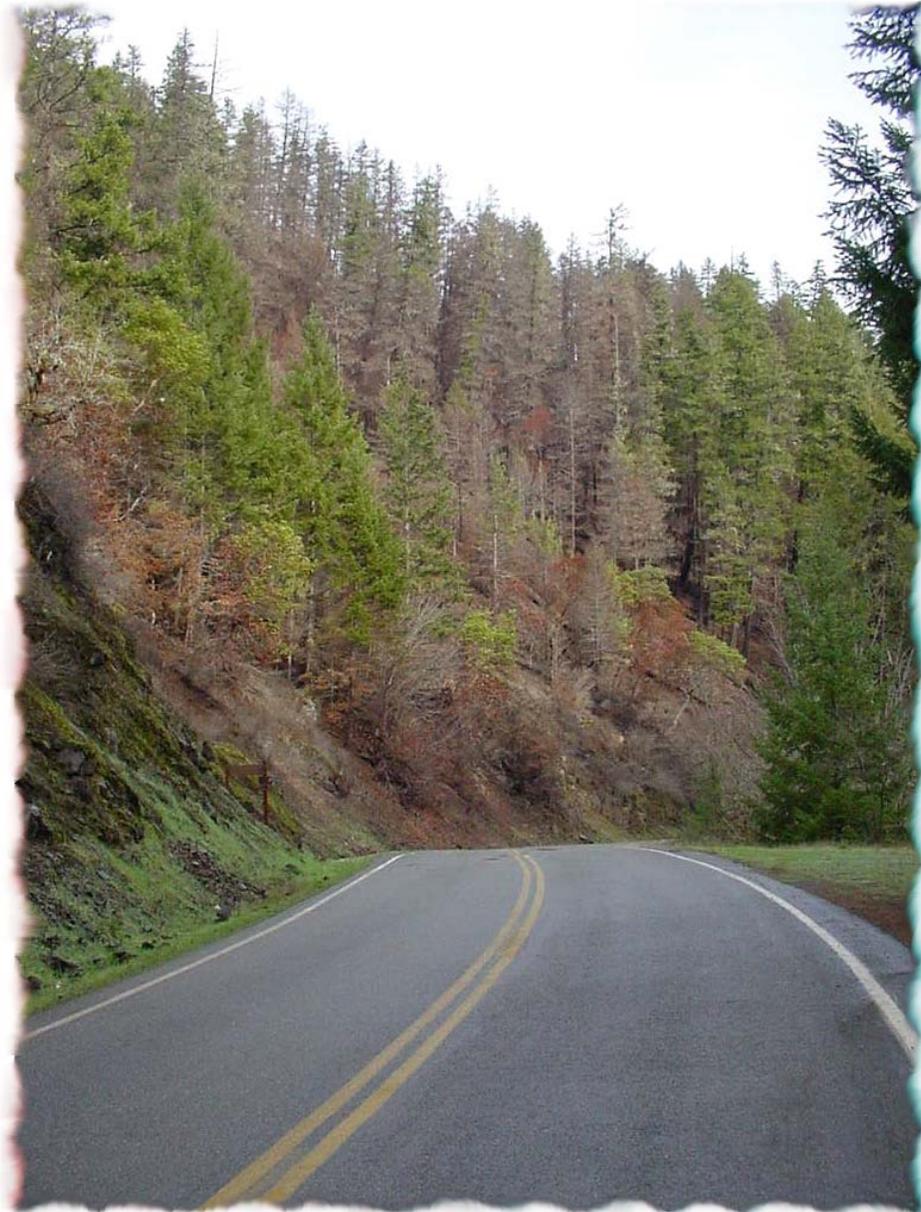


# **WILDFIRE EFFECTS EVALUATION PROJECT**

## **APPENDIX E: CULTURAL SITES, ROADS, TRAILS AND BURNED AREA EMERGENCY REHABILITATION (BAER)**



### **UMPQUA NATIONAL FOREST**



April 2003

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## **Appendix E: Cultural Sites, Roads, Trails and BAER Activities**

### **Cultural Sites**

Traditional, archaeological, and historic cultural properties have been located within the area burned by the Tiller Complex and Apple Fire or within areas affected by fire suppression activities. Despite federally mandated inventories being undertaken on the Forest since the mid-1970s, the burned area remains largely unsurveyed. Although systematic inventory has not been completed, twenty-one archaeological resources, one historic structure, a traditional property, and two historic sites have been recorded within or adjacent to the burned area. Impacts to these sites include fire suppression activities such as dozer line and hand line, intense burn of tree roots leaving root casts, and theft or looting from archaeological sites because of increased visibility. Archaeological sites are protected from theft and destruction under State and Federal law with criminal and civil penalties.

The Tiller and North Umpqua districts overlay the ancestral homelands of the Southern Molalla, Upper Umpqua, and the Cow Creek Band of Umpqua (Cow Creek). When Euroamericans arrived in the Umpqua Basin, they discovered the Southern Molalla inhabiting the upland Cascades, the Upper Umpqua inhabiting the lower reaches of the North and South Umpqua Basin and the Cow Creek Band of Umpqua in the South Umpqua drainage. The ethnographic information from these groups is sparse. The American Indians inhabiting these lands shared many of the same subsistence activities, housing, and dress. In the 1850s, the Upper Umpqua and Southern Molalla were taken to the Grand Ronde Reservation in the Coast Range of the Willamette Valley and Siletz Reservation on the Oregon Coast.

The Cow Creek held a small reservation in the Umpqua Basin until 1855. Although a number of Cow Creek were removed to the Grand Ronde Reservation, many remained landless in the Umpqua Basin. By the 1860s, the remaining Cow Creek had dispersed into the mountainous region of the Umpqua National Forest. Using various homestead laws, they settled lands developing small farms and cattle ranches. A land claims case in 1983 led the Justice Department to take depositions of tribal members as well as expert witnesses. By early 1984, it was apparent that the Cow Creek cession of 1853 had erroneously omitted areas of customary use and occupancy.

The Tiller Complex includes these areas of customary use and occupancy, in which there are located traditional use areas or traditional properties. Traditional properties are associated with cultural practices or beliefs of a living community that are rooted in history. These properties can be shown as tangible through historical, archaeological, and ethnographical research. The area surrounding South Umpqua Falls is a traditional cultural property of the Cow Creek and is used for their annual weeklong powwow each July. The site was impacted when used as a stage area during fire suppression activities. Mitigation of the damage will be completed in consultation with the Cow Creek.

Fragile archaeological sites include rockshelters, which where rock overhangs or shallow caves that served as shelters. Rockshelter (35DO212), located within the burned area, is one of the most important prehistoric sites so far investigated in western Oregon. This rockshelter has the largest assemblage of perishable artifacts recovered from an archaeological context in the region. At least three recorded rockshelters have been burned and impacts to these sites are being assessed. The impacts will include possible burning of the cultural deposits, erosion of the outer berm, and increased visibility that may lead to further looting.



**Figure 1E: The area surrounding rockshelter 35DO619 was burned. This site can be seen from the road increasing the potential for looting and the outer rim of the shelter will be subject to increased erosion.**



**Figure 2E: The interior of Rockshelter 35DO339 was burned possibly impacting the cultural deposits**

Lithic scatter sites may be temporary camp sites associated with hunting and processing of game. These sites contain the remnants of stone tools. When associated features or groundstone are found at these sites, it indicates a broader range of activities occurred at the location. Activities at these sites include plant food processing, tool manufacture and repair, and game processing. The majority of sites impacted from fire or fire suppression activities are lithic scatters. Fire suppression activities that have impacted sites include the construction of dozer line, hand line construction, and mop-up activities.



**Figure 3E (left): Lithic scatter site 15-02-363 was affected by both wildfire and fire suppression activities when dozer line construction impacted the site. Root casts left behind by the burn will collapse, threatening the integrity of the site. The site has increased visibility for looting activity.**  
**Figure 4E (above): Lithic Scatter site 15-06-194 showing a burned root that will increase erosion and threaten the integrity of the site.**

The effects of fire may also impact the integrity of lithic scatter sites. The burning of large tree roots leaves root casts within the archaeological deposits. These casts eventually collapse often resulting in a mixing of cultural components. Erosion will also occur that may affect the cultural integrity of the site. Increased surface visibility will intensify the potential for looting.

The cambium layer and pitch of the ponderosa pine were used for food and medicinal purposes. The tree was peeled leaving a patch of bark that was removed. The peel scars are often grown inwards leaving a somewhat square patch. Cow Creek ethnohistoric information indicates the cambium layer was used in a spring tonic while the pitch was chewed as a gum and used as a fire starter. The peeled tree scars that have been cored on the Tiller and Diamond Lake District indicate dates from the 1800s to 1910. Several peeled tree sites are found within the burned area. The known sites have limited impact from the fire because of the low-intensity burn through the site. If these sites are located in the areas of intense burn, they may have been destroyed or damaged by fire.

Cairn sites are usually a stack of rocks or pile or mound of piled rocks typically situated on a ridge crest or vista. However, several rings or crescent shaped pile rocks also have been recorded. These sites may be a single cairn or numerous cairns covering a large area. Cairns may have been built for a number of reasons. Trail markers or spirit quests are considered common reasons. These sites are features that are often associated with other site types. Several cairn sites, one with over 100 cairns covering approximately five acres, are recorded within the burned area. No damage to these sites has been recorded.

Quarry sites are found where extrusions of usable tool stone can be located. These sites contain nodules of tool stone and evidence of tool manufacture. These sites often contain evidence of fire treatment of the cryptocrystalline tool stone blanks. Fire suppression activities including dozer line construction have damaged at least one quarry site within the burned area.

Acker Rock Lookout is one of the most prominent historic structures located on the Tiller Ranger District. The first lookout, a ground L4 cab on Acker Rock, was constructed in 1932 and rebuilt or replaced in 1964 with a flat cab. Historic mining sites including adits, remnants of a CCC spike camp and a former ranger station location are included located with the burned area. No damage has been recorded at the historic site locales.

Consultation with the Tribes has been ongoing throughout emergency measures associated with fire suppression. Proposed mitigation of fire suppression activities and the effects of the fire will be completed in consultation with the Oregon State Historic Preservation Office, Confederated Tribes of the Grand Ronde Community, Confederated Tribes of the Siletz, and the Cow Creek Band of Umpqua Tribe of Indians.

## Roads

A total of 420 miles of National Forest System roads are located within the boundaries of the 2002 Umpqua fires. Of this, about 96 miles or 23% of the total exist within areas of moderate to high burn intensity. Another 57% are in unburned areas within the fire boundaries with the remainder in areas of low burn intensity. See the table below for a summary of the roads affected by each fire area. A typical road within the burned areas is single-lane with turnouts, gravel surfaced and uses ditches and culverts for drainage.

**Table 1E: Fire Impacts on Forest Infrastructure**

Fire Area	Total Rd. Miles within Fire Area	Road Miles within High Intensity Burn Areas	Estimated Steam Crossing Culverts Needing Upgrade	Estimated Other Culverts Needing Replacement/ Installation	Estimated Road Signs Needing Repair/ Replacement
Tiller	332	72	33	30	230
Apple	88	24	27	25	70
Total	420	96	60	55	300

The most prevalent types of damage to the roads that needs immediate attention includes: the hazard of trees falling on the roadway during the next 1 – 5 years; woody debris located in road fills which having burnt is causing the unsupported fill to collapse; burn holes within the road fills which initially retain the shape of the buried stump or log presenting a hazard of collapse under vehicle or

foot traffic; road ditchlines and culvert inlets plugged from falling trees, rocks and small slides; damage or destruction of road signs, milepost markers and hazard delineators; and in at least one case, direct impact damage to a culvert inlet from a falling tree.

As a result of the fires, the roads will remain at an elevated risk for culvert plugging and stream channel crossing failure due to increases in peak runoff flows, increased channel and slope erosion, increased debris transport within stream channels, and (an increased rate of landslides) [increases in road fill and cut slope failures – delete this; general landform slopes are being referred to here – not road fills and cuts] triggered by the loss of tree root strength. Consequences of culvert and road fill failures in the high and moderate burn intensity landscape will also likely be greater, particularly in areas of steep slopes and high tree mortality due to the lack of large rooted vegetation to slow or stop storm runoff, and small to moderate slope and road fill failures. The peak increase in risk of slope failures following an intense fire is expected to occur [from – delete] during the first three years following the event, depending on the extent of subsurface root structure remaining. The weakened slope condition will persist for another 10-20 years until sufficiently large vegetation is reestablished and again reinforces the generally thin soils on these slopes.

During the fall of 2002, through the Burned Area Emergency Rehab (BAER) work, much of the initial debris on the roads and in the ditches has been removed, culverts have been cleaned, and the most serious roadside hazard trees have been felled. More frequent storm patrols and more intense winter road maintenance are also necessary during the winter of 2002/ 2003.

In general, expected future effects include the need for more frequent storm patrols and an increased level of road maintenance to deal with fallen trees and rocks, ditchline plugging by small slides and slumps, additional fill slumps due to buried burnt debris, and culvert inlet cleanouts. Consideration should be given to the use of risk and failure consequence reduction treatments at road crossings of stream channels. Possible treatments include; removing the crossing, enlarging the culvert, installing various plug resistant inlet sections, reducing the amount of vulnerable fill at the site and construction of diversion prevention grade sags, among others. Decommissioning of some short and low use roads within the fire area may also be considered, where the risk of future failures is high.

## **Trails and Recreation Facilities**

The Big Bend Fire affected Fish Lake Trailhead, Beaver Swamp Trailhead, and Skimmerhorn Trailhead. The Boulder Fire affected Boulder Creek Annex Campground. Site facilities were not damaged, the primary effect was to vegetation.

The Apple Fire affected the Panther Creek Trailhead, Deception Creek Trailhead, the Fairy Shelter and the Twin Lakes West Trailhead. Site facilities were not damaged with the exception of a sign. The primary effect of the wildfires was to the vegetation.

The recreation sites are open to the public. Tree hazard mitigation over the next few years will affect the visual setting at some sites more than others. Costs may be as high as \$2000 per site to mitigate hazards in 2003.

Consideration should be given to long-term site management before falling large numbers of trees. It may be best to remove or re-locate facilities, rather than mitigate tree hazards for aging facilities that need replaced anyway.



**Figure 5E: Fish Lake Trailhead after the Wildfire.**

**Table 2E: Fire Impacts on Forest Trail Systems**

WILDFIRE	TRAIL	MILES IMPACTED
Apple Fire	North Umpqua #1414	3.7
Big Bend	Fish Lake #1570	4.5
	Rocky Rim #1572	2.3
	Beaver Swamp #1569	1.1
	Lakes #1578	2.7
	Indian #1573	0.6
	Castle Creek #1576	1.7
	Little Black Rock #1562	0.1
Grasshopper Fire	Acker Divide #1437	1.5
	Grasshopper #1574	0.5
	Grasshopper Mtn. #1580	0.1
Crooked Fire	Cougar Butte #1432	0.5
Acker Fire	Acker Rock Lookout #1585	0.8
White Fire	Devil's Flat #1428	0.1
Boulder Fire	Big Squaw #1523	1.4
	Yellow Jacket Loop #1522	1.0
	Boulder Creek #1584	0.1

Overall, the fires affected about 22.7 miles of trails. Fire effects include burned trail signs, completely or partially burned bridges, damage to one infra-red trail counter, tread instability, debris slides, and heavy windfall.

The Calf segment of the North Umpqua Trail received extensive impacts which includes 3,015 feet of rock slides, 58 trees larger than 11 inch diameter that are across the trail and an additional 15 trees standing that need to be felled. The fire also destroyed three trail bridges, which were 22, 25 and 26 feet in length.

The Calf segment of North Umpqua Trail remains closed due to post-fire conditions. The rest of the trails are open to the public, however, most are only passable to hikers, due to heavy windfall. Access roads and major trailheads are posted with warning signs.

Other unknown, but predicted fire effects include slumps, slides, water runoff damage, and tread settling, especially in areas of high burn intensity. Tread repairs may not be possible and segments may need to be re-located. Costs to restore trails to standard may be as high as \$15,000 per mile. Log out in subsequent years is estimated at over \$100 per mile. Some areas will have dense brush and conifer seedling sprouting, which will affect future trail brushing costs.

Steep trail sections in high fire intensity areas, combined with suppression activity, may become unstable.



**Figure 6E: Three Foot Bridges were Destroyed on the North Umpqua Trail**



**Figure 7E: Undermined tread damage averages about one to two sites per mile.**



**Figure 8E: Wildfire Impacts to Trails including a Rock Slide on the North Umpqua Trail (Top Picture).**

## Landscape Aesthetics

### North Umpqua Wild and Scenic River Corridor

The Apple Fire affected the visual expectations of persons traveling Highway 138. Persons will view burned landscapes along the rivers edge as well as burned stands of timber up to 2 miles away. Fire is a natural occurrence in this landscape and provides diversity in stand composition and understory vegetation. With time the burned areas will have more vegetative and color diversity in the areas viewed especially during the fall season. Large snags will be evident in the isolated patches where the fire killed the large conifers.



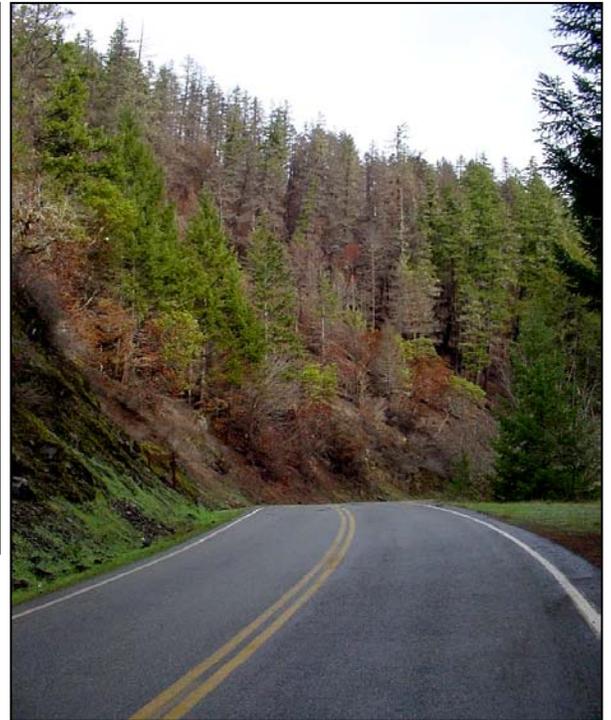
**Figure 9E: Foreground Viewshed as seen from Highway 138**

### South Umpqua River Corridor Viewshed

The Tiller Complex fires affected landscape character along South Umpqua Road 28 for about 20 miles. Burned areas are visible in the immediate foreground, to the horizon, depending on observer location. Burned areas are also visible in the immediate foreground from some popular recreation use areas. Although a natural event, the fires may negatively affect the scenic attractiveness of the corridor for some visitors. The number of fires and the acreages burned are higher than has ever been documented on the Tiller District.



**Figure 10E (above): Middleground viewshed example on South Umpqua Road 28. Figure 11E (right): Foreground viewshed example on South Umpqua Road 28**



## **Rafting**

Persons floating the North Umpqua River from Horseshoe Bend Launch site to Apple Creek Bridge will find numerous large conifers which have fell into and along the rivers edge. Presently several locations have trees spanning the river requiring persons to portage around the trees to continue their float. The fire burned 3.7 miles of the river corridor to varying intensities, which will increase the number of down trees that this section of river will have. Winter storms traditionally move large trees through the system with an occasional tree catching, causing floaters to portage or change the travel routes. With an increased number of dead trees in this section of the river the effects will be an increase in down trees affecting persons floating this section of the river for decades.



**Figure 12E: Windfalls along the North Umpqua River**

## **Burned Area Emergency Rehabilitation (BAER)**

### **Tiller Complex Native Grass Seeding and Planting**

1. Tallow Meadow: Used as staging area. Rake ruts made by vehicles. Seed 10 lbs. ELGL and 10 lbs. FEOC per acre. Seed meadow area that was driven through and area that burned. Seed 50 feet into pine plantation edge. Apply Bio grow at 8 lbs. per acre. Approximately 6 acres.
2. Tallow Fire- Road 173 at the end seed tractor line and landing. Seed 10 lbs. ELGL per acre, 10 lbs. FEOC per acre, and 5lbs. Lotus per acre. Apply Bio grow at 8 lbs. per acre. Approximately 900 feet.
3. At Zinc Cr. Bridge. Rake ruts. Seed cat road short spur. Seed 10 lbs. ELGL per acre, 10 lbs. FEOC per acre, and 5lbs. Lotus per acre.. Apply Bio grow at 8 lbs. per acre. Approximately 500 feet.
4. South Umpqua Falls. Rake ruts. Seed 10 lbs. ELGL per acre, 10 lbs. FEOC per acre, and 5lbs. Lotus per acre. Apply Bio grow at 8 lbs. per acre. Approximately 5 acres. Need to flag off seeded area from traffic.
5. Yellow Jacket Glade. Used as staging area. Rake ruts made by vehicles. Seed 10 lbs. ELGL and 10 lbs. FEOC per acre. Seed meadow area that was driven through. Apply Bio grow at 8 lbs. per acre. Approximately 6 acres. Seed  $\frac{3}{4}$  mile of cat line with same mix as above.
6. Buckhead spike camp. Seed around water source. Seed at camp by Jct. Of 2814 and 2715. Approximately 1 acre. Seed 10 lbs. ELGL per acre, 10 lbs. FEOC per acre, and 5lbs. Lotus per acre. Apply Bio grow at 8 lbs. per acre.
7. Seed approach to 2814-780. Approximately  $\frac{1}{2}$  acre. Seed 10 lbs. ELGL per acre, 10 lbs. FEOC per acre, and 5lbs. Lotus per acre. Apply Bio grow at 8 lbs. per acre.
8. Road 2827-310 after ripping, seed 10 lbs. ELGL per acre, 10 lbs. FEOC per acre, and 5lbs. Lotus per acre. Apply Bio grow at 8 lbs. per acre. Approximately 1 mile. Plant ELGL 660 grass seedling plugs on first  $\frac{1}{4}$  mile.

### **Sites Completed During Baer for Noxious Weed Prevention**

1. Tallow Meadow: Used as a staging area. Plant meadow with native grass plants. Plant 500 per acre on 5 acres. Species blue wild rye, California oatgrass, and California fescue.
2. Upper Tallow meadow. Used as a safety zone. Plant meadow with native grass plants. Plant 500 per acre on 5 acres. Species blue wild rye, California oatgrass, and California fescue.
3. Dumont road 2813. Seed lower 2 miles of the road in areas of meadow knapweed and scotch broom. Seed 10 lbs. blue wildrye and 10 lbs. California fescue per acre. Apply Bio grow at 8 lbs. per acre.
4. Clayton Point. Seed 15 acres of meadow and 1 mile of the road 2813-100 in areas of meadow knapweed and scotch broom. Seed 10 lbs. blue wildrye and 10 lbs. California fescue per acre. Apply Bio grow at 8 lbs. per acre.
5. Boulder road 2719 and 2719-800. Seed 5 acres of clearcut and 2 miles of the road in areas of meadow knapweed and scotch broom. Seed 10 lbs. blue wildrye and 10 lbs. California fescue per acre. Apply Bio grow at 8 lbs. per acre.
6. South Umpqua River road 28. Seed between 2813 and 2817, 1 mile of the road in areas of meadow knapweed and scotch broom. Seed 10 lbs. blue wildrye and 10 lbs. California fescue per acre. Apply Bio grow at 8 lbs. per acre.

## Tiller Complex Noxious Weed Management and Surveys

Recent surveys, in conjunction with BAER monitoring and HSV sales assessments, within the Tiller Complex fire perimeter, revealed the following meadow knapweed and Scotch broom infestations. This is not a complete listing; sites will be added as new infestations are found.

**Table 3E: Noxious Weed Infestations**

Species	Location	Intensity
MKW	RD 2813-100 MP 0.0-1.5 (Clayton Point)	Moderate
MKW	RD 2813 at Dumont Creek Bridge Pump Chance	Moderate
MKW	Straight Creek Bridge Pump Chance	Heavy
MKW	RD 2741-900	Moderate
MKW	RD 2741 (RD 2800 to RD 2741-900)	Light
MKW	RD 2741 (Little I-5 from RD 2826 to Upper Boulder Crk bridge)	Heavy
MKW	RD 2741 (Upper Boulder Crk bridge to Wash-Out)	Light
MKW	RD 2800 (RD 2700-990 to RD 2823)	Moderate
MKW	Low Water Ford Pump Chance	Moderate
MKW	Storage Area at RDS 2719-617/2719-634	Moderate
MKW	RD 2814-500 MP 0.18 (in the draw)	Light
SB	RD 2813-100 MP 0.0-2.0	Moderate
SB	Podunk Pond	Light
SB	RD 2800 at Boulder Creek Bridge	Light
SB	RD 2800 at RD 2700-990 Junction	Moderate
SB	RD 2838 (RD 2838-400 to MP 1.0)	Light
SB	RD 2900-800 (entire segment)	Light

*High Intensity = Nearly continuous and dense infestation along affected segment.*

*Moderate Intensity = Sporadic, but dense infestation where species occurs in affected area.*

*Light Intensity = Individuals or small clusters scattered throughout affected area.*

As shown in the preceding table, the primary inventoried weeds presently occurring within the burn areas include meadow knapweed and Scotch broom. There are small, isolated tansy ragwort populations in Buckeye Creek, as well at several other sites, such as RD 2838-500. No attempt was made to map all the tansy infestations encountered. These species are classified as “B” rated weeds according to the Forest Integrated Weed Management List. As such, they are subject primarily to biological control, although small isolated infestations may be treated by intensive methods where feasible.

“A” rated weeds (species subject to intensive control or local eradication), such as yellow starthistle, have been found in the middle South Umpqua, but are not known to occur within the burn areas.

### Tiller Monitoring Sites

The following monitoring sites were identified to assess potentially new infestations resulting from ground disturbance associated with road repair. The target species of concern identified in the table are based on the presence of nearby infestations of the same species. In addition, the monitoring sites will also assess the effectiveness of the special equipment-cleaning clause used for the BAER road repair contracts. In this instance, target species, such as yellow star thistle, would be those that may

be transported on machinery from outside the fire perimeter. This is not a complete listing; additional sites will be selected in the future.

**Table 3E: Noxious Weed Monitoring Sites**

Site Name	Repair Work Type	Target Species
RD 2719 MP 12.4	Grade Sag	MKW
RD 2719-700 (MP 0.8 to 1.0)	Slope Pull-back, Waste Storage	MKW
RD 2814-500 (MP 0.4)	Grade Sag	MKW
RD 2823 (MP 4.0 to 2823-400)	Grade Sag, Culvert	MKW
RD 2813-100 (MP 0.0-1.0)	Blading	MKW/SB
RD 2741 (RD 2826 to bridge)	Cross Drains	MKW
RD 2900-900 (MP 0.5 –1.0)	Blading	MKW
RD 2838 (RD 2838-400 to MP 1.0)	Blading	MKW

### **Tiller Treatments**

As an initial preventative measure, native grass seed was sown in selected burned areas and selected areas disturbed by fire suppression activities that are contiguous to known noxious weed infestations. Examples include RD 2813-100 at Clayton Point. Additionally, native grass plugs were planted in burned meadows, such as the RAWS meadow below RD 2980-100 in Tallow Butte.

The meadow knapweed infestations at the Dumont Creek Bridge pump chance and the Straight Creek Bridge pump chance were treated by covering the plants with black plastic (solarization).

### **Apple Fire Noxious Weed Treatments**

Inoculated blue wild rye (ELGL) was mulched and sown (400 lbs. of over +/-20 acres) concentrating heavily in the black scorched area within the Bachelor Creek and Limpy Creek drainages. Additionally, \$780 more dollars to plant 1000 *Ceonothus integerrimus* (CEIN) bare root plants within a few of the areas we seeded. We grew over 12,000 *C. integerrimus* seedlings at Stone Nursery.

Suppression- About 25,000 plugs of FECA and FEID over 6 acres were planted and mulched in areas left bare from fire operations. In addition, 30 lbs. of ELGL was seeded in a few of these areas. In the spring we will be planting 2000 CEIN and 300 *Lotus crassifolius* in these areas.

# Apple Fire Stream Channels Treated With Large Wood Additions With BAER Funding

