



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Coos Bay District
1300 Airport Lane
North Bend, Oregon 97459-2000
(541) 756-0100
(Email) coosbay@or.blm.gov
(Home page) <http://www.or.blm.gov/coosbay>

Revised Sagaberd Complex Environmental Assessment

OR 125-97-18

Umpqua Resource Area
Coos Bay District
Bureau of Land Management

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Karen Smith	Umpqua Fisheries Biologist
Sabrina Keen	Umpqua Wildlife Biologist
Craig Garland	District Soil Scientist (retired)
Mark Storzer	Umpqua Hydrologist
Estella Morgan	Umpqua Botanist
Stephan Samuels	District Cultural Specialist
Tim Votaw	District Hazardous Materials Coordinator
Scott Poore	Fuels Specialist
Scott Knowles	Noxious Weed Coordinator
Dave Sherman	Umpqua Silviculturalist
Brian Thauland	Umpqua Engineer
Paul Fontaine	Team Leader, Umpqua Forester

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Chapter 1 - Purpose of and Need for Action

The Umpqua Resource Area, Coos Bay District of the Bureau of Land Management (BLM), proposes timber harvest management activities within an area in the Wells Creek and Luschsinger Creek drainages, T. 22 S., R. 09 W., Secs. 21, 22, 27, 28, & 35 Willamette Meridian. (See attached Location Map in Appendix 1). These drainages are within the Lower Umpqua Frontal subwatershed. A small portion of the proposed harvest, less than 10 acres, falls within the Mill Creek Analytical Watershed, T. 22 S., R. 09 W., Secs. 28 & 35. The first iteration of watershed analysis have been completed for the Lower Umpqua Frontal Watershed Analysis Unit (WAU) and the Mill Creek WAU and are hereby incorporated by reference. The proposed project area is within the General Forest Management Area (GFMA) and Riparian Reserve (RR) Land Use Allocations (LUA) as designated by the *Coos Bay District's Resource Management Plan (RMP) and Environmental Impact Statement* (BLM, 1995). This Environmental Assessment EA OR125-97-18, addresses site specific, direct, indirect, and cumulative effects of this proposal.

This EA is tiered to the *RMP* and its Record of Decision (BLM, 1995) which is in conformance with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late - Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (Northwest Forest Plan)* and its Record of Decision (Interagency, 1994).

These documents are available for review at the Coos Bay and North Bend Public Libraries, the Coos Bay District Office of the BLM, and the Oregon State Office of the BLM in Portland, Oregon.

The analysis file for this EA, containing such things as Interdisciplinary team meeting notes, specialists' reports, silvicultural prescriptions, stand exam data, etc., is located at the Coos Bay District Office, and is hereby incorporated by reference.

The preliminary scoping process consisted of an interdisciplinary team defining the issues and alternatives that would be examined in detail in the EA. The public was informed of this planned EA through the Coos Bay District's *Planning Update* sent to individuals and organizations on the District's mailing list. In addition, letters were sent out to specific individuals and organization on March 18, 1997, notifying them of the beginning of the scoping period and subsequent changes to the original proposal.

Management Objectives

- ▶ Produce a sustainable supply of timber, provide jobs and contribute to community stability.
- ▶ Work toward meeting the Coos Bay District's Probable Sale Quantity (PSQ) for Fiscal Year 1998 and 1999 as identified in the RMP and the Northwest Forest Plan.
- ▶ Maintain habitat connectivity across the landscape.
- ▶ Provide habitat for a variety of organisms associated with both late-successional and younger forests.

- ▶ Provide for important ecological functions such as dispersal of organisms and maintenance of ecologically valuable structural components such as down logs, snags, and large trees.
- ▶ Provide early-successional habitat.
- ▶ Work towards the goals established by the Lower Umpqua Frontal WAU Transportation Management Objectives (TMO), which reduce the overall road densities.
- ▶ Meet Aquatic Conservation Strategy (ACS) objectives.

Scoping issues identified by the public

The primary purpose of scoping is to identify the agency's and public's concerns relating to a proposed project and defines the issues and alternatives that are examined in detail in this EA. The scoping process consisted of an Interdisciplinary Team that identified potential issues that helped develop project design features and alternatives to the proposal. The general public was notified of the planned EA through publication of the District's semi-annual *Planning Update* and letters to adjacent landowners and those agencies and interested parties on the District mailing list. The District received three responses, two from private citizens and one from the Coast Range Association.

- ▶ Issue: Comply with Oregon Department of Forestry voluntary guidelines on logging on steep slopes.
- ▶ Resolution: The BLM has conducted an inventory that includes identification of fragile sites which, when harvested, could have reduced timber growing potential due to natural limiting soil properties and landform characteristics. This inventory is called the Timber Production Capability Classification (TPCC). For more information see Appendix H, Best Management Practices, ROD or the Oregon Handbook 5251-1, Intensive Inventories, TPCC. None of the proposed units within the project area have been withdrawn from the timberland base. (See page 10 of this EA)
- ▶ Issue: Prevent the introduction of *Phytoptera Lateralis*.
- ▶ Resolution: Stand exams and previous sale units cruises within the area show no incidence of Port-Orford cedar; therefore, the introduction of *Phytoptera Lateralis* is not an issue.
- ▶ Issue: Which stands are being used within the fifth field watershed for retention of old growth?
- ▶ Resolution: The proposed sale areas are primarily second growth stands with some scattered older residuals. The birthdates for the stands range from 1900 to 1930. Some of the scattered residuals will be left as wildlife trees. The 5th field watershed will retain 28% of the federal ownership in stands 80 years old and older following harvest operations. (See page 15 of this EA)
- ▶ Issue: A full analysis of how this project will meet the Aquatic Conservation Strategy and meet the Standards and Guidelines (S&G's).
- ▶ Resolution: This proposed project follows the Coos Bay District's RMP which is in compliance with the S&G's as outlined in the Northwest Forest Plan. The protection of

streamside and headwall areas will allow the ecological processes to occur that will provide those habitat components necessary for aquatic and terrestrial organisms. (See Chapter 3 Environmental Effects - ACS for a more complete discussion)

- ▶ Issue: We would like to see any 303(d) stream segments in the project watersheds addressed specifically. We are interested in how the BLM is helping to restore water quality in these streams.
Resolution: The nearest 303(d) stream segment is the Umpqua River from Little Mill Creek to North/South Fork of the Umpqua River (12C-UMPQ27.3). The listed parameters include: summer water temperature, fecal coliform and flow modification. Water temperature is not expected to be affected in the drainages in this project because of the maintenance of intact riparian reserves. There is also no indication that fecal coliform or flow modification would be affected in these drainages. Since water quality will be maintained in the project drainages the water quality of the Umpqua River will be maintained.

- ▶ Issue: Which parts of the Lower Umpqua Frontal are being managed for refugia areas for aquatic species, particularly coho and cutthroat trout?
Resolution: The majority of fish bearing streams on federal lands provide some level of refugia for coho salmon and cutthroat trout, in particular, those areas that have not been harvested. Under alternative II and III, the retention of Riparian Reserves will continue to provide refugia for cutthroat trout. Few coho reside in the fish-bearing streams adjacent to three of the sale units. Tier 1 Key Watersheds were designated as refuge under the Northwest Forest Plan. No Key Watersheds were designated within the Lower Umpqua Frontal watershed.

- ▶ Issue: Include the National Marine Fisheries Service Determination of Effects Table (“matrix”) for Cutthroat Trout Consultation.
Resolution: The table can be obtained upon request. The action was determined to be a “not likely to adversely affect” and is partially based on the disturbance history in the watershed. The consultation team also determined that the proposed sale plan conforms to the Northwest Forest Plan, and its’ Aquatic Conservation Strategy (ACS) objectives and the Coos Bay District’s RMP. No significant affects to listed or proposed fish species is anticipated.

- ▶ Issue: Road Densities
Resolution: In the Transportation Management Objectives, for the Lower Umpqua Frontal Watershed Analysis Unit, 8.7 miles of road were identified for closure. Approximately 7.1 miles of road have been have been closed in the Lower Umpqua Frontal Watershed Analysis Unit, the remainder, 1.6 miles, were roads with private access. This reduces the road densities down to 2.55 miles per square mile from 2.88 miles per square mile (see page 18 of the Lower Umpqua Frontal WAU). In addition, approximately 5 miles have been closed in the Paradise Creek Watershed Analysis Unit, 5.5 miles have been closed in the Mill Creek Watershed Analysis Unit with an additional 3.81 miles in the West Fork and Mid-Smith Watershed Analysis Units. This brings the total road closures to date to approximately 21.41 miles within the Umpqua Resource Area. These roads closures were accomplished by FY 95, 96, and 97 Jobs-In-The-Woods contracts.
In the alternatives considered but rejected, it was proposed that we re-open the 22-9-15.0

road, approximately 72 stations of reconstruction, to enhance access to the north end of units 2A and 3A, B, and C , and construct a swing spur, 20 stations, into the top end of unit 4A. These roads would facilitate logging, site preparation, and follow-up stand management activities. These proposals were rejected. It was determined to be economically and environmentally unsound. Future silvicultural activities would require the operators to walk rather than drive to units. Seedlings and equipment could be flown in.

- ▶ Issue: Several of the units have been subjected to repeated fires and have very little Coarse Woody Debris (CWD).
- ▶ Resolution: Two additional wildlife trees will be left in those areas deficient of existing CWD to fulfill Coos Bay District's RMP requirements for Decay Class 1 and 2 CWD.

Alternatives considered but rejected.

The option of commercially thinning was considered but was eliminated because that alternative did not provide the volume needed to meet the Umpqua Resource Areas PSQ. Commercial thinning was considered only in Units 1 and 2, Units 3 and 4 did not have overall densities to support a commercial thinning. The volumes derived from a commercial thinning would fall substantially below that of the regeneration harvest. For Unit #1, it was estimated that 54 acres of GFMA could be thinned and 34 acres of Riparian Reserve could be thinned. Thinning Unit #1 would yield approximately 12 mbf/acre for a volume of 1056 mbf while the regeneration harvest would yield at least 3000 mbf, a difference of 2000 mbf. In Unit #2 about 55 acres of GFMA and 55 acres of Riparian Reserves would be thinned. The thinning would yield about 10 mbf /acre or 1210 mbf while the regeneration harvest would yield over 3200 mbf a difference of 2000 mbf. That would reduce total sale volume by over 4 million board feet. The yields were based on the a post harvest thinning stand exam done on the nearby Sidewinder Thinning Timber Sale.

Chapter 2: Alternatives Including the Proposed Action

This chapter describes the proposed action and alternatives.

Alternative I - No Action Alternative

Under the no action alternative, no harvest would occur at this time. Another analysis area would be proposed for harvest to meet the objectives of the GFMA as detailed in the Coos Bay District's RMP.

Alternative II - Regeneration harvest

Alternative II proposes a regeneration harvest on approximately 318 acres of GFMA lands within the Middle Umpqua Frontal WAU and the Mill Creek WAU. The proposed activities would occur in the Wells Creek and Luschsinger Creek drainages. Approximately 17 MMBF will be cut. Harvesting would be accomplished using cable and helicopter systems with one end and full suspension required in the cable logging portions. Table 1 outlines the units and the logging method to be employed. Proposed sale maps in Appendix 1 show cable and helicopter areas in greater detail.

The area to be known as the Sagaberd Complex is divided into 4 units. These units are further divided into subparts, A, B, C, etc. Unit #1 will be approximately 106 acres, with 1A = 3 acres, 1B = 4 acres, 1C = 10 acres, 1D = 66 acres, 1E = 20 acres, 1F = 1 acre and 1G = 2 acre. Unit #2 will be approximately 64 acres with 2A = 22 acres and 2B = 42 acres. Unit #3 will be approximately 99 acres with 3A = 6 acre, 3B = 2 acres, 3C = 88 acres, 3D = 3 acres. Unit #4 will be approximately 39 acres with 4A = 30 acres, 4B = 6 acres, and 4C = 3 acres.

The one site potential tree height has been estimated as 200 feet for this fifth field watershed and will be the Interim Riparian reserve for this area. All non-fish-bearing streams will have a riparian buffer of 200 feet slope distance on either side of the channel while fish-bearing streams will retain 400 feet of riparian buffers on either side of stream channel.

Six to eight wildlife trees per acre will be retained and coarse woody debris will be left in accordance with the Coos Bay District's RMP, the Northwest Forest Plan, Instructional Memo OR-95-028 and Informational Memo OR-97-064.

It is estimated that 3500 feet of new road construction would be needed for this project. All roads will be rocked, except a 6 station spur into Unit 4B. All roads will be constructed in the dry season, and located on stable ridgetops and benches outside of Riparian Reserves. All roads will be decommissioned following logging operations. It is estimated that 3 miles of road renovation would be needed to bring existing roads to standards. Table 1 lists the road to be constructed by unit. Site preparation methods are summarized in Table 1 and more detail can be found in the Fuels Management Specialist Report in the Analysis File. In general, an early spring burn is the preferable site preparation method. On the smaller areas where burning is too costly, hand or machine piling will be used.

Alternative III - Proposed Action - Regeneration harvest with density management and commercial thinning

Alternative III proposes a regeneration harvest on about 318 acres of GFMA lands, as outlined in Alternative II, and additionally to perform a density management on approximately 53 acres of selected riparian reserve and commercial thin 12 acres of GFMA lands. Unit #1 contains approximately 29 acres of Riparian Reserve density management, and Unit 2 has 24 acres. Unit #4 will have approximately 12 acres of commercial thinning in GFMA lands. No activity would be planned within 200 feet of fish bearing streams or within 50 feet either side of non-fish bearing intermittent streams. No additional roads would be required to thin within the Riparian Reserve. The area would be harvested using cable and helicopter logging systems. Smaller diameter trees, averaging 16" dbh would be harvested in the density management areas. Thinning would be from below (the largest trees would be retained), and densities would be reduced to 50 - 80 trees per acre. All existing coarse woody material would be retained. Snags would be protected where safety allows. Where burning for site preparation is proposed in the regeneration harvest areas, some fire may be allowed to creep into the Riparian Reserve.

Table 1 - Synopsis of Sagaberd Complex Units Alternative II & III

*Unit Numbers/Regeneration acres/Thinning Acres							Alternative III	
							Alternative II	
Unit number	Road stations	Logging method	Suspension	TPCC	Site Preparation	FOI symbol	Regeneration Harvest Ac/Vol.	
1A	4	Cable	one-end	FGR1	Burn/Spr	N D3= 1920	3ac/150mbf	
1B	4	Cable	one-end	RLR1	Burn/Spr	D4= 1900	4ac/220mbf	2ac/20mbf
1C	0	Helicopter/cable	one-end	FGR1	Burn/Spr	D4= 1900	10ac/550mbf	10ac/100mbf
1D	0	Helicopter/cable	one-end	1/3 FGR2 2/3 FGR1	Burn/Spr	N D3= 1920	66ac/3630mbf	17ac/170mbf
1E	0	Helicopter/cable	one/full	RLR & FGR1	Handpile	D4= 1870, D3=1900	20ac/1100mbf	
1F	1	Cable	one-end	RLR1	Burn/Spr	N D3= 1920	1ac/45mbf	
1G		Helicopter	one-end	RLR1	Handpile	D4= 1900	2ac/90mbf	
2A	0	Helicopter	one-end	½ FGR2 & ½ FGR1	Burn/Spr	N D3= 1930	22ac/1210mbf	10ac/100mbf
2B	0	Cable/Helicopter	one/full	FGR2	Burn/Spr	N D4= 1900	42ac/2310mbf	14ac/140mbf
3A	0	Helicopter	one-end	FGR1	Handpile	N D3= 1920	6ac/330mbf	
3B	0	Helicopter	one-end	FGR1	Handpile	N D3= 1920	2ac/110mbf	
3C	20	Helicopter/cable	one/full	½ FGR2 & ½ FGR1	Burn/Spr	N D3= 1920 D4= 1910 N D4= 1900	88ac/4840mbf	
3D	0	Cable	one-end	RLR1	Machine pile	D4= 1910	3ac/150mbf	
4A	0	Cable/Helicopter	one/full	2/3 FGR2 & 1/3 RLR	Burn/Spr	D4= 1880/ D3=1950	30ac/900mbf	12ac/60mbf
4B	6	Cable	one-end	RLR	Burn/Spr	D4= 1880/ D3=1950	6ac/180	
4C	0	Cable	one-end	RLR	Handpile	D4= 1880/ D3=1950	3ac/165mbf	
Totals	35						3 18ac/15980mbf	65ac/590 mbf

Project Design Features Common to Alternatives II & III

- ▶ In accordance with the Northwest Forest Plan, *Standards and Guidelines*, the Coos Bay District's RMP, and based on Instructional Memo OR-95-028 and Informational Memo OR-97-064, an average of 120 linear feet of decay class 1 and 2 logs per acre would be retained over the regeneration harvest area and would reflect the species mix of the unit. Logs would be distributed throughout the cutting area, and not piled or concentrated in a few areas. Where existing CWD is limited, one to two standing trees per acre will be left to provide for CWD and could be felled after site preparation is completed. All decay class 3, 4, and 5 logs would be retained.
- ▶ All existing down logs would be protected to the greatest extent possible from damage from falling, yarding and subsequent site preparation. Hand pullback of all fuels 1/2" to 4" in diameter that are within 10' of existing coarse woody debris and snags will be done

prior to spring burning.

- ▶ Seven to ten green conifer trees per acre will be retained (see CWD retention above). Trees will be distributed in variable patterns, stringers and clumps, to contribute to stand diversity. Some of the residual old growth within units 1, 2, 3, and 4 will be retained as wildlife trees. Additional hardwood wildlife trees will be left where feasible. The rock outcrop/bald in Unit # 2 that has several oak trees will be protected by placing wildlife trees around the oaks. In addition to the green tree retention, all existing snags will be reserved from felling within the parameters of a safe working environment.
- ▶ Approximately 80% of the wildlife trees will be in clumps centered around existing snags or downed logs where possible, with the remaining 20% scattered throughout unit.
- ▶ The location, number, and width of yarding corridors through the Riparian Reserves will be specified prior to yarding. Natural openings will be used as much as possible. No more than 250 feet of yarding corridors will be allowed within any 1,000 feet of stream length. Maximum corridor width will be 50 feet, and corridors will be at least 50 feet apart.
- ▶ Full log suspension will be required over the streams with one-end and full suspension over the remainder of the area within the cable logging areas. Lift trees may be required to achieve desired suspension.
- ▶ All trees will be directionally felled away from reserve areas, previous sale areas, intermittent streams, posted wildlife trees, and snags.
- ▶ All trees designated for cutting in the commercial thinning and density management areas will be cut into lengths so as not to damage the residual stand while yarding. Limbs and tops will remain on site.
- ▶ To prevent damage to the residual trees during high sap flow, no yarding or felling shall take place between March 1st and June 30th in the density management or the commercial thin areas.
- ▶ All commercial thinned and density management areas to be logged with a helicopter will have the logs lifted vertically, free and clear of the tree tops, before moving toward the landings to protect residual tree crowns.

All roads will be rocked, except a 6 station spur in 4B, and will be constructed in the dry season, and located on stable ridgetops or benches outside of Riparian Reserves. Cuts and fills will be seeded with native grass seed if available. If native grass seed is not available, road cuts and fills will be seeded with an approved BLM weed free seed mix..

- ▶ All material overhanging the edges of landings will be pulled back. All newly constructed roads in the proposed sale areas will be mulched to protect soil from erosion and will be closed following completion of tree planting activities.

- ▶ All road construction and logging equipment would be washed prior to moving into, and upon leaving, the proposed sale area to minimize the spread of noxious weeds.
- ▶ Two sites of *Sarcosoma Mexicana*, a Protection Buffer fungal species, were found and a no-cut buffer of 100 feet radius circle will be established around each site.
- ▶ A standard special provision would be included in the contract to protect Threatened and Endangered (T & E) species if found on the site after the contract is awarded
- ▶ Prescribed burning activities in each unit will be conducted in accordance with the Oregon Department of Forestry's Smoke Management Plan.
- ▶ The timber sale contracts will include the appropriate provisions for disposal of wastes and handling of hazardous materials. State of Oregon Department of Environmental Quality and Forest Practices guidelines for spill prevention and containment will apply to any contracts resulting from these sales. Site monitoring for solid and hazardous waste will be performed during operations.
- ▶ Upon discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony and pursuant to 43 CFR 10.4(c) and (d), all activities within the vicinity of the discovery will stop and be protected for 30 days or until notified to proceed by the authorized officer.

Chapter 3 - Affected Environment

The description of the existing conditions reflects the application of the No Action Alternative and is the baseline for measuring the effects of the Proposed Actions.

Forest Stand Condition

The Bureau of Land Management, Coos Bay District has redefined the District's 5th field watersheds. They now correspond to the USGS Hydrologic Units. The new 5th field for this project area is No. 1710030304 and contains the Lower Umpqua Frontal (1994), Paradise Creek, A Tier 1 Key Watershed (1995) and the western portions of Upper Middle Umpqua Frontal (1997) and will be called the Middle Umpqua Frontal. The BLM manages 36% of the "304" Middle Umpqua Frontal 5th Field watershed. The Northwest Forest Plan land use allocations (LUA) for BLM lands include Late Successional Reserves (LSR), Connectivity/Diversity (CON), General Forest Management Areas (GFMA) and Riparian Reserves (RR). Acreage for each LUA are as follows: LSR- 28% (6,348), CON-3% (743 acres) and GFMA - 20% (4,581 acres) and RR- 49% (11,262 acres). At the present time, 34% of the existing BLM forested stands are over 80 years old and occur in LSR's and Riparian Reserves ("304" 5th Field Watershed ACS Module, July 9, 1998). The majority of the late successional forest habitat which remains is scattered in small, highly fragmented patches, intermingled with large blocks of early successional habitats on federal and private lands. These early seral plantations are typically even aged, single canopy conifer stands with a minor hardwood component.

The total area represented within the 5 sections that encompass the proposed timber harvest areas is approximately 1628 acres. Of that, 473 acres has been previously harvested, 318 acres are available for regeneration harvest, and about 448 acres are in Riparian Reserves. An additional 153 acres will be commercially thinned in the Luschsinger Thinning TS 95-03, while the remaining 258 acres has limited potential for commercial thinning. About 36 acres of older stands within the GFMA will remain for a total of 1628 acres. The age class breakdown is found in Table 2.

The stands within these 5 sections are classified as naturally regenerated and have stem densities ranging from 6 to 317 trees per acre. The stands are comprised primarily of Douglas fir with a smaller component of western hemlock, grand fir and hardwoods (big leaf maple, madrone, and alder). These forests were initiated by a fire of unknown origin in the early 1900's or late 1890's. Tree species composition is fairly uniform throughout and diameters and heights are consistent within these stands. Variability in Douglas fir density is based primarily on aspect, and secondarily by topographical position and. The south and west aspects have high densities of Douglas fir. Hardwoods are located in the lower portions of the slope and near rock outcroppings. Salal with evergreen huckleberry and rhododendron can be found on the southern aspects and the density of the brush can vary. On the drier west/south aspects evergreen huckleberry and salal can be dense. Units 1A, 1B, 1C, 1D, 1E, 2A, 2B, 3B and portions of 3C have high densities of Douglas fir. The few large conifer remaining are concentrated along riparian zones in combination with younger conifer and red alder, or located on ridgetops. The north and east aspects are less dense with larger Douglas fir and more hardwoods with moist site brush species, i.e. sword fern, salmonberry and vine maple. Units 3A, 3D, portions of unit 3C, 4A, and 4B have this less dense Douglas fir component. Old red duff snags are not common but some still remain and show signs of charring. Blowdown has been a problem in the north portion of 1D, the south line of 3C, and within the headwall area between 4A and 4B. These areas are not steep but are exposed by a recent clearcuts. The area between 4A and 4B that falls within the Riparian Reserve has some residual canopy and will be left to regenerate naturally.

Table 2 Stand Age Classes for Five sections within the Sagaberd Complex

Stand Symbol	Acres	Stand symbol	Acres
PL D1-=1986	26	N D3-=1930	45
PL D1-=1987	162	D4-//D3=1900	34
PL D1-=1991	48	D4-=1900	192
PL D1-=1992	68	D4-=1910	155
PL D1GF1- =1992	26	D4=1870//D3-1900	33
PL D2-=1959	399	D4=1880//D3=1950	86
X 1989	143	N D4-= 1900	89
N D3= 1950	7	N D4-=1900	42

N D3=1920	73	Totals	1628
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A stand exam was conducted on units 1 and 2. A post thinning exam on the nearby Sidewinder Thinning (TS95-02) and is used here for comparison. Table 3 shows the findings of those surveys. The survey data was analyzed using the Atterbury stand exam program developed for the BLM. Coarse woody debris and snag inventories were done in conjunction with the stand exams. Survey lines were spaced 400 feet apart and the plots were taken every 400 feet. Data was collected by strata. Strata 1 represented the GFMA portion of the landscape and strata 2 represented the upland Riparian Reserve areas.

A run utilizing the Stand Projection System (SPS) was done using the plots from the strata 2 portion of the stand exam within unit #1. A cut was made at age 75 to 70 tpa and it resulted in 10 mbf/acre cut. The average cut tree diameter was 16 inches and the average leave was 22 inches. This prescription falls within the suggested district guidelines for partial-cut harvest. The resulting Crown Competition Factor is 195 and the Relative Density is 39. It is anticipated that about 10 mbf per acre would be removed. This would add approximately 530 mbf to the sale.

Coarse Woody Debris (CWD) information showed that within unit #1, there were 10 pieces for a length of 396 feet per acre of Decay Class 1 and 2 greater than 16" and 320 feet per acre of Class 3,4, and 5 exists greater than 16 inches. Within unit #2, no material within Decay Class 1 and 2 was present. In Decay Class 3, 4, and 5 only 230 feet per acre of material greater than 16 inches were present. More Decay Class 1 and 2 material in smaller diameter classes and shorter lengths is present but these would not meet the Coos Bay District's RMP requirements for piece size.

In unit 1, there are about 40 snags per acre with an average diameter of 11 inches. In unit #2 there are about 18 snags per acre with an average diameter of 11 inches. These snags were created by both natural suppression and small areas of disease within the stands. The snags, with ½ being less than 50 feet and ½ being 50 to 100 feet are in the softer decay classes, 2 through 5.

Table 3. Stand Exam Results for Units 1 & 2, Strata 1&2, Sagaberd Complex

Units	live tpa*/diameter	snags**/diameter	snag heights 15- 50'/ 51-100'/acre	CWD (ROD) > 16" & 16'/acre
Unit 1	105/21	40/11	17/24	320
Unit 2	93/20	18/11	11/6	0
Unit 1 and 2 had a range in densities of 6 to 317 tpa with unit 2 having a range of 32 to 344 tpa				

* tpa - trees per ** snags per acre

There is no Port Orford Cedar (POC) in the area.

Soils

This timber sale proposal consists of four timber sale units with several parts to each unit. The

sale units are geographically close to each other, and there are only a few soil mapping units involved. There is little new road construction proposed, and log yarding systems are proposed to be either cable or helicopter. According to the Timber Production Capability Classification (TPCC) guidelines, cable yarding with at least one end log suspension or helicopter would be acceptable on these soils.

Units:

- 1A and 1F - 240G , Digger-Bohannon, Umpcoos, 60-90% slopes. Small unit.
- 1B- 240G and 555E, Absaquil-Honeygrove-McDuff on 3-30% slopes. Small unit.
- 1C, 1G, and 4B - 311F, Preacher-Bohannon-Xanadu on 30 to 60% slopes. Medium and two small units.
- 1D ,1E and 2A - 555F, McDuff-Absaquil-Honeygrove on 30 to 60% slopes, and 240G. Large and medium sized units.
- 2B - 240G and about 20% 555F, Big unit.
- 3A, 3B, 3D, 3D and 3E - 555F, Small units.
- 3C and 4A - 240G, (Almost all); Big unit and medium sized unit

- 4C- Not typed, but estimated to be 555F based on slope, landform, geology and surrounding soils. Small unit.

Digger soils are moderately deep (20-40"), well drained, loamy and rocky soils that occur on 3 to 90% slopes. Bohannon soils are similar to Digger but have less than 35% rock in the profile. Umpcoos soils are shallow. (<20" over sandstone bedrock) rocky, loamy, and well drained. They often occur in close association with rock outcrop, and on knife edge ridgetops and extremely steep slopes. They are the tertiary soil in map unit 240G. Preacher soils are deep, well drained, loamy, highly productive soils that occur on gentle to steep slopes.

Xanadu soils are deep, well drained, and have gravelly loam soils over red clay. Absaquil and McDuff are similar brown clayey soils. Absaquil soils are deep and McDuff are moderately deep (20-40"). They occur on gentle to moderately steep slopes. The *Soil Inventory of the Coos Bay District* (BLM, 1977) contains more detailed soils information.

The TPCC, Table 4, for most of the sale is FGR1 (Fragile Gradient Restricted) with some FGR2, (more fragile than FGR1, and the most fragile land type that the district can conduct timber harvests. There are some small inclusions within the sale units that could be classified as FGNW but are not large enough to classify as a separate land classification.

Table 4 - TPCC Slope Gradient Classification Criteria Used by Coos Bay District

	Not Fragile	FGR1	FGR2	FGNW
TPCC MAP UNIT over all characteristics				
slope - ave. for unit	0-60%	50-70%	70-80%+	mostly 80%+
dissection - ave. for unit	low	low-mod.	mod.-high	high- very high

soils*	57,10,14,63	63,57,53,64,153	64,564,53,63,R	564,64,R,53,63
soil depth	deep & moderately deep	shallow to deep	shallow to moderately deep & skeletal	shallow & skeletal
rockland/ % rock outcrop	0-5%	0-10%	5-20%	10-30%
soils*	57,10,14,63	63,57,53,64,153	64,564,53,63,R	564,64,R,53,63
instability indicators	none to few	few	common	many, including active failure

* soil mapping unit codes from Townsend et. al. (1977)

FGR = Fragile Gradient Restricted FGNW = Fragile Gradient Non-Suitable Woodlands

Hydrology

The hydrology of the area is driven by precipitation in the form of rain. The area may occasionally receive snow, but the quantity and duration of the snow does not normally produce rain-on-snow events. The peak flows, low flows, annual flows and groundwater levels are all dependent on the amount, intensity and distribution of rainfall. The close correlation between precipitation and runoff indicates that this system rapidly translates rainfall into runoff due to: a high drainage density, low bedrock permeability, coarse textured, shallow soils, intense precipitation totals, and steep slopes. Units 1, 2, and 3 are all drained to the north by low order (1-3) frontal tributaries of the Umpqua River. Unit 4 is drained to the northeast by low order tributaries (1-3) of Luschsinger Creek, which is also a tributary to the Umpqua River. All of these tributaries are high gradient, step/pool, debris torrent systems that have been surveyed for fish presence and channel inception points. Channels have been identified on the ground to determine Riparian Reserves. These channels do not have an inner gorge by definition or an active flood plain and the distance dominated by riparian vegetation is also less than a site potential tree height.

Fisheries

Native Fish Stocks - Including T&E Species

There are approximately 0.7 miles of fish-bearing streams adjacent to the proposed sale units. The remaining 4.2 miles of streams are non-fish bearing but contain quality habitat for amphibian and aquatic invertebrate species.

The proposed sale area is encompassed by the Sagaberd and Luschsinger Creek drainages. Native anadromous fish species occurring within those drainages include coho salmon, winter steelhead trout, sea-run cutthroat trout, and Pacific lamprey. Common resident fish include the cutthroat trout, brook lamprey, and a diversity of dace and sculpin species. Fish-bearing streams directly adjacent to proposed sale units are generally small in nature and primarily contain cutthroat trout and sculpin species. While the presence of these species are known, data related to population sizes or trends is not known.

Of the 175 "at-risk" anadromous fish stocks in Oregon listed in *Forest Ecosystem Management*

Assessment Team (USDA; USDI 1993), three occur within or downstream from the proposed sale units. The Umpqua Basin cutthroat trout is currently listed as “Endangered” under the Endangered Species Act (ESA), the Oregon coastal coho salmon is listed as a Candidate species and the winter steelhead trout is currently considered proposed for listing under ESA. BLM has determined that the proposed action is a “not likely to adversely affect” action for these species. All reasonable and prudent measures identified in consultation with National Marine Fisheries Service will be used in the sale design.

Cutthroat trout, sculpin and potentially brook lamprey utilize small streams adjacent to three of the proposed units. Coho salmon and steelhead trout mainly utilize the larger areas downstream. Primary (algae) and secondary (insect) production in all streams adjacent to units, is thought to be high due to the presence of organic debris accumulations and an abundance of gravel/cobble substrates. The production of aquatic insects provides foraging opportunities for both aquatic and terrestrial species. The large amounts of cobble/gravel substrate also provide habitat components that are beneficial for amphibians.

Amphibians are the most abundant vertebrate group in many forested ecosystems, and the Pacific coast harbors a particularly high number of endemic species (de Maynadier and Hunter 1995). The eight species of amphibians strongly associated with stream habitats in the proposed sale area include: the Pacific giant, southern torrent, northwestern, and Dunn’s salamanders; roughskin newt; red-legged and Pacific tree frogs; and western toad. Two species, the Pacific giant salamander and the southern torrent salamander have multi-year larval aquatic life stages (Blaustein et al 1995) which make them sensitive to changes in aquatic habitat quality and connectivity. The southern torrent salamander is classified as Special Status Species by the Oregon Department of Fish and Wildlife, and the BLM. Pacific giant, southern torrent and Dunn’s salamanders have all been observed in or near streams within the proposed sale area.

Water Quality, Wetlands and Riparian Habitats

No temperature data exists for the drainage, however, based on vegetative cover in the proposed sale area, the predominance of gravel substrate and the presence of cutthroat and Pacific giant salamander larvae, water quality probably does not exceed DEQ standards with regards to temperature and sedimentation. In general, temperatures are cool and turbidity increases only during large rainstorms. Turbidity levels usually subside quickly following rain events and are believed to be within the natural range of variability.

Instream habitats for aquatic organisms are composed primarily of short step pools and riffles. Sand, gravel, and cobbles make up the substrate and instream complexity is created by considerable amounts of down wood. Stream gradients range from approximately 5 to 40 percent.

Riparian habitats are primarily dominated by stands of Douglas-fir in combination with red alder and big-leaf maple. The understory largely consists of dense salmonberry and sword fern. There are several in-channel landslides within the Riparian Reserves due to storm events during the winter of 1996 which deposited both woody debris and coarse and fine substrates (cobble/gravel/sand).

Wildlife

Threatened & Endangered Species

There are four terrestrial species listed for protection under the ESA: northern spotted owl (NSO), bald eagle (BE), American peregrine falcon, and marbled murrelet (MAMU). The U.S. Fish and Wildlife Service generally designates protective measures to prevent disturbance of these birds during their nesting season, which is the most critical time for the species. The northern spotted owl nests between approximately March 1 to September 30, while the murrelet nests between April 1 thru September 15. The eagle has the longest nesting season from January 1 to September 1.

Although rock outcroppings occur in the area, they are not suitable for peregrine nesting. A map search indicates that there are no MAMU or NSO activity areas within 1/4 mile of the project sites. There is one NSO nest 1.5 miles from unit 4. There are 4 Bald Eagle nests in the area, but the closest is 0.9 of a mile away.

The required consultation with the U.S. Fish and Wildlife Service (USFWS) has been completed for this sale in document 1-7-96-F-411 dated August 28, 1996. There are no seasonal or daily timing restrictions for this sale, as the suitable murrelet habitat within 1/4 mile has been surveyed to protocol and no MAMU were identified.

The Sagaberd Complex is a “may affect, likely to adversely effect” situation for both the MAMU and NSO. This is not based on occupancy by these species, but rather on the removal of suitable habitat. Characteristics of certain units indicate a small percentage of suitable trees for nesting, as well as connectivity and foraging habitat. With retention of many of these older trees, Riparian Reserves, and pockets of wildlife trees, the area may still provide suitable habitat at a later date.

Habitat for Wildlife:

The area, in general, is well used by wildlife. Signs of wildlife use include the presence of skeletons, scat, feathers, feeding activity, etc. by a wide range of animals and birds.

Rock outcroppings occur in several places in Units 1D and 2B. Evidence is present on site to indicate varied, small mammal use (rodents). These sites are also of value to certain bat species; most notably the Long-legged, and California myotis, and the big brown bat. Because of the diversity of habitat types in the local area, it may be a productive bat-use area in general. No surveys have been conducted for these species.

The area is heavily used by deer, elk and bear. Although the units vary in composition, most show a well-developed, diverse, lower vegetation layer and in some cases a well-developed shrub and small tree component. Several units have young conifer recruitment, while some do not. Big Leaf maple and other hardwoods, as well as other temperate forest plant species commonly found in coastal Oregon, were present. Plant diversity is indicates a healthy wildlife area and the amount of animal sign shows this to be true. A turkey vulture nest was located at the base of one rock outcropping.

The timber sale units have a few scattered “old-growth” woolfy-limbed trees, which may be retained. These trees exhibit nesting characteristics appealing to marbled murrelet.

Survey and Manage Wildlife Species

According to Table C-3 of the Coos Bay District Record of Decision (ROD page C-15), the only S&M species which could occur in the project units or near the area is the red tree vole. Since more than 10% of the Middle Umpqua Frontal 5th field watershed is in federal ownership, a habitat condition analysis from GIS habitat maps showed that current habitat conditions exceed the 40% minimum habitat threshold for the red tree vole. This means that site specific surveys are not required. Observations from an informal survey showed no red tree vole nests, but since the nests are small and high in the crowns, it is very possible based on the diversity and quality of habitat that colonies may exist in the units.

Snag, Down Log, and Residual Tree Management

Units 3C, 4A, and 4C, have an excellent CWD component, which includes many old-growth logs. In the north portions of units 1D and 1E, and unit 4B recent blowdown has contributed large amounts of smaller diameter CWD. Downed wood diameters in these units and in the remaining units are generally smaller, and although decay at a faster rate, continue to provide habitat for a variety of plant and animal species. A wind throw area, of approximately five acres within the Riparian Reserve occurs between units 4A and 4B. All observed units have natural snags in them showing a high amount of wildlife use (woodpecker) and varying degrees of decay. The snags range from 6 feet to 100 feet in height, and 7 to 18 inches in diameter.

Botany - Special status and Survey and Manage Species

A population of Cusick’s checkermallow (*Sidalcea cusickii*) has been documented in this area (Sagaview Timber Sale). Habitat for the checkermallow, which is a Bureau Tracking species, is open slopes in forests. Its status as a Tracking species, however, does not require management consideration. Aerial photos show some grassy balds and rock outcrops that may be habitat for this and other special status plants. There are no documented occurrences of other special status or Survey and Manage Strategy 1 plant species in this area. It was determined that there is habitat in this area for giant gel cups (*Sarcosoma mexicana*), a Protection Buffer species. This project was surveyed in March of 1997 as an early spring survey was deemed prudent to locate giant gel cups. Timbered ridges, side slopes, bald openings, and riparian areas were surveyed. A giant gel cup was found near the boundary of unit 1C, adjacent to the clearcut. Three more gel cups were found outside the northern boundary of unit 4A. Unit 2B has some grassy balds which contain Cusick’s checkermallow. The bald area in the northern segment of the unit has a couple of oak trees with an extensive cover of bryophytes. These areas will be protected by the placement of wildlife trees. It is not required to survey this project for Survey and Manage Strategy 2 plants if the Decision Documentation is completed in fiscal year 1998.. Other botanical surveys that have been done in this area were in conjunction with proposed timber sales, including Sidewinder Thinning and Sagaview Timber Sale. Sagaview had a population of checkermallow adjacent to it.

Noxious Weed Conditions

Noxious weeds are present throughout the district and generally occur along roadsides and in disturbed areas. Infestations vary depending on weed species and range from a few isolated plants to large areas. Weed species of most concern are Scotch and French brooms, gorse, and purple loosestrife. Other weed species are at or below accepted management levels and are considered low risk to resources. Within the northern portion of the Umpqua Resource Area, Scotch broom is a significant invader of disturbed sites and this area has broom adjacent to the roads as well as significant broom patches within some of the adjacent private clearcuts.

Chapter 4 - Environmental Consequences

Alternative 1 - No Action Alternative

Forest Stand Conditions

Under this alternative the environmental conditions described previously would not change and another site would be selected within the GFMA for harvest opportunities.

Soils

Under this alternative no change in the soil resource would occur.

Hydrology

Under the no action alternative no direct or indirect effects on the hydrology of the drainages will occur.

Fisheries

Under this alternative, no affects to listed or proposed T&E fish species are expected. No management within Riparian Reserves would occur and no new roads would be built. Instream temperature, sedimentation levels and changes to instream habitat would not occur outside the natural range of variability.

Wildlife

Snag and down log habitat: If no action were to occur at this time, the coarse wood and snag component would remain relatively stable (barring any other factors such as fire, wind throw, etc.) and continue to function as cover, nesting, and foraging habitat for wildlife. Recruitment of snags and coarse woody debris would continue due to competition mortality, disease, and windthrow.

Habitat for wildlife: If no action were to occur at this time, the area would continue to provide suitable habitat for numerous species of wildlife.

Botany

Under this alternative, no affects to botanical species would result.

Alternative II - Regeneration harvest

Forest Stand Condition

Within the Middle Umpqua Frontal 5th field watershed, No. 1710030304, Luts Breakout and Sagaview timber sales have been sold for a reduction of 157 acres. With Alternative II proposed harvest of 318 acres the total reduction in late-successional forest would be 475 acres. Additional proposed timber sales, Cedar House and Sawyer Bridge, Fiscal Year 1998 and 2000 respectively, would reduce late successional habitat within this fifth field by 154 acres. The remaining late-successional forest remaining is 6484 acres out a federal ownership of 22,934 acres or 39% in the 5th field watershed ("304" 5th Field Watershed ACS Module, July 9,1998). This is well above the 15% required by the ROD guideline for retention of late-successional stands within 5th field watersheds.

Within the 5 section area, 318 acres of 60 - 90 year old forest stands would be harvested. A total of 489 acres of 60 - 90 year old stands would remain in Riparian Reserves and GFMA lands. Also, 399 acres of 40 year old forest stands would remain. Vegetation cover in the regeneration harvest areas would change as a result of the proposed action but a new stand would soon become reestablished. The newly harvested units would be receive site preparation as outlined on page 5, Table 1. Subsequently, the units will be replanted with Douglas Fir. Existing shrubs should re-sprout very soon following site preparation. The six to ten wildlife trees per acre plus the adjacent Riparian Reserves will provide a seed source for additional natural seeding. The units should be established with conifer regeneration by age 5. By age 10 the units will probably have 500 trees per acres. The planted trees should be 10 to 12 feet tall and will number about 300+ per acre while the naturals will be 1 to 10 feet tall and number about 200 trees per acre. At age 12 to 15 the unit should be precommercially thinned to 250 trees per acre. At age 35-40 the stands should be commercially thinned to 100 to 150 trees per acre.

Soils

Five spurs are planned to access six of the units. These are either on ridgetops and gentle to moderate slopes. All bare soil areas created by road construction or renovation activities would be stabilize to reduce erosion following construction and use. Ridgetop road construction will help to minimize landslide potential associated with road building, thus reducing the chances of road related sediment inputs into streams. The log yarding systems are appropriate for these soils and landforms.

Clearcutting may accelerate landsliding in conjunction with heavy but unpredictable precipitation events. Specifically when and where landslides will occur cannot be predicted. The maintenance of no cut zones along the Riparian Reserves should minimize landslide potential and ensure that if it does occur, course wood and substrate will be delivered to stream channels.

Hydrology

Direct

Both of these alternatives will affect the hydrology of the tributaries within the project area for approximately 20-30 years. Increases in the annual yield, low flows, and the spring and fall peak flows are expected due to the increase in the amount of water available because of the removal of vegetation and the corresponding reduction in evapotranspiration losses. The increased spring and fall peaks, however, are still smaller than the peaks that typically occur during large winter storms.

Indirect

Any increase in flow is not expected to produce large quantities of sediment from channel downcutting due to the bedrock control and shallow soils of these systems. There is also little if any increase anticipated in the amount of sediment chronically delivered directly to the tributaries due to the limited routing of sediment through the Riparian Reserves. Sediment delivery from newly constructed roads is expected to be minimal because the roads are short spur segments on ridges and benches. In addition, all newly constructed roads will meet the design features and management directives listed in Chapter II, project design features. Some short term sediment delivery may result from road renovation but this will also be offset by correcting drainage problems on existing roads and/or culvert replacements. It should be noted that any sediment resulting from this project would be insignificant in comparison to a mass failure, which is the most likely mechanism to deliver a large quantity of sediment and debris to the tributaries.

Fisheries

Direct and Indirect Affects

The BLM has determined that this action is “not likely to adversely affect” the Umpqua Basin cutthroat trout and is based on the maintenance of all indicators in the *NMFS “Matrix of Factors and Indicators”* and the “*Checklist for Documenting Environmental Baseline and Effects of Proposed Actions*” (Fisheries Specialist comments). The determination of effects also concluded that the proposed action conforms with the Record of Decision for the Northwest Forest Plan, its’ ACS objectives and the RMP. Primarily due to the large Riparian Reserve network, no significant adverse effects to listed or proposed T&E fish species are expected to occur.

Except for a few yarding corridors, no harvest activities would occur within the Riparian Reserves. Thermal protection for stream channels and the processes of landslide and down wood input from intact Riparian Reserves would be provided. No significant changes to fish habitats within or downstream from the sale area are expected. Yarding through portions of the Riparian Reserve should not have significant effects on the aquatic or riparian systems as full suspension of logs over streams is required and yarding width will be kept to a minimum. Cable yarding through riparian Reserves will occur only on non-fish bearing streams. Helicopter yarding will be used over the fish-bearing portions. The construction of roads on ridgetops would minimize runoff and the potential contributions of sediment into stream channels. The decommissioning of roads after harvest activities would provide for long term stability of the roadbed.

Wildlife

Snag and down logs habitat: Harvest activities will likely reduce the number of snags in the

regeneration areas, especially those in decay classes 3-5. These are the preferred foraging and nesting snags of woodpeckers and other wildlife species. It is estimated that at least 50% of snags will be converted to downed woody debris as a result of harvest operations. Due to the reduction of snag numbers, it is likely that species relying on them, woodpeckers, small cavity nesting birds and mammals, bats, etc., will also decline, either in number of species or individuals per species. This decline is expected to continue until new snags are created to match or exceed the current numbers. Snags clusters will be buffered by wildlife trees where feasible to protect them from damage during the harvest operations.

Downed logs will increase when snags and wildlife trees are inadvertently knocked down. For several years, however, the moist micro-climate of a downed logs in the stands will be lacking due to the removal of the surrounding trees and vegetation. Therefore, until trees and brush overtop and shadow these logs for prolonged periods, they will remain of lesser value to amphibians and insects. This will, in turn, reduce feeding opportunities for omnivores and insectivores. It is estimated that the wood will begin to retain additional moisture after 5 to 10 year following canopy closure.

The “drying out” effect also pertains to remaining snags, which occur in forest shade. Although snags will continue to function as escape routes and perches (especially for raptors), they will be of reduced foraging value for feeding. Snags and downed wood near the center of the Riparian Reserves would continue to function as it had before the regenerative harvest.

Habitat for Wildlife: The Riparian Reserves will continue to provide some intact functional habitat. Micro-climates within the harvest area will be either removed or severely modified, including those areas near and under wildlife tree clumps or stringers. They will be dryer with less shade protection. The action reduces large mammal (deer, elk, and bear) cover, while enhancing their foraging opportunities. Mountain beaver habitat will be modified and should increase in and around cut areas due to increases in herbaceous plant abundance. The area will become ideal for generalists, “disturbance species”, and species preferring dryer habitat conditions. The action would leave the area open to invader weed species such as scotch broom, and it will be important to make sure these species do not gain additional foothold. Quality of the mid and lower-canopy wildlife habitat will be lost for an extended period in the regeneration harvest area.

Some of the residual old growth trees, will be retained as wildlife trees. These trees have branches suitable for murrelet nesting. After regeneration harvest, the area may be unsuitable for the marbled murrelet for a considerable time until the canopy of the new stand reaches the residual tree canopy.

Botany

Harvesting the stand will increase its vulnerability to infestation by exotics, which out compete native plant species in the resulting disturbed soils and open light conditions. The canopy will eventually close, shading out weedy species. Some herbaceous species and epiphytes may have reduced vigor from the altering of the microclimate, while some species of herbs and shrubs will flourish from the increased sunlight. Eventually, as the new forest grows, conditions will come to approximate the current condition.

Alternatives III - Proposed Action - Regeneration harvest with density management and commercial thinning

Forest Stand Condition

See Alternative II for discussion of impacts from regeneration harvest.

Portions of the Riparian Reserve and GFMA lands within the proposed treatment area are a uniform Douglas fir stand with some component of minor species present in the understory. The Riparian Reserves to be thinned represent only a small fraction of the Riparian Reserves within the Sagaberd Complex project area, approximately 53 acres out of approximately 406 acres or 13% of the total area. The area was subjected to a series of stand replacement fires early this century. The net effect is that the area is fairly homogeneous in composition. The stocking or density of the main overstory species has a major affect on the rate of stand development and the type of stand that results. Variables affected by stand density are microclimate, tree composition and vigor, tree size, including stem, branches and crown; stand stability, understory development, browse quality and quantity, and hiding cover, size of snags and rate and time of occurrence.

Development of a multistoried stand from a single-story conifer stand generally will require thinning, or some other disturbance to reduce overall stand density. Opening up the riparian reserve stands will increase minor species growth and recruitment. In the long term, reducing stand densities will increase crown development and diameter growth on the residual trees resulting in accelerating old-growth development (Tappeiner, 1992). “Disturbance has played major role in the development of old growth structures and old stands that had periodic low intensity fires that killed some trees, temporarily reducing shrub cover and enabled seedling establishment. If the objective is to grow stands with old-growth characteristics, it appears that density management will be required. Diameter growth is highly related to stand density... It appears that old stands developed with low densities, regenerated over time, and had little intertree competition (Tappeiner et al 1997).”

Williamson, 1982, found that a 110 year old stand of Douglas Fir responded well to thinning whether measured in terms of stands or individual trees. Heavily thinned stands averaged 126 % of normal net growth while the lightly thinned stands averaged 119% of normal net growth, unthinned stands averaged much less than normal. On an individual tree basis, thinned trees within the heavily thinned stands showed a 30% greater response in gross volume than the controls while the trees within the light thinning showed a 8% response. Density management within the Riparian Reserves will enhance vertical complexity and species diversity by releasing advanced regeneration and stimulate seeding of minor species within the area. The density management prescription in the riparian reserve proposes leaving 50 to 80 trees per acre. Cutting to this level is still above the density level, 40 to 50 trees per acre, that Tappeiner found as the level of growing stock that appeared to originated the old-growth stands within his study. Ages of stands within his study ranged from 100 to 420 years and showed little evidence that self-thinning contributed to development over a prolonged period. The densities of Douglas fir left within the Riparian Reserves should provide for a range of future management options and insure there is adequate potential recruitment for snags and large coarse woody debris.

Soils and Hydrology - “see impact identification under Alternative II”

Fisheries

Direct and Indirect Affects

The BLM has determined that this action is “not likely to adversely affect” the Umpqua Basin cutthroat trout and is based on the maintenance of all indicators in the *NMFS “Matrix of Factors and Indicators”* and the “*Checklist for Documenting Environmental Baseline and Effects of Proposed Actions*” (Fisheries Specialist comments). The determination of effects also concluded that the proposed action conforms with the Northwest Forest Plan ROD, its’ ACS objectives and the Coos Bay RMP. No significant adverse effects to listed or proposed T&E fish species are expected to occur primarily due to the largely intact Riparian Reserve network. On fish-bearing streams, no density management would occur within 200' of the stream channel, one site potential tree height. On non-fish-bearing streams, no density management, would occur within 50' of the channel. The primary benefit of thinning to the aquatic system would be the attainment of larger trees over a shorter period of time.

The protection of landslide and down wood input processes would be provided under this alternative. Tree densities, however would be lower outside the 50' and 200' no cut zones. The thinning of trees outside these zones may reduce the wood recruitment potential for riparian areas and stream channels over time but the individual piece size will be larger from the thinned areas. Thermal protection for stream channels is expected to continue as the no cut buffers will retain all trees and shrub species within those zones. The retention of trees combined with dense shrub cover over proposed sale area streams provides good thermal regulation for water temperatures. No significant changes to fish habitats within or downstream from the sale area are expected. The construction of roads on ridgetops would minimize runoff and the potential contributions of sediment into stream channels. The closure of roads (decommissioning) after harvest activities would provide for long term stability of the roadbed.

Aquatic Conservation Strategy Objectives

The Riparian Reserves were designated to allow for aquatic and riparian habitat protection. Included in the Reserves are the actual riparian zones (those areas with riparian related vegetation) plus upslope habitats. Within the sale area, riparian zones do not generally exceed 50' on either side of fish-bearing streams or 15' on perennial streams. All proposed Riparian Reserve thinning activities will occur only in portions of the upslope habitats. No thinning will occur within 200' of fish-bearing streams or within 50' of perennial streams. The true riparian zones will have no management within them thus riparian-dependent species should not be affected. While some thinning will occur in the upslope portions of the Riparian Reserve (not the riparian zone), the no harvest zones will act as temperature and moisture buffers to protect riparian zones from “drying out”. In areas where thinning occurs, a partial canopy will remain, which will retain some moisture and buffer temperatures when compared with the regeneration portions of the sale. The thinning treatments in the upland portions of the Riparian Reserves would likely contribute to the complexity of the understory through the release of minor tree species, shrubs and herbaceous species. The existing stands to be thinned are typically low in species diversity and structural complexity, which thinning would be expected to increase. The thinning activities in the Riparian Reserves would be highly unlikely to cause any degradation of connectivity or increase in

landscape fragmentation as a large portion of the Reserves, including all riparian zones, will be left untreated.

The Proposed Action would not adversely affect the physical integrity of the aquatic systems because the untreated portions of the Reserves would maintain root strength and streambank integrity, and would not alter water flows significantly enough to affect channel morphology. It is unlikely that thinned portions of the Riparian Reserve will contribute to landslides and debris flows outside the natural range. In general, most landslides and debris flows originate in headwater areas within steep, narrow draws. With 50' no thin zones along intermittent streams, these areas should be afforded ample protection. Thinning in Riparian Reserves would speed the development of a future supply of larger woody debris, which would contribute to the restoration of physical integrity of the aquatic system

The Proposed Action would not alter stream temperature because current shade levels in the untreated portions of the Reserves adjacent to streams would be maintained.

The Proposed Action would not prevent or retard restoration of the sediment regime under which this aquatic ecosystem evolved. The untreated buffers would adequately filter any sediment from the uplands before it reaches the stream because of the low risk of hillslope erosion and the large amount of existing understory and ground level vegetation..

The Proposed Action should not contribute to increases in peak flows, summer low flows, and overall water yield because of the removal of trees. The exact extent of the effect on flow is not certain; most research on hydrologic response to timber harvesting has been conducted in clearcuts, and the effect of density management treatments on stream flows has not yet been extensively studied. However, any effect is likely to be negligible and last only for a few years as the residual stand would use any increased soil moisture that becomes available following harvest.

The Proposed Action would not alter existing patterns of floodplain inundation and water table elevation because it would have little effect on existing flow patterns and stream channel conditions (see above). (See the ACS consistency determination in Appendix 2 for a more detailed analysis.)

Wildlife

Snag and down log management: See comments under Alternative II. Of the 407 acres of Riparian Reserve within the project area, this proposal would conduct density management on 50 - 75 acres, commercially thin 12 acres of GFMA and complete regeneration harvest on 318 acres of GFMA.

Thinning in the Riparian Reserves will reduce the average trees per acre to between 50 and 80. The proposed activities will cause a portion of the downed wood and snags to become dryer, especially during the summer months, potentially making them less desirable for certain species. The open areas created through thinning activities will facilitate tree establishment and shrub growth which will quickly (2-10 years depending on the species) re-shade the area. Density management in the Riparian Reserves will: 1) reduce snag numbers by mechanical means, 2) increase downed logs and 3) recruit some additional small snags. With respect to these effects,

this Alternative III should have an overall neutral effect on existing snag and downed wood components after 5-10 years.

Habitat for Wildlife: See comments under Alternative II. As described above, commercial thinning in the Riparian Reserves will create openings where light levels are increased at ground level. This will create drier site conditions while encouraging seedling recruitment and opportunities for multi-layering of canopies, tree, herb, and shrub components.

Creating additional niches or micro-habitats will benefit some wildlife species. The riparian reserve thinning will not compensate entirely for the regeneration harvest removal of habitat, but it should provide some advantages in creating structural diversity, which will begin to occur in 5-10 years.

Botany - “see impact identification under Alternative II”

Cumulative Effects

Hydrology

Both of these alternatives will have the effects listed above at the site scale; however, any effects, even if quite large on a site, become increasingly difficult to detect downstream because of fluctuations in flows from groundwater sources, tributaries, or varying precipitation events. This natural variability coupled with the fact that as small streams join and form increasingly large drainage networks, the ability of individual actions in small drainages to affect hydrology in the larger subwatersheds decreases. The magnitude of any effect is generally proportional to the area that is treated. Since this project impacts only 2.4% (215 acres) of the Wells Creek drainage and only 0.6% (33 acres) of the Luschsinger Creek drainage it is not possible to separate these cumulative effects from natural variability at the subwatershed (5th field) or the drainage (6th field) scale .

Fisheries

Upon completion of the proposed action, the majority of older forested stands (80+years) would have been removed from the Sagaberd Creek drainage. Remaining stands would range in age from 1- 80 years old on both federal and private lands. Units harvested within the drainage by the BLM in the 1980's provided narrow streamside buffers (80' or less) of typically older trees (80+years) on fish bearing streams. On private lands, buffers were left in accordance with the Oregon Forest Practices Act guidelines. The result is that the lower portions of the Sagaberd drainage currently lack large amounts of future potential wood in the short term (50-100 years). The mixed ownership pattern of the drainage will likely maintain narrow buffers on private lands and large buffers on BLM lands over the long term. The Riparian Reserve network throughout the proposed action area would maintain both long and short term woody debris inputs in areas adjacent to sale units. Over time, contributions of migrating wood to downstream reaches would also occur as a result of large storm events and landslides.

Water temperature monitoring has not occurred in the drainage but it is likely that in previously harvested units, thermal protection is currently being provided by salmonberry and older (10+ years) conifer reproduction. The proposed action should not alter the current temperature regime adjacent to proposed harvest units and should continue to provide cool water to downstream

reaches outside the sale area over time.

Trees that were thinned within Riparian Reserves may grow to a larger size when compared to trees within the unthinned areas. This would provide larger wood for input into stream channels and riparian areas over a shorter time span. The removal of thinned trees would also reduce the amount of wood available to riparian and instream habitats that would have resulted from suppression mortality. The average loss of potential standing or down wood within the Riparian Reserves would range between 25-35 trees per acre but should not limit a range of future management options.

Wildlife

Cumulative impacts to wildlife include: 1) a temporary increase in downed wood, 2) a decrease in snags 3) less shade with much higher surface temperatures during the summer, 4) a reduction in cool, moist microhabitats, 5) increased potential for invading weed species, 6) temporary removal of cover habitat for large mammals thereby modifying the wildlife use of the area, 7) degradation of the niche specific habitat specific for birds, amphibians, and mammals, 8) enhancing the area for early seral disturbance and generalist species and thereby increasing these species' individual numbers.

Chapter 5 - List of Agencies, Organizations, and Individuals Contacted

The general public was notified of the planned EA through publication of the Coos Bay District's semi-annual Planning Update.

Scoping letters were mailed to the following organizations informing them of the proposed project:

Association of O&C Counties	Brookings, OR
Cape Arago Audubon Society	North Bend, OR
Coast Range Association	Corvallis, OR
Defenders of Wildlife	Lake Oswego, OR
Kalmiopsis Audubon Society	Port Orford, OR
Oregon Natural Resources Council	Eugene, OR
The Pacific Rivers Council	Eugene, OR
Sierra Club	Eugene, OR
Swanson Superior Forest Products	Noti, OR
Umpqua Watersheds, Inc.	Roseburg, OR
Many Rivers Group	Eugene, OR

Responses to the Scoping notice were received from Oregon Coast Range Association, Pam Hewitt, and Joanne Vinton.

Consultation on the proposed project has been completed by the U.S. Fish and Wildlife Service (USFWS) through the consultation process provided under section 7(A)(4) of the Endangered Species Act of 1973 [16 U.S.C. 1563 (a)(2) and (a)(4) as amended].

Project level conferencing on BLM management actions affecting coho salmon and Oregon coast steelhead trout was included in the August 1997 District Biological Assessment submission to National Marine Fisheries Service (NMFS).

The following organizations have been notified as to the availability of this EA.

The Confederated Tribes of Grand Ronde Indians	Willamina, OR
The Confederated Tribes of Coos, Lower Umpqua, and Siuslaw	Coos Bay, OR
Governors Natural Resources Office,	Salem, OR
ODA-Noxious Weed Control Program	Salem, OR
Oregon Department of Energy	Salem, OR

Oregon Department of Environmental Quality	Portland, OR
Oregon Department of Fish and Wildlife	Portland, OR
Oregon Water Resources Department,	Salem, OR
Douglas County Board of Commissioners	Roseburg, OR
Association of O&C Counties	Harbor, OR
Kalmiopsis Audubon Society	Sixes, OR
Native Plant Society of Oregon, West Side Conservation	Corvallis, OR
Donald Fontenot	Portland, OR
Coast Range Association	Corvallis, OR
Oregon Department of Division of State Lands	Salem, OR
Umpqua Watersheds	Roseburg, OR
Pam Hewitt	Marcola, OR
Oregon Natural Resources Council	Eugene, OR
Oregon Department Land Conservation and Development	Salem, OR
Oregon Department of Forestry	Salem, OR
Hugh Kern	Athens, GA
Sierra Club, Many Rivers Group	Eugene, OR

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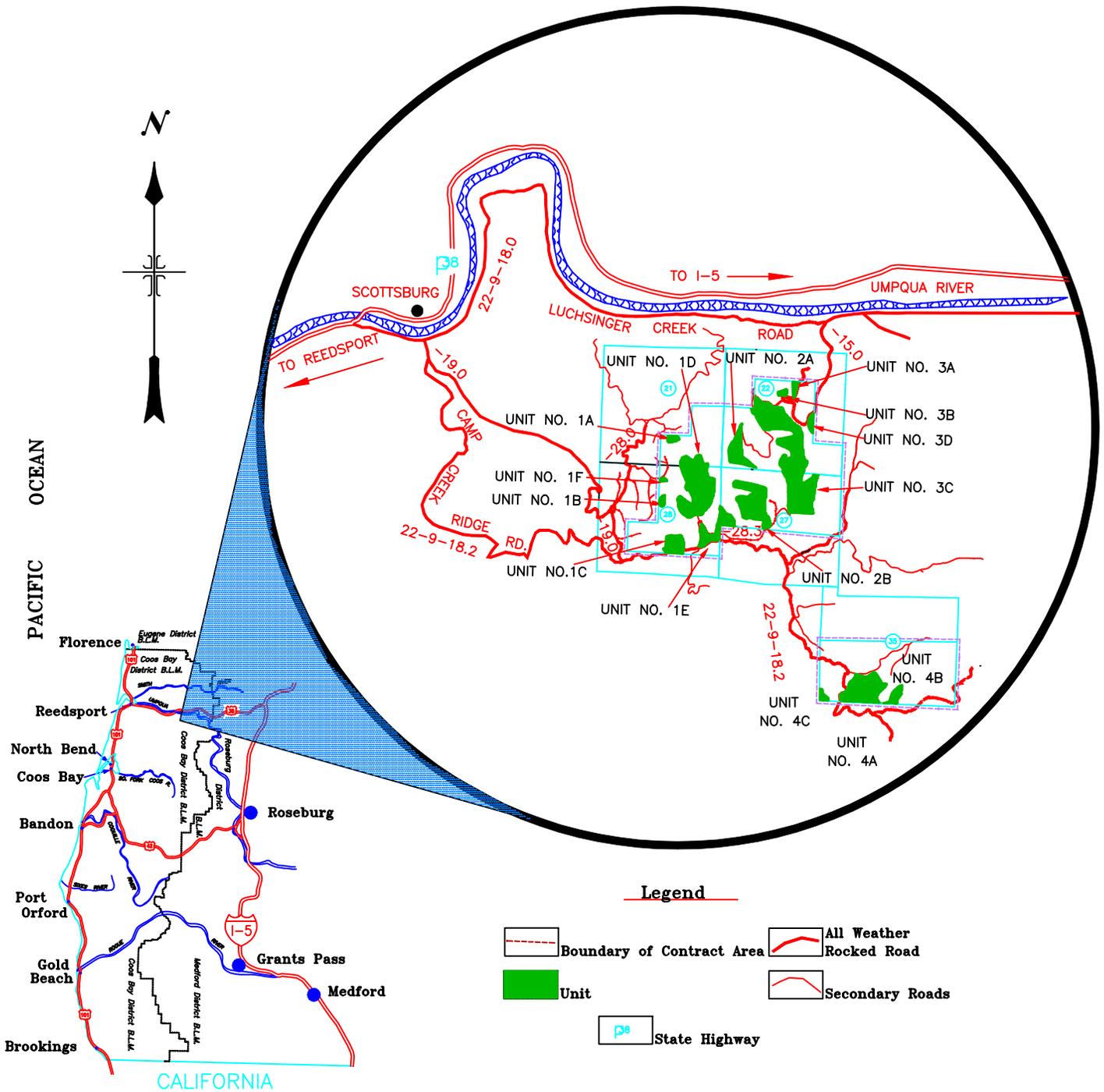
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SAGABERD COMPLEX

T 22 S, R 09 W, SEC'S 21, 22, 27, 28, & 35



Appendix 2

Consistency of timber sale design features with ACS Objectives

Consistency of timber sale design features with ACS Objectives

Timber Sale Name: Sagaberd Complex (EA OR125-97-18)

Drainage: Sagaberd Creek/ Luchsinger Creek

5th Field Watershed: Middle Umpqua Frontal (USGS #1710030304)

Summary of timber sale design features, impacts of actions on aquatic/riparian values within the Southwest Province Tye Sandstone Physiographic Area, Matrix of Factors and Indicators, and assessment of consistency with ACS.

ACS Objectives Northwest Forest Plan	Factors/Indicators (NMFS)	Sagaberd Complex Timber Sale Design Features and Impact Analysis
2,4,8,9 Design features will maintain spatial and temporal connectivity within the drainage network (ACS#2) with regard to shade and water temperature, maintain water quality (ACS#4), maintain vegetation for adequate summer/winter thermal regulation for aquatic species (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9)	Water Quality/ Temperature	<u>Riparian Reserves (RR)</u> - Minimal harvest will occur within 13% (53 acres) of the RR. No cut buffers of 200' on fish-bearing and 50' on non-fish bearing streams will provide shade sufficient to maintain water temperatures. Where no harvest occurs in Riparian Reserves buffers are 400' on fish-bearing (2 site potential tree heights) and 200' on all other streams (1 site potential tree height); this is of sufficient width to maintain water temperature

<p>4,5,6,8,9 Design features will maintain water quality (ACS#4) and the sediment regime (ACS#5), maintain instream flows to retain patterns of sediment routing (ACS#6), maintain vegetation to provide adequate rates of erosion, and to supply coarse woody debris sufficient to sustain physical complexity and stability (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9)</p>	<p>Water Quality/ Turbidity</p>	<p><u>Riparian Reserves (RR)</u>- No harvest will occur within the majority of Reserves. Where RR are thinned, no cut buffers of 200' on fish-bearing and 50' on non-fish bearing streams will provide sufficient area to filter sediments from adjacent units. Where no RR thinning occurs, RR are 400' on fish-bearing and 200' on all other streams; RR will be sufficient to filter sediments from adjacent harvest units, prevent sediments delivery to streams, and avoid downstream effects</p> <p>New <u>semi-permanent ridgetop roads</u> (0.8 miles) will be constructed on ridgetops and will be <u>decommissioned</u> after planting activities. Because of the stable location and the use of Best Management Practices during construction, no impacts to stream turbidity are expected.</p>
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<p>2,4,6,8,9 Design features will maintain spatial and temporal connectivity within the drainage network (ACS#2) with regard to chemical concentrations/nutrients, maintain water quality (ACS#4), maintain instream flows to retain patterns of nutrient routing (ACS#6), provide adequate nutrient filtering (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9)</p>	<p>Water Quality/ Chemical Concentration/ Nutrients</p>	<p><u>Riparian Reserves (RR)</u>- Thinning will occur in 13% and no harvest will occur in the remainder of RR. No cut buffers of 200' and 50' in thinned portions and 400' and 200' in unmanaged portions will be sufficient to protect streams from direct chemical/nutrient inputs during harvest and site preparation activities; activities will not remove the RR trees that directly supply nutrients to the stream</p>
<p>2,6,9 Design features will maintain the spatial and temporal connectivity within the drainage network (ACS#2), maintain instream flows (ACS#6), and maintain well-distributed riparian-dependent populations (ACS#9)</p>	<p>Habitat Access/ Physical Barriers</p>	<p>New semi-permanent road construction and road renovation associated with this timber sale will occur on ridgetops only and none will involve perennial streams, therefore no physical barriers will be created.</p>

<p>3,5,6,8,9 Design features will maintain the physical integrity of the aquatic system (ACS#3), maintain the sediment regime (ACS#5), maintain instream flows to retain patterns of sediment routing (ACS#6), maintain vegetation to provide adequate rates of erosion, and to supply coarse woody debris sufficient to sustain physical complexity and stability (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9)</p>	<p>Habitat Elements/ Substrate/ Sediment</p>	<p>Design features and analysis are the same as described for the Water Quality/ Turbidity factor/indicator</p>
<p>3,6,8,9 Design features will maintain the physical integrity of the aquatic system (ACS#3), maintain instream flows to retain patterns of wood routing (ACS#6), maintain vegetation to provide adequate rates of erosion, and to supply coarse woody debris sufficient to sustain physical complexity and stability (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9)</p>	<p>Habitat Elements/ Large Woody Debris</p>	<p><u>Riparian Reserves</u> have been designed to incorporate hedwalls, steep or otherwise sensitive side slope areas. Thinning activities within RR are limited to 13% of the total RR and no cut buffers of 200' and 50' will be retained in those areas. Thinning activities will remove the smaller diameter trees but will allow the residual trees to experience faster increased growth than if left unthinned. The potential recruitment of large wood from debris torrents or landslides will not be affected even with the thinning of some RR trees.</p>
<p>2,3,5,8,9</p>	<p>Habitat Elements/ Pool Area (%)</p>	<p>Because this action will not significantly affect instream flows, sediment delivery or large wood recruitment, no affects to pool habitats are expected.</p>

3,5,6,9	Habitat Elements/ Pool Quality	Because this action will not significantly affect instream flows, sediment delivery or large wood recruitment, no affects to pool quality are expected.
1,2,3,6,8,9	Habitat Elements/ Off-Channel Habitat	Because this action will not significantly affect instream flows, sediment delivery or large wood recruitment, no affects to off-channel habitats are expected.
3,8,9	Channel Condition & Dynamics/ Width: Depth Ratio	Because this action will not significantly affect instream flows, sediment delivery, stream bed or bank stability, or large wood recruitment, no affects to width/depth ratios are expected.
3,8,9	Channel Condition & Dynamics/ Streambank Condition	Because this action includes no harvest buffers adjacent to streams and falling/ yarding away from stream channels, and will not significantly affect instream flows, sediment delivery or large wood recruitment, no affects to streambank conditions are expected.
1,2,3,6,7,8,9	Channel Condition & Dynamics/ Floodplain Connectivity	Because this action includes no harvest buffers adjacent to streams and falling/ yarding away from stream channels, and will not significantly affect instream flows, sediment delivery or large wood recruitment, no affects to floodplain connectivity are expected.

1,3,5	Watershed Condition/ Road Density & Location	New <u>semi-permanent ridgetop roads</u> associated with this timber sale will be constructed. Roads will be built only on stable areas, and will be <u>decommissioned</u> (ripped/seeded/blocked) after planting, therefore no significant impacts from roads are expected in the long term.
1,5	Watershed Condition/ Disturbance History	Actions will not disturb unstable or potentially unstable areas or adversely impact aquatic refugia. The actions will not impact the retention of >15% late successional and old-growth forests in the 5 th field watershed. The watershed currently has 34% late successional forests. This action will reduce the amount by 1.3%.
1,3,5,8	Watershed Condition/ Landslide and Erosion Rates	Riparian Reserves were designed to incorporate headwalls, steep or otherwise unstable side-slopes. No new road construction and no cut buffers in the thinned and other portions of the Reserves will maintain the natural landslide and erosion rate in those areas.
1,2,3,4,5,8,9	Watershed Condition/ Riparian Reserves	The Riparian Reserves will provide shade, large wood recruitment, habitat protection and connectivity in this portion of the watershed. BLM Forest stand ages range from 75-120 years old and provide habitat for sensitive aquatic and riparian-dependent species.

Sagaberd Complex
Summary of Impacts To ACS Objectives
Revision to EA OR125-97-18

July 13, 1998

ACS #1- Landscape Complexity

No treatments will occur within 200' of fish bearing and 50' of non-fish bearing streams. Density management of 53 acres (0.4% of Riparian Reserves in the 5th field watershed) in the upland portions of the Riparian Reserves would contribute to landscape complexity through the release of understory minor tree species, shrub and herbaceous species. The regeneration harvested portions of the timber sale will provide early seral habitat and the thinned portion of the Reserves will provide additional diversity when compared to the untreated sections. Growth rates of trees and vegetation will be increased in the treated areas and will be slower in the untreated areas.

ACS #2- Connectivity

Density management activities in the Riparian Reserves would not cause any degradation of connectivity or increase in landscape fragmentation as the largest portions of the Reserves will be left untreated ("304" ACS Module, 1998). Thinning small portions will provide habitat to wildlife species that prefer less dense forested stands. The release of understory shrub and tree species in the stand will, over time, provide connectivity at several canopy levels.

ACS #3- Aquatic Physical Integrity

The Proposed Action would not adversely affect the physical integrity of the aquatic systems as the untreated portions of the Reserves would maintain root strength, streambank integrity, and would not alter water flows significantly enough to affect channel morphology ("304 ACS Module, 1998). Density management in Riparian Reserves would speed the development of a future supply of larger woody debris, which would contribute to the restoration of physical integrity of the aquatic system over time.

ACS #4- Water Quality

The Proposed Action would not alter stream temperature as current shade levels in the untreated portions of the Reserves adjacent to streams would be maintained.

ACS #5- Sediment Regime

The Proposed Action would not prevent or retard restoration of the sediment regime under which this aquatic ecosystem evolved. The untreated buffers would adequately filter any sediment from the uplands before it reaches the stream. Additionally, there is an extremely low risk of hillslope erosion due to the large amount of existing understory and ground level vegetation in the Reserves. Untreated buffer would also protect unstable headwalls that may fail. By providing untreated areas, the woody debris necessary for building aquatic/riparian habitat components is retained and allowed to contribute to aquatic/riparian habitat in the event of a slope failure.

ACS #6- Instream Flows

The Proposed Action should not contribute to a minor increase in peak flows, summer low flows, and overall water yield as a result of tree removal. The exact extent of the effect on flow is not certain; most research on hydrologic response to timber harvesting has been conducted in clearcuts, and the effect of density management treatments on stream flows has not yet been

extensively studied. However, any effect is likely to be negligible and last only for a few years as the residual stand would use any increased soil moisture that becomes available following harvest ("304" ACS Module, 1998).

ACS-#7- Floodplain Inundation

The Proposed Action would not alter existing patterns of floodplain inundation and water table elevation as it would have little effect on existing flow patterns and stream channel conditions (see above).

ACS #8- Riparian Plant Communities

The Proposed Action would maintain the species composition and structural diversity of plant communities in riparian areas to provide thermal regulation, nutrient filtering, appropriate rates of surface and bank erosion and channel migration as no cut buffers will be much wider than the true riparian area.

ACS #9- Riparian Dependent Species

Habitat that supports well-distributed populations of riparian dependent species will be maintained through the retention of no cut buffers that encompass the true riparian area and extend well away from it. Down wood components will not be removed in any of the treated or untreated areas and microclimate changes should last only until the canopy once again closes in as the trees grow larger (less than 30 years). Currently at the 5th field level, 40% of all Riparian Reserves are over 80 years of age ("304 ACS Module, 1998) which should provide quality habitat for riparian dependent species over time. Within 75 years, all Riparian and Late-Successional Reserves will be over the age of 80 ("304 ACS Module, 1998).

Summary

Completing the proposed density management activities within Riparian Reserves will not prevent the attainment of ACS objectives either in the short or long term. The proposed activity will create diverse patches on 53 acres of upslope habitat. The majority of the Reserves will not be treated and will continue to function properly.

Reference:

"304" ACS Module, 1998. A second iteration of watershed analysis for the USGS Fifth Field (HUC #1710030304) specifically addressing ACS objectives and management options. Coos Bay District BLM, Umpqua Resource Area, North Bend, OR.