



# Post-Fire BAER Assessment Burned Area Emergency Response (BAER) Information Brief

CentralWashingtonFireRecovery.info



## McLeod Fire – Values at Risk Matrix and Treatments

November 2018

### EMERGENCY DETERMINATION

The BAER team began assessing the area for post-fire emergencies in September and October of 2018. In that time the team has identified the following values at risk to post-fire threats. Interim reports may be submitted as additional assessments are completed. The risk matrix below, Exhibit 2 of Interim Directive No.: 2520-2014-1 was used to evaluate the Risk Level for each value identified during Assessment.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very high	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

The table on the following pages is a summary of the values within and adjacent to the McLeod Fire area, the threats to those values, the probability of damage or loss, magnitude of consequences and the resulting level of risk. In summary, the burned area includes an extensive and heavily used road and trail network, critical habitat for ESA-listed bull trout and chinook salmon and steelhead habitat, as well as sensitive plant communities.

### Summary Table of Critical Values

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
Roads intersecting fire boundary	Potential of snags, felling of trees, or other unforeseen timing of hazards	Likely, Roads within moderate/high burn severity  Major, concern for safety including potential travel delays  Very High	Post Fire Hazard Warning Signs	Signs will be placed at road and fire boundary intersections. Roads include FSR: 5220-100 (both ends), 5200-300, 5200-400, 5200-500, 5220, 5130
Eightmile Creek 2 Bridge	Potential scour in high flows and potential impact damage from mobilized debris.	Likely, increased flow and associated debris  Major, Loss of bridge investment  Very High	Storm Inspection and Response/Monitor	Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures
Copper Glance, Goat Creek, Roundup Creek	Flooding, Debris Flows, Loss of Trail Tread,	Possible  Major; Watershed response modeling points to higher flows and erosion potential  High	Warning Signs at Trailheads	Post warning signs at trailheads for public safety
FSR 5220100 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and Loss of access to critical USFS infrastructure  High	Storm Inspection and Response 1.5 miles	Sole access to Radio Tower

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
Goat Creek Bridge	Potential scour in high flows and potential impact damage from mobilized debris.	Possible, increased flow and associated debris Major, Loss of bridge investment High	Storm Inspection and Response/Monitor	Bridge is on 2019 inspection schedule as a part of regular program of work. Further treatment may be required if monitoring warrants additional countermeasures
Little Cub Creek Bridge	Potential scour in high flows and potential impact damage from mobilized debris.	Possible, increased flow and associated debris Major, Loss of bridge investment High	Storm Inspection and Response/Monitor	Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures
Mitchell Bridge	Potential scour in high flows and potential impact damage from mobilized debris.	Possible, increased flow and associated debris Major, Loss of bridge investment High	Storm Inspection and Response/Monitor	Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures
Honeymoon & Ruffed Grouse Campgrounds	Flooding	Possible, campsites along floodplain are at risk Major; Watershed response modeling points to higher stream flows High	Close campground during high flows	Close and post warning signs at campgrounds along creek at both developed rec sites.

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
Eightmile Creek 1 Bridge	Potential scour in high flows and potential impact damage from mobilized debris.	Possible, increased flow and associated debris Major, Loss of bridge investment High	Storm Inspection and Response/Monitor	Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures
Trails	potential for trail failure from bare/burned soil	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow Major, Loss of trail investment High	Waterbar and drainage improvements, hazard tree removal for workers	4 miles of trail in high and moderate soil burn severity. 10 miles of trail total in fire perimeter.
Eightmile Bridge	Potential scour in high flows and potential impact damage from mobilized debris.	Possible, increased flow and associated debris Major, Loss of bridge investment High	Storm Inspection and Response/Monitor	Bridge is on 2019 inspection schedule as a part of regular program of work. Further treatment may be required if monitoring warrants additional countermeasures
FSR 5130000 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow Major, Loss of road prism and increased sedimentation into Eightmile Creek that affects fish critical habitat Very High	Construct 4 Armored Dips, Storm Inspection and Response, and Storm Proof 2.5 miles of road	Sole access to multiple trailheads and campgrounds

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
FSR 5200000 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Major, Loss of road prism and increased sedimentation into Roundup Creek that affects fish critical habitat  Very High	Storm Inspection and Response; Storm Proof at Vanderpool Crossing, 0.5 miles	Sole access to multiple trailheads and campgrounds
FSR 5220000 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Ortell Creek that affects fish critical habitat  Very High	Storm Inspection and Response 2.5 miles	Key USFS infrastructure and critical access road for lookout and radio tower
FSR 5200400 road prism	elevated runoff and dry ravel from moderate SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Roundup Creek that affects fish critical habitat  Very High	Construct 2 Dips, and 2 armored dips on 0.5 miles of road	Road is adjacent to Roundup Creek and failure would cause increased sedimentation into creek that serves as critical T&E habitat
FSR 5200315 road prism	elevated runoff and dry ravel from moderate SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism, cascading failure of road prism threatening 300 spur, and increased sedimentation into Goat Creek that affects fish critical habitat	Remove culvert at crossing to protect T&E habitat and property below which serves as sole access to trailhead	40 CY of fill washed out due to plugged inlet. Cascading failure of road prism threatening 5200300 spur

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
		Very High		
FSR 5200300 road prism	elevated runoff and dry ravel from moderate SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Goat Creek that affects fish critical habitat  Very High	Storm proof 0.6 miles of road and construct 3 armored dips	Sole access to Trailhead
FSR 5220350 road prism	elevated runoff and dry ravel from moderate SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Button Creek that affects fish critical habitat  Very High	Remove all culverts on 3 miles of road (18 culverts)	At headwaters of Button Creek cascading waters could affect 5130000
FSR 5200500 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Whiteface Creek that affects fish critical habitat  Very High	Storm Inspection and Response at Whiteface Creek crossing	Road is adjacent to Whiteface Creek T&E critical habitat
FSR 5200430 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Very Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Goat Creek that affects fish critical habitat	Remove all culverts (9) along 3 miles of road and install 2 drivable dips	Road is adjacent to Goat Creek T&E critical habitat

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
		Very High		
FSR 5220200 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Ortell Creek that affects fish critical habitat  High	Storm Inspection and Response 2 miles Construct 2 armored Dips, Clean Low Water Crossing	Road prism parallels creek
FSR 5220300 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Ortell Creek that affects fish critical habitat  High	No treatments proposed	Section of road in high/moderate burn is high in the watershed, therefor no treatment proposed
FSR 5220305 road prism	elevated runoff and dry ravel from moderate-high SBS burned hillslopes	Possible, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Mad River drainage that affects fish critical habitat  Intermediate	No treatments proposed	Intermediate risk rating does not warrant treatments
FSR 5200510 road prism	elevated runoff and dry ravel from moderate SBS burned hillslopes	Likely, increased flow and large woody debris in draws and culverts could erode roadway at point of flow  Moderate, Loss of road prism and increased sedimentation into Short Creek that affects fish critical habitat	Construct one armored Dip at Short Creek crossing	Road is adjacent to Short Creek and failure would cause increased sedimentation into creek that serves as critical T&E habitat

Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
		High		
ML 1 Roads not surveyed, Further assessment required.	potential scour in high flows	Possible, Roads with minimal burn severity.  Minor, Loss of road prism and increased sedimentation into Chewuch River drainage that affects fish critical habitat  Low	No treatments proposed	Low risk does not warrant treatment
Native Plant and R6 Sensitive Plant Communities	Invasive plant spread and establishment into Botrychium crenulatum site (06080400001) Site is directly adjacent to Rd.5220, LEVU population along old road used as dozer line.	Likely, loss of native plant communities  Moderate; Active livestock allotment with high risk of spreading controlled populations.  High	EDRR of ox eye daisy site next to BOCR population off the Eightmile rd #5220. Approximately 1 mile. 2 people 1 day.	EDRR Suppression, treatments used on bare soil created by suppression activities
Native Plant and R6 Sensitive Plant Communities	Invasive plant spread and establishment. Dozer line runs through areas adjacent to invasive and sensitive plant populations. Cattle use in area could be vectors for spread. LEVU and CEDI are threats.	Likely, loss of native plant communities  Moderate; Active livestock allotment with high risk of spreading controlled populations.  High	EDRR of 2 miles of dozer line that runs uphill and intersects roads with invasive plant populations. Part of this is estimate is the dozer at the junction of the 5130-100 that runs parallel to the 5130 road.	EDRR Suppression, treatments used on bare soil created by suppression activities



Critical Value	Threat to Value	Probability/Magnitude/Risk	Treatment	Notes
soil productivity and hydrologic function	loss of ash cap and surface soil through erosion and debris flows, decreased infiltration, damming and sedimentation of waterways	Very likely, steep slopes, highly erodible soils, loss of canopy and ground cover  Moderate, loss of ash cap is not recoverable, short-term recoverable effects to hydrologic function  Very High	no treatment recommended--no cost-effective treatment available	
Critical habitat for upper Columbia ESA endangered spring chinook and threatened steelhead and threatened bull trout	loss of critical habitat due to excess sedimentation and debris flow, increased turbidity, and duration and magnitude of sediment load	Likely, increased flow and highly erodible soils and steep slopes  Moderate, genetics, population size and poor habitat quality, spawning habitat  High	treat roads and trails to minimize post-fire erosion and sedimentation of aquatic habitat where multiple values benefit from such treatment	
Riparian Fencing	water quality/soil degradation	Likely, fencing damaged by fire, not functional  Moderate, fence protects wetland area from grazing, wildlife impacts  Intermediate	No BAER treatment recommended	Intermediate risk rating does not warrant treatment
Stock Troughs (2)	Erosion, hazard trees	Likely, soil and plant damage from permitted livestock grazing  Minor  Low/Very Low	Trough is next to spring. No BAER treatment recommended	Low risk does not warrant treatment