4 and 6 has the greatest mortality and loss of growth but this trend may be reversed through salvage and thinning in the near future.

Stocking control in all stands by leaving dominant, good-form quality and healthy trees (thinning from below) will result in larger average diameter trees and higher residual stand value. Stocking control will move these forest stands closer to functioning as a healthy forest and improve forage production for wildlife and livestock. In addition to better growth rates and improved overall stand health, thinning and stocking control will help maintain the aesthetics of the parcel with larger tree sizes. Also, the longevity of the forest will increase by providing nutrients and space for positive growing conditions and reduce the likelihood of stand replacement fires.

Planting where low tree stocking is an issue, particularly where the Phillips Creek Fire occurred, will help promote desired species mix and get low stocked or disease areas back into productive forests sooner. However the course of action, these sites will eventually revert to forests again.

Timely implementation of the recommended harvest and resource improvement projects will further enhance the many resources that this property has to offer and ensure better resource production and financial rewards for years to come. Following the recommendations in this plan will help ensure that desired conditions, goals and objectives are realized.

MAPS & APPENDICES

APPENDIX A

GLOSSARY of TERMS

Age Class – One of the intervals into which the range of ages of trees in a stand are divided into for descriptive purposes.

Annual ring – The growth layer of one year on a tree, as viewed on the cross-section of a stem, branch, or root. One year's growth consists of a layer of lighter-colored wood (springwood) and a layer of darker-colored wood (summerwood).

Aspect – The direction toward which a slope faces (north, south exposure).

Basal area – a. The cross-sectional area of the bole of a tree 4.5 feet (breast height) above the ground. It is expressed in square feet per acre and is calculated by: diameter of tree squared times .005454.

b. The sum of all the individual tree basal areas for a stand of trees; it is expressed as "square feet of basal area per acre". This serves as an indicator of how well a stand is occupying a given piece of land.

Blowdown – Trees that have been knocked over by wind.

Blue stain – A fungus discoloration, predominantly bluish, but sometimes grayish or brownish in appearance; it is confined almost exclusively to sapwood, usually in pines. Blue stain is usually introduced to trees by bark beetles boring into the inner bark and cambium.

Board foot – A volume measure of lumber: 1 foot wide by 1 foot long by 1 inch thick.

Bole – The main trunk of a tree.

Cambium – A layer of cells between the woody part of the tree and the bark. Division of these cells results in diameter growth of the tree through formation of wood cells (xylem) and inner bark (phloem).

Commercial thinning – A forest operation that consists of removing sawtimber-sized trees from a developing young stand that is in need of thinning. The harvested trees have a commercial value.

Conk – A hard, spore-bearing structure (mushroom) of a wood-destroying fungus which projects outside the bark of a tree. It is most commonly observed on fir trees.

Conventional harvest – Harvesting timber by methods using ground based (tractors) equipment, whether it be forwarders, processors, feller-bunchers and / or skidders.

Crown – The canopy of green leaves and branches formed by a tree. The amount of ground shaded by crowns is often referred to as “crown cover” and is expressed as a percent of the total ground area shaded.

Crown closure – When a stand of trees grows to a point that individual tree crowns are crowded or intermingled. Typically a condition of over stocking and slow tree growth.

Crown ratio – The amount of functional live tree crown in proportion to the total height of the tree.

Cruising timber– Measuring standing trees to determine the volume of wood on a given tract of land (in thousands of board feet). Used for harvesting, purchasing, and general management.

Cull – A segment of, or the entire, tree that does not have any commercial wood value.

DBH – Diameter of a tree outside the bark at breast height, which is 4.5 feet off the ground on the uphill side of the tree.

Defect – Any irregularity or imperfection in a tree or log that reduces the volume of sound wood and consequently reduces the volume cruised (and scaled) from the tree.

Delivered value – The value of logs at a milling facility (AKA – Pond Value) without consideration of delivery cost.

Even-aged – Refers to a stand of trees in which relatively small age differences exist between individual trees.

Forest type – A descriptive term used to group tree stands of similar character in composition and development, differentiating them from other stands.

Fuels – Any herbaceous material, slash, etc. that may promote a wildfire. In terms of fuel or fire hazard rating, the greater the fuel load, the greater the hazard for uncontrollable fire events.

Gall or Canker – Hardened round limb or bole deformities that weaken trees and reduce timber values.

Ladder fuel – Foliage, live or dead, that is arranged so that fire may climb from the ground into the crowns of trees.

Large saw timber – Trees with commercial harvest value, larger than 20” DBH.

Landing – An opening large enough to process logs from trees skidded from the woods, deck logs for hauling to a mill and piling slash.

Leader – The growing top (terminal shoot) of a tree. The distance between each whorl of branches up a tree's stem generally represents one year of height growth.

Leave trees – Trees left after a harvesting operation.

Log deck – A stack or pile of trees that have been processed into logs for milling.

Mature – The age at which a tree's growth rate begins to decline, and decay begins to reduce salvageable tree volume in a stand. This occurs sometime between 90 and 200 years of age.

MBF – Abbreviation for 1000 board feet.

Merchantable timber – Trees that can be converted into saleable products. Generally this includes trees 10" DBH or greater. Also referred to as "sawtimber".

Overstocked – A condition of a stand, indicating that there are more trees present than desired.

Overstory removal – A type of harvest designed to remove larger and over-mature trees which overtop the remainder of the stand.

Percent slope – The amount of vertical rise or fall, measured in feet, over 100 feet of horizontal distance: ie, 20 percent slope = 20 foot rise over 100 feet.

Pole timber – Trees with a DBH of approximately 6-11".

Pre-commercial thinning – Removal of some of the trees in a young stand to reduce overall competition for water and nutrients. Trees thinned from these stands have no commercial value, hence are "pre-commercial".

Pulp – Pole size and larger trees that have no saw timber value but may be chipped for converting to pulp and ultimately processed to make paper products.

Reforestation – The natural or artificial restocking of an area with forest tree species. The natural restocking of a site is often referred to as "natural regeneration".

Residual stand – Trees, often of commercial size, left in a stand after thinning to grow until next harvest. Also referred to as "leave trees", these trees are also important for natural regeneration of a site.

Riparian zone – An area or fringe parallel to a water body / stream that is essential to proper riparian function.

Sanitation/salvage harvest – An operation in which trees that are dead or in poor condition are harvested before they no longer have any commercial value. This is common where insect-infested or diseased timber is dying or is already dead and should be removed from a stand. This practice also releases healthy trees for additional growth and cleanses the stand of disease.

Sapling – a tree that is 1 to 5 inches DBH.

Second growth – a forest of trees that develops after harvest of the original stand (which often was “old growth”). These stands are generally between 40 and 90 years of age. Also a stand of tree that are less than 30 inches DBH and do not have old-growth characteristics.

Seedling – Any tree, either naturally existing or hand planted that is less than 1” DBH.

Seed Zone – Areas of relatively similar growing conditions established for designating where seed stock was collected and where the sown seedlings should be planted.

Site index – A measure of forest site quality, based on the height (in feet) that dominant trees reach at a given age. It is generally expressed in 50 or 100 year site index. Site index is an indication of the productivity of a forested site. Site indexes are often grouped in “site classes”, which give a numerical rating of a site’s productivity, generally from I to VII, with 1 being the highest productivity and 7 the lowest.

Skid – Yarding or pulling trees or logs to a landing, typically with a tracked or rubber tired tractor also called a “skidder”.

Skyline Harvest – A log yarding system that uses cables suspended above the ground by fastening the trailing end to a spar tree. The running end of the cable is fed out to retrieve logs by a motorized yarder with a spool of wire rope.

Slash – Tree tops, branches, bark, and other debris left after a forest harvest operation.

Small Saw timber – Trees with commercial harvest value, generally 12 to 20” DBH.

Stagnation – The condition in a stand where tree growth occurs at a very slow rate due to close tree spacing (overstocking) and high competition.

Stand – A group of trees in one geographic area which are uniform enough in species composition, age, and arrangement to be distinguishable from adjoining areas of forest.

Stand density – A relative measure of the amount of tree stocking on an area compared with other areas.

Stumpage value– The value of timber after it has been harvested in the woods and delivered to a milling facility.

Thinning – Cutting in a stand to increase the growth rate of the leave trees. It can be pre-commercial or commercial depending upon whether the trees removed during thinning have a commercial value.

Timber – A term loosely applied to forest stands or their products; also wood in forms suitable for heavy construction (beams, poles or pilings).

Understory – That portion of the trees or other vegetation in a forest stand below the dominant or mature canopy.

Uneven-aged – Term applied to a stand in which there are considerable differences in the age of the trees present.

Whole tree skidding – Removing entire trees from the woods to a landing for processing into log form, and eventual hauling to a mill. This method helps reduce slash in the woods and places it on the landing for piling or chipping.

Yarding – Pulling trees or logs to a landing with a cable. Generally this term applies to skyline and helicopter applications where logs are suspended in the air.

APPENDIX B

COMMON TREES of EASTERN OREGON

All plants are given Latin names. This is to ensure some degree of clarity among resource professionals when referring to a particular species; because common names are not specific and are quite often “localized” a scientific name for a plant remains the same throughout the World.

<u>Latin Name</u>	<u>Common Names(s)</u>
Abies concolor*	White fir
Abies grandis*	Grand fir
Abies lasiocarpa	Subalpine fir
Betula occidentalis	Water birch
Juniperus occidentalis	Western juniper
Larix occidentalis	Western larch, Tamarack
Picea engelmannii	Engelmann spruce
Pinus albicaulis	Whitebark pine
Pinus contorta	Lodgepole pine
Pinus flexilis	Limber pine
Pinus monticola	Western white pine
Pinus ponderosa	Ponderosa pine, bull pine, yellow pine
Populus tremuloides	Quaking aspen
Populus trichocarpa	Black cottonwood
Pseudotsuga menziesii	Douglas-fir, Red fir
Tsuga mertensiana	Mountain hemlock

* Grand fir and White fir are hybridized in this region

APPENDIX C

COMMON MARKETS FOR LOGS - BLUE MOUNTAIN REGION

Blue Mtn Lumber Products

P.O. Box 1161, Pendleton, Oregon 97801
Contact: Ed Pearson 969-7945
OFFICE# 541-276-4304

Boise Corporation

1917 Jackson Ave, La Grande, Oregon 97850
Contact: Bruce Skvarch, 786-1319, Office #541-962-2044 / Fax 962-2002
OR: PO Drawer AA, Pilot Rock, OR 97868. Contact: Tony McKague, c/969-6026. Office #541-443-5647 - 3430 / fax 443-3432

Malheur Lumber Company

P.O. Box 160, John Day, Oregon 97845
Contact: Jeff Maben 620-1503, Office # 800-238-5469 / 541-575-2921

Grant Western / Prairie Wood POB 730, John Day, OR 97845
Contact: Dan Bishop 620-0332 or Ken
Speakman 620-1353 / 541-575-2811

Teevin Bros. Umatilla Yard // PO BOX 247, Rainier, OR
Eric Oien 360-880-1003 or Mike Jacobson 503-741-0057

Integrated Biomass David Schmidt; 541-886-4321

High Country Post & Pole Owner; Ron Ledbetter; 541-805-9279

Forest Recovery, Inc. Clarkston, WA 99403
Contact: Bob Kennedy c/ 509-780-9803, o/ 509-758-9458

Parma Post & Pole Hwy 95, Parma, ID
Owner; Mike Sterling, 208-722-6837 / fax 722-5267

Guy Bennet Lumber POB 130, Princeton, ID 83857
Contact: Tom Biltonen; 208-875-1121
POB 670, Clarkston, WA 99403
Contact: Dave Fritts c) 509-751-7941
Office # 509-758-5558 fritts@blpi.com

The Boise Cascade timber contract ended in 1976. At about that time Jerry Chandler started harvesting some of the remaining timber on steep ground. Jerry died in a logging accident in 1977. In 1978 John Herbst was hired to manage the timber with Bill Chandler's oversight.

The Boise long term contract that ended in 1976 allowed them to remove all merchantable trees. Boise harvested timber right up to the end of the contract. There were two results of that practice. From a forest management perspective, it had been many years since there had been a timber harvest resulting in a tree species understory that was skewed to white fir due to its tolerance for shade. From a harvest perspective, it was difficult to find enough long logs to provide a base for a load of logs.

The forest management objective was not specifically spelled out. Because there were mostly smaller sized trees that grew in volume rapidly (trees' teenage years) they were harvested more or less when there was a need for income for college education for the next generation. If there was a need for the salvage of dead and dying trees due to insect or disease that was done. There was one stand of large white fir on very productive ground that was good mainly for pulpwood. With a good pulpwood market in the late '70's early 80's, it was harvested so that more desirable species could start occupying that area.

A forest management objective while achieving the income objective was to rehabilitate the stands of trees. This meant leaning heavily to selecting white fir for harvest to make more room for species more desired for the sites such as Douglas-fir, western larch and ponderosa pine. The most recent harvests were to salvage white fir that was experiencing high mortality rates.

A few of the stands had a high enough growth potential to have some western white pine. White pine blister rust is in this area, and the few trees remaining following the Boise harvest were dying. A couple of hundred rust resistant white pine seedlings were planted throughout the area. There are also some natural seedlings and saplings present.

The fences were in bad shape as there did not appear to be much grazing taking place. Water is a limiting factor in being able to utilize much of the forage available. Several ponds were dug throughout the property, but they were mainly good for catching snowmelt. Due to the high cost of rebuilding fences and the lack of water, grazing was not pursued.

Water, streams and fish became an issue during this time period. Several grants were obtained to improve streams. This involved stream improvement by placing large wood, mostly root wads and improving fish passage on Bailey Creek by removing culverts that prevented fish passage and placing a bridge across the stream. Oregon Fish and Wildlife has been doing steelhead surveys on Phillips Creek for many years and have consistently found redds (fish nests) within the ranch reach.

Easements were obtained from several neighbors during the past 35+ years. In some cases they were reciprocal meaning if a neighbor would need to access portions of their lands across the ranch, we would trade easements. Some neighbors did not need easements, but they provided an easement to the ranch in return for permission to ride horses or ATVs on the property. Part of the verbal agreement was that they would report any suspicious activities on the ranch. One small owner would not provide an easement. He is a California realtor and thought it might devalue his property. The road is presently considered a historic use road so this may not be an issue.