I am submitting comments on the Draft Environmental Assessment (EA) for the Quartzville-Middle Santiam (QMS) timber project.

I am a retired engineer and natural history guide. I am a longtime hiker in our Cascadia forests and treasure them for their magnificent beauty, usefulness in providing us lumber and their role in providing clear air, homes for wildlife, and sequestering carbon.

I am also a volunteer field checker with the Great Old Broads for Wilderness, working also with Cascadia Wildlands. However, I submit these comments as my own- they do not necessarily represent the view of the Great Old Broads or Cascadia Wildlands.

I have visited the QMS project area 5 times in the last 4 months, covering 34 units in some detail, driving by another 14.

General Comments

1. The Draft Environmental Assessment (EA) is incomplete, inaccurate and inconsistent. Out of 7 stub roads visited, 5 were miscategorized in Appendix # (70% error). Out of the 34 units visited, at least 3 LSR units are not plantations, 1 unit is partially in the wilderness, and 1 unit is proposed for Riparian Reserve Thinning in contradiction of Project Design (15% error). Many more inconsistencies will be detailed.

I'm not sure that the Forest Service can sufficiently assess and design such a large project during this time of historically huge wildfires and Covid lockdowns. At 7800 acres (Alternative 2), the QMS project is more than 20 times in size than the average sale listed in Appendix D. I ask that the Forest Service breaks up this project into smaller sales with more complete EAs.

2. Of the available alternatives, Alternative 4 with modifications is the only reasonable alternative as it drops the oldest units and drops the 'shelterwood with reserves' (also known as 85% clearcut) treatment. The oldest units are well on their way to becoming old growth, have lots of stand diversity and are known homes for sensitive and endangered species. I ask that the Forest Service choose this Alternative 4 if they will not consider breaking up the QMS project. (Drop units 166, 172, 240, 241, 243.)

3. LSR Units 26 and 29 should be dropped- these units are not homogenous plantations. Both units have diverse understories (> 25 species when quickly surveyed in October after many perennials are dormant) with large amounts of downed wood and snags. Unit 29 has 3 riparian areas - the 2 that were surveyed had well-developed hardwoods (3.5' diameter cottonwood, alders) and downed wood in the stream. These two units also provide a travel corridor for wildlife from the old growth west of Unit 26 (bordered on the west by private clearcuts) to the main forest to the east.

4. Unit 43 should be dropped. It was recently extensively thinned and remains extremely open. Understory is developing. Proposed treatment is 10 acres with 6 acres in Riparian Reserves.

But according to the Chapter 2, 'Stands that have previously been thinned or are proposed for shelterwood with reserve treatments would have no treatment in the Riparian Reserves.'

5. Unit 189 should be dropped. Before reaching Unit 189, the road has completely washed out. At Unit 189, the road has been covered by a large landslide. This unit has some of the steepest slopes in the entire project area with large old-growth trees just uphill of rock slides. Proposed skyline logging would be extremely difficult as it would be difficult to place a landing.

6. Unit 177 needs to be carefully surveyed. The northern section of the unit seems to actually be in the Middle Santiam Wilderness.

Inadequate Environmental Assessment

The QMS project is immense - project area over 90,000 acres, proposed logging over 7800 acres (Alternative 2). This project size is 20 times larger than 5 recent forest service projects in this district (average size around 300 acres) listed in Appendix D. Because of the sheer size of the project, I do not believe the Forest Service is able to do a thorough draft EA. The EA also does not adequately address climate change and the special carbon storing potential of the Western Cascade forests.

The following issues will be laid out in detail later:

1. Of the 7 side roads visited, 5 are incorrectly classified, suggesting inadequate road analysis.
2. Estimated harvest volume for the Alternatives is inconsistent across the EA.
3. Units bordering old growth areas in LSR often include include older taller trees- boundaries are not clearly set.
4. Unit 177 includes the Middle Santiam Wilderness.
5. Proposed modification of unit 137 is not included in the EA.
6. Unit 43 treatment includes riparian reserve thinning (Appendix B) even though EA states that Riparian Reserves will not be thinned in previously thinned units.
7. Many references are missing in Appendix F. Of the 8 references I looked for, 4 were missing. 2 had broken links.

This is a lot of errors, given my small sampling of the entire project (34 of 200+ units, 7 of over 100+ roads). I would like to see the QMS project broken into smaller projects with a new complete EA for each project.

Driving Tour and QMS Story Map

The driving tour, QMS Story Map and associated documents have been very valuable tools for understanding the scope of this project. But as they are not part of the official EA, these comments necessarily assume that the information in the EA supersedes them. For example, the supposedly 'final' boundaries for Unit 137 exclude the old growth and riparian areas from the original boundaries. But the EA shows the old boundaries and old treatments so the comments will be directed at the EA.

Comments on Inconsistencies in EA

1. Harvest Volume

In Chapter 1's discussion of alternatives, Alternative 2 and Alternative 3 estimated gross volume is 60-80MMBF and Alternative 4's volume is estimated to be 50-60MMBF. In Chapter 3, Table 48, under 'Economics', Alternative 2's net timber volume is ~103MMBF, Alternative 3's is ~100MMBF and Alternative 4's is ~80MMBF. Why is the net timber volume be greater than the gross volume? What are the correct volumes?

2. Figure 19 (Chapter 3) is a diagram of before and after commercial thinning which shows that the largest trees have all been removed or turned into snags. This contradicts the text which says "Commercial thinning would remove conifer trees across all size classes, but removal would primarily consist of smaller diameter trees (Figure 19)." Is the diagram or the text correct?

Figure 19: A visual of a stand before (left side) and after (right side) a thinning treatment

Questions about EA Text

1. In the Project Design Features(PDFs), thee is a reference to "All roads in Aquatics 22 and 23". What does "Aquatics 22 and 23" refer to?

2. Under 'Monitoring' (PDFs), 'contract administrators' are supposed to monitor harvest specs, bole damage, down wood retention and skid trail spacing. Who are the contract administrators? How often do they monitor? What are the penalties for violation?

Comments on Purpose and Needs

In Chapter 1 of the EA, the Forest Service proposes 4 goals:

1. contribute to timber supply for local economies
2. improve stand growth, diversity, structure in young plantations in the LSR
3. create diversity in structure and age class across the project area
4. sustainably manage the road network

Although I support the stated goals in principle, I don't think this project has been well-designed to serve these goals.

Regarding Goal #1, the EA provides almost no mention of economics (Chapter 3, 3 pages only). Also, the brief mention cites reports from OFRI, recently discovered to being a disguised lobby for the timber industry. How does the Forest Service determine what timber supply is needed for local economies? What kind of analysis is done, independently of OFRI? Are there quotas based on board feet or anticipated revenue? Does the Forest Service collaborate with local

timber companies to release auctions when the market for timber is best? Once an auction is complete, how long do logging companies have to finish their work? The EA does not clearly give a timeframe for completion of the QMS project- how can the Forest Service know if it is meeting Goal #1 if there is no timeline?

Regarding Goal #2, I support thinning of overstocked LSR plantation units. But some of the proposed units are not overstocked, and have diverse understories, snags and downed wood. (Units 43, 26, 29- photos and further discussion below). I don't believe the Forest Service has done an adequate assessment of the LSR units. I ask that units 26, 29 and 43 be dropped from the project. I also ask that the Forest Service do a more careful assessment of all LSR units. In communications with the Forest Service, apparently initial unit boundaries are based mostly on records and maps, not ground surveying. If the Forest Service, during final unit marking, find that an LSR unit has significant components of a well-developed forest, will the unit be dropped or redrawn?

I also ask the Forest Service consider thinning LSR units less aggressively. The PDFs set a minimum canopy cover of 40% after LSR thinning. But if one looks at some recently thinned units like 273, one notices how dry the ground is, with little shrub development. Could this be because of overthinning?

Regarding Goal #3, the creation of stand diversity, the EA is self-contradictory. On the one hand in Alternative 2, the EA repeatedly justifies cutting down the oldest units (over 100 years) in the project (Units 240-243, 166) by saying that it needs to create more early seral forest with 'Shelterwood with Reserves' (85% clearcut) treatment. On the other hand, in Chapter 3 under "Fire and Fuels", the EA states "These non-stand replacing fires foster the development of a multi-cohort canopy where shade-intolerant and shade-tolerant species exist in the same stand. The impacts of fire varied greatly across this region and helped to shape the historic structural diversity that resulted in a variety of age classes and seral types." Under Chapter 2, in Project Design Features, under "Aquatics (Fish and Hydrology)", Units 172, 240, 241, 242 and 243 are listed as fire-regenerated stands. In other words, Alternative 2 proposes to cut down the oldest fire-regenerated stands (that the EA says are the most diverse) to create more 'diversity' through 85% clearcut. That makes no sense regarding Goal 1. The more likely reason is that the estimated timber volume of these 6 units accounts for 39% of the estimated timber volume in Alternative 2's Matrix units.

If the Forest Service is serious about the need for early seral habitat, the EA should include early seral habitat created by the Bruler fire (298 acres according to page 178 of the EA), the 32 miles of temporary new and re-opened roads (over 50 acres, assuming a 12' wide road), and the historically massive fires immediately to the north and south of the Sweet Home District. Has the Forest Service surveyed the Bruler fire? How does the Bruler fire address Goal #3? How does the Forest Service re-evaluate this Goal after wildfire? If early seral habitat is critical, why not create it in the younger denser units instead of picking the oldest units? Does the Forest Service account for the new temporary roads basically creating early seral habitat in its

calculations? I ask that 'Shelterwood with Reserves' treatment be dropped from the project and all units with stands over 80 years old be dropped (Alternative 4).

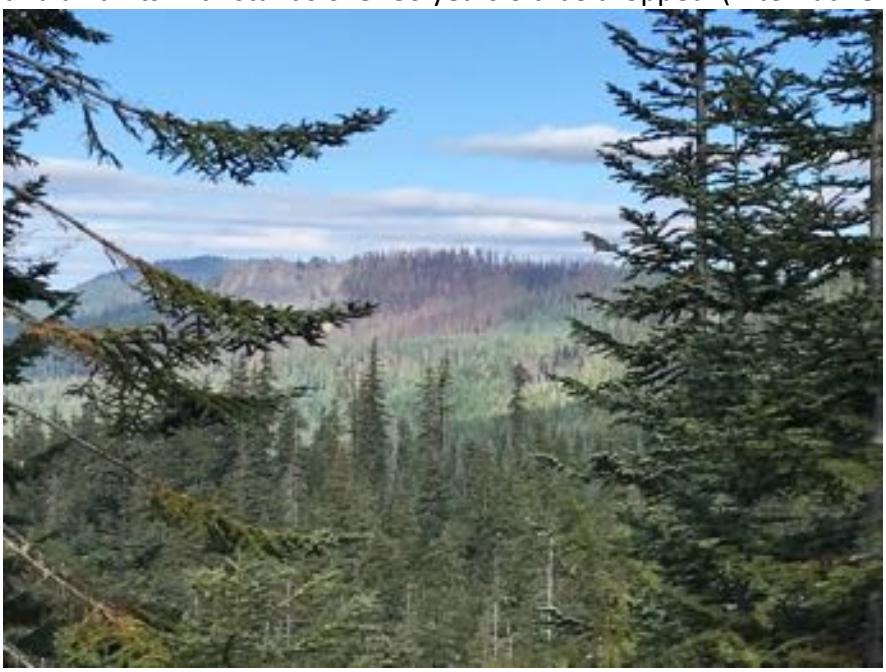

Figure 1: Bruler Fire - early seral habitat?

Regarding Goal #4, the proposed road treatments supposedly support a minimal road strategy to reduce long term road impact and maintenance. I strongly support catching up on deferred maintenance of roads and culverts. I especially support hydrologically stabilizing all roads, regardless of status, as we have found numerous washouts that risk stream sedimentation. But the QMS project also proposes 32 miles of new temporary or re-opened roads without showing where these roads are located in the EA. The Forest Service did finally send me a map of the temporary roads, after the draft EA was released, but will not be including this map on the project site. Also, of the 3-digit roads that I visited, 5 out of 7 are mis-categorized for status or maintenance level in the EA Appendix E which leads me to believe there are more mistakes in the proposed road treatments. When does the Forest Service do a more current survey to assess culverts and 'roads'?

Comments on Roads

The EA proposes 32 miles of new or reopening temporary road construction. The location of these roads are not indicated on any map in the EA so the public cannot assess their impact. The Forest Service did send me a map of the temporary roads but this map is not included on the project page so is not officially part of the EA, as far as I know. Will the Forest Service release this map indicating these roads as part of the EA?

I visited 7 side roads. 5 roads did not agree with the condition stated in the EA which suggests that the overall road survey was inadequate.

1. 11311101 - EA states this is open at maintenance level 2 and is proposed to be closed past unit 13. I found this road to be closed with a maintenance level below what is on the chart. A very large berm blocks the road just past the culvert at unit 13. The road beyond has numerous downed logs (from Canal Creek Fire 2009) and is overgrown in many areas but the roadbed generally seems sound. The culvert for Elk Creek into unit 13 is undersized - even in early October, the stream is wider than the culvert - high risk of washout as this is a deeply filled creek that is headwaters for Elk Creek, a Class 2 USDA stream. Will this culvert be replaced with a larger one? Will the spillway at Unit 14 be removed and replaced with a culvert?

Figure 2: Unit 13 - FSR1131101. Berm and slide

Figure 3: Elk Creek culvert- undersized at FSR1131101

Figure 4: FSR1131101 at Unit 17. Very overgrown.

Figure 5: FSR1131101 at Unit 14. Asphalt spillover.

2. 1131105 - EA states this is closed at maintenance level 1 and proposed for decommissioning. I found this road to be washed out past unit 23, with 4 foot deep ruts in the roadbed - certainly not at maintenance level 1. This washed out area was too overgrown to get a good photo. This area needs to be hydrologically stabilized as this sediment all runs toward a steep slope into a perennial stream which was running strongly in October.

Figure 6: FSR1131105 between Units 23 and 9- very overgrown.

3. 1131108 - EA states this is open at maintenance level 2 and proposed to be partly decommissioned (past the gate?). I found this road to be mildly overgrown with numerous small rockfalls along the edge- maintenance level 1? Roadbed seems sound.

Figure 7: FSR1131108 along Unit 7. Small rockfall

4. 1131116 - EA states this is open at maintenance level 2. It is quite overgrown on the way to unit 12- maybe at maintenance level 1. Definitely not open as the access road 1131101 is not open.

5. 2041515 - EA states this is open at maintenance level 2. I found this road is open until the stream between units 187 and 189. Beyond that, the road is completely washed out in sections, heavily overgrown in the rest. Within Unit 189, the road is covered by a landslide. This slope is one of the steepest in QMS, when looking at LIDAR, with large old growth trees uphill of the unit. Yet Unit 189 is proposed for skyline logging. I ask that Unit 189 be dropped as logging operations may increase erosion.

Figure 8: FSR2041515 at Unit 189- no sign of road

Figure 9: Looking uphill from location of old road FSR2041515. Long steep slope up to old growth.

Figure 10: FSR2041515 - overgrown between washout and Unit 189

Figure 11: Large tree (>40"DBH) above Unit 189

6. 2047725 - EA states this is open at maintenance level 2. This agrees with what we found.

7. 1131202 - EA states this is open at maintenance level 2. This agrees with what we found.

Comments on Units

- Elk Creek Units (7,9,11,12,13,14,15,16,17,18,22,23,24,25,26,27,28,29 visited in October 2021) Elk Creek is a USDA Class 2 stream with documented fish, crayfish and insect larvae. Most of the units are overstocked dense plantations with little understory but several are real forests (Unit 26, 29) with diverse understory, developed riparian areas and many large snags and downed wood. Also, the culvert on Elk Creek at Unit 13 is undersized with the stream already wider than the creek in early October. I ask that this culvert be replaced with a much larger one to protect the stream from a washout. (Photos for Unit 13 culvert shown in Roads section).

I also ask that any thinning on Elk Creek be staggered across multiple years to allow wildlife time to adjust or migrate. These units mostly adjacent to each other, on both sides of Elk Creek. Does the Forest Service consider Unit timing when putting together timber auctions with many adjacent units?

Figure 12: Unit 28. Dobson fly larvae from Elk Creek

Figure 13: Crayfish from Elk Creek next to Unit 27

Figure 14: Baby cutthroat from Elk Creek, Unit 27

Figure 15: Elk Creek where Units 26, 28, 29 meet

Figure 16: Elk Creek at Unit 27

Unit 7
This is a very steep dense plantation. The old overgrown road (FS108) has many small rockfalls - it would require a lot of work to make this road work for logging. Alternative 2 shows Skyline method for moving logs, which is good. This plantation needs thinning. Old growth is on the east side of unit, across from the creek. The roadside had at least 27 native species which should provide good recruitment once the unit is thinned. Where would the Skyline landing be?

Unit 9
This is a very dense plantation. An old washed out road (FS105) leads to it from road FS101. Alternative 2 shows Skyline method which is appropriate. This unit definitely needs thinning. Where would the landing site be for the skyline? If FS105 is closed per the QMS story map, where will the Skyline landings be located for units 5, 6 and 9?

Units 12, 13, 14, 15, 16, 17, 18 - Upper Elk Creek tributary units
All of these units are very dense plantations with little understory. All need thinning. However, most also border older trees- some old growth. On units 12, 17 and 18, the old trees may be just inside the unit boundary- difficult to tell because of the resolution of the unit maps. The QMS story map shows tall trees within unit 12, 15 and 18. I ask these tall old trees should be clearly withdrawn from the unit. What is the buffer around old trees that may not be within a unit?

Figure 17: Unit 12. 45" DBH tree

Units 11, 22, 23, 24, 25
These units are dense plantations which need thinning. But they also have a well-developed riparian area between road FS101 and Elk Creek that should be carefully protected.

Units 27 and 28
These units probably need thinning though both have some good understory layer. But they also have a well-developed riparian area between road FS101 and Elk Creek that needs to be carefully protected.

Units 26 and 29
I ask that these two units be dropped from the QMS project as they are functioning forests, well on their way to being beautiful mature forest. They already contain the key components of a forest - diverse upper canopy (Douglas fir, hemlock, cedar, cottonwood, alder, big leaf maple), diverse layered understory (>25 species in quick survey), large downed logs (>30"), and multiple well-developed riparian areas. These units are classified as Northern Spotted Owl dispersal zones. If one looks at the landscape level, the old growth on the western edge of the QMS project is stranded from the rest of the forest, because of private clearcuts to the west and the plantation units along Elk Creek. Units 26 and 29 help provide a wildlife corridor between the

old growth west of Elk Creek to the rest of Willamette National Forest. In Chapter 3, under "Riparian Reserves", the EA states ''The commercial thinning proposed in the Action Alternatives will promote late successional forest attributes and enhance hardwood and shrub habitat in approximately 1800 acres (or 21%) of the Riparian Reserve system in plantations in the long term. This should help meet the Riparian Reserve goal to improve travel and dispersal corridors for terrestrial animals and plants and provide for greater connectivity of late-successional forest habitat and increase species diversity (USDA NWFP, 1994)." The riparian areas in Units 26 and 29 already have extensive hardwood and shrub habitats to provide these corridors.

Does the Forest Service have a process where they will drop thinning in Riparian Reserves if the riparian zone already has great diversity of hardwoods and shrubs?

Figure 18: Unit 29 Riparian Area - 3.5' DBH Cottonwood

Figure 19: Unit 29 - lots of sky visible

Figure 20: Unit 29. 31"DBH Hemlock

Figure 21: Unit 29 riparian area with downed wood.

Figure 22: Unit 29. Large downed wood (>24" diameter), vine maple, sword fern and salal understory.

Figure 23: Unit 26 from road. Note how much light hits the understory.

Figure 24: Unit 26 understory of thimbleberry, vine maple, alder

Figure 25: Unit 26 - 40" diameter downed log in understory of sword ferns, salal, vine maples

Figure 26: Unit 26. 72"DBH hemlock on boundary.

Figure 27: Old growth stand just west of Unit 26

- Units off of Canal Creek

Unit 42

This is a dense plantation along road 202 which is in good shape. This unit definitely needs thinning. It also borders Canal Creek (Class 2 stream) and a class 3 stream and should have the appropriate buffers.

Unit 43

Why is this unit being thinned? This unit was recently thinned with small logs still stacked adjacent to unit. The canopy is already quite open at 56%, according to Forest Service information, with only 62 TPA. The understory is so open that fireweed (a sun loving pioneer plant) is growing in the understory. It also has a well-developed riparian zone in a very steep canyon between big old growth stands. According to Chapter 2 of the EA, 'Stands that have previously been thinned or are proposed for shelterwood with reserve treatments would have no treatment in the Riparian Reserves.' Yet the proposed treatment includes 6 acres of Riparian Reserve Treatment out of 10 total acres. I ask that this unit be dropped from the project and kept as a corridor for wildlife between the two ridges of old growth.

Figure 28: Large tree (57"DBH, 250'tall) across road from Unit 43

Figure 29: Unit 43 looking NW from road. Notice how open upper canopy is.

Figure 30: Unit 43. Leftover logs from last thinning.

- Units next to Middle Santiam Wilderness

Unit 137

The original unit is unusual because it included many different aged stands, including very large old trees along the northwest edge, in the center and in the southern portion. The QMS Driving Tour included a map of Unit 137 with new boundaries. The new unit boundaries are much better, focusing on the younger denser areas and withdrawing the older tree areas and riparian areas. But since this new map and new treatments are not included in the new EA, I would ask that the draft EA be modified to reflect these new unit boundaries.

Figure 31: Unit 137 boundaries in Driving Tour packet

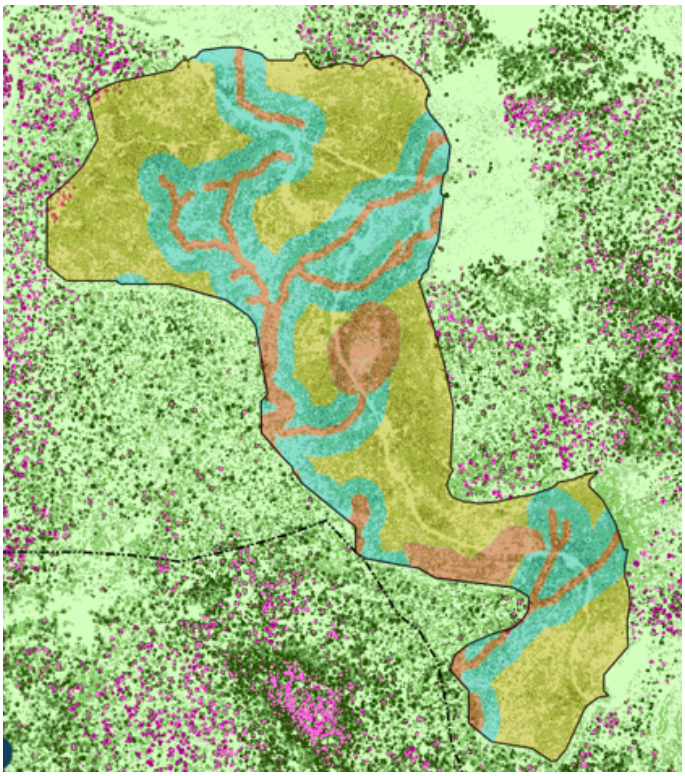

Figure 32: Unit 137 boundaries in QMS Story Map

Figure 33: Unit 137. Large tree (>40"DBH) inside current unit boundaries but outside 'final' unit boundaries

Figure 34: Large old trees within old 137 unit boundary but outside new 137 boundary

Unit 176

This unit is in a roadless area- old bridge is now missing a span. The site statistics say there are no large trees but there are quite a few large trees along the Middle Santiam River and along the western border. These are shown as in the riparian reserve area to be thinned, not in the no-cut buffer. Along the western border, there are also large old growth trees. The QMS story map shows those large trees in a no-cut area.

Figure 35: Unit 176 Large tree (>50"DBH) in riparian reserve

Figure 36: Unit 176 Large cedar on western border

Unit 177 - location

Using the georeferenced PDFs from the Forest Service, we walked to where we thought this unit was. On 3 other maps (Garmin, PocketEarth, Avenza- Willamette Cascades Recreation Map

North (by US Forest Service), we were standing in the Middle Santiam Wilderness. This was a 44.50316N, -122.1812W. Where is this unit exactly? I think it's been incorrectly drawn to include part of the Wilderness. I ask that this unit's boundaries be redrawn before the final EA.

Unit 189
Unit 189 is extremely steep with large old-growth trees just uphill. FSR2041515 is on a steep slope between units 187 and 189 and terminates well before reaching unit 189. The QMS story map shows FSR2041515 remaining closed and Skyline logging system being used. Where would a Skyline landing be located? How does one protect the uphill trees from erosion? Photos are included under "Comments on Roads".

- Units in Matrix

Unit 264
This unit is considered Northern Spotted Owl dispersal habitat. On a landscape level, because of the large clearcut areas just north and east of this unit, this unit should be dropped to retain some wildlife corridor between sections 18 and 24. At the south end of the unit are very large old growth trees in a well-developed riparian area. The QMS story map shows some old trees along the western edge of this unit. Will these be removed from the final unit boundary? Is there any consideration of wildlife corridors in the Matrix area?

Unit 273
I request that Unit 273 be dropped. This unit has already been seriously thinned already and has good stand diversity (medium cedars, hemlock. Some pine and chinquapin). It has been categorized as Northern Spotted Owl dispersal zone. This unit is the largest unit in section 24 - with proposed shelterwood treatment in Alternative 3 (but not Alt 2 or 4). Does the Forest Service consider wildlife corridors? Section 24 is a key corridor between the southern WNF and Section 18 because of private clearcuts surrounding these sections. The shelterwood treatment would severely shrink the corridor. The unit info says that this unit has a canopy cover of 64% but some areas are much less than that (see photos).

Under "Purpose and Need", the EA states ""Production of timber is an important objective for Matrix land, but these lands also provide habitat for a variety of organisms associated with both late successional and younger forests (NWFP B-1). "

Figure 37: Unit 273 - already extensively thinned

Units 274, 275
These units are dense plantations next to the Middle Santiam River. They do need to be thinned.

I look forward to your response to my comments and ask to be notified when a decision has been made.