Austa Fire
Emergency Fire Rehabilitation Plan
and
Environmental Assessment
1792A-EA-00-01

Background

Brief Austa Fire History and Location Within the Landscape: The Austa Fire started on September 28, 1999. When reported it was actively burning at the base of the hill in brush and logging slash on Roseburg Resources Co. lands just north of Stage Coach Road. It rapidly spread up the hill into an active private timber sale operation burning several pieces of equipment, fell and bucked timber, and then proceeded to spread up and onto Bureau of Land Management lands in Township 18S. Range 8W. Sections 9 and 15. The fire was pushed primarily west and north by predominantly dry east winds and burned within steep, highly dissected terrain typical of the Coast Range. Due to the steepness of the slope, east winds and rolling debris, this fire posed an extreme threat to fire fighter safety. It was determined the safest alternative would be to back off and back fire using ridge tops, roads and creeks with back up hand and dozer lines. Approximately 246 acres of BLM ownership burned from the fire within the south half of T. 18S, R08W. Sec. 9 and the northwest quarter of T. 18S, R08W. Sec. 15. within the Wildcat Creek and Lower Siuslaw River Watersheds near headwater streams that drain south into the Siuslaw River. Of the 246 acres of bureau lands burned within the fires boundary, 144 acres of BLM land realized 90-100% stand mortality with the remaining acres having an approximate 10% or less stand mortality. The Austa Fire was controlled on October 8, 1999. The total fire area included forest lands within T. 18S, R08W. Sections 7, 8, 9, 15, 16, 17, and 18. The final fire size was 1062 acres.

The Austa Fire occurred within LSR R0267 in the southwestern portion of the Oregon Coast Range Physiographic Province. LSR R0267 occupies 175, 280 acres of federal land primarily within both the Coast Range Province and extends into a portion of the Umpqua River Basin of the Southwest Oregon Province.

Forest Operations Inventory (FOI) data
In Section 9 stand level data analysis indicated approximately 106 acres of Douglas Fir forest burned with variable survival from none to approximately 25%. Birth dates included 1810/1920, 1810/1940, 1979, 1978, and 1950. In Section 15 stand level data analysis indicated approximately 38 acres of forest burned with few to no trees surviving. Birth dates of the forest stands included 1810/1942, 1942, 1952, and 1988.

Area Descriptions A, B, C, D, E (See map)
Area A
Area A is the Austa Plantation located within the northwest quarter of T. 18S, R08W. Sec. 15 and contains approximately **20 acres** of planted Douglas-fir with a birth date of 1988. Past tree establishment in the plantation has been problematic due to the draughtiness, low nutrient

capacity, and competing hardwoods. This portion experienced a high intensity burn of possibly short duration that consumed all existing vegetation and surface organics producing a severe erosion risk and concern for future site productivity.

Area B

Area B is located in the northwest quarter of T. 18S, R08W. Sec. 15 within close proximity to the Austa Plantation. This was an approximately **18 acre** area of mostly Douglas fir approximately 60 years-old with some residual legacy trees with an approximate birth date of 1810. This area was subjected to a hot burn, killing most, if not all trees within. This area includes an over-steepened (>65%) head wall immediately above a probable inception point of an intermittent stream (probably within RR). Loss of root strength and increased water to the soil system may lead to landslide, depending on winter precipitation patterns in the future. Concern exists for surficial loss to stream system below.

Area C

Area C is a south aspect of approximately **77 acres** of burned forest extending from the ridge line south within the south half of T. 18S, R08W. Sec. 9. This burned area contained approximately 57 acres of a mature stand of Douglas-fir with a birth date of 1810/1920 and 11 acres of Douglas-fir with a birth date of 1810/1940 of which only a few trees survived; and 9 acres of Douglas-fir with a birth date of 1950 of which no trees survived. This area was subjected to the hottest burn, resulting in the immediate loss of most (80%) of the canopy. What canopy remains will fall during the first winter. Areas of thin soils over rock outcrops (meadows) are scattered across the south slope. The vegetation in these meadows was probably predominately mosses with native grasses and forbs. White oaks were seen around the meadows, several of which were severely burned and may not resprout. This area is a south facing slope with extensive surface rock content with heat and drought limitations.

Area D

Area D extends from the Ridge line north within the south half of T. 18S, R08W. Sec. 9. Area D is approximately **55 acres** in size and includes an area of younger Douglas-fir with a birth date of 1978-79 and an area of approximately 60 years-old Douglas-fir with a minor component of residual old growth Douglas-fir trees (birth date - 1810/1940) and hardwoods. Because of its north aspect, this area was subjected to cooler underburns. Most of the canopy and larger trees are expected to remain alive. Erosion is not a concern in this portion due to gradual slopes and the light patchy burn.

Area E

Area E is an underburn of forested acreage adjacent to the Austa Plantation within the northwest quarter of T. 18S, R08W. Sec. 15. Although affected by hotter underburns than D, this area of **76 acres** still retains most of the canopy layer. This area contains Douglas fir approximately 50 to 60 years-old. There is a minor component of large legacy trees approximately 200 years old. Approximately an eight acre portion of E in the southwest is approximately 30 years of age. About 15 acres of this area is expected to lose its canopy, resulting in development of snags.

Because burn intensities were low, the majority of the soil stabilizing agents (vegetation, surface organics etc.) have survived. With infiltration characteristics intact, very little overland flow is expected in these portions.

Wildfire Suppression Rehabilitation
Emergency repair or rehabilitation of impacts to the road system within and adjacent to the fire have been accomplished. The primary goals were to restore adequate drainage to the road network, hand lines, and dozer lines (that were used in fire suppression efforts) to minimize erosion and potential impacts to water quality due to fire suppression efforts. This included road blocking (closure), waterbar installation, pullback and scattering of road berms, and grading portions of the Cherry Creek road where necessary to restore drainage.

Purpose and Need

The purpose of the Austa Emergency Fire Rehabilitation Plan is to minimize off-site sedimentation to waterways and successfully rehabilitate this area of Late Successional Reserve (LSR) habitat to a diverse forest community while precluding the dominance of brush species. Without rehabilitation efforts the fire impacted area would be taken over by the prolific brush species typically associated with these south facing slopes in the Oregon Coast Range. Sedimentation is of concern in Wildcat Creek and the Siuslaw River, both of which provide habitat for populations of salmonid and non-salmonid resident fish species, as well as runs of chinook salmon, coho salmon, and steelhead trout. Coho Salmon are listed as threatened by the National Marine Fisheries Service.

Conformance to Planning

The proposed action and alternatives considered are consistent with LSR objectives identified in the Eugene District Resource Management Plan (RMP/EIS), Watershed Analysis, and the Late Successional Reserve Assessment RO267/RO268. This EA is tiered to these planning documents and they are incorporated by reference.

Goals and Objectives of the LSR: The following goals and objectives have been established for late-successional reserves by the Northwest Forest Plan:

Objective: To protect and enhance conditions of late-successional forest ecosystems, which serve as habitat for late-successional forest species. Late-successional reserves are designed to maintain a functional, interacting late-successional ecosystem.

Goals: 1. Create and maintain late-successional habitat and ecosystems.
2. Create and maintain biological diversity associated with native species and ecosystems.

Proposed Action

BLM Fire Rehabilitation Area

The BLM fire rehabilitation project area includes BLM lands within the confines of the Austa Fire within the south half of T. 18S, R08W. Sec. 9 and the northwest quarter of T. 18S, R08W. Sec. 15. The Austa Fire burned approximately 246 acres of BLM ownership within the Wildcat Creek and Lower Siuslaw River Watersheds in steep, highly dissected terrain typical of the Coast Range near headwater streams that drain south into the Siuslaw River. Several draws originate on public lands. The Siuslaw River and Wildcat Creeks parallel the burned area on its southern side, but are separated from public lands by private lands.

The burned areas of BLM included forested lands of trees with birth dates ranging from 1810 to 1988; steep, bare, fragile rock outcrop areas with shallow soils; steep predominantly harsh south facing slopes and headwall areas leading into primarily 1st and 2nd order draws that flow south into Wildcat Creek and the Siuslaw River; along with some gentle ridge-top areas. The northern portion of the burn area drains into Rock Creek to the north. The fire within the BLM ownership burned both large contiguous patches of vegetation and some small finer scaled patches on multiple aspects due to high east winds, steep, broken terrain, and varying vegetation and fuel conditions which caused some spotting.

On BLM land, the Austa fire burned most of the standing trees creating a decrease in live mature forest habitat. What remains are partially burned fire weakened trees; numerous snags including some with burned out roots; and charred, blackened, small and large down wood with little remaining understory vegetation and organic litter and leaving bare mineral soils in much of the burn. Both the snags and down wood created by the fire provide excellent wildlife habitat.

Dead standing trees or snags, loosened down wood, and the reduction in understory vegetation on steep terrain have created extremely hazardous conditions for any person(s) or crew activities within the burn area. The burn has caused an existing condition of increased potential for subsequent higher insect populations, nonnative weeds, erosion, and inputs of stream sediment.

Design Features of the Proposed Action

Using aerial photography, the burned area was subdivided into proposed treatment units based on varying intensities of burn (see the attached map). Issues identified by the IDT included worker safety, re-establishment of vegetation, minimizing erosion and sedimentation, and maintaining LSR vegetative diversity in the long term. The need for monitoring, research opportunities, and various treatment alternatives for each area were also considered. The IDT Objectives were to design rehabilitation measures consistent with the Resource Management Plan (RMP/EIS), Watershed Analysis, the LSR Assessment RO267/RO268, and OR- OSHA requirements for worker safety. Design features of the Proposed Action are:

Area A (Austa Plantation)

- The preferred treatment of Area A is to aerial seed conifer seed using hydro-mulching with fertilizer and a tackifier by January 10, 2000. This would help minimize the potential for erosion and sedimentation from these steep slopes. Allowing natural brush (shrub) succession to occur

was preferred over aerial seeding any annual grasses in the mix at this time (Only limited native grass seed is available at this time). To provide additional groundcover a small amount of fireweed seed, *Epilobium angustifolium* would also be added to the mulch.
- To maintain existing diversity, white oak would be planted in the northwest upper corner to replace those lost in fire. BLM would plant the seedling oaks if acorns can be located/collected for this zone. A grow out contract would be needed or oaks could be established in the seed orchard. *This would not be funded by emergency rehabilitation funds.*
- A tree planting contract utilizing 90% Douglas Fir and 10% minor species would be utilized in the event post treatment monitoring indicates a need to establish additional seedlings.
-If hydro mulch with conifer seeding fails and monitoring indicates prolonged soil exposure and active erosion then native grass (Elymus glaucus) would be sown by air.

Area B
- To protect soils from detachment and trap potential sediment and open up the area for more effective hydro-mulching, contour fall mid-size class trees as soon as possible after plan approval. Monitor effectiveness.
- Three gully check dams/sediment traps would be installed using straw bails (wheat, oat, or barley) in the small channel just below the burned portion in the northeast corner. These may be in combination with felled trees to increase longevity of the structures. These would be installed as soon as possible following this plan approval.
- Aerial seed conifers with hydro-mulch by January 10, 2000. To provide additional groundcover a small amount of fireweed seed, *Epilobium angustifolium* would also be added to the mulch.

Area C (Ridgeline south)
- Aerial seed conifer seed with hydro-mulch with proper size mulch material, fertilizer, and tackifier by January 10, 2000. To provide additional pioneer groundcover a small amount of fireweed seed, *Epilobium angustifolium* would also be added to the mulch.
- Avoid hydro-mulching rocky meadows when aerial seeding.
- To maintain existing diversity, white oak would be planted to replace those lost in fire if acorns can be located/collected and either grown out under contract or grown locally at the seed orchard. A grow-out contract may be needed and BLM would plant the seedling oaks. *This restoration effort would not be funded using emergency rehabilitation funds*.
- Snags (danger trees) would be cut along the main access road adjacent to Area C, removing hazard trees within one tree height of road that would eventually fall across the road. Use 12" and greater logs for fisheries stream restoration projects. Smaller diameter material would be left for down wood.

Area D (Ridgeline north)
-This area is expected to reseed naturally and would be left untreated except as indicated below.
-To protect human health and safety, remove hazard trees along the main access ridge road. Use 12" and greater logs for fisheries stream restoration projects. Smaller diameter material would be left for down wood.

Area E
- This area would be left untreated. It is expected to recover naturally.

All Areas - To determine rehabilitation effectiveness of implemented treatments, post treatment **monitoring** would occur this winter and for at least 2 subsequent winter seasons. This would determine if additional mitigative treatments are necessary and if the EFRP objectives are being met. In particular, hydro-mulched areas (A, B, C) would be evaluated to determine if vegetative cover is progressing and sufficiently curtailing erosion. *In the event the initial hydro seeding has failed* (bare soil is still extensive and/or erosion is still evident) in the fall of 2002, these areas would be hydro seeded with native grasses where needed at that time.
- To provide for public safety a closure of the area for hazardous conditions would be implemented through publication of a Federal Register Notice and the installation of a gate on the 18-8-10 road just southwest of the junction with the 18-8-10.1 road.
- The variety of burn intensities within perimeter of fire provides opportunity for monitoring a number of environmental factors such as natural regeneration, mollusk recolonization, fungi research, etc. Prior to any administrative approval of future monitoring, surveying, or proposed research, close coordination with OR-OSHA would be required to establish safe working guidelines prior to working within the hazardous conditions created by the fire. Spotters may be required. A Job Hazard Analysis would be required.

No Action
The No Action Alternative would leave all areas of the Austa wildfire to rehabilitate naturally over the long term. No treatments such as gully plugs, contour felling, or hydro-mulching would be implemented to mitigate erosion and sedimentation concerns. The area would not be aerial seeded with conifer but would be allowed to re-vegetate through slow natural re-seeding and succession to some conifer over time.

Other Alternatives Considered
A variety of treatments or combinations of treatments were proposed and discussed by the Interdisciplinary Team (IDT) for each area of the fire (IDT notes of alternative variations is available in the Austa fire file). Some of the alternative treatments proposed for certain units (A, B, C, D, E) were not considered feasible or preferred based on factors such as OR-OSHA provided guidelines for safety, IDT discussion, environmental factors, or need to mitigate potential sedimentation this coming winter. For example, tree planting was considered on all the BLM ownership within the burn due to it's greater success level than aerial seeding, however, existing hazardous safety conditions, have eliminated tree planting as a viable alternative in most of the burn area on BLM lands given the need to retain most of the snag and down wood component to meet the resource objectives of the Late Successional Reserve.

Another alternative considered was hydro-mulching seed from the air over the majority of the burned area with 325 lbs Douglas fir seed with 20 lbs minor species of red cedar, western hemlock, and grand fir. The Austa plantation would be replanted. This alternative was modified during IDT discussion to further refine the proposed action previously presented.

Further options considered were hydro-mulching the draw in Area A in combination with planting a portion of the old Austa unit and implementing the other treatments as described above. Also considered was just the aerial seeding of conifer seed with some limited application of an available native grass / forb mix in Areas A and C. The IDT developed design features within the Proposed Action Alternative that were considered to be the most reasonable of what could realistically be accomplished to rehabilitate the various areas of the burn given the issues and constraints (environmental, OSHA, etc). These are analyzed in detail below in Environmental Consequences.

Affected Environment

Soils

(A) Austa Unit

Digger- Rock outcrop complex, 50 to 85% slopes. Digger soils occur on steep side slopes that have layers of hard sandstone. This SCS map unit is described as 65% Digger gravelly loam, 15% outcrop, and 20% other inclusion soils. Here the extent of rock outcrops is much greater, ranging from 25% to 50%. Digger is moderately deep (20-40 inches) with moderately rapid permeability. Runoff is rapid and the hazard of water erosion is high. This portion experienced a high intensity burn of relatively short duration that consumed most all existing vegetation and surface organic material producing a severe erosion risk and concern for future site productivity. Digger soils are sensitive to productivity losses from burning. Total nitrogen content is less than 7,000 kg/ha in the weakly resilient Digger soils (3-5% organic matter in the A horizon). Changes in nitrogen availability following fire may be a function of soil temperatures. Coarse, gravelly soils have less insulating air space than finer textures and conduct heat more rapidly to a greater depth. Potential for volatilization of N is extremely high if soil is heated to over 200 C.

The fire consumed most soil stabilizing agents; organic matter, microbes and their products, fungal filaments, roots, woody debris and vegetative cover. Generally, on steep ravel-prone slopes, a fire hot enough to destroy the litter will probably also heat the soil enough to destroy inter-particle bonding (Barnett, R-6 Soils Technical Report, 1989). Extensive dry ravel and some flow erosion is expected. It is unlikely that natural regeneration, primarily hardwoods, will establish sufficient ground cover in time to protect this portion from severe erosive losses.

Timber Production Capability Classification (TPCC)

The western half of this plantation was incorrectly classified as RL-R (light restricted) in 1984. Given the steepness, extent of rock outcrop (>50%) and associated shallow soils (less than 20 inches) the area should have been withdrawn as FG-NW (or RM-NW or RS-NW). As a result, conifer establishment in the plantation has been problematic due to the doughtiness, low nutrient capacity, and competing hardwoods.

(B1) Northeast Corner

Bohannon series. The soil on-site does not have the coarse content that is typical for Bohannon series. The soil is moderately deep (ave. depth 24 inches) and loamy throughout. Permeability is moderately rapid. Runoff is rapid and the hazard of water erosion is high. Slope is very straight and steep. Interception has been reduced due to death of most overstory trees and surface

infiltration has been reduced due to consumption of organics. Concern exists for surficial loss to stream system below. Intact fungal mycelia was observed in the soil at approximately 4 inch depth post-fire. Therefore, it would be reasonable to conclude that this portion did not experience intense heating as deep as in portion A.
TPCC
Withdrawn for high-moderate risk of instability (FG-NW). This small piece is an over-steepened (>65%) headwall immediately above probable inception point of intermittent stream (probably within RR). Loss of root strength and increased water to the soil system may lead to landslide, depending on winter precipitation patterns in the future.

(B2) Westside, Section 15
Bohannon and Digger series. Two intermittent stream flows to southwest across section line (from Sec. 15 into private Sec. 16). Upper portion of Riparian Reserves on BLM with some burnt portions, some intact.

(C) South Aspect, Section 9
Digger - Rock outcrop complex, 50 to 85% slopes. (Refer to description above for A). Comparable to Area A this area is at severe risk for excessive erosion and resulting productivity losses. Some protection against detachment and overland flow will occur as burnt conifers randomly fall within the next 5 years, some acting as natural debris dams. Streams pictured on topographic map within BLM ownership are not intermittent streams. Theses rock chutes act as surface water collectors to the stream network during periods of high winter precipitation.
TPCC
This severe site was withdrawn from the timber base in 1974 for heat and drought limitations (RH-W) . The classification was updated in 1984 to RS-NW to reflect the extensive surface rock content.

(D) Plantation Westside, Section 9
Digger gravelly loam, 30 to 50% slopes. Erosion is not a concern in this portion. Slopes are gradual, exposed soils make up less than 15% of the total, and ample vegetation remains on the eastside of the intermittent stream to filter any small localized soil losses.

(D) North Aspect, Underburn
Preacher loam. O-25% slopes. The broad ridge and smooth, gentle, upper north-facing slopes hold deep resilient soils. This soil is typically 58 inches deep and loamy throughout. Permeability is moderate. Runoff is medium, and the hazard of water erosion is moderate. Although the amount of organic matter in soils varies greatly, deeper Coast soils like Preacher typically have at least 5 to 8% organic matter in the A horizon and contain a lot of organic matter well distributed within the profile as well. Therefore, surface losses are not as critical on these soils (in terms of productivity losses) as compared to the less productive Digger soils that occur elsewhere. Organic matter loss is likely to be temporary on this productive site where the system can generate a lot of organic matter to replace losses. Erosion is not a concern in this portion due to gradual slopes and the light patchy burn.

(E) Underburn, Section 15, NW 1/4
Digger-Rock Outcrop complex, 50 to 75% slopes. This map unit is on dissected uplands. Aspects are variable; the prevailing aspect for the landform is southerly. The SCS map unit is 65% Digger gravelly loam with 15% rock outcrop. Included in this area are small areas of Bohannon soils, commonly on north-facing sideslopes; Preacher soils on toeslopes; and soils that are comparable to the Digger soil but are more than 40 inches deep to bedrock or less than 20 inches deep (See descriptions above). Included soils make up about 20% of the acreage. These surface soils are highly erodible, but the concern for accelerated erosion and potential sediment delivery to waterways is much less in this portion. Because burn intensities were low, the majority of the soil stabilizing agents (vegetation, surface organics etc.) have survived. With infiltration characteristics intact, very little overland flow is expected in these portions.
TPCC
All BLM owned ground in this portion has been withdrawn from commercial harvest due to the same combination of conditions as the withdrawn ground in sections A and C: steep slopes with extensive rock outcrop, shallow soils, low nutrient status, and doughtiness (FG-NW, RM-NW, and/or RS-NW).

Watersheds

Wildcat Creek Watershed (Geography and Relief): Situated within the greater Siuslaw River Basin, Wildcat Creek Watershed is located along the eastern boundary of the basin. Wildcat Creek Watershed begins east of Vaughn on the divide between the Siuslaw River and the Willamette River. The watershed's eastern boundary forms the divide between the Siuslaw River and Willamette River Basins. The Wildcat Watershed is bound by the Lake Creek Watershed to the north; the Wolf Creek Watershed to the south; the Lower Siuslaw River Watershed to the west; and the Upper Siuslaw to the southeast; all of which are also situated within the greater Siuslaw River Basin. Most of the main stem of Wildcat Creek flows westward through a low gradient valley. Steepest areas are in the headwaters and main stem, with many of the tributaries also having unconfined, low gradient valleys. Ridge lines and gradients are higher in the middle and lower portions of the basin than on the eastern edge.

The Wildcat Creek Watershed is approximately 34,902 acres in size. Approximately 7,610 acres of LSR (LSR R0267) lie within the Wildcat Watershed.

Lower Siuslaw Watershed (Geography and Relief): Also situated within the greater Siuslaw River Basin, the Lower Siuslaw River Watershed borders the Wildcat Creek Watershed to the east. The Lower Siuslaw Watershed is approximately 111,481 acres in size. The watershed encompasses lands between the North Fork of the Siuslaw River to the north, and the Smith River to the south. It is bounded to the west by the Pacific Ocean and on the east by the mountains of the Coast Range. The mouth of the watershed drains to the Pacific Ocean and occurs immediately west of Florence. Approximately 43,708 acres of LSR lie within the Lower Siuslaw Watershed (LSRs R0267 and R0268).

The watershed ranges in elevation from sea level to about 2,160 feet near Walker Point. Approximately 8 percent of the watershed is a low relief coastal terrace adjacent to the coast. The remaining 92 percent is predominantly steep, highly dissected mountainous terrain typical of the Coast Range.

Climate and Moisture Regime

The Austa burn area has a moderate climate- wet winter with most precipitation in the form of rain. Temperatures are seldom below freezing and significant snowfall is rare. Rainfall amounts vary but average approximately 74 inches per year. Most rainfall occurs from November through February. Although rainfall amounts would be considered high, the intensities per hour are generally low. Winter storms come off the Pacific Ocean and are often accompanied by high south to southwesterly winds. Summers are warm and dry with little or no rain during the months of July and August. Mild north to northwesterly winds are common in summer.

High potential evapotranspiration and low precipitation during warm summers may produce moisture deficits where soil and bedrock have low water holding capacities. Moisture deficits can be pronounced in the southern LSR, R0267 because soils are generally thinner, higher in rock fragments, and bedrock tends to be only slightly permeable to impermeable. Throughout the LSR, stands on ridges and exposed south facing slopes with thin, rocky soils can develop substantial plant moisture stress in late-summer. This description is typical of much of the BLM ownership within the Austa burn area.

Forest Plant Communities

The forested plant communities are within the western hemlock *(Tsuga heterophylla)* series. The major plant associations within the BLM ownership are predominantly western hemlock / swordfern (TSHE/POMU) and western hemlock / salal (TSHE/GASH) with some inclusions of a western hemlock / rhododendron - salal association (Lower Siuslaw Watershed Analysis, February 13, 1998) (Wildcat Watershed Analysis, March, 1999)

Long Term Forest Succession

Long term forest succession will depend on several factors including : disturbance type and intensity, disturbance frequency, seed source availability, and local site conditions. Forest succession is expected to be slow due to the steep, bare, fragile rock outcrop areas with shallow soils and steep predominantly harsh south facing slopes and headwall areas that contribute to poorer growing conditions. Typical vegetation succession following an intense fire would be the expected development of herbaceous and brush (shrub) vegetation (within approximately 2 years) accompanied by a gradual in-seeding of red alder, Douglas-fir, western hemlock, western red cedar, bigleaf maple, white oak, and other minor tree species that have seed sources within the area. Natural re-seeding is expected to be heavier near the edges of the burn area adjacent to seed sources.

Germination and establishment of red alder can occur rapidly on exposed mineral soil and is expected to occur more rapidly in some areas within the burn than the establishment of other tree

species due to its fast growth rate, and ability to out-compete other brush establishment. Red alder is often associated with high disturbance burn areas because of these traits. Re-sprouting of hardwoods such as bigleaf maple, white oak, chinquapin oak and madrone is also expected from surviving existing root systems.

Establishment of Douglas-fir across the burn area is expected to be highly variable due to varying site attributes across the burn area. Douglas-fir is expected to become established in higher densities in areas of exposed mineral soils with drier plant associations. However, moisture stress due to south facing slopes and shallow soils, and poor light conditions in areas of early brush and/or hardwood establishment may prevent or greatly slow the establishment and growth of Douglas fir throughout portions of the burn area.

Western hemlock and western red cedar are more shade tolerant than Douglas-fir and can become established and grow in areas of lower light conditions. Western red cedar is a slower growing species that prefers moist to wet soil conditions found on the lower slopes and north and east aspect areas.

Fire Regime and Landscape Pattern
The characteristic fire regime in the Oregon Coast Range is one of infrequent high severity fires with more than 200 years between burns and with considerable spatial variability associated with the estimate (Agee, 1993). The Austa burn area lies within the Southern Interior Disturbance area defined in the LSR Assessment. In this area fire occurs in low to moderate frequencies, variable in size, with moderate to high severity.

The expected, resulting landscape pattern from this fire regime would be variable size (small to giant) patches, with some patches developing into late seral, and some patches experiencing more than one non-stand replacing disturbance (variable distribution of remnant trees and stands). Because of the many factors affecting fire behavior, the pattern of vegetation across the landscape after fire can be complex with numerous unburned patches forming a diverse mosaic. It is likely that draws, north and east aspects, and stream bottoms often escape the conflagrations or burn lightly. *(Lower Siuslaw Watershed Analysis, February 13, 1998*) *(Wildcat Watershed Analysis, March, 1999 and LSR Assessment R0267, R0268, June 1997))*

Hydrology (Refer to map)
The first order stream draining the western portion of Area A has experienced a slide in the recent past and is scoured to bed rock. The stream, east of Area A, which originates in Area B, flows thru Area E, and joins the first order from Area A. These two streams drain into Wildcat Creek which is a sixth order tributary of the Siuslaw River. There is a first order draw that originates between the western portions of Area B. This stream drains directly into the Siuslaw River. Area C does not have any stream inception points but is on a very steep slope above streams that start on the private land below. There is a first order stream that starts in Area D. This stream drains into Rock Creek a third order tributary of the Siuslaw River.

Botany

Plant associations: Mainly Western hemlock/ Salal, with Western hemlock/swordfern on the lower slope and in the draws, with inclusions of Western hemlock/ rhododendron/ salal along the ridge.

Special status plants: No sensitive plant species are known to occur in the fire area, however no surveys were done in this are prior to the fire. There are several populations of tall bugbane, *Cimicifuga elata*, a Bureau sensitive species that occur in this watershed.

Survey and Manage: No known sites of Survey and Manage species are known to occur in the fire area, but again no surveys were done prior to the fire. The fire consumed most of the canopy lichens (even where the needles of the trees remained). Bryophytes were also destroyed.

Weeds: No noxious weeds were noted in the fire area or on the road system leading into the fire. However there are a number of noxious weeds known to occur in the watershed (see Lower Siuslaw watershed analysis for a list), in nearby clear-cuts and along nearby roads. Foxglove, teasel, and burnweed occurs in a nearby clear cut.

Special habitat: Meadows are scattered across the south slope. The meadows are areas of thin soils over rock outcrops. The vegetation was probably predominately mosses with native grasses and forbs. White oaks were seen around the meadows, several of which were severely burned and may not resprout.

Cultural Resources

Cultural Resource Surveys: One cultural resource survey covering 31 acres was conducted in the N½NW¼, sec. 15 during December, 1979 in support of a 1981 timber sale. No cultural values were located. No cultural surveys have been conducted on the remaining fire-affected area. No additional surveys will be conducted on BLM administered lands within the Austa EFRP area. The Austa EFRP area is located within the Coast Range physiographic province and falls under the purview of Appendix D of the Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Oregon between the Bureau of Land Management in Oregon and the Oregon State Historic Preservation Office.

Cultural Resource Values: No known cultural values are present on BLM administered lands within the Austa EFRP area. The nearest recorded cultural value was located on private property in sec. 16, T. 18S., R. 8W., W.M. on the south side of the Siuslaw River. This cultural feature, a "plank tree", no longer exists.

Recreation

The area is used for dispersed recreation such as hunting and driving for pleasure. There are no Bureau of Land Management recreational facilities or specific sites within the fire area which would attract visitors to the immediate vicinity. A boat launch ramp is present at Austa on private land, and the Siuslaw River in this reach is used heavily for sport fishing, mostly for steelhead,

from December through March. The Siuslaw in this reach is also heavily used for crayfish collecting during the summer months.

Visual Resource Management

The BLM portion of the burned area is visible to motorists on Highway 126 for a few seconds at normal highway speeds. The private portion of the burn can be viewed for a longer period of time. A buffer along the Highway blocks the burn from full view most of the time. Excellent viewing of the burned area can be obtained off the south side of the highway from recent logging units, most of which are on private lands. Some of these logged units are gated to discourage public use. In essence all areas of the fire except Area D can be viewed briefly from the Highway and from the Siuslaw River Road near the junction of Highway 126 if one knows where to look.

In Section 9, most everything south of the BLM road number 18-8-10 (Area C) left burned timber. Most trees north of the road which is the ridge top in area (Area D) survived the fire except in the westerly portion. In Section 15, most trees survived (Area E), except 3 isolated brown patches (Area B). Also in Section 15, an old logging unit (Area A) which was growing young trees was consumed by the fire. Adjacent private lands south of BLM were being logged at the time of the fire. After the fire only black stumps and a few remaining snags were left. Currently the burned region is in stark contrast with the surrounding green forest.

There are homes near the edge of the burned area that were threatened during the fire. These homes are at the base of the slope along Stagecoach Road and adjacent to the Siuslaw River. Even though these homes are near the area, rural interface with VRM III management objectives is not a factor. This country setting does not meet the rural interface criteria identified during the RMP/EIS.

The RMP provides for 4 visual resource management (VRM) management classifications. The Austa fire occurred in VRM Class IV. Class IV objectives allow for major modifications of the existing character of the landscape such as occurred during the Austa fire.

Fisheries

No fish or fish habitat are found in the burn area on lands administered by BLM. No live streams are found in the burn area on lands managed by BLM, however several draws originate on public lands. The Siuslaw River and Wildcat Creeks parallel the burned area on its southern side, but are separated from public lands by private lands. Both the Siuslaw River and Wildcat Creek have populations of salmonid and non-salmonid resident fish species, as well as runs of chinook and coho salmon and steelhead trout. Coho salmon are listed as threatened by the National Marine Fisheries Service. No population estimates are available for these streams where they adjoin the burn area. These stream reaches are probably used primarily for migration rather than spawning and rearing.

Wildlife

Threatened and Endangered Species

The Bureau lands involved in this fire are designated Late Successional Reserve (LSR RO267) and Critical Habitat for both the northern spotted owl (OR-52) and marbled murrelet (OR-04-i). These federal lands were comprised of Douglas fir/western hemlock forest of varying seral stages (from 15 year-old plantations to 190 year-old forest).

A historic spotted owl activity center is located approximately 0.75 mile to the north of the burn in section 9 and one is located approximately one mile to the south in section 21. Although there are no records of spotted owls utilizing the area prior to the burn, it is reasonable to assume these birds have foraged (and to a lesser extent, nested) in Areas C and D in the past. There were few trees with structure adequate for nesting in the intensely burned Area C, while such trees continue to exist in the lighter burned Area D.

No surveys for marbled murrelets have occurred in the burn. It is possible these birds have nested in Area C and D since some trees with nesting structure are present.

No bald eagle nesting or other activities have been documented in the burn. However, trees adequate for nesting and perching did, and continue to exist in the area.

This area does not contain suitable habitat for any other terrestrial species listed or proposed under the Endangered Species Act.

Special Status Species (Other Than Those Federally Listed)

No surveys for special status wildlife species have occurred in the area of the burn. However, it is reasonable to expect that four "Survey and Manage" species did occupy some of the heavily burned areas and continue to exist in the lightly burned portions. These species are: the red tree vole, the Oregon megomphix, the blue-grey taildropper and the papillose taildropper.

The red tree vole is a rodent of the canopy in mid-seral to old-growth Douglas fir forests while the Oregon megomphix (snail), blue-grey taildropper and the papillose taildropper (both slugs) are terrestrial mollusks associated with forest floors of Douglas fir stands containing hardwood components. Additionally, these mollusks benefit from fungal communities, shade, and moist woody debris of advanced decay.

Another group of animals garnering particular interest in recent years is the bats. Of the 10 species known to occur in the Coast Range, five of the more commonly documented are: the big brown bat (*Eptesicus fuscus*), long-eared myotis (*Myotis evotis*), little brown bat (*Myotis lucifugus*), fringed myotis (*Myotis thysanodes*) and long-legged myotis (*Myotis volans*). Although none of these are federally listed, *M. thysanodes* is "Bureau Sensitive", while *M. evotis* and *M. volans* are considered "Bureau Tracking Species".

All are found in Douglas fir forests and rely heavily on snags or older trees for roosting and/or rearing young. Many snags and large residual trees within the burn area may have provided such habitat for these species. Some of these structures were destroyed in the fire while others will

remain into the future. Additionally, some snags were created during this disturbance and should provide future habitat for these and other cavity dependent species (discussed below).

Big Game

Black-tailed deer, elk and black bear should not be greatly impacted by this burn. Each of these species rely on a variety of seral stages for different parts of their daily and yearly activities.

Older and mid-seral forests offer hiding and thermal cover for deer and elk while providing denning sites for bears. Bears will forage in a variety of habitats as will the ungulates, however the younger or disturbed stands provide superior foraging opportunities because of the abundance of grasses, forbs and berries.

From a watershed standpoint, the results of this burn should not negatively affect these species since there still would be an adequate mosaic of older forest providing cover interspersed with an array of younger stands offering foraging opportunities.

Neotropical Birds

Because of the expected increase in insect activity in the burned area and more open foraging, species such as western bluebirds, swallows and flycatchers would be expected to benefit from these improved opportunities.

There still would be a variety of seral stages and "edge habitat" present in the vicinity. Negative affects to other neotropicals are not expected because, from a watershed standpoint, the overall mix of habitat types would not be altered.

Cavity Dependent Species

One result of this fire is the natural creation of snags (as well as course woody debris). Species reliant on cavities and snags (woodpeckers, nuthatches, chickadees etc.) would benefit greatly from the resulting abundance of these structures. Not only will these dead trees provide nesting and roosting habitat, but would also enhance foraging opportunities for these species.

In the areas of cooler underburns where adequate live cover would still surround dying trees, species such as flying squirrels and some owls would be expected to benefit from increased nesting opportunities.

Environmental Consequences of Alternative 1 - Proposed Action

Critical elements

There would be no adverse impacts from the proposed action to regional or local air quality, water quality, prime or unique farmlands, cultural resources, wetlands/riparian zones, floodplains, areas of critical environmental concern, environmental justice, native American religious concerns,

threatened or endangered species, hazardous or solid waste, wild and scenic rivers or wilderness. Water quality, riparian zones, and the stream system of the threatened coho salmon are expected to benefit from the proposed action.

Vegetation

The proposed action is the aerial hydro seeding of the fire area with a mixture of conifer seed, fertilizer, tackifier and water. The conifer seed would be a mix of Douglas fir, western red cedar, western hemlock and Grand fir. The aerial hydro seeding would dramatically increase conifer reforestation of the area, over the no action alternative. Aerial hydro seeding is a highly effective economical method for area seeding, especially in extremely steep terrain and burned areas. After application, the tackifier acts to hold the seed in place. This is extremely important on steep slopes where seed tends to slide and where wind and rain tend to move untreated seed and fertilizer.

Normally, tree planting is the preferred method of reforestation; however, aerial hydro seeding was chosen for this area due to hazardous conditions in the area and the ability of the mulch to help hold soil in place. Hazardous conditions include very steep slopes, gravelly soil, rocks, rock faces, fire killed trees, snags, loose debris and logs. Most of the area is also an exposed south aspect subject to high wind and heavy rainfall. These conditions reduce the success rate of any reforestation method. All things considered, aerial hydro seeding offers a reasonable chance for successful rehabilitation while minimizing exposure of personnel to extremely hazardous working conditions.

From a desired LSR habitat perspective, the marginal success rate of aerial tree seeding on harsh south exposure slopes would provide some of the variable tree densities and distribution results desired when coupled with the variable site conditions present within the burn area. Resulting higher conifer tree densities are expected on the ridgetops and draws due to some mid-slope, downhill seed displacement from winter rains. The aerial seeding with hydro mulch would reduce some of this seed displacement and would also increase the chances of early re-establishment of a forested condition, especially near the center of the burn where the distance to a seed source is greater. Aerial seeding would also alleviate safety concerns connected with tree planting. In addition, natural re-seeding would also occur from adjacent seed sources that survived the fire along with re-sprouting of hardwoods, and herbaceous and brush species.

Water Quality

Contour falling some trees in the northeast of Area B and sediment traps in the intermittent channel immediately below would reduce the potential sediment additions to this stream from the burned over steepened straight slope above. Contour falling in burnt areas adjacent to 2 streams as they leave Sec. 15 and enter Sec. 16 (B2) would also act to trap eroded material before it reaches these channels.

Erosion and Site Productivity

The effectiveness of these treatments against erosive losses would largely be determined by the pattern of winter precipitation and the effectiveness of the hydro mulch. Research indicates that

surface erosion is a function of the extent and continuity of bare areas with no organic surface litter layer (Teideman et al., 1978). Oftentimes post-fire grass seeding does not become established in time to protect against early heavy precipitation when the site is most vulnerable. The hydro mulch itself would act as a protective cover against soil detachment and sheet erosion where all effective cover (litter, live and dead vegetation) has been removed. The sooner the site can be treated, the greater likelihood of reducing the initial heavy losses. There is some possibility that the hydro mulch itself could be washed away under extremely high intensity storms but this is not expected if coverage is complete and adherence is achieved. The mulch would aid infiltration, reduce overland flow, and greatly reduce the amount of conifer seed that washes from the steep site. The water holding properties of the mulch product would speed the rate and success of recolonization by all vegetation, not just the sown conifer. The likelihood of conifer coverage in the future is far greater under this alternative than the No Action Alternative.

Botany

Vegetation: Aerial hydro seeding conifers would increase the number of conifers over that which would occur naturally, thereby reducing the possibility of the site becoming a brush field. This would hasten the return of the area to a conifer forest appropriate for Late Successional Reserve (the desired future condition) and in the very long term provide habitat for old-growth obligate species.

The success of the seeding will depend upon the trees getting above the brush. If conifers are not able to out compete the brush, the site would become a hardwood dominated brush field and would go through a longer term succession resulting in a stand of scattered trees. While the number of species might be temporarily increased by the establishment of a brush field, in the long term, an accelerated return to a forested condition would create greater diversity of species.

Special Status plants: Direct: As the trees grow and forest conditions return, the possibility of Special Status plants occupying the site would increase over time. Indirect: Some Special Status Plants, such as *Montia diffusa*, are early seral and fire dependent species that could appear in the years following the fire. Long term: Monitoring the site in future years would be appropriate to track the appearance of uncommon early seral species.

Survey and Manage: Direct: As most S&M species are late-seral species, until the seeded trees are large and old enough to serve as habitat, few S & M species would be present on the site. Indirect: Any S&M species that are stimulated to grow by fire would increase on the site. Cumulative effect: There will be less habitat until trees reach the size and age these species require. Much of the habitat for S&M was set back to an earlier successional stage, however mycelium was seen in the soil even in some severely burned areas. Planting would provide more host trees for fungi and lichens. Inoculum is available from the neighboring forest. Monitoring the site would provide information on succession and recolonization of these species.

Weeds:

Direct: Seeded trees would occupy sites that may otherwise be occupied by weeds. Hydro

mulching may also have a small effect in reducing the amount of weeds that would occupy the site by reducing the number of seeds that germinate. However, none of the treatments will prevent weeds from coming in. There will be weeds, especially for three to ten years. Indirect (and long term): as the trees grow large enough to shade the site, habitat for weeds would be reduced as many of these species require full sun. Scotch broom is known in this watershed and if it becomes established onsite, it would occupy the site for a long period of time. Cumulative: An increase in weeds in this site and across the watershed for a period of 3 to 10 years is a concern.

Weeds present a significant threat to desired biological resources. These species grow well in open areas and may out compete native early seral vegetation and inhibit development of later seral stages. Non-native plants limit site diversity and may prevent recently disturbed sites from returning to their pre-disturbance condition.

If the conifer seeding were unsuccessful (i.e. very few conifer seedlings, the site becoming a brush field), native grasses could be seeded in. These would occupy the site with native species, allowing natural succession to take place.

The linear shape of the fire along Area C would allow many opportunities for reseeding by neighboring plants along the edges. Chances are that some non-natives such as burnweed, *Erechtites hieracifolia* and foxglove, *Digitalis purpurea*, would become established. Controlling vehicle access to the site by gating the road system would help limit introduction of these and potentially other nonnative species, but the existing seed and wind dispersed seed will grow.

Special habitats:
Direct effects: The rocky meadow areas would be avoided during hydro-mulching to allow natural succession to proceed in these areas. However, there may be some drift of conifer seed into these areas. Some conifer seed could sprout and grow in the areas of slightly deeper soils in the rocky areas (especially as the climate is presently in a “La Nina” phase, bringing long wet springs conducive to the germination of seeds), causing shading and a change in the vegetation on the site. If this does occur these trees should be removed in the future.

Planting oaks would help to stabilize the soils over and around the rocky areas. Indirect: Oaks are desirable as they are uncommon in this watershed and it is desired to maintain their presence in the watershed. Oaks do not shade a site year-round allowing bryophytes and other plants that grow in the winter and early spring to regain their foothold on the site. Oaks also drop their leaves each year, adding organic matter and tannins (which acidify the soils creating conditions better for bryophytes and other native species). Short term: Fire has reset succession. Some weed establishment is expected but the harshness of the site should favor natives. Planting oaks will help to create conditions favorable to native species. Long term: The site would return to prefire conditions.

Cultural Resources
Proposed mitigation values center around aerial seeding of the deforested area. This proposed

action would pose no threat to undiscovered cultural values.

Recreation
The Proposed Action of closing this area to the general public would have little impact on recreation. This is a small area within the context of the whole resource area and is only accessible by BLM road #18-8-10 which would be gated. As mentioned previously, recreation is dispersed in this area and would not be adversely affected with a closure.

Visual Resource Management (VRM)
The Proposed Action would not adversely affect VRM since this area is managed as VRM IV. The BLM portion of the unit is not easily seen from State Highway 126, and adjacent land ownership looks similar to BLMs. The Visual Contrast Rating Worksheet and accompanying map and photos are available at the Eugene District Office.

Fisheries
Modification of the infiltration of water and an increase in sediment production are expected as a result of the fire. Impacts will be greatest during the first major storm events. As vegetation becomes re-established, the hydrologic functions and potential for erosion will improve. The greatest potential for impact to fish would be from increased erosion, including the potential for increased mass movement of material, that would deposit sediment in Wildcat Creek and/or the Siuslaw River. Since the major migrations and spawning activities of anadromous salmonids occur during the winter rainy period, a major increase in sediment at the Austa site could harm both the migrating fish and eggs deposited in downstream gravels.

The Proposed Action is to remove hazard trees and to re-establish vegetation in burned areas. The proposed action is not expected to directly impact fish habitat. The hazard trees identified are primarily along the ridge road away from any active stream channel. Felling, moving and decking of the logs or the retention of the logs on site away from the ridge road are not expected to alter the hydrologic functions or to create a disturbance to the soil that would accelerate sediment production. Seeding and other actions designed to accelerate the re-establishment of vegetation would have a potentially positive impact on downstream fish habitat by reducing the potential for erosion and sediment production from the burn areas on public lands.

Wildlife
Within **Area A**, formally a 10 year-old plantation of mostly Douglas fir, the aerial hydro mulching of conifer seed would initiate a stand that would be expected to mature into an old-growth state over time.

This action would benefit early seral species during the initial stages of stand development. Species such as flycatchers, swallows, deer and elk would enjoy enhanced foraging opportunities. As the stand matures, foraging habitat for some species would gradually give way to hiding cover for the ungulates, neotropicals and rodents. Within 80 years, the stand would start to develop mature characteristics advantageous to species of older stands (hermit warblers, brown creepers)

while still providing escape cover for ungulates and other prey species. In the absence of larger residual trees for nesting, a stand of this age could still serve as foraging habitat for the northern spotted owl.

At approximately 120 years the first characteristics of an old-growth state would begin to develop, providing marginal nesting habitat for the spotted owl and possibly the marbled murrelet. Once the stand reaches 180 years, snags and course woody debris would be available in various sizes and decay classes. This is when the system would begin to function as true old-growth, providing quality habitat for predator and prey species reliant on this forest condition.

Area B (which is split into disjunct east and west portions) was subjected to a hot burn, killing most, if not all trees within. This was a stand of mostly Douglas fir approximately 60 years-old with some residual legacy trees approximately two hundred years in age.

Proposed treatment of this alternative, if safety concerns allow, is to fall some trees across the slope for soil stability purposes. These areas have an abundance of small to mid-sized snags, that would eventually provide coarse woody debris. There would be some large snags and woody debris in this area because of the large trees present prior to the burn.

In addition to the felling of some trees for soil stability, this area would receive hydro mulch containing the same 90/10 seed mix proposed for Area A.

Response of wildlife to the proposed action would be similar to those in Area A except for the abundance of snags. The snag component of Area B would provide excellent foraging for woodpeckers and other species that capitalize on such feeding opportunities. As these snags deteriorate, cavities will be created by primary excavators (woodpeckers), providing nesting and roosting structures for these and other cavity dependant species (nuthatches, flying squirrels and bats).

Area C, a mature stand of Douglas fir, was subjected to the hottest burn, resulting in the immediate loss of most (80%) of the canopy. What canopy (needles) remains will likely fall during the first winter as the canopy sustained considerable smoke and heat.

As with Areas A and B, this portion of the burn would be hydro mulched with the same seed mixture mentioned above.

Response of wildlife would be similar to that of Area B since an abundant snag component remains in this portion of the burn. However, because of the larger trees present, the resulting snags would provide more roosting and nesting opportunities for animals requiring larger cavities. Bat species would greatly benefit from these large snags and black bear would possibly find suitable snags or down trees for denning opportunities.

Area D, because of its north aspect, was subjected to cooler underburns. Most of the canopy and

larger trees are expected to remain alive. The proposal for this area is to allow it to develop naturally with no treatment. Consequently, this portion of the burn will remain in a mature to old-growth state. Results of the fire on this stand would be the creation of some snags and deformation of some trees that will continue to survive. Overall, the larger trees here will continue as they have, resulting in a fully functional mature to old-growth forest system.

Area E (although affected by hotter underburns than D) still retains most of the canopy layer. The proposal for this area is to allow it to develop naturally with no treatment. This is a Douglas fir stand approximately 50 to 60 years-old. There is a minor component of large legacy trees approximately 200 years old. An eight acre portion of E in the southwest is approximately 30 years of age. About 15 acres of this area is expected to lose its canopy, resulting in development of snags.

Presently, this area could serve as hiding and escape cover for ungulates and as foraging habitat for spotted owls, other raptors and a variety of passerine birds. This stand could also serve as nesting and roosting habitat for some raptors and passerines.

As snag development progresses, enhanced opportunities for foraging would be available to woodpeckers, nuthatches and other birds with similar foraging strategies. As decay advances in these snags, roosting and nesting opportunities would increase for cavity dependant species (woodpeckers, chickadees, squirrels and bats). The surrounding live stand would provide cover, offering increased security from predation for the cavity nesters.

Cumulative Effects of Alternative 1- Proposed Action

The proposed action (hydro-mulching, contour felling of trees, and installation of gully plugs) would contribute to decreased levels of sediment input into the Wildcat Creek and Lower Siuslaw Watersheds in the short term. The long term potential for sediment input would also decrease with the gradual establishment of vegetation within the burn area. The proposed road gate would contribute to reduced road use and potentially lower levels of invasive nonnatives and noxious weeds within the watersheds and the aerial seeding of conifers would contribute to the earlier establishment of a forested condition. Resulting conifer densities from aerial seeding are expected to be variable due to the harsh site conditions present with higher tree densities expected on the ridgetops and draws due to some mid-slope, downhill seed displacement from winter rains. At the landscape scale (watershed and total LSR), these effects would be minimal due to the small size of the BLM fire rehabilitation area. The condition of the burn area would require periodic monitoring over time and possibly additional stabilization or rehabilitation measures to insure continued attainment of aquatic and upland resource objectives.

Attainment of Aquatic Conservation Strategy (ACS) Objectives

The Proposed Action would minimize soil erosion, soil productivity losses, and sedimentation, protecting water quality and fish. The proposed action would minimize noxious and invasive weed infestation, maintain special habitat areas and diversity within the LSR, and benefit the re-establishment of the forest community.

Environmental Consequences of Alternative 2 - No Action

Vegetation
Long term forest succession would occur as previously described in the existing environment. Chances of successful early establishment of a forested stand condition would be less than with the proposed action. Lower initial tree densities would also likely occur with this alternative along with larger areas of non-stocking given to the harsh site conditions present, particularly near the center of the burned area where distance to seed sources is greater. Brush vegetation would persist in these larger openings until which time natural reseeding and seedling establishment occurs.

Soils
Due to the steep topography and shallow soil conditions present in much of the burn area, the potential for some soil displacement and potential for increased sediment input into the 1st and 2nd order streams from high intensity rain events would be greater with the no-action alternative until the herbaceous and brush vegetation is reestablished within the burn area.

Weeds
The potential for invasion of nonnative vegetation species with this alternative would be greater than with the proposed action due to increased vehicle traffic through the burn area in a non-gated condition.

Water quality
Much of the sediment movement occurs when fire destroys or weakens woody debris that is trapping sediment in the channel. DeBano et al, (1979) and Fredriksen (1970) found that this was the source of most sediment originating from burned areas. The intermittent streams that leave BLM land (B2, B1, and D) are largely intact. Woody debris is expected to trap most of the eroded material, greatly reducing short term sedimentation downstream (Fredriksen, 1970). Downfall of weakened and dead trees along burnt segments would greatly increase the quantity of woody debris in these portions over the next few years.

Erosion and Site Productivity
Post fire monitoring (Amaranthus and Trappe, 1992) of erosion from individual storms indicated that most surface erosion happens with the initial large storm event following wildfire when the readily movable, burned topsoil is available. As organic matter is largely contained in topsoil, these early losses also constitute the greatest share of the productivity losses. Studies from Coast Range prescribed burns have shown that overall the greatest volume of soil is moved by gravity, not water and that nearly all raveling movement occurs within the first year or sooner (Bennett 1982). Although large quantities of soil would be moved by raveling, the material is usually deposited down slope. Only the soil that is within several meters of channels can enter streams. Ravel is expected to be extensive due to the steep slope (>65%), south aspect, and total loss of vegetative cover resulting in a net movement of soil from upper convex slopes to lower concave slope or stream channel positions. Undisturbed coarse soils in the Coast range have an

exceptionally high capacity to conduct water and can accommodate intense rainfall with no sustained overland flow (Yee and Harr, 1977). Here some sheet erosion and rilling is to be expected, especially on steep lower slopes in the ravel cones that collect there. This is due to the extent of rock outcrops, extreme slopes, possibly water repellent soils, and the fact that south slopes are also exposed to wind-driven rain, and receive more rainfall (Neal et al., 1965). Most of the rilling would probably occur during the first winter and for as long as three years. Bare soil exposure is expected to decline quickly as scattered herbaceous plants become established after the fall rains begin, but it is unlikely that cover will be enough to forestall the initial erosive losses.

Adequate desirable vegetation, primarily hardwood species, would recover within 2-3 years to help stabilize soil and prevent on-or off site soil erosion effects. Re-colonization of the site by alder would slowly build organic matter reserves on the site back to pre-fire levels. Conifer reestablishment in the first decade would be unlikely given the initial low site quality and severity of the burn effects until other vegetation can rebuild organics to replace losses. Under the worst case scenario, high intensity winter storms (as forecast), hot dry summers, and if hot temperatures have killed a large proportion of on-site hardwoods then this alternative could lead to prolonged soil exposure and chronic erosion into the next decade.

Vegetation

There would be no immediate direct impacts to the existing forest vegetation. Long term impacts would be dramatic, as conifer reforestation of the area would be reduced. Alder and brush would occupy a large percentage of the area. Conifer reforestation would occur most near the fires edges where the conifer seed sources are greatest. Most of the brush (shrubs) and forbs will resprout next spring. Areas where the fire burned intensely may not resprout but will probably reseed in from neighboring less intensely burned and unburned areas. The areas of lower intensity burn will revegetate quickly from sprouting, roots and seeds. Within a few years shrub species would dominate, with conifer trees eventually coming in over the long term.

Botany

Weeds: Expected succession on the site would be initial colonization by native early seral species such as fireweed and grasses with a fair component of non-native species such as burnweed and foxglove. Nearby clear-cuts have a high percentage of non-native species and will be the source for theses species. These weeds would remain in the system in significant quantities for three to ten years until woody species dominate the site. Once this occurs, weeds would be present in smaller quantities, not dropping out of the system until a closed canopy forest reestablished.

Special status plants: Plants would come into the site as the successional stage and habitat conditions they needed occurred on the site (if seed comes onto site).

Survey and Manage: These species would come into the site as the successional stage and habitat conditions they needed occurred on the site (if propagules come onto the site).

Special habitat: This area would recover on its own, going through post-fire succession. As

some of the oaks were killed by the fire, the number of oak trees on the site would be fewer until new oaks become established by natural seeding.

Fisheries
Under a No-Action alternative, impacts would be similar to the Proposed Action, except that the potential for increased erosion may be greater from the burn area than would occur if active seeding and plant establishment is completed. Since the potential for erosion reaching the reaches where fish are present is highest prior to the establishment of vegetation, the benefit to fish from the Proposed Action vs No-Action would depend on the ability of the Proposed Action to accelerate the establishment of stabilizing vegetation.

Wildlife
With the absence of any management in the areas of hot burns and steep slopes **(Areas A, B and C)**, erosion would be expected to be an immediate and potentially severe problem. Development of late successional characteristics would be slowed and possibly never attained.

Over time, forbs and shrubs would begin to cover some of the area, while rocky areas and unstable soils would remain barren and continue to contribute to erosion. In the more stable areas, development of forested stands would be retarded and subject to wind and erosion.

Species such as the ungulates would experience some reduced foraging opportunities as compared to the area if treated as proposed under Alternative 1. There may be some cover opportunities in the long term, but quality cover would only evolve on a longer time frame.

Birds associated with early seral stages would be expected to take advantage of this area for foraging and limited nesting. These areas would not be expected to offer suitable habitat for mid to late seral wildlife species well into the future, if at all.

Snags remaining in these areas would continue to offer foraging and nesting opportunities, but chances for these snags to fall would increase with time. Once on the ground, course woody debris can be expected to travel varying distances down slope as the erosion process continues.

Because the proposed management activities are the same for Areas D & E, consequences of the "No Action" alternative would not be noticeably different from the "proposed action". Refer to Alternative 1, for the expected effects to these areas.

Recreation:
Not closing the area to the public would increase BLMs liability for public safety due to the possibility of injury to the visiting public from falling snags and rolling rocks and logs. This area has been declared hazardous by OSHA (Oregon Safety and Health Division).

VRM:
The No Action Alternative would not affect visual resources as the unit is not readily seen from

public viewpoints and because of its Class IV management rating, large contrasts with the surrounding area is acceptable. The Visual Contrast Rating Worksheet and accompanying map and photos are available at the Eugene District office.

Cumulative Effects of Alternative 2- No Action

The no-action alternative would leave a higher risk of increased levels of sediment input into the stream system within the Wildcat Creek and Lower Siuslaw Watersheds in the short term as compared to Alternative 1, the Proposed Action. The long term potential for sediment input would decrease over time with the gradual establishment of vegetation within the burn area. Non-gated road access through the burn area would contribute to potentially higher levels of invasive nonnatives and noxious weeds within the watersheds.

Long term forest succession would occur as previously described in the existing environment. The long term natural establishment of conifers within the burn area would occur over time on a much slower trajectory reflective of the varying site conditions present within the burn area. The resulting long term forest canopy structure would be expected to be much more open with lower densities and larger openings due to site conditions and limited natural seed sources in some areas of the burn. Brush vegetation would persist in these larger openings until which time natural reseeding and seedling establishment occurs. At the landscape scale (watershed and total LSR), these effects would be minimal due to the small size of the BLM fire rehabilitation area. The condition of the burn area would require periodic monitoring over time and possibly additional stabilization or rehabilitation measures to insure continued attainment of aquatic and upland resource objectives.

Monitoring

Post treatment monitoring would be conducted to determine the success of the rehabilitation effort over a three year period (FY2000, FY2001, FY2002) to determine success of the rehabilitation measures.

There is interest in the scientific community in doing long term research/monitoring of this area on the succession and biomass of fungi following fire over time. The area botanist would work with researchers and OSHA to come up with a sampling schedule and methodology that would comply with OSHA restrictions for this site. Similar interest has been expressed regarding mollusk study.

Consultation and Coordination

Cultural Resources

Due to the short time frame for preparing the EFRP document a call was made to Patty Whereat, Cultural Activities Coordinator for the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians to discuss the situation. Ms. Whereat was not in when the call was made and did not return the call.

Fisheries

Consultation on the Proposed Action for coho salmon is not required. The cutting and removal of hazard trees is covered by the Programmatic BA/BO. The hauling of trees

from the burn area is on ridgetop roads and paved highway, so no increase in sediment as a result of the haul is expected.

Safety

The Oregon Occupational Safety & Health Division (OR-OSHA) was contacted by BLM regarding worker safety during treatments within the burned area. OR-OSHA provided written guidance in a letter to BLM dated October 19, 1999.

Wildlife

No suitable habitat for any federally listed or proposed species would be altered as a result of the Proposed Action. Falling of snags (without suitable structure) for safety reasons would take place outside the nesting season for these species, so disturbance to them is not an issue. Consequently the proposed action would have "No Affect" on any listed or proposed species known to occur in the vicinity and therefore consultation with the U.S. Fish and Wildlife Service is not required. If any trees in this area are deemed to be hazards in the future, then appropriate consultation would ensue if required. Comments were received from the USFWS on 11/15/99 and responded to 11/18/99.

List of preparers

Gary Hoppe - Team Leader
Mark Stephen - Ecologist
Rudy Wiedenbeck - Soil Scientist
Graham Armstrong - Hydrologist
Cheshire Mayrsohn - Botanist
Neil Armantrout - Fisheries Biologist
Phil Redlinger - Silviculturist
Dan Crannell - Wildlife Biologist
Nancy Ashlock - Asst. Fire Management Officer
Jerry Curtis - District Cruiser/Appraiser
Mike Southard - Archaeologist
Saundra Miles - Outdoor Recreation Planner

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
FOR THE AUSTA FIRE
EMERGENCY FIRE REHABILITATION PLAN
EA 1792A-EA-00-01

The Bureau of Land Management (BLM), Eugene District, Coast Range Resource Area has analyzed a proposed action, a no action alternative, and considered other alternative treatments for accomplishment of emergency rehabilitation of burned BLM land in the Austa Fire (N-843). This emergency rehabilitation is consistent with the Eugene District Resource Management Plan (RMP/EIS) and Late Successional Reserve Assessment RO267/RO268 These documents may be reviewed at the Eugene District Office.

The design features identified in the Environmental Assessment (EA) would assure that no significant adverse impacts would occur to the human environment other than those already addressed in the Eugene Distict RMP/EIS. Only beneficial effects from the proposal are anticipated.

They are as follows:

a) minimization of soil erosion (sedimentation)
b) minimization of soil productivity losses
c) re-establishment of the forest community
d) maintenance of LSR diversity
e) minimization of noxious and invasive weed infestation

On the basis of the information contained in the EA, and all other information available to me, it is my determination that none of the alternatives analyzed constitutes a major Federal action affecting the quality of the human environment. Therefore, a new Environmental Impact Statement (EIS) or supplement to the existing EIS is unnecessary and will not be prepared. This determination is based on the following factors:

1. Environmental impacts have been disclosed in the EA. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Eugene District, Coast Range Resource Area and adjacent lands.

2. Public health and safety would be enhanced by the proposed projects design features.

3. There would be no adverse impacts to regional or local air quality, water quality, prime or unique farmlands, cultural resources, wetlands/riparian zones, floodplains, areas of critical environmental concern, environmental justice, native American religious concerns, threatened or endangered species, hazardous or solid waste, wild and scenic rivers or wilderness.

4. There are no highly controversial effects on the environment.

5. There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature such as occurred following the Oxbow fire.

6. This proposed action as modified does not set a precedent for other projects that may be implemented in the future to meet the goals and objectives of adopted Federal, State or local natural resource related plans, policies or programs.

7. No cumulative impacts related to other actions that would have a significant adverse

impact were identified or are anticipated.

8. Based on previous cultural resource surveys in the Coast Range, no adverse impacts to cultural resources were identified or anticipated. There are no known American Indian religious concerns or persons or groups who might be disproportionately and adversely affected under Environmental Justice policy.

9. No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act was identified.

10. Wildlife habitat within this Late Successional Reserve area would improve over the long term.

12. The proposed rehabilitation project would have only a slight impact on visual resources in this localized area in the short term. Significant beneficial affect on overall visual quality is expected as the area revegetates to a forested community.

13. The proposed rehabilitation is in compliance with relevant Federal, State and local laws, regulations and requirements for the protection of the environment.

Signed by Diane Chung, Field Manager, Coast Range Resource Area on 11-30-99

DECISION RECORD/RATIONALE

Title: Austa Fire Emergency Fire Rehabilitation Plan (N-843)

Background: The Austa Fire started on September 28, 1999. The fire originated on private forest lands within T. 18S, R08W. Sec. 16 just north of the Stage Coach Road. The fire was pushed primarily west and north by predominantly dry east winds and burned an area approximately 1,062 acres in size within steep, highly dissected terrain typical of the Coast Range. Approximately 246 acres of BLM ownership burned from the fire within the south half of T. 18S, R08W. Sec. 9 and the northwest quarter of T. 18S, R08W. Sec. 15. within the Wildcat Creek and Lower Siuslaw River Watersheds near headwater streams that

drain south into the Siuslaw River. The Austa Fire was controlled on October 8, 1999. The total fire area included forest lands within T. 18S, R08W. Sections 7, 8, 9, 15, 16, 17, and 18.

Decision: After consideration of the analysis of impacts, the Finding of No Significant Impacts (FONSI), the design features of the proposed action, estimated costs, and other alternatives considered, it is my decision is to implement a modified proposed action with many of the same design features as described in the Austa Fire Emergency Rehabilitation Plan and Environmental Assessment # 1792 A-EA-00-01. This modified proposal is much the same as the Proposed Action except that aerial hydro mulching will not be implemented because of it's prohibitive costs. In addition the draw in Area A would be aerial seeded with a BLM provided native grass / forb mix (approximately 1-2 acres). Other measures such as the contour felling, sediment check dams, hazard tree removal, and access control would remain as in the proposed action.

Rationale: This modified Proposed Action would lead to the timely rehabilitation of this burned Late Successional Reserve area and would help protect water quality and soils by the re-establishment of a forested vegetation community. The projects design features of aerial application of conifer seed, contour felling of burned trees in Area B, and installation of sediment check dams would help alleviate surface soil losses and sedimentation to streams from steep slopes during winter storms. LSR diversity would be maintained with the seeding mix of Douglas fir, western red cedar, hemlock and a trace of grand fir, along with the future planting of white oak adjacent to rocky meadows(provided it can be collected and grown). Monitoring would determine the effectiveness of treatments in meeting the EFRP objectives as well as any future needed rehabilitation treatments. Sufficient historical information is available from the Oxbow fire and subsequent management to indicate successful rehabilitation is likely. Additional monitoring and research opportunities could yield information on the natural regeneration of the forest and recolonization of certain species following the Austa wildfire. Human health and safety, and a reduction of the rate of spread of noxious weeds would be provided for by the projects design features of administrative access control and approval of future research and monitoring only within OR-OSHA guidelines.

This decision is in full force and effect as of this date. This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and Form 1842-1. If an appeal is taken, your notice of appeal must be filed in the Eugene District Office, 2890 Chad Drive / P.O. Box 10226, Eugene, OR 97440-2226 within 30 days of receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition, pursuant to regulation 43 CFR 4.21, for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for stay must accompany your notice of appeal. A petition for stay is

required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied,

2. The likelihood of the appellant's success on the merits,

3. The likelihood of immediate and irreparable harm if the stay is not granted, and

4. Whether or not the public interest favors granting the stay.

Signed by Diane Chung, Field Manager, Coast Range Resource Area on 11-30-99

AWP(required forms)

Probability of Rehabilitation Treatments Successfully Meeting Emergency Fire Rehabilitation Objectives.

TREATMENTS	UNITS	%
Aerial seeding	115 acres	75
Install Sediment Checkdams (sediment traps) Bales or Log & bale combo.	3 structures	75
Contour Falling (on-site sediment retention)	3 areas / 13 acres	75

Public Closure Notice & Install Gate (public hazard)	1	95

RISK OF RESOURCE VALUE LOSS OR DAMAGE

No Action - Treatments Not Implemented (check one)

Resource Value	Low	Moderate	High	Very High
Loss of Topsoil (Productivity)	**D**		**B**	**A, C**
Water Quality (Sediment)	**D**		**B**	**A, C**
Noxious Weed Invasion (Scotch broom)		**A, B, C, D**		
Invasives (Blackberry, foxglove)		**A, B, C, D**		
LS Veg Community (desired future condition)	**D**	**B**		**A, C**
Off-site Sediment Damage to Private Property	**A**	**B, D**		**C**
Off-site Threats to Human Life	**A**	**B, D**		**C**

Proposed Action - Treatments Successfully Implemented (check one)

Resource Value	Low	Moderate	High	Very High
Loss of Topsoil (Productivity)	**D**	**B**	**A, C**	
Water Quality (Sediment)	**D**	**B**	**A, C**	
Noxious Weed Invasion (Scotch broom)	**A, B, C, D**			

Invasives (Blackberry, foxglove)		**A, B, C, D**		
LS Veg Community (desired future condition)	**B, D**		**A, C**	
Off-site Sediment Damage to Private Property	**A, D**	**B**	**C**	
Off-site Threats to Human Life	**A, D**	**B**	**C**	

NATIVE PLANT WORKSHEET

Proposed Native Plants in Seed Mixture

1. Are the native plants proposed for seeding adapted to the ecological sites in the burned area?

   X Yes ___ No Rationale: Conifer seed being used on the site was collected on district from the same seed zone.

2. Is seed or seedlings of native plants available in sufficient quantity for the proposed

project?

X Yes ___ No Rationale: Sufficient quantities of native conifer seed are available except for White Oak. Sufficient oak seed from this watershed is not available, requiring local seed collection (and grow out). If local seed cannot be collected (due to cycle of mast years for oak) then the use of seedlings from a different seed zone may be necessary.

3. Is the cost and/or quality of the native seed reasonable given the project size and Land Use and Rehabilitation Plan objectives and the guidance in BLM Manual 1745?

X Yes ___ No Rationale: The cost of seed, along with drought tolerance, germination characteristics and ecological site were all considered in selection of native species.

4. Will the native plants establish and survive given the environmental conditions and the current or future competition from other species in the seed mix or from exotic plants?

X Yes ___ No Rationale: We expect the native species selected to survive environmental conditions if they can initially establish.

5. Will the current or proposed land management (livestock, recreation use, wildlife populations, etc.) after the seeding establishment period maintain the seeded native plants in the seed mixture?

__Yes ___ No **N/A**

Proposed Nonnative Plants in Seed Mixture

1. Is the use of nonnative plants necessary to meet objectives, e.g., consistent with applicable land use/activity plans?

__Yes ___ No **N/A** **Only native plants are proposed for seeding**.

2. Will nonnative plants meet the objective(s) for which they are planted without unacceptably diminishing diversity and disrupting ecological processes (nutrient

cycling, water infiltration, energy flow, etc.) in the plant community?

__Yes ___ No **N/A Only native plants are proposed for seeding**

3. Will nonnative plants stay on the site they are seeded and not significantly displace or interbreed with native plants?

__Yes ___ No **N/A Only native plants are proposed for seeding**

A "no" response requires additional analysis in the EA or selection of an alternate species in the seed mixture.

PROPOSED SEED MIXTURE

	Nonnative Plants		Native Plants
1.	_____	1.	Douglas Fir
2.	_____	2.	Western Red Cedar
3.	_____	3.	Western Hemlock
4.	_____	4.	Fireweed

SUMMARY

1. Are the risks to natural resources and private property acceptable as a result of the fire if the following actions are taken?

PROPOSED ACTION _X_ Yes ___No

Rationale for answer: The proposed aerial hydro mulch seeding of conifer, contour

falling and installation of gully plugs to minimize sediment transport, control of public access, and monitoring would re-establish a forest canopy, help to stabilize soils, and reduce the risk of noxious weeds.

NO ACTION ___Yes _X_No

Rationale for answer: Refer to the comparison of risk charts (EFRP and EA pages 20,21)

Alternative N/A ___Yes ___No

Rationale for answer: Other Alternatives not analyzed in detail. See EA pages 5,6

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

PROPOSED ACTION ___Yes _X_ No

Rationale for answer: The "Proposed Action" is cost prohibitive and has been modified per the Decision Record. Costs of the "modified" Proposed Action are reasonable given the comparison of potentially reduced soil productivity, sedimentation losses, and reduction of LSR forested acres.

NO ACTION ___Yes _X_No

Rationale for answer: The future costs of reforestation if brush becomes the dominant species makes the no action unacceptable as does the loss of forest habitat diversity and potential soil losses that may occur in the short term.

Alternative N/A ___Yes ___No

Rationale for answer: Other Alternatives not analyzed in detail. See EA pages 5,6

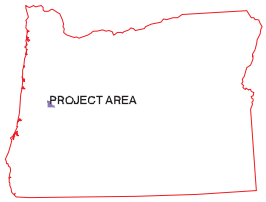
3. Which approach will most cost-effectively and successfully attain the EFR objectives and, therefore, is recommended for implementation from a Cost/Risk analysis standpoint?

Proposed Action(modified) _X_ No Action ___ Alternative _
_
_

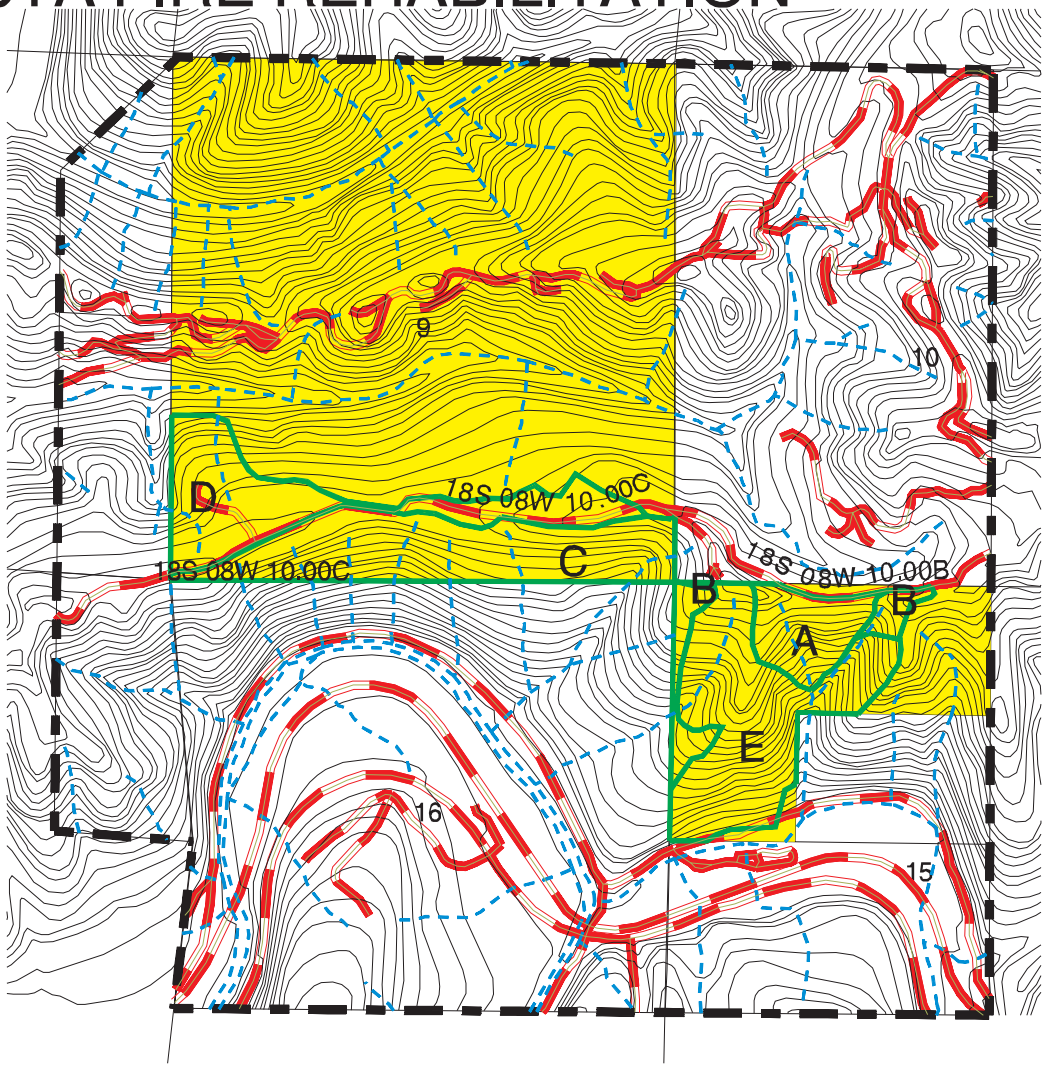
Comments: The EFRP objectives can be met through implementation of the proposed action as modified by the Decision Record. The No action alternative is unacceptable as it would result in extreme brush competition and predictable brush dominance over conifers on the majority of this LSR rehabilitation area. To cost effectively re-establish conifers the aerial seeding must take place by January 10, 2000.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

1792A-EA-00-01



AUSTA FIRE REHABILITATION



N

BLM managed lands

private lands

streams

roads

project area

treatment areas

20 foot contour intervals

Scale 1:24000