

NORTH CASCADE DISTRICT



“STEWARDSHIP IN FORESTRY”

FY 2016 ANNUAL OPERATIONS PLAN

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OVERVIEW

This plan describes the activities and outcomes that Oregonians can expect to see on the Santiam State Forest for 2016. We welcome your comments, and will use them to improve this plan within the scope of the Department's authority, in alignment with the longer term overarching plans, and bounded by budgets and staff resources.

The Santiam State Forest is an actively managed forest, valued by many Oregonians for its mixture of environmental, economic, and social benefits. This plan supports this mixture and provides a balance of these benefits as required by Oregon Administrative Rule (OAR 629-035-0020). We strive to manage the forest sustainably, so that the benefits from the forest can be delivered into perpetuity. The forest harvesting is planned at a sustainable level; a level that our computer models suggest can be harvested year after year without reduction.

Forest habitat is expected to develop so the forest has a mixture of habitat types for all of Oregon's native wildlife. Recreational opportunities are diverse and high quality, allowing for off-highway vehicles, bicycling, hiking, hunting, horseback riding, and more, striving to minimize user and environmental conflicts in the context of a working forest.

Managing a large public forest has its challenges. In addition to the challenges of providing the opportunities described above, the forest is expected to be financially self-supporting. About two-thirds of the revenues from state forest timber sales go to local counties and other taxing districts, including schools. ODF uses the remaining third of the revenue to manage the forests and keep them healthy, through activities including fire protection, tree planting, thinning, research and monitoring, recreation services, road maintenance and stream improvement. Current financial constraints are currently limiting many activities and you will see this theme throughout the year's plan. We are striving to continue to provide the current opportunities, and are considering a few opportunities for change.

Every year in the Santiam State Forest, we learn new things and find new challenges and opportunities. In preparing this plan, we have consulted with geotechnical specialists, wildlife biologists, fish biologists, aquatic specialists, engineers, adjacent landowners, and a variety of interest groups.

Over the next two months, ODF will request review and comments on our plan from others, including Linn, Marion and Clackamas County Commissioners, the Forest Trust Land Advisory Committee (representing the counties that deeded land to ODF), the State Forests Advisory Committee (SFAC - composed of Oregonians representing many interests), Oregon Department of Fish and Wildlife, the US Fish and Wildlife Service, motorized and non-motorized recreation users, hunters, fishermen, and wildlife advocates, as well as Oregonians in general.

During this time, we want to hear your feedback and suggested revisions. In addition, any *thank you* messages to staff and volunteers are welcomed and appreciated. Thanks in advance for your review and engagement.



A short summary of activities planned for the coming year:

- Planting 203,176 trees on 465 acres and conducting vegetation and animal management activities on an additional 1700 acres to ensure the survival and growth of these plantations.
- Maintaining a 381 mile road network that provides access to timber harvest as well as various recreational opportunities.
- Conduct over 800 individual surveys for northern spotted owls.
- Protecting streams and water resources through a series of buffers and seasonal restriction activities.
- Stream improvement projects: An initial screen suggests that 1 stream near a planned primary harvest unit could benefit from large wood addition to the stream system. This sale will be looked at for potential projects during sale layout.
- Habitat development projects such as retaining green trees in clearcut areas, and leaving down wood, all for wildlife benefits in harvest areas and future forests.
- Improving and maintaining roads to ensure ditch water is dispersed and filtered as much as possible, keeping runoff from entering streams.
- Review District roads to develop plans to block or vacate roads to help manage trash dumping and irresponsible target shooting.
- Beginning the planning cycle to harvest approximately 21 million board feet of timber volume, through modified clearcut and partial cut harvest, generating revenue of an estimated \$6.1 Million. This harvest level is in alignment with longer term plans and modeling to ensure it is sustainable and promotes the development of a mixture of habitat types across the landscape.
- Operating and maintaining the following developed facilities in a safe, clean, and responsible manner:
 - 5 campgrounds
 - 6 trailhead facilities
- Providing a safe and clean environment for the myriad of dispersed activities that occur across the forest – hunting, camping, angling, sight-seeing, target shooting, swimming, mushroom picking, etc.
- Maintaining, managing, and patrolling the motorized and non-motorized trail networks, striving to protect the trail investments, provide for user safety, address developing trail issues, and protect water quality.
- Supporting the important volunteer network that assists in forest management including the following programs:
 - Adopt a Trail
 - Trail Maintenance and Construction Work Parties
 - OHV Trail Equipment Volunteer Operator
- Supporting the pre-planned 3 to 5 organized recreation events. Evaluate new proposals for fit with forest goals.
- Providing a firewood cutting program as timber sales are completed outside of fire season.

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INTRODUCTION

This annual operations plan (AOP) outlines state-owned forestland managed by the North Cascade District for Fiscal Year 2016 (FY16), which begins July 1, 2015 and ends June 30, 2016. This document describes how the activities and projects undertaken by the district will achieve the goals, strategies, and objectives of the *NW Oregon Forest Management Plan (FMP)*, *Santiam State Forest Recreation Action Plan*, and the *North Cascade District Implementation Plan (IP)*. Please refer to the district IP for more specific information on physical characteristics and other district resource information.

In June 2013, the Board of Forestry directed the State Forests Division to develop a new forest management plan to replace the current NW Oregon Forest Management Plan. The new plan is under development and may be adopted in 2015, during the implementation of this annual operating plan. The strategies in the new plan have not been fully developed but will likely be different than those in current forest management plans, so some planned activities in this annual operating plan may need to be revised to align with the new forest management plan. Some of the changes may be minor, such as a change in the width of a riparian area or in the number and location of green trees retained in clearcuts. Other changes may be more significant, such as changing a partial cut to a clearcut. Finally, the new FMP may result in increased harvest levels. This will be addressed by moving one or more of the Alternate Operations into Primary Operations.

The AOP document is divided into five major categories: Integrated Forest Management; Planning and Information Systems; Public Information and Education; Administration and Appendices. A short summary of proposed activities are listed within this introduction.

The proposed operations and activities are planned to be designed, engineered, and submitted for processing during the FY16 time period. Actual on-the-ground operations will likely not occur during FY16 due to the time-lag associated with contract duration, which could be one to three years after auction. In contrast, reforestation, young stand management, recreation management, and planning activities will be carried out during FY2016.

A 45-day public comment period runs from April 6, 2015 through May 20, 2015. The District Forester will consider the comments received during this period and make any changes or modifications that are determined necessary, prior to approving the AOP.

In addition to describing forest management activities for FY 2016, Appendix A of this AOP also describes minor changes being recommend to the State Forests' Forest Land Management Classification maps, including the moving of a current Northern Spotted Owl activity center and the addition of a new Northern Spotted Owl circle. At the close of the public comment period, the District Forester will forward these changes with any public comments to the Area Director and State Forester for review and approval.

Accomplishments of forest management activities that occurred under previous AOPs can be found in several reports, including the *State Forester's Annual Report for the Association of Oregon Counties*, the *Common School Forest Lands Annual Report*, and individual district annual reports (these reports also cover the accomplishments of the Fire Protection and Private Forests Programs). These reports are available through the local district office or online.**

**The State Forests' individual district annual reports are available on the Oregon Dept. of Forestry website under "Publications." You can access here: <http://www.oregon.gov/odf/Pages/pubs/publications.aspx>

INTEGRATED FOREST MANAGEMENT OPERATIONS

Timber Harvest Operations

The following planned commercial forest management activities are within the guidelines and objectives outlined in the North Cascade Districts 2012 Implementation Plan. The FY 2016 AOP is estimated to produce 20 million board feet (MMBF) in volume, generate gross revenues of approximately \$7,158,175 and net revenues of \$6,094,419. The District has included 6 Alternate Operations in this Annual Operations Plan. These alternate operations may be used to replace primary sales that cannot be completed as planned. The district anticipates 1-3 small negotiated salvage sales (342 or 343 contracts) in this sale plan. All activity will remain within the expected volume target for the AOP. Some smaller additional operations targeting infrastructure maintenance will also produce timber volume during the 2016 fiscal year. These small operations are not included as part of the AOP because they affect a very small area, produce little volume or revenue, and do not require significant effort to develop and execute. These sales will be less than \$100,000 in value and comply with all policies and plans.

Table 1 compares the proposed acres by harvest type in this AOP to the harvest acre ranges specified in the North Cascade District 2012 Implementation Plan. Total planned acres in this AOP are 1,078 net acres. The anticipated harvest acres, volume, and revenue for each proposed operation in this AOP are listed in the "Harvest Operations – Financial Summary" table in Appendix A, while a vicinity map of these harvest operations can be found in Appendix B. Individual pre-operations reports are available upon request.

Table 1. Annual Operations Plan objectives compared to annual objectives identified in the North Cascade District 2012 Implementation Plan. All values are in acres.

Silvicultural Activity	IP Annual Objective		2016 AOP Objective
	Low	High	
Partial Cut Harvest	290	1170	643
Regeneration Harvest	110	450	435

The partial harvests and regeneration harvests proposed in this operations plan comprise approximately 2.2% of the total acres within the Santiam State Forest. Approximately 60% of the planned harvest acres are in partial cuts, while the remaining 40% are in regeneration harvests. An active and integrated forest management approach on the Santiam State Forest will provide for high levels of sustainable and predictable timber revenue while concurrently providing key habitat for native fish and wildlife species. The following is a summary of Harvest type definitions:

Regeneration Harvest –The intent of a Regeneration Harvest is to develop a new stand. In general, residual trees left after a Regeneration Harvest are intended to remain on the site through the life of the new stand/cohort.

Modified Clearcut: Clearcuts are modified to leave residual green trees, snags, or trees destined to become snags specifically for their biological or environmental values. In this harvest type, good regeneration results are attained and structural

components (green trees, snags, and down wood) are retained that provide value to other resources. A Modified Clearcut resembles a seed tree harvest, but the intent is different. The residual trees from the existing cohort may be distributed across the harvest unit, grouped together in patches, or left along the edge of the harvest unit. Sometimes the residual trees will be grouped along the edges of a harvest unit, in which case, it will look like a Clearcut.

Partial Cut Harvest –The intent of a Partial Cut Harvest is to manage the growth and density of an existing stand. A prescription for a Partial Cut may be designed to increase the structural complexity of a stand, maximize volume growth, or capture tree mortality. A stand may be Partial Cut many times throughout its life. All Partial Cut harvest types retain at least 80 square feet of basal area per acre of trees greater than 11 inches DBH. There are three types of partial cuts:

Heavy Partial Cut: A Heavy Thinning approaches the harvest intensity of a Retention Cut, and the management focus may be on the existing cohort, new cohort, or both. A heavy thinning results in the fast growth of individual trees, but reduces the total volume growth of the stand.

Moderate Partial Cut: Moderate Thinning provides for optimal stand growth and allows vigorous growth of the individual trees. Stand structure will continue to develop with a Moderate Thinning, and depending on species composition and site index, a new cohort of trees may be initiated.

Light Partial Cut: A Light Thinning focuses on maintaining stand growth and health, however in order to achieve these goals, it must occur more frequently than a Heavy or Moderate Thinning in the same stand. More complex stand structure will not be developed with a Light Thinning and a new cohort of trees will not be initiated.

Overall, this sale plan will reduce the district percentage of Closed Single Canopy and Understory (UDS), moving most of the proposed sales toward the eventual development of more complex stand structures. Layered stands (LYR) are in a more developed stage than UDS. A stand reaches Older Forest Structure (OFS) when a Layered stand attains several structural characteristics that are normally associated with older forest conditions. Throughout this plan the term General management (GEN) will be used to describe the desired future condition (DFC) of stands that are not planned for OFS or LYR in the North Cascade District's landscape design for complex structures.

A Desired Future Condition (DFC) of General Forest Management (GEN) places an emphasis on timber production as well as occupying the full growth potential for the site. Partial cuts are intended to reduce the density of the overstory trees and to maintain or further encourage the understory growth within these stands. Partial cutting will also allow the residual trees within a stand to increase their diameter growth and enhance stand volume and value. Clearcut harvests are typically reserved for DFC general areas but may be used in a DFC complex area as needed but tend to be rare and warrant justification for doing so. All regeneration harvests will be reforested with a mixture of Douglas-fir and western red cedar or for the higher elevation ground, a mixture of Douglas-fir and noble fir seedlings.

A Desired Future Condition (DFC) of Complex places an emphasis on increasing or enhancing the biodiversity of a stand. Partial cutting a stand tends to move the stand along the trajectory towards the (DFC). Stand structure in these units begins to develop later when the units reach 10-15 years of age or pre-commercial thinning age. At the time of pre-commercial thinning, the DFC for the unit is re-evaluated since some young stands change dramatically within the first 15 years. The primary management objective for these stands is to enhance stand volume production and value while maintaining or developing structural components important to habitat diversity.

All of the Primary and Alternate harvest operations and many of the other forest management activities have been reviewed by ODF's wildlife biologists, aquatic specialist, geotechnical engineer, road engineer, and operations coordinator, as well as fish and wildlife biologists from the Oregon Department of Fish and Wildlife, however written comments were not received from the Oregon Department of Fish and Wildlife. Information on operations that occur within the provincial circle of a northern spotted owl have been provided to the US Fish and Wildlife Service.

Structural Components

The process of producing an array of forest stand structures across the landscape is a gradual one. A variety of sound silvicultural practices will be used to actively move the forest towards the desired range of stand structures outlined in the Implementation Plan.

The guidelines for managing structural habitat components listed under Landscape Management Strategy 3 in the NWO State Forests Management Plan (pg. 4-52) will be followed for the FY 2016 Annual Operations Plan. In proposed commercial forest management operations, existing down wood, snags, and remnant old growth trees or patches of old growth will be retained. The landscape management goal is to have an average of two snags per acre retained across the landscape. Residual live trees retained in conjunction with clearcut harvests will serve as a source of future snags and down wood as well as provide legacy trees for the new stand being regenerated. Retained trees will include a component of hardwood trees when available. The snags and down wood left in all operations also support future forest needs. The snags provide habitat for cavity-nesting species and provide a future source of down wood. The down wood provides habitat for wildlife species and enables other key functions such as nutrient cycling.

The FMP strategy for hard snags is to manage for at least two per acre on average across the landscape. The need for snag creation for regeneration sales is evaluated on a sale by sale basis. The wind events of December 2006, November 2007 and December 2007 made significant contributions to snag and down woody debris levels despite the salvage of some large concentrations. The residual decadence in turn led to scattered bark beetle outbreaks resulting in additional tree mortality during 2009-2011. The majority of beetle caused mortality is located within the Mad Creek and Rock Creek Basins. Based on these observations (and evaluation of upcoming timber sale areas), snag creation will only be considered on planned sales in the Butte Creek, Cedar Creek, and Scattered Basins. Planned sales in these basins include Around Panther, CF331, Lawhead, and 3rd and 15th. No snag creation is planned for sales in the Mad Creek, Rock Creek,

Green Basin and Crabtree Basin.

In order to protect water quality during active operations, a variety of options will be used to prevent sediment from entering live streams. These methods include (but are not limited to) maintaining or improving existing culverts and ditch lines along active haul routes, adding additional ditch relief culverts when needed to ensure disconnect from live streams, use of sediment control devices in road ditches as necessary during active hauling, and use of seasonal restrictions for logging and hauling operations during wet weather conditions. New culvert installments or culvert replacements in live streams will be conducted during the in-stream work period which occurs generally between July 1 and August 31. Operations outside of this period will be reviewed with the local ODFW fish biologist. Riparian management areas include leave trees and other stream associated vegetation adjacent to the stream which protect stream temperature, provide nutrients, protect stream banks, and eventually provide large wood debris to improve fish habitat.

Minor Landscape Design Modifications

As directed by the 2012 Implementation Plan, the North Cascade District has mapped 35% of the land base in a Landscape Design that designates stands for future complex condition of Layered (LYR) or Older Forest Structure (OFS). The North Cascade DFC landscape design was completed utilizing a “broad brush” approach that incorporated a variety of landscape design principles and strategies. The original Landscape Design mapping process utilized a stand typing approach in place of detailed geographic assessment with the intent that further boundary refinement would be accomplished during future planning processes. Actual boundaries between complex and general DFC’s are determined in the field during the sale planning and layout process. Minor changes in the DFC landscape design may occur on an annual basis for a variety of reasons that include: refinement of DFC field boundaries, forest health issues, reassignment of stand condition based on additional data collected through Stand Level Inventory (SLI) and field observations compiled during the AOP planning process.

The FMP strategy for Down Woody Debris (DWD) is to retain an average of 600 to 900 cubic feet of hard conifer logs (class 1 & 2) per acre during regeneration harvest. A variety of methods will be used to ensure targets are met in this sale plan such as utilization of residual logging slash, modified bucking practices, and contract required DWD creation. Specific methods will be assigned during the sale preparation phase.

Another opportunity for natural recruitment of snags and DWD is created by laminated root rot disease (*Phellinus weirii*). In severe cases of root rot, we attempt to retard the spread of the disease by cutting out the infected trees. In other cases we do not cut out the infected trees. This allows the disease to spread at a rate of approximately one foot per year, slowly adding snags and DWD to the stand. Whether laminated root rot is treated or untreated, we know from experience that additional trees will be infected by the disease, creating snags and eventually DWD.

Table 2 summarizes proposed minor changes made during the FY 2016 planning process. This minor change is being done to balance out the Landscape Design change of 240 acres from GEN to LYR from the 2015 AOP.

Table 2. Minor Landscape Design Modification

Landscape Motive	Modification	Acres added to complex	Acres removed from complex
ReStout - 2017 Planned Sale	Exchange LYR to GEN	0	240
Total Modification:		0	240

Harvest Operations within Terrestrial and Aquatic Anchors

The Implementation Plan has incorporated the State Forests' Species of Concern Strategies which specifically identifies fish and wildlife species of concern on the Santiam State Forest. Two of these strategies include Terrestrial Anchor Sites (TAS) and Aquatic Anchor (AA) sites.

- Terrestrial Anchor Sites (TAS) are intended to benefit terrestrial wildlife species of concern, especially those associated with older forest or interior habitat conditions, sensitive to forest fragmentation, or do not readily disperse across younger forest conditions. Management within a TAS is intended to be limited, to emulate natural small-scale disturbance patterns, and to minimize short-term negative impacts to complex habitat and to promote long-term improvements to habitat conditions through management. Areas which were designated as TAS include stands designated for the development of complex structure in the Landscape Design.
- Aquatic Anchor (AA) sites are watersheds where salmon and aquatic amphibian conservation is of concern. Riparian management strategies beyond those described in the FMP will be applied within AAs. In addition, areas designated for the development of complex structure in the Landscape Design are clustered around streams important to fish in the AA.

The Species of Concern Strategies provide long term goals for Terrestrial Anchor Sites and Aquatic Anchor sites, with the management activities within those areas designed to achieve those goals. These strategies have not identified specific limits to the total area that can be harvested within these areas; however, the District and resource specialists will be tracking the harvest trends within these areas to ensure the harvest prescriptions and rate is consistent with the goals of these strategies. Table 3 and 4 summarizes cumulative harvest operations in TAS and AA since the strategy was adopted (AOPs 2012 through 2016). Currently, no operations are scheduled within the TAS for the FY 2016.

Table 3. Summary of Timber Harvest Operations within TAS (Acres and Percent)

Terrestrial Anchor Site (TAS)	Current AOP (FY 2016) Planned Harvest		Cumulative Harvest (FY 2012 AOP to Present)	
	Clearcut	Partial Cut	Clearcut	Partial Cut
High Lakes	0	0	0	230
% of Acres	0	0	0	16.7
All TA Sites	0	0	0	230
% of Acres	0	0	0	16.7
Entire District	435	643	1568	2749
% of Acres	0.9%	1.4%	3.3%	5.8%

Table 3 summarizes proposed harvest operations within the TAS for FY 2016 and the cumulative operational acreage since the strategy was adopted (AOPs 2012 through 2016). Although the High Lakes TA cumulative harvest rate is significantly higher when compared to cumulative district harvest rates, it is important to recognize that the TA is comprised of a comparatively smaller overall land base of 1,376 acres. Because of this, standard harvest operations of equal acreage (when compared to averages across the district land base) will carry a significantly greater percentage weight when applied to the significantly lower land base acreage of the High Lakes TA.

Table 4. Summary of Timber Harvest Operations within AA's (Acres and Percent)

Aquatic Anchor (AA)	Current AOP (FY 2016) Planned Harvest		Cumulative Harvest (FY 2012 AOP to Present)	
	Clearcut	Partial Cut	Clearcut	Partial Cut
Rock Creek	20	558	35	1325
% of Acres	0.2%	4.6%	0.3%	10.8%
Sardine Creek	0	0	0	0
% of Acres	0	0	0	0
All Aquatic Anchors	20	558	35	1325
% of Acres	0.1%	3.5%	0.2%	8.4%
Entire District	435	643	1568	2749
% of Acres	0.9%	1.4%	3.3%	5.8%

Table 4 summarizes proposed harvest operations within the AA's for FY 2016 and the cumulative operational acreage since the strategy was adopted (AOPs 2012 through 2016). Cumulative partial-cut harvest rates for the AA's remain similar to that of the entire district. However, cumulative Clearcut harvest rates remain significantly lower. The difference between the two rates stem primarily from the higher proportion of LYR (layered) and OFS (Old Forest Structure) designation within the AA's.

Summary of Timber Harvest Operations by Basin

In the following section, the harvest operations planned for FY 2016 will be summarized in the context of the seven management basins located within the North Cascade District. Individual pre-operation reports include information regarding riparian protection and structural components such as snags, down wood, and green tree retention. Road projects and standards are discussed in the Roads and Engineering section.

Table 5. Summary of Timber Harvest Operations Acreage by Basin

Management Basin	2016 AOP	
	Partial Cut	Clearcut
Butte Creek	0	114
Cedar Creek	85	0
Crabtree	0	79
Green	0	0
Mad Creek	0	82
Rock Creek	558	20
Scattered	0	140
Total	643	435

Butte Creek Basin

Around Panther: Proposed 1 area modified clearcut across 114 acres in order to rehabilitate an underperforming stand of timber. The desired future condition for this area is GEN. The future pathway of the stand will be regenerated with primarily Douglas-fir. High elevation species such as Noble Fir and Silver Fir will regenerate naturally within the stand. The stand will then be evaluated for a pre-commercial thinning and a first entry light thinning, followed by a final harvest around age 70.

Cedar Creek Basin

CF331: Proposed 2 area partial cut comprised of approximately 43 acres in Area 1 and 42 acres in Area 2. The desired future condition for Area 1 is GEN and Area 2 is OFS. Area 1 will be a standard thinning from below to center on fostering a vigorous fully stocked stand that will support an economically viable final harvest around age 70. Area 2 is planned with the intent of facilitating structural characteristics consistent with older forest structure. Also within Area 2, a lower and upper diameter limit will be used to maintain canopy layering.

Crabtree Basin

Camp Creek North: Proposed 1 area modified clearcut across 79 acres. The desired future condition of this stand is GEN. The future pathway of this stand will be regenerated with primarily Douglas-fir, evaluated for a pre-commercial and first entry thinning, and have a final harvest around age 70. There are some root-rot pockets within this sale, these areas will be planted with western redcedar to mitigate reoccurrence of this disease throughout the stand.

Green Basin

No harvest operations have been scheduled for the FY 2016 sale plan.

Mad Creek Basin

Camp Six: Proposed 1 area modified clearcut across 82 acres. The desired future condition of this stand is GEN. The future pathway of this stand will be regenerated with primarily Douglas-fir, evaluated for a pre-commercial and first entry thinning, and have a final harvest around age 70. There are some root-rot pockets within this sale, these areas will be planted with western redcedar to mitigate reoccurrence of this disease throughout the stand. Western redcedar will also be planting around a stream-associated wetland that is within this stand.

Rock Creek Basin

1100 Tom: Proposed 1 area moderate partial cut comprised of approximately 225 acres. Desired future condition for the sale area is LYR. The proposed operation will be the first entry into the entire stand and will have a prescription that facilitates structural characteristics consistent with a layered stand. Emphasis will be placed on retaining snags and down woody debris and an upper and lower diameter limit will be used to maintain canopy layering. This sale is within the Under Rock 1.2 mile provincial Northern Spotted Owl circle and has a preliminary Biological Assessment stating that the sale is a low risk for take avoidance.

Frostheim: Proposed 2 area moderate partial cut comprised of approximately 333 acres. Desired future condition for the sale area is mixed between LYR and OFS. The proposed operation will be the first entry into both stands of timber and will have a prescription that facilitates structural characteristics consistent with a layered stand. Emphasis will be placed on retaining snags and down woody debris and an upper and lower diameter limit will be used to maintain canopy layering.

Scattered Basin

3rd and 15th: Proposed 1 area modified clearcut across 65 acres focusing on rehabilitating a multi-species, understocked stand of timber. The desired future condition of this stand is GEN. The current stand is not adequately capturing all growing space with a large hardwood component. The future pathway of this stand will be regenerated with primarily Douglas-fir, evaluated for a pre-commercial thinning and first entry thinning, then final harvest around age 70. This stand has a 3 acre wetland in the middle of it which will be an area focused on leaving green trees.

Lawhead: Proposed 1 area modified clearcut across 75 acres. The desired future condition of this stand is GEN. The future pathway of this stand will be regenerated with primarily Douglas-fir with a small mixture of high elevation adapted species as well. The stand will be evaluated for a pre-commercial thinning and first entry thinning, then final harvest around age 70.

Forest Roads Management

The primary transportation focus is to provide access for forest management activities. This involves constructing new roads where needed and maintaining or upgrading existing road systems. Other resource management needs and other users are considered in the transportation planning. A well-managed transportation system provides access for timber removal, recreation, fire control and removal of other forest products as well as other uses. The District transportation system is managed to provide efficient and effective access.

The transportation activities planned in FY 2016 will be to maintain and improve current access which minimizes resource impacts to water quality while also meeting the District's access needs. An over-arching goal for new road construction and road maintenance is to protect or improve water quality. Over the last 20 years much effort has been made in removing barriers to fish passage and improving road drainage which minimize impacts to water quality. The planned activities within this AOP will help meet transportation objectives.

This AOP includes project work with each proposed primary sale. Roads surfaced with crushed rock make it possible to create and maintain a road surface shape that will drain well and allow for safe and efficient travel of our forest road system. Good surface drainage is critical to minimizing sedimentation from roads and for protecting the sub grade to allow winter hauling where appropriate. Along with good surface drainage, once the water is off the road the water needs to be directed in a way to minimize impacts to water quality.

Cross drainage structures will be reviewed on all proposed haul routes. Connecting spur roads will be upgraded where necessary. The guidelines found in the Oregon Department of Forestry Roads Manual are followed to decide where additional culverts will be installed. Stream crossings will be analyzed on haul routes and the connecting spur roads to make sure culvert sizing meets 50-year flow event minimums. Roadside brushing and roadside spraying will be conducted to control encroaching vegetation and maintain safe sight distance.

Some new spur roads will be constructed to provide access for commercial forest management operations planned within the 2016 fiscal year. All new road construction for this Annual Operations Plan falls into the spur road category. Spur roads needed for future management activities, but not for immediate use, may be put in a restricted status by partially vacating or simply closing the road. This will reduce maintenance costs and reduce water quality impacts from those roads. All new road construction will be designed, reviewed and administered by foresters with forest engineering experience. Roads will be rocked if winter use is anticipated. It is also desirable to rock roads for reforestation access that must occur in the winter months.

Total cost of project work for FY 2016 is estimated at \$1,063,756 or 14.9% of the total gross timber sale value (value excludes alternate sales). Rationale for project work includes elevation of the sale, condition of the existing surface along the haul route and primary logging method of the timber sale area. Additional information regarding roads and engineering can be found in Table 13 located in Appendix A.

Road Construction

The district will construct approximately 7.2 miles of rocked spur road for timber sale access. All road construction for the planned commercial forest management operations described within this Annual Operations Plan will be designed as spur roads. Spur roads are short, generally less than 0.5 miles in length and will be built to standards that minimize road footprint within a harvest area. Road sub-grade widths will be 14 to 16 feet wide and either ditched or outsloped. The majority of proposed operations are partial-cut harvests; therefore, most of the roads will be utilized for future management activities. Some of the roads built will be closed (not vacated) when the operation has been completed. Closed roads will be put in a condition that will require minimal or no maintenance until needed again. This may involve grass seeding and the installation of water bars, tank traps or other road barriers to keep vehicles off the road. If a spur road is vacated, stream crossing structures will be removed to eliminate the possibility of a stream restriction or maintenance problems. In some cases the access will not be vacated to assist with the reforestation effort.

Road Improvement

12.2 miles of road will be improved for the purpose of hauling logs. The road improvement in this plan will consist of minor culvert replacements with some culvert additions, ditch-line maintenance, spreading lifts of rock along major haul routes, some spot rocking and road brushing as needed on collectors and spurs.

Road Access Management

Access to the Santiam State Forest generally is not restricted. However, roads that pose a high risk of damage to water quality are candidates for closure. Closing and vacating roads reduces the District's maintenance cost and helps to minimize impacts to the environment from roads. Not only do these roads cause a maintenance liability; some of these roads become opportunities or locations for dumping of trash. Roads will be assessed for potential closure and vacating during the sale preparation phase.

Road Maintenance

The road maintenance for roads being used for timber sale access becomes the responsibility of the timber sale purchaser once sale activity has begun. Timber sale purchasers during this operating plan will maintain approximately 37 miles of road. Road grading, ditch cleaning, culvert inlet /outlet cleaning and spreading rock as needed during timber haul will all be completed by purchasers.

The District roads not under timber sale contracts are maintained by the District using a grader, front end loader, lowboy and a dump truck. Road grading over much of the District is covered once during the year with some roads graded more frequently due to heavy public use. Small rocking projects will also take place to reinforce weak sub grades or cover road surfaces producing sediment. The District road crew also responds to emergencies such as plugged culverts, removing small slides, clearing slough from ditch lines and blocking roads when necessary. There is a need on the District for a backhoe or small excavator. As budgets improve, the potential for purchase or lease will be considered.

Land Surveying

The District does not currently have an active land survey program. Property line surveys are conducted on a case-by-case basis and in a variety of fashions. Contracting out the work with the use of PLS licensed contractors or cost sharing with adjacent landowners are two examples. Frostheim, Camp Six, and 3rd and 15th are anticipated to be the only primary operations requiring re-establishment of property lines for the FY 2016 AOP.

Young Stand Management

Young stand management operations occur in forest stands prior to the first harvest. These operations tend not to produce revenue, but are essential in maintaining a healthy forest. The objectives of young stand management are to achieve reforestation, stand structure development, and future revenue generation. The current fiscal year budget constraints limit young stand management to activities that are essential to the establishment of new stands.

Table 14 outlines the costs needed to perform management activities on young stands. These young stands are not associated with the sales described in the pre-operations reports. The reforestation units are from older timber sales which will be planted during fiscal year 2016 and are not necessarily the planned sales mentioned and described in this report.

Reforestation projects will be completed through the use of inmate crews from Mill Creek as well as contracted crews. Mill Creek is a correctional facility in Salem and has joined in a cooperative effort between the Department of Corrections and Oregon Department of Forestry. Prior planning is needed to schedule any inmate crew for these projects; although some emergency situations can be accommodated.

The planned operations necessary to meet landscape and stand structure targets include: site preparation, planting, and vegetation management. Pre-commercial thinning, and fertilization are not funded in this plan due to budget constraints. The following is a brief summary of each individual activity.

Site Preparation

Site preparation is an important tool used in establishing a stand. Site preparation can affect seedling establishment and survival. Prescribed fire (burning of logging slash), mechanical piling of slash, and use of herbicides are just a few tools used in site preparation. Burning or piling logging slash eliminates or manipulates logging debris in order to create plantable areas. Herbicide site preparation is used to control undesirable vegetation that would otherwise compete with planted seedlings. Planting spot development is used when burning is not a viable option. Only heavy concentrations of logging slash are treated, while the majority of the slash is not removed from the site and will be left to decompose on site over time.

Table 6. Planned Site Preparation by Management Basin

Site Preparation	Chemical Hand	Chemical Aerial	Slash Burning	Mechanical	Acres
Butte Creek	0	71	46	46	163
Crabtree	0	125	81	81	287
Cedar Creek	0	0	0	0	0
Mad Creek	0	104	78	78	260
Rock Creek	15	58	19	19	111
Scattered	46	0	0	0	46
Green	0	0	0	0	0
Total:	61	358	224	224	867

To protect air quality, all burning is planned in accordance with the Oregon Smoke Management Plan. The Smoke Management Plan is designed to reduce emissions from prescribed burning in western Oregon and to minimize smoke intrusions into designated population areas.

When using herbicides on State Forests for site preparation, the District will adhere to Environmental Protection Agency approved herbicide product labels and the Oregon Forest Practices Act.

Any mechanical site preparation will also be monitored to ensure that the Oregon Forest Practices Act requirements are met.

Planting

Reforestation is the planting of tree seedlings following regeneration harvests, patch cuts, root disease removal, severe blow down events, and in certain cases, partial harvests. Initial planting and inter-planting a variety of tree species provide different outcomes.

Initial planting establishes the seedlings to begin a regeneration stand. The species of seedlings planted and the density at which they are planted will influence future management activities within the stand.

Inter-planting is used when initial reforestation has been less successful than desired. Planting additional trees within an area will continue the stand along its desired management path. Due to recent nursery issues regarding quality of seed stock, inter-planting acreage is expected to increase above that of historic annual averages for FY 2016.

Table 7. Planned Initial & Inter-Planting by Management Basin

	Initial Planting Acres	Interplanting Acres
Butte Creek	71	260
Crabtree	125	20
Cedar Creek	0	0
Mad Creek	104	0
Rock Creek	73	45
Scattered	92	67
Green	0	0
Total:	465	392

Vegetation Management

Chemical and manual release treatments will be conducted in plantations in danger of failure due to brush competition.

Table 8. Planned Release Treatment by Management Basin

Release Treatment	Chemical Hand	Chemical Hack & Squirt	Chemical Aerial	Mechanical Hand	Acres
Butte Creek	0	131	0	65	196
Crabtree	0	10	0	150	160
Cedar Creek	0	0	0	0	0
Mad Creek	0	0	0	0	0
Rock Creek	62	33	179	112	386
Scattered	67	90	194	10	361
Green	0	0	0	80	80
Total:	129	264	373	417	1183

Tree Protection

Tree protection is used in areas where animal damage (from deer, elk, and mountain beaver) is expected to reduce the number of seedlings below desired stocking levels by placing a Vexar tube over a newly planted seedling and supporting the tube with bamboo stakes. Vexar tubes are generally reserved for tree species damaged by animal browsing. Approximately 15,000 cedar seedlings are scheduled to be planted and protected during FY 2016 in an effort to mitigate root disease areas identified within recently completed timber harvest operations.

Pre-commercial Thinning

No PCT projects have been planned for FY 2016.

Fertilization

No fertilization projects have been planned for FY 2016.

Pruning

No pruning projects have been planned for FY 2016.

Noxious Weeds

Noxious weed and invasive species treatment will occur in areas that can easily be treated and controlled. Smaller treatments are done on a county wide basis; these smaller treatments tend to be less than an acre in size. The goal is to treat smaller populations before they have an opportunity to spread. Individual scotch broom plants found along a road or in a plantation are examples of these smaller treatments.

We have included language in our timber sale contracts which require equipment washing to help control the spread of noxious weeds. The operators are required to wash equipment prior to working on the State Forest and/or prior to moving from a known infested area to an uninfested area on the State Forest.

Recreation Management

The Recreation Program on the Santiam State Forest is managed in accordance with the Recreation Management Plan approved in September 2000, the North Cascade District Implementation Plan approved in June 2012 and the approved 2010 Northwest Oregon State Forest Management Plan. This section of the FY 2016 AOP is designed to provide information about the types of recreation opportunities and activities that are currently in demand on the Santiam State Forest, the developments and opportunities currently available, and the planned projects for the FY 2016 AOP period. Given the current budget constraints, the focus of the recreation projects will be on public safety, sanitation, enhancement of existing assets and facilities maintenance.

Public and Multi-agency Involvement

The Santiam State Forest Citizen Advisory Committee provides assistance with a wide range of recreation and education topics. The Committee convenes once or twice a year to review accomplishments and provide recommendations related to current and future management strategies. In addition, the Citizen Advisory Committee assists the district with volunteer recruitment.

Volunteer Contributions

Volunteers contribute labor, supplies and expertise to the District recreation program. Our volunteers have partnered with ODF to construct trail, maintain infrastructure, and preserve natural resources. In recent years Oregon Equestrian Trails, Silver Falls Chapter, has volunteered time and resources toward maintaining trails within the Monument Peak trail system. Boy Scouts of America have accomplished a variety of projects, primarily within the Shellburg Falls Recreation Area. These projects include reconstruction of tent pads within individual camp sites as well as trail cleanup and repair. The Mountain Street Dirt Crew, a Freeride Mountain Biking Association has been an integral partner in creating the freeride mountain biking trails in the Shellburg Falls Recreation Area. The Crooked Finger Riders Association has partnered with ODF to develop a staging area and six miles of trail for ATV and dirt bike use. A new partnership is being developed with the Oregon City Service Learning Academy, in which our employees will be presenting students with careers based in public service with an emphasis on natural resource management. The students will be involved in trail maintenance and repair, campsite maintenance and invasive species removal.

Inmate Work Crews

The recreation staff utilizes 10-person inmate crews from the Mill Creek Correctional Facility for facility and trail maintenance and recreation improvement projects.

Recreation

The recreational facilities and opportunities on the Santiam State Forest consist of four developed campgrounds, one primitive hike in only campground, dispersed camping areas, one developed specialized campground for Equestrian enthusiasts and numerous unique vistas and natural attractions. Combined, there are currently 26 camp sites on the Santiam State Forest.

Visitation to the Santiam State Forest has continued to increase over the years. Over the course of FY 2016, recreation staff and resources will focus on safety, sanitation, asset enhancement and facilities maintenance. Recreation staff is continually seeking partnerships for trail and facility stewardship.

The two most visited areas are the Shellburg Falls Recreation Area and Butte Creek Falls Recreation Area. Shellburg Falls Recreation Area is used both for day use and for overnight camping and receives high visitor use. Butte Creek Falls is used primarily for day-use. The nearby campground receives moderate use during the summer. The third most visited location is Rock Creek. There are four dispersed camp sites along Rock Creek which are often at capacity during summer months.

Another recreation area on the forest is Santiam Horse Camp. It has 10 campsites equipped with horse corrals. This campground is connected to 12 miles of loop trails around the Monument Peak area.

There is significant use in the Santiam State Forest outside of the designated recreation areas. This includes, dispersed camping, hunting, target shooting, foraging, four wheeling, and other activities.

Trails

There are over 25 miles of non-motorized trails on the Santiam State Forest. The Santiam State Forest trail system provides opportunities for hiking, mountain biking, free-ride mountain biking and horseback riding. Some trails are designated single use only while others are designed for multiple-use.

Motorized vehicles, including ATVs and dirt bikes, are allowed to ride on maintained gravel roads on the Santiam State Forest. Currently, a 6 mile system of designated ATV trails is being managed at the Crooked Finger ATV Area.

Management Activities

At the Rock Creek Campground, staff will be relocating 2 campsites. In addition, staff will survey for the installation of future camp sites. The district is also in the process of locating a trail system between the Butte Creek Falls and the Butte Creek Campground.

At the Santiam Horse Camp, staff and Mill Creek Inmate crews will be continuing efforts of replacing 2 horse corral structures per year. Trails throughout the Horse Camp and Monument Peak Trail system will be improved and maintained by a combination of staff, volunteers and inmate crews.

Emphasis will be placed on safety, sanitation, maintenance and enhancement of the Districts existing infrastructure. In addition, staff will also focus on updating and streamlining signage and informative kiosks in designated recreation areas.

Existing partnerships with local agencies, volunteer groups and organized clubs will be bolstered, while new partnerships will be sought out. The Districts goal for FY 2016 is not only to maintain, but to strengthen these relationships as they are highly beneficial given the current budget guidance for the recreation program.

Land Exchange

The North Cascade District has an approved land exchange plan, but due to budget constraints, all ongoing land acquisition and exchanges have been suspended in FY2016. As future budgets allow, acquisition and exchange plans will be revisited.

Other Integrated Forest Management Operations

Firewood

The North Cascade District will continue to issue personal firewood cutting permits in the coming year for areas within completed timber sales.

The public will be notified of firewood cutting permits through the district's telephone recording and posting at both the Santiam and Molalla offices. The permit fee for personal firewood cutting is \$20 for 2 cords. Permits will be issued for 3 week periods, during the months outside of fire season.

A limited number of personal firewood cutting permits will be issued, on a first come-first served basis, with a limit of 2 permits per individual or household within a 12 month period. Oregon Department of Forestry does not guarantee the quality or availability of wood when issuing firewood cutting permits.

Designated firewood cutting areas will be marked on the permit map, which excludes active and sold timber sales, recreation sites, and planned operations. Active timber sales will be posted with no firewood cutting signs.

Miscellaneous Forest Products

The North Cascade District has suspended its commercial Miscellaneous Forest Products permit program due to lack of staffing resources. Previously, forest products such as mushrooms, vine maple, and salal were available for commercial permit. Many of these products are available throughout the forest landscape, and can be found in the different stand structures on the forest. Other products require specific stand types and growing conditions to be most productive. The most popular products requested in the past are salal and mushrooms. Salal can be found over most of the Santiam State Forest, while mushrooms grow best at lower elevations and in younger, dense stands of timber, usually in the under 40-year old closed single canopy stands. The permit program policy will be re-evaluated in FY 2016.

The District does issue personal use permits, consistent with Northwest Oregon Area policy. Gathering of these products is allowed provided that the products and quantities are not removed or exceeded as outlined in ORS 164.813.

Planning (and Information Systems)

Stand Level Inventory and Other Vegetation Inventories

Due to continued budget constraints, the Stand Level Inventory program maintains a utilization rate less than the capacity of its original intent. However, recent budget allocation will ensure that some stands within the District are scheduled for contract inventory during FY 2016. Over the course of FY 2013, District personnel inventoried three post-harvest thinning units, utilizing Stand Level Inventory procedures, with the intent of better assessing the results of contract prescriptions. District personnel will continue to focus inventory efforts on post-harvest thinning units –time permitting, in an effort to ensure that silvicultural information is available for current stand conditions, harvest scheduling and prescription design.

Wildlife Surveys

In order to remain consistent with the State Forest Management Plan, comply with federal and state Endangered Species Acts, surveys for the Northern Spotted Owl (*Strix occidentalis*) will continue during the 2015 field season. Surveys will be specifically conducted on a portion of active operations identified for the fiscal year 2015, 8 proposed FY 2016 primary operations, and 6 FY 2016 alternate operations. Monitoring surveys for known spotted owl sites will also continue in order to determine site occupancy, nesting, and reproductive status of resident owls.

Table 9. Summary of Surveys for Threatened and Endangered Species

Primary Operations	Species¹ (NSO/MM)	Survey Years²	BA³ Required	Special Considerations
1100 Tom	NSO	2013, 2014, 2015, 2016	Yes	
Lawhead	NSO	2013, 2014, 2015, 2016	No	
Around Panther	NSO	2013, 2014, 2015, 2016	No	
Frostheim	NSO	2014, 2015, 2016, 2017	No	
CF331	NSO	2013, 2014, 2015, 2016	No	
Camp Six	NSO	2013, 2014, 2015, 2016	No	
3rd and 15th	NSO	2013, 2014, 2015, 2016	No	
Camp Creek North	NSO	2013, 2014, 2015, 2016	No	
<u>Alternate Operations</u>				
P200	NSO	2013, 2014, 2015, 2016	No	
Little Big Horn	NSO	2014, 2015, 2016, 2017	No	
Gravy Train	NSO	2014, 2015, 2016, 2017	No	
Higher Rock	NSO	2013, 2014, 2015, 2016	Yes	
Zip-Up 2	NSO	2013, 2014, 2015, 2016	No	
Slick Rick	NSO	2014, 2015, 2016, 2017	No	

1. Surveys are conducted according to accepted protocols when habitat for the specific species is determined to be present. NSO – northern spotted owl.
2. Years that surveys have been completed or are planned.
3. A Biologic Assessment is required for this operation due to the presence of NSO in the vicinity of the operation.

Aquatic and Riparian Resources

The North Cascade District is comprised of a variety of habitat types that support many native species found in forests of the Oregon Cascade Range. Appendix E [of the FMP] and the *North Cascade District 2012 Implementation Plan*, “Species of Concern”, page 14, contain a list of native fish that are currently known or are likely to exist within the North Cascade District. The streams, rivers, lakes, and other water bodies of the area provide habitat for a variety of fish species. There are approximately 66 miles of known fish bearing streams within the Santiam State Forest.

Rock Creek and Sardine Creek Watersheds are designated as Aquatic Anchors (AAs) and were selected through a collaborative effort with ODFW District Fish Biologists, the State Forests Aquatic Specialist, District Forester, and district staff. The Rock and Sardine Creek watersheds meet the landscape design principles described under the Landscape Design section of the *2012 North Cascade District Implementation Plan*. Fish are well distributed throughout the Rock Creek Watershed and Sardine Creek presents a unique opportunity for an aquatic anchor with amphibian emphasis.

A relatively high percentage of ODF ownership in each watershed means that management actions have a higher likelihood of influencing watershed processes. The proposed forest operations for FY 2016 conform to the aforementioned guiding doctrines by incorporating the additional Species of Concern Strategies that are to be applied within AA’s. The intended purpose is to lower short term risk to various salmonids and amphibian species while landscape strategies foster the development of properly functioning aquatic systems and suitable habitat forest-wide.

Research and Monitoring

The District is actively evaluating past timber sales for compliance with the Oregon Forest Practices Act. Several past sales were surveyed in 2013. The North Cascade District will use the information to assess and improve compliance.

Additionally, the District cooperated with Weyerhaeuser and Oregon State University on a study to help determine the abundance of the Oregon Slender Salamander on the Western slope of the Cascade Range. The study will also help to determine if there is a significant difference in the amount of down-woody debris, the Oregon Slender Salamander's primary habitat, pre and post-harvest. This cooperative study is proposed to last 5 years.

Other Planning Operations

Planning activities will include road inventory updates throughout the ownership to assess and map locations of all stream crossing and ditch relief pipes.

Timber sale planning will begin in the spring of 2015 for the fiscal year 2016 Annual Operations Plan. This Annual Operations Plan will be completed in the spring of 2016. The Annual Operations Plan will provide specific details on the harvest operations that will be set up and auctioned in the 2016 fiscal year. The plan will also provide an overview of the roads and engineering projects, non-commercial forest management operations, recreation management, planning, public information and education and administrative activities that will take place during fiscal year 2016. This plan is developed according to guidance and standards found in the *NWO State Forests Management Plan*, *North Cascade District Implementation Plan*, *Santiam State Forest Recreation Plan* and the *Oregon Forest Practices Act*.

Public Information and Education

Public information and involvement activities will include review and input regarding the FY 2016 Annual Operations Plan. Following that review, a public involvement summary will be added as an Appendix to this document. In addition, public involvement activities concerning the Recreation program will include planning and facilitating periodic Citizens Advisory Committee meetings, periodic Adopt-A-Trail meetings with cooperators, user group club meetings, and involving individuals or clubs in various district projects.

The District often receives requests for job shadowing opportunities. Job shadowing usually involves a high school student or occasionally a college student who is interested in natural resources. The District arranges for these students to spend a work day with a district employee in a position they may be interested in. The District has also conducted school to work tours in cooperation with the Human Resources Department.

Public Education

The District is involved in a variety of projects focused on informing and educating the public and interpreting the natural and cultural history of the Santiam State Forest.

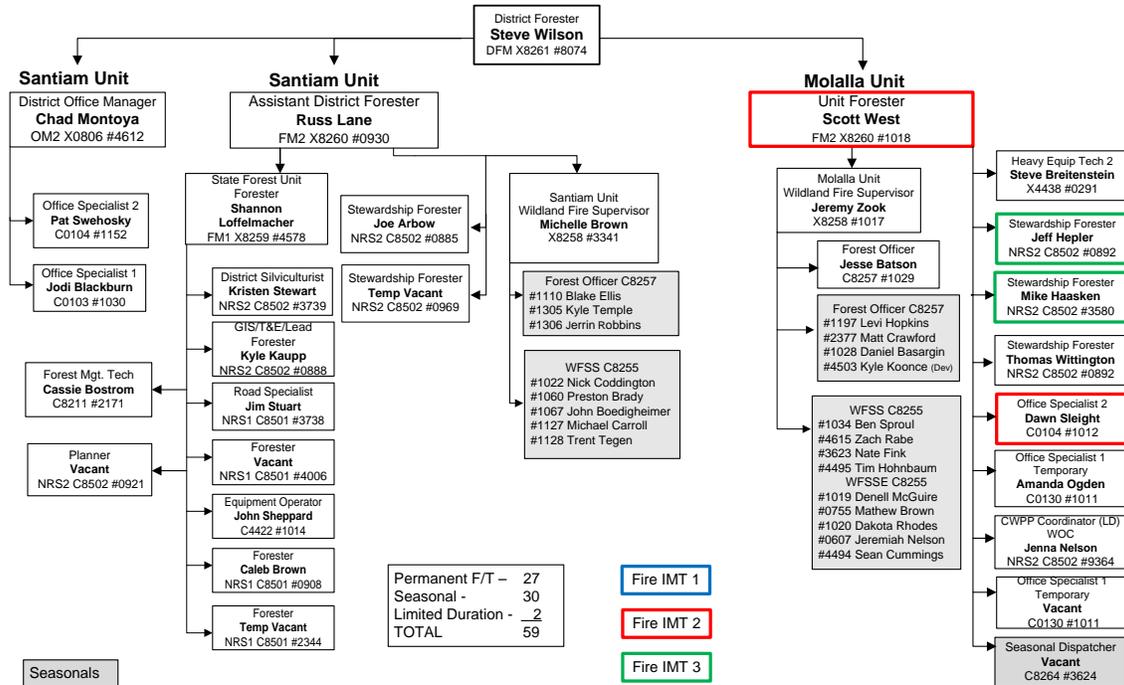
Activities will include:

- Maintenance of the Santiam State Forest web page.
- Development of information board messages.
- Modifications to and reprints of the OHV and Non-motorized trail guides.
- Writing articles for user group newsletters.
- Support and participation in NWOA Forestry education and interpretive programs when funding constraints allow.

Administration

The current Santiam State Forests Unit is comprised of 10 full-time permanent positions. The organization is structured as follows:

North Cascade District November 2014



The organization has integrated into one functional unit supervised by the Management Unit Forester. Responsibilities of the Forest Management Unit include forest-level planning, (SLI) Stand Level Inventory, commercial and non-commercial forest management operations, young stand management, roads and recreation. The unit produces the AOP, timber sale contracts, reforestation and young growth management contracts, and administers the special forest products and firewood programs. Transportation plans, road maintenance plans and schedules, and other engineering related plans are in progress. The State Forests Unit also produces the plans and contracts needed to develop campgrounds, trails, and associated facilities. The recreation personnel coordinate most of the public information on the district.

The organization fits well within the budget instructions and guidance that is available for next fiscal year at this point in time. The young stand management program is highly cyclical in workload due to the nature of projects such as tree planting, fertilization, and vegetation management.

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Appendix F: Forest Land Management Classification Changes

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APPENDIX A

Table 10. Financial Summary

TIMBER HARVEST OPERATIONS - FINANCIAL SUMMARY												
District: North Cascade			Fiscal Year: 2016							Date: 23-Mar-15		
Fund %			Net Acres			Volume (MMBF)				Value		
Primary Operation	BOF	CSL	County	Sale Quarter	Partial Cut	Clear-cut	Conifer	Hard-woods	Total	Gross	Projects	Net
1100 Tom	100%	0%	Linn	4	225	7	3.8	0	3.8	\$1,335,950	\$167,779	\$1,168,171
Lawhead	100%	0%	Linn	1	0	75	2.0	0	2.0	\$708,750	\$57,770	\$650,980
Around Panther	100%	0%	Clackamas	2	0	114	1.9	0	1.9	\$674,100	\$151,200	\$522,900
Frostheim	100%	0%	Linn	2	333	13	4.0	0	4.0	\$1,383,900	\$301,373	\$1,082,527
CF331	100%	0%	Marion	3	85	0	1.4	0	1.4	\$558,950	\$42,499	\$516,451
Camp Six	100%	0%	Linn	3	0	82	2.4	0	2.4	\$951,200	\$166,011	\$785,189
3rd and 15th	100%	0%	Marion	4	0	65	1.6	0	1.6	\$567,700	\$94,090	\$473,610
Camp Creek North	100%	0%	Linn	1	0	79	2.6	0	2.6	\$977,625	\$83,034	\$894,591
Total:					643	435	20	0	20	\$7,158,175	\$1,063,756	\$6,094,419
Range					290-1170	110-450	19-21					

TIMBER HARVEST OPERATIONS - FINANCIAL SUMMARY												
District: North Cascade			Fiscal Year: 2016							Date: 23-Mar-15		
Fund %			Net Acres			Volume (MMBF)				Value		
Alternate Operations	BOF	CSL	County	Sale Quarter	Partial Cut	Clear-cut	Conifer	Hard-woods	Total	Gross	Projects	Net
P200	100%	0%	Linn	N/A	0	84	4.2	0	4.2	\$1,679,600	\$112,840	\$1,566,760
Little Big Horn	100%	0%	Linn	N/A	0	113	3.2	0	3.2	\$1,287,600	\$112,990	\$1,174,610
Gravy Train	100%	0%	Marion	N/A	0	95	3.2	0	3.2	\$1,292,000	\$53,451	\$1,238,549
Higher Rock	100%	0%	Linn	N/A	265	0	2.1	0	2.1	\$742,000	\$85,835	\$656,165
Zip-Up 2	100%	0%	Marion	N/A	0	120	3.2	0	3.2	\$1,291,200	\$32,397	\$1,258,803
Slick Rick	100%	0%	Linn	N/A	0	43	1.5	0	1.5	\$619,600	\$54,942	\$564,658
Total:					265	455	17	0	17	\$6,912,000	\$452,455	\$6,459,545

Table 11. Forest Resource Summary

PRIMARY HARVEST OPERATIONS - FOREST RESOURCE SUMMARY

District: North Cascade

Fiscal Year: 2016

Date: 3/23/2015

This table lists Forest Resources and other issues addressed within Pre-Operations Report due to their presence within or near harvest operations

Primary Harvest Operations	Unit (Optional)	Forest Health Issues ¹	Invasive Species	LXR/OFS Structures ²	Landscape Design LXR/OFS ³	Install/Replace Culverts on Fish Bearing / Perennial Streams	Harvesting within 100' of Fish Bearing Stream	Domestic Water Source	Potential Stream Habitat Improvement ⁴	Within Aquatic Anchor	Within Terrestrial Anchor	Operating within a NSO Provincial Circle	Within 1/4 mile of MMA	T&E Fish Adjacent to Harvest Unit / Haul Route ⁵	T&E Plants	Geotechnical Issues Needing Field Review	Recreation Sites	Cultural Resources	Scenic Resources
1100 Tom			x	x	x	x				x		x	N/A					x	
3rd and 15th			x			x							N/A						
Around Panther			x										N/A						
Camp Six			x			x							N/A						
CF 331		x	x	x	x								N/A				x		
Frostheim			x	x	x	x				x			N/A					x	
Lawhead			x										N/A			x			x
Camp Creek North		x	x										N/A						

ALTERNATE HARVEST OPERATIONS - FOREST RESOURCE SUMMARY

Alternate Harvest Operations	Unit (Optional)	Forest Health Issues ¹	Invasive Species	LXR/OFS Structures ²	Landscape Design LXR/OFS ³	Install/Replace Culverts on Fish Bearing / Perennial Streams	Harvesting within 100' of Fish Bearing Stream	Domestic Water Source	Potential Stream Habitat Improvement ⁴	Within Aquatic Anchor	Within Terrestrial Anchor	Operating within a NSO Provincial Circle	Within 1/4 mile of MMA	T&E Fish Adjacent to Harvest Unit / Haul Route ⁵	T&E Plants	Geotechnical Issues Needing Field Review	Recreation Sites	Cultural Resources	Scenic Resources
Gravy Train			x					x					N/A	x					
Higher Rock			x		x	x				x		x	N/A						
Little Big Horn		x	x			x	x						N/A	x					
P200		x	x	x		x	x						N/A	x		x			x
Slick Rick			x			x							N/A	x				x	
Zip-Up 2			x					x					N/A						

¹ A 'x' (in any column) indicates yes the resource or other issue occurs within or near the harvest operation and is addressed by the Pre-Operations Report

² A 'x' indicates the harvest operation contains stands that are currently in a Layered or Older Forest Stand Structure

³ A 'x' indicate that the operation contains areas that have been designated for the development of complex forest stands (LYR/OFS)

⁴ The final decision on these projects will occur during sale preparation and inconspicuous with ODFW.

⁵ This table lists harvest operations (units or log haul routes) that are adjacent to streams that are known to contain T&E fish. The Pre-Operation Report identifies whether T&E fish are present in the basin.

Table 12. Forest Structure Summary

TIMBER HARVEST OPERATIONS - FOREST STRUCTURE SUMMARY											
District: North Cascade			Fiscal Year: 2016					Date: 3/23/2015			
Current Structure		Post Harvest Structure						Desired Future Condition			
	Total	REG	CSC	UDS	LYR	OFS		GEN	LYR	OFS	
REG											
CSC	58	20		38				58			
UDS	1287	877		152	258			884	145	258	
LYR	392	163			229			163	229		
OFS	333	11				322		11		322	
Total	2070	0	1071	0	190	487	322	0	1116	374	580

Table 13. Forest Roads Summary

FOREST ROADS SUMMARY									
District: North Cascade			Fiscal Year: 2016				Date: 3/23/2015		
Primary Operation	Construction		Improvement		Other Projects	Total Project Costs	Gross Value of Operation	Total Cost as a percent of Gross Value	Comments
	Miles	Cost	Miles	Cost					
1100 Tom	1.44	\$94,876.00	4.6	\$72,903.00	\$0.00	\$167,779.00	\$1,335,950.00	12.6%	Tom Rock Pit (TR500)
Lawhead	0.5	\$37,675.00	0.0	\$0.00	\$20,095.00	\$57,770.00	\$708,750.00	8.2%	Landing is rock source
Around Panther	0.87	\$85,974.00	2.7	\$46,450.00	\$18,776.00	\$151,200.00	\$674,100.00	22.4%	Panther Pit (BC720)
Frosteim	3.3	\$287,027.00	0.0	\$0.00	\$14,346.07	\$301,373.07	\$1,383,900.00	21.8%	Halfway Cabin Pit
CF331	0	\$0.00	3.1	\$32,408.00	\$10,091.00	\$42,499.00	\$558,950.00	7.6%	Crooked Finger Pit
Camp Six	0	\$0.00	1.5	\$26,491.00	\$139,520.00	\$166,011.00	\$951,200.00	17.5%	Crush in Monument Pit
3rd and 15th	0.6	\$91,733.00	0.0	\$0.00	\$2,357.06	\$94,090.06	\$567,700.00	16.6%	Dirt Spurs
Camp Creek North	0.5	\$51,897.00	0.3	\$31,137.00	\$0.00	\$83,034.00	\$977,625.00	8.5%	Hammond 400 Pit
Total:	7.21	\$649,182.00	12.18	\$209,389.00	\$205,185.13	\$1,063,756.13	\$7,158,175.00	14.9%	

Alternate Operation	Miles	Cost	Miles	Cost	Other Projects	Total Project Costs	Gross Value of Operation	Total Cost as a percent of Gross Value	Comments
Little Big Horn	0.8	\$91,540.00	0	\$0.00	\$21,450.00	\$112,990.00	\$1,287,600.00	8.8%	Hammond 400 Pit
Gravy Train	0	\$0.00	2	\$53,451.00	\$3,338.92	\$56,789.92	\$1,292,000.00	4.4%	Abiqua Pit
Higher Rock	0.39	\$27,643.00	1.1	\$58,192.00	\$0.00	\$85,835.00	\$742,000.00	11.6%	Tom Rock Pit (TR500)
Zip-Up 2	0.3	\$31,597.00	0	\$0.00	\$800.00	\$32,397.00	\$1,291,200.00	2.5%	Abiqua Pit
Slick Rick	0.1	\$8,772.00	2.6	\$46,170.00	\$0.00	\$54,942.00	\$619,600.00	8.9%	Seven Mile Pit
Total:	14.92	\$1,421,911.00	27.9	\$546,781.00	\$446,835.18	\$2,415,527.18	\$19,892,400.00	12.1%	

Table 14. Reforestation and Young Stand Management Summary

REFORESTATION AND YOUNG STAND MANAGEMENT SUMMARY								
District: North Cascade	Fiscal Year: 2016						Date: 02/11/2015	
ODF Funded Activities	Board of Forestry			Common School Forest Lands			District	
Management Activity	Acres		BOF Cost	Acres		CSL Cost	Total	Total Cost
	Planned	Average Cost*/Acre		Planned	Average Cost*/Acre		Acres	
Initial Planting	465	\$280.00	\$130,200.00				465	\$130,200.00
Interplanting	300	\$290.00	\$87,000.00				300	\$87,000.00
Tree Protection-Barriers	34	\$100.00	\$3,400.00				34	\$3,400.00
Site Prep-Chemical- Aerial	302	\$30.00	\$9,060.00				302	\$9,060.00
Site Prep-Chemical- Hand	117	\$100.00	\$11,700.00				117	\$11,700.00
Site Prep -Slash Burning	242	\$30.00	\$7,260.00				242	\$7,260.00
Site Prep -Mechanical	242	Timber Sale Contracts					242	\$0.00
Release-Chemical- Aerial	470	\$30.00	\$14,100.00				470	\$14,100.00
Release,-Chemical-Hand	65	\$100.00	\$6,500.00				65	\$6,500.00
Release-Chemical Hack & Squirt	315	Mill Creek	\$26,533.00				315	\$26,533.00
Release-Mechanical-Hand	305	Mill Creek	\$26,533.00				305	\$26,533.00
Animal Damage Control	500	Mill Creek	\$26,533.00				500	\$26,533.00
Totals	3357	--	\$348,819.00				3,357	\$348,819.00

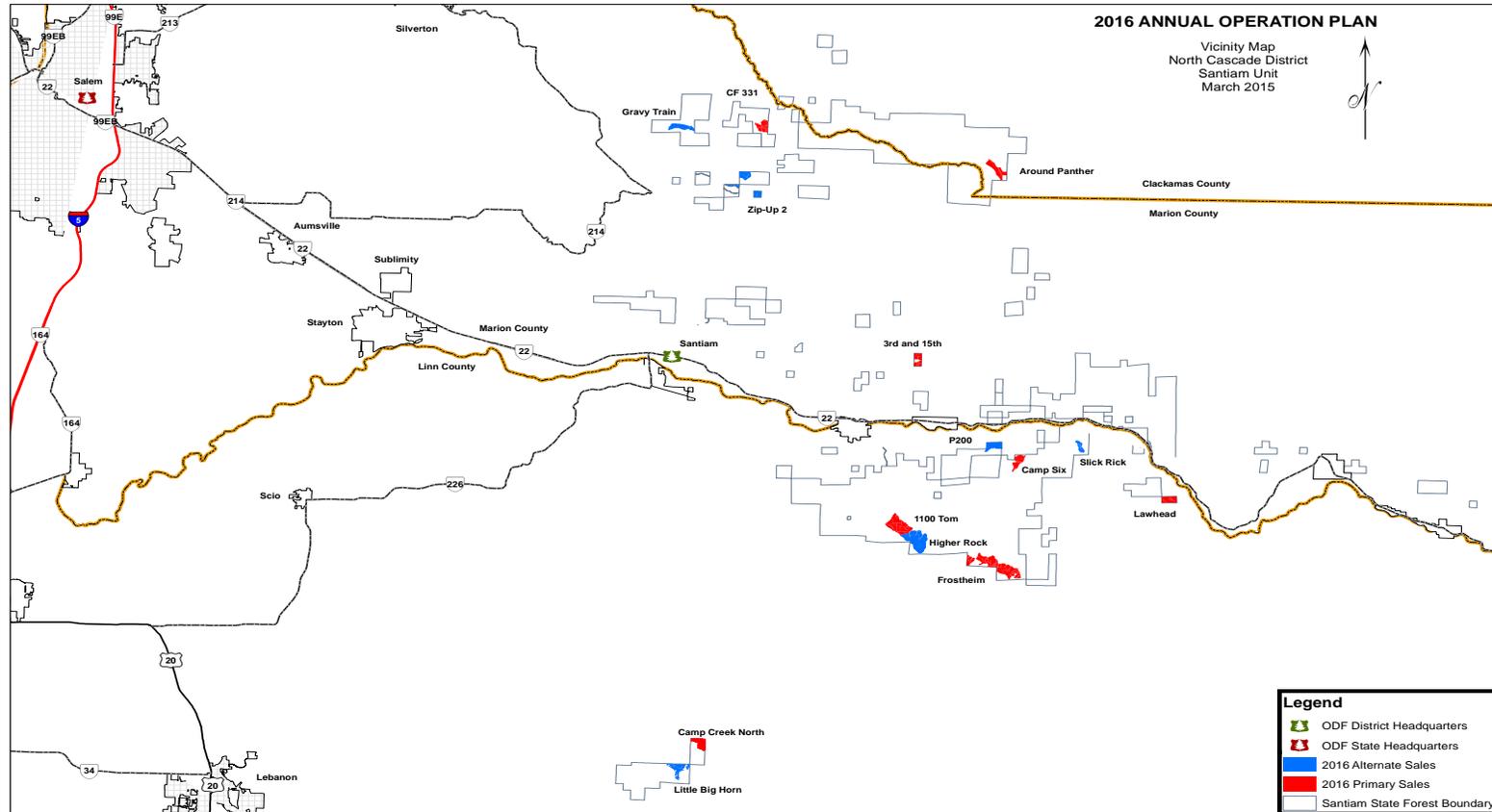
Planting costs include all costs including seedlings*

Table 15. Recreation Management Summary

RECREATION MANAGEMENT SUMMARY										
District: North Cascade			Fiscal Year: 2016				Date: 02/11/2015			
Operation	Unit of Measure	Current	Construction Projects	Cost		Improvement Projects	Cost		Total Cost	Comments
				ODF	Other		ODF	Other		
Facilities										
Campsites	Sites	29				Rock Creek campsite removal and reconstruction			\$2,700.00	ODF Staff
	Sites	1				Install water filtration system at Horse Camp			\$ 350.00	ODF Staff
	Sites	3				Install fire pits and picnic tables at Rhody Lake CG			\$ 500.00	Mill Creek
	Sites	1				Reconstruct 2 horse corrals in Horse Camp			\$ 150.00	Mill Creek
Day Use Areas		2				Update Kiosks and improve signage.			\$ 400.00	ODF Staff/Mill Creek
		1				Install tree and shrub identification signs on Shellburg Falls Trail.			\$1,000.00	ODF Staff
Trailheads		7				Update signage and maps			\$ 400.00	ODF Staff
Trails										
Non-Motorized	Miles	25				Install culverts where needed			\$ 100.00	ODF/Mill Creek
										ODF/Mill Creek
Motorized	Miles	6	Construct new connecting trails (various locations)			Maintenance Needed				ODF/Mill Creek/Volunteers
Total:									\$5,600.00	

APPENDIX B

Vicinity Map



APPENDIX C

Consultation with other State Agencies

This appendix summarizes the results of consultations with the Oregon Department of Fish and Wildlife, the Oregon Department of Transportation, and other agencies.

Representatives from ODFW were in attendance with ODFW's resource specialists to discuss the activities in this AOP. The district has received verbal comments from ODFW and these comments were considered while developing pre-operation reports.

Archaeologists from the Oregon Department of Transportation (ODOT) have reviewed the proposed timber harvests, road construction, and recreation projects to review potential impacts to cultural resources. When reviewing the recreation projects and proposed timber harvests, ODOT found various archeological resources within or directly adjacent to some of the proposed operations.

- Rock Creek Campground Sites – A field exam will be required to determine if there are cultural resources present within or adjacent to the project area.
- Timber Sales
 - 1100 Tom, Camp Six, Frostheim, Gronn Skog, Higher Rock, Around Panther, Lawhead, and Zip-Up 2 are proposed operations that will require a field exam to determine if cultural resources are present that require protection.
 - 3rd and 15th - The ODOT review identified an archaeological site near this operation. This site will be protected; however, due to the sensitive nature of cultural resources, no additional information will be provided.

All proposed sales will be reviewed on the ground prior to sale or project layout to determine if any cultural artifacts are present.

APPENDIX D

Public Involvement

The purpose of the Public Comment Period is to provide an opportunity for the public to review the AOPs, ask questions, make recommendations, and offer comments. As a public agency, ODF operates in the best interest of Oregonians, conducting business in an open way with opportunities for scrutiny to foster and maintain public confidence that ODF operations are benefiting Oregonians. Past experience has shown that public comments have the potential to improve plans, so the objective is not only to inform the public, but to receive feedback that would help to clarify the AOPs, improve their consistency with the long range FMPs and IPs, and to become aware of any new information that could affect planned operations or improve efficiency and effectiveness.

APPENDIX E

Pre-Operations Reports

Pre-Operation Reports and Recreation Project Reports are available upon request.

APPENDIX F

Forest Land Management Classification System (FLMCS) Change Notification

The FLMCS is a method of describing the management emphasis of parcels of State Forest Land. The management emphasis identifies the extent to which a parcel of land can be managed for a variety of forest resources. It also identifies when a particular forest resource may need a more focused approach in its management, or possibly an exclusive priority in its management.

The framework of the FLMCS places all State Forest Land within one of four land management classifications. The classifications are: (1) General Stewardship, (2) Focused Stewardship, (3) Special Use, and (4) High Value Conservation Areas. Subclasses are assigned for the specific forest resources that require a Focused Stewardship, Special Use, or High Value Conservation Area classification.

A major modification of the FLMCS is defined as one that cumulatively exceeds 500 acres within one year or one single change over 160 acres. A 45 day public comment period will be held in conjunction with the FY 2016 AOP comment period.

The current FLMC for the North Cascade District was revised in 2013 and will incorporate another minor change this year with the addition of another Northern Spotted Owl circle and the movement of an already existing Northern Spotted Owl Activity center.

The following tables from the North Cascade District Implementation Plan, 2012 have been modified to reflect this change:

Table 16. North Cascade District Acres, by Stewardship Class and Fund

Classification	Board of Forestry	Common School	Total Acres
Focused Stewardship	54,037 54,039	933	54,970 54,972
Special Use	3,621	6	3,627
High Value Conservation Area	5,424 5,278	83	5,507 5,361
General Stewardship	11,940 12,094	182	12,122 12,277

*Acres include overlapping classifications.

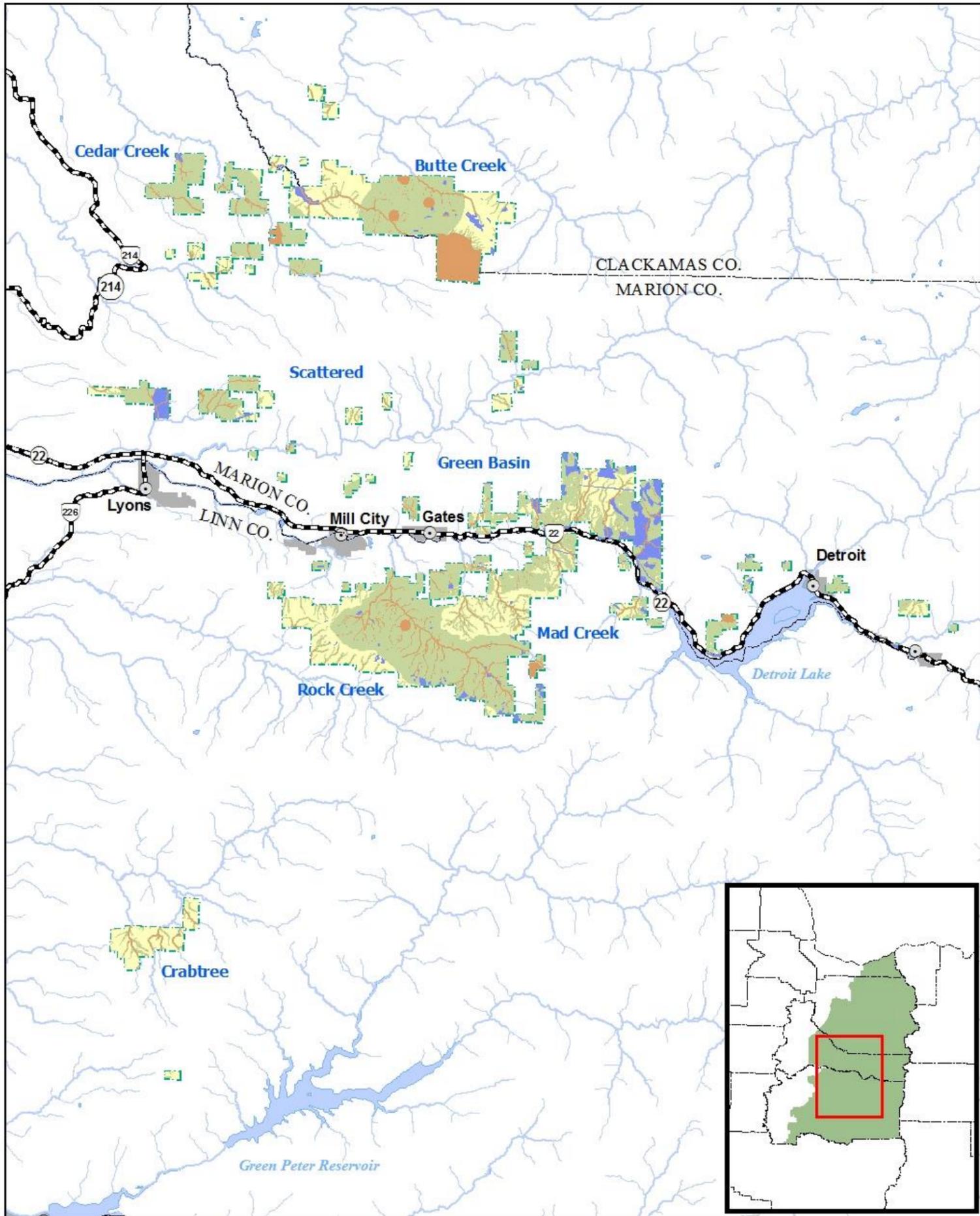
Table 17. North Cascade District FLMC – Focused and Special Subclasses (Acres)

	Focused Stewardship	Special Use	High Value Conservation Area
Administrative Sites		11	
Aquatic and Riparian Habitat	8,914		3,528
Cultural Resources	2	24	
Domestic Water Use	15,944		
Energy and Minerals		36	
Operationally Limited - NEF ¹		2,771	
Plants			86 17
Recreation	620	492	
Research and Monitoring	24	24	
Transmission		197	
Visual	7,992	73	
Wildlife Habitat	21,476 21,478		1,893 1,817

*Acres include overlapping classifications

1. Not Economically Feasible

North Cascade District Stewardship Classifications

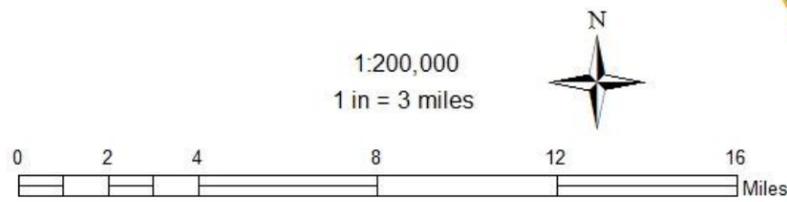


Legend

Forest Land Management Classification

Stewardship Class

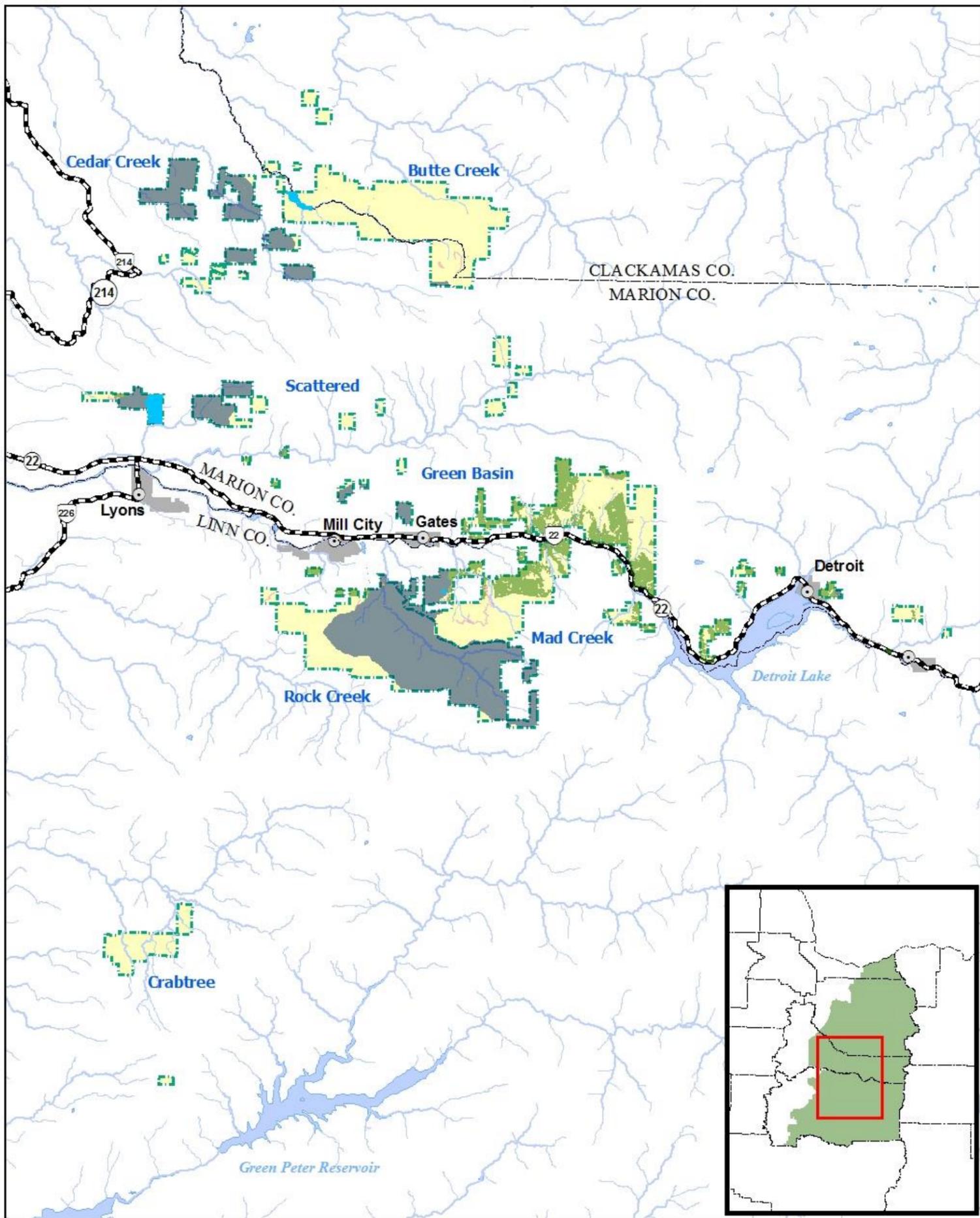
- High Value Conservation Area
- Special Use
- Focused
- General
- Towns
- Highways
- Lakes
- Management Basins
- Urban Growth Boundaries



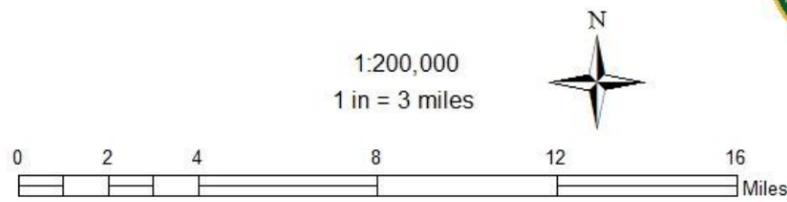
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Date: 2/11/2015

North Cascade District Stewardship Classifications - Social Subclasses



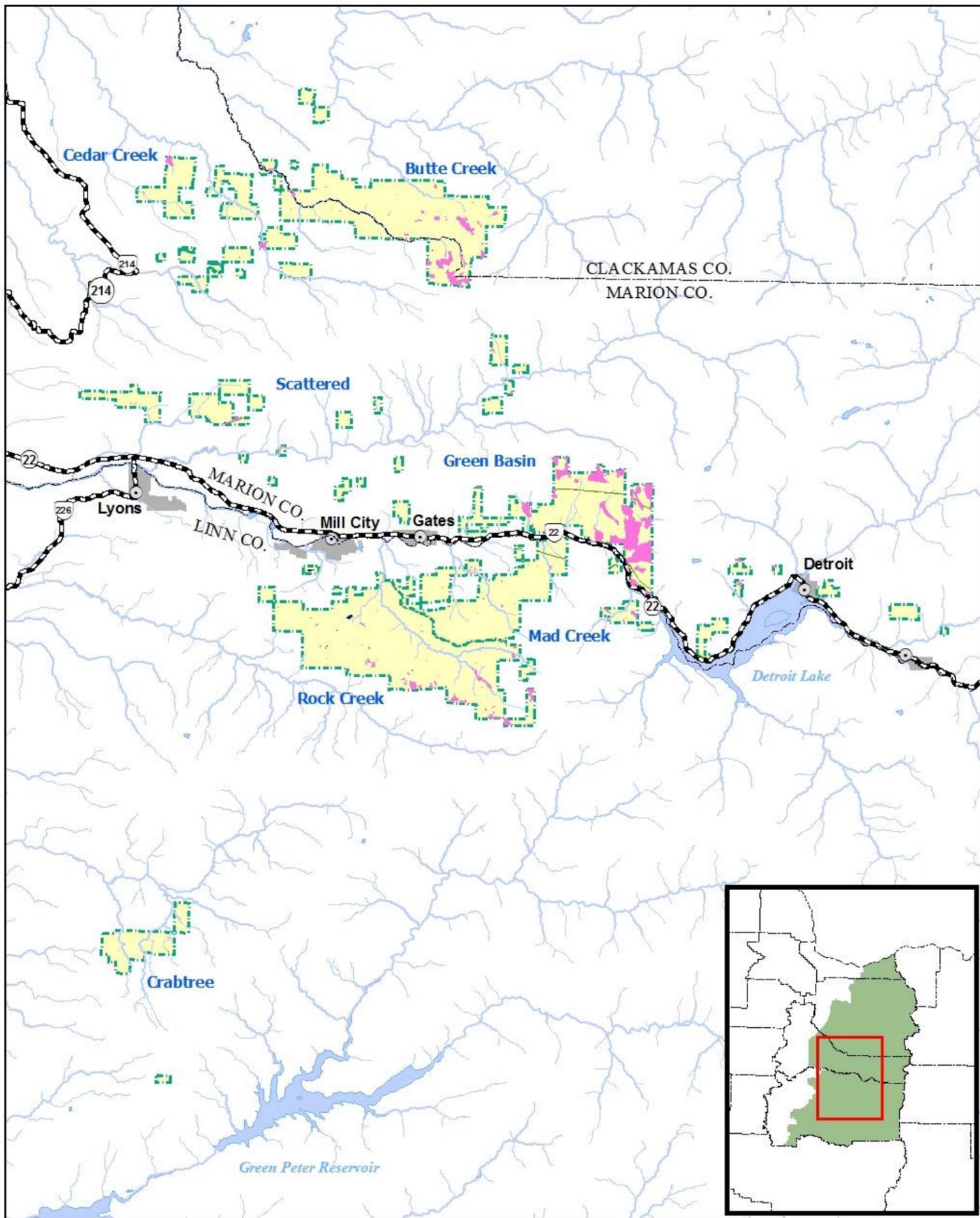
- Legend**
- Special Use**
 - Social Subclasses
 - Cultural Resources
 - Recreation
 - Visual
 - Focused**
 - Social Subclasses
 - Cultural Resources
 - Domestic Water Use
 - Recreation
 - Visual
 - Towns
 - Highways
 - Lakes
 - Management Basins
 - Urban Growth Boundaries



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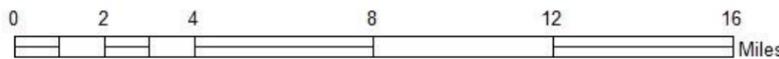
Created By: Kyle Kaupp
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North Cascade District Stewardship Classifications - Management Subclasses



- Legend**
- Special Use**
- Management Subclasses
 - Administrative Sites
 - Energy and Minerals
 - Operationally Limited - NEF
 - Research/Monitoring
 - Transmission
 - Focused**
 - Management Subclasses
 - Research/Monitoring
 - Towns
 - Highways
- Other Features:**
- Lakes
 - Management Basins
 - Urban Growth Boundaries

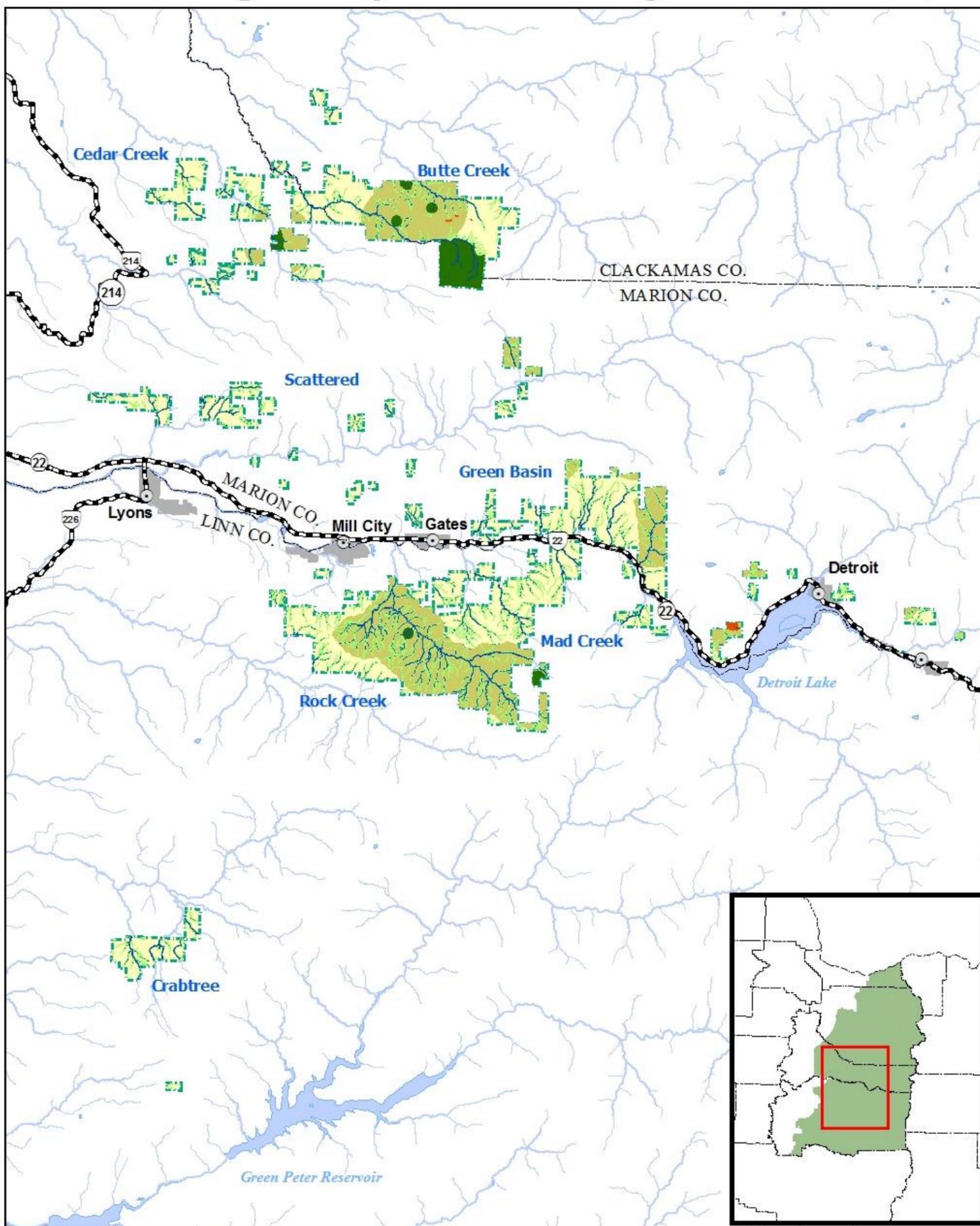
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1 in = 3 miles



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North Cascade District Stewardship Classifications - Biological Subclasses



Legend

High Value Conservation Area

Biological Subclasses

- Aquatic and Riparian Habitat
- Unique, Threatened or Endangered Plants
- Wildlife Habitat

Focused

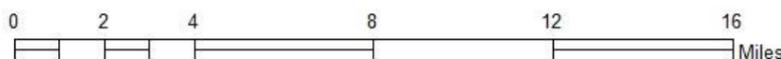
Biological Subclasses

- Aquatic and Riparian Habitat
- Wildlife Habitat

- Towns
- Highways

- Lakes
- Management Basins
- Urban Growth Boundaries

1:200,000
1 in = 3 miles



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