

BAER Analysis Briefing: Carlton Complex Northeast 10/06/2014



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The Carlton Complex north of Wenatchee, Washington began as four fires: the Stokes Fire, the Gold Hikes Fire, the French Creek Fire, and the Cougar Flat Fire. These four fires burned together into one larger fire. Hot weather and windy conditions pushed the fire over ridgetops and into the town of Pateros, causing a large number of evacuations. The fire made significant runs toward the cities of Brewster and Pateros between July 17 and 18, burning approximately 300 homes in its path and destroying critical infrastructure.

The fire burned 255,181 acres – 79,795 acres of Forest Service land, 6,157 acres of BLM land, 69,885 acres of Washington State land, and 98,753 acres of privately owned land. It was contained at a cost of \$68.4 million.

The Carlton Complex fires burned at elevations ranging from 2,800 to about 6,500 feet. Vegetation varies across dry pine forests, riparian habitats, mid-elevation mesic forest, and high elevation mix-conifer montane forests. Primary conifer species include ponderosa pine, Douglas-fir, larch, lodgepole pine, and Engelmann spruce, with subalpine fir found on the highest peaks. Aspen also occurs throughout most forest types.

About 32 miles of perennial streams and 97 miles of intermittent streams lie within the burned area. The fires affected about 4 miles of trails and 216 miles of roads.

WATERSHED CONDITION

Watershed Burn Severity	Low	Moderate	High	Total
Alder Creek-Methow River	1,970	475	90	2,535
Bear Creek	2,002	801	226	3,029
Benson Creek	7,167	5,166	4,128	16,461
Chiliwist Creek	298	175	379	852
French Creek	1,091	280	134	1,505
Lower Beaver Creek	5,449	2,546	1,664	9,659
Pearrygin Creek-Chewuch River	940	163	18	1,121
South Fork Beaver Creek	1,420	319	70	1,809
Swamp Creek	495	760	267	1,522
Texas Creek-Methow River	569	224	100	893
Upper Beaver Creek	2,270	792	251	3,313
Total	23,671	11,701	7,327	42,699

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Indications of water-repellent soils were found throughout all burn severity classes. After post-fire precipitation and subsequent erosion, field transects containing 10 sample points tended toward low-to-moderate hydrophobicity in the burned area. Of the 43,053 acres in the three soil burn severity classes, 32,289 acres (75 percent) exhibited some degree of water repellency.

Subwatershed	Watershed #
Alder Creek-Methow River	170200080610
Bear Creek	170200080604
Benson Creek	170200080609
Chiliwist Creek	170200062204
French Creek	170200080705
Pearrygin Creek-Chewuch River	170200080408
South Fork Beaver Creek	170200080606
Swamp Creek	170200050502
Texas Creek-Methow River	170200080702
Upper Beaver Creek	170200080607

Soil erosion hazard ratings showed 346 acres at low hazard, 3,809 at moderate, and 44,465 acres at high erosion hazard rating.

BAER team members expect an initial flush of ash following precipitation in the fire area, with rill and gully erosion in drainages and on steep slopes. Flash floods are expected, increased peak flows and sediment deposition, along with debris flows. Effects will likely be greatest with fall and early winter storms, and disturbances should become less evident as vegetation is reestablished in the spring. The vegetative recovery period is estimated at 3 to 5 years.

BAER TEAM RESPONSE:

Although the Carlton Complex Fire burned area within the jurisdiction of many private, municipal, state, tribal, and federal agencies, this BAER assessment addresses only emergency threats within the northeast portion of the Carlton Complex on lands under the jurisdiction of the Methow Valley Ranger District on the Okanogan-Wenatchee National Forest. The project area evaluated by the team assigned to this portion of the Carlton Complex was about 48,697 acres. This report includes response actions recommended in accordance with Forest Service Manual (FSM) Interim Directive 2500-2013-1 (Burned Area Emergency Response).

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The initial BAER team included specialists in Safety, Engineering, Hydrology, Soils, Cultural Resources, Fisheries, Vegetation, and Geographic Information Systems. On September 2 an in-briefing was held with the District Ranger after coordinating with BAER teams led by Greg Kuyumjian. Field assessments were conducted between September 2 and September 7 to evaluate risk to identified values, coordinating with a similar team led by John Chatel assessing state and private lands.

VALUES AT RISK:

During field assessments, the BAER team focused on values at moderate to very high risk. Values of low to no risk are not part of this plan, which includes threats from flooding, hazard trees, and rockfall along roads and at developed and dispersed sites or those downstream or downslope of burned areas. The team evaluated threats along State Highway 20 from the eastern edge of the fire west approximately 4 miles.

Highways and NFS roads: Risks to road infrastructure exist at intermittent and perennial drainages from flooding and debris flows. Undersized culverts are expected to plug or overtop, damaging road infrastructure and investment.

Steelhead and designated Critical Habitat: Post-fire runoff, erosion, and sediment delivery threaten steelhead trout and their habitat. There is less than a mile of critical habitat within the fire area, but 27 miles exist 3 miles of the fire perimeter.

Chinook Salmon, Bull Trout, and designated Critical Habitat: Risks were identified including post-fire runoff, erosion, and sediment delivery, all of which could negatively affect spring chinook populations and degrade critical habitat, deterring recovery objectives. Though there is no critical habitat designated within the fire area, there are 19 miles within 3 miles of the fire perimeter. The fire area includes 2.1 miles of bull trout critical habitat, with 35 miles within 3 miles of the perimeter of the fire.

Riparian Habitat: Hydrologic function of hillslopes and channels is at risk because of the loss of soil cover and structure, decreased infiltration, hillslope erosion and sediment delivery to stream channels, and increased stream channel runoff. Flooding and debris flows are expected, with channel widening and excessive gully formation. Increased stream flows and channel erosion, along with the loss of grass, forb, and shrub components is expected in areas with moderate and high soil burn severity.

Native Plants and Noxious Weeds: The slow natural regeneration after moderate-to-high burn severity will negatively affect native or naturalized communities of grass/shrub steppe. Known noxious and invasive weed populations include Dalmatian toadflax, diffused knapweed, and other species over approximately 1,260 acres within the fire perimeter. These weeds will aggressively compete with native species for space and nutrients in the burned areas. Soil productivity is at risk, with a high probability of immediate detrimental soil displacement in burned areas of moderate and high burn severity. The loss of effective ground cover and above-ground organic matter will leave soils susceptible to erosive forces for 3 to 5 years in high severity areas and 2 years in moderate severity areas.

BAER Analysis Briefing: Carlton Complex Northeast 10/06/2014



EMERGENCY TREATMENT OBJECTIVES:

- Reduce threats to human safety on roads and trails.
- Protect National Forest System investments and minimize damage to travel routes.
- Protect critical natural resources within or downstream of the burned area.
- Control noxious weeds.
- Warn users of Forest roads and trails of hazards.
- Consider temporary closure to protect public users of NF lands.

Weeds: The BAER team recommends monitoring and treating noxious weed infestations and coordinating with private land treatments under the local County Weed Management Agreement. Suitable sites may include areas with a high potential for weed/invasive species establishment. Critical areas include roads, dozer lines, drop points, fire camps, ephemeral drainages, and burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive species populations. Disturbed areas within and along the fire perimeter, such as dozer lines, hand lines, staging areas, safety zones, and drop points will be prioritized for monitoring. GPS inventory and mapping are recommended, along with manual and chemical treatments. Biocontrol agents are proposed for Dalmatian toadflax and diffused knapweed populations as part of the long-term management of known infestations. Projects will be integrated with Okanogan County and the Cooperative Weed Management Area on state and private lands inside and outside the fire perimeter, thus reducing weed control costs to all cooperators.

Seeding: Noxious weed species can out-compete native plant communities during post-fire recovery. The BAER team recommends protecting R6 sensitive plants and supplementing the remaining native seed bank to promote robust recovery of native plants and to avoid conversion of high burn severity areas to noxious weeds. Plans include applying inoculated native seed mix in areas of high soil burn severity adjacent to known noxious weed infestations, using seed mix recommended by the Methow Valley Ranger District Botanist and approved by the Okanogan-Wenatchee National Forest Regional Botanist.

Common Name	Scientific Name	Quantity	Total amount for mix
Mountain Brome	<i>Bromus carinatus</i>	46%	7609 lbs.
Yarrow	<i>Achillea millefolium</i>	2%	331 lbs.
Canby's bluegrass	<i>Poa canbyi</i>	12%	1985 lbs.
Blue Wildrye	<i>Elymus glaucus</i>	40%	6616 lbs.

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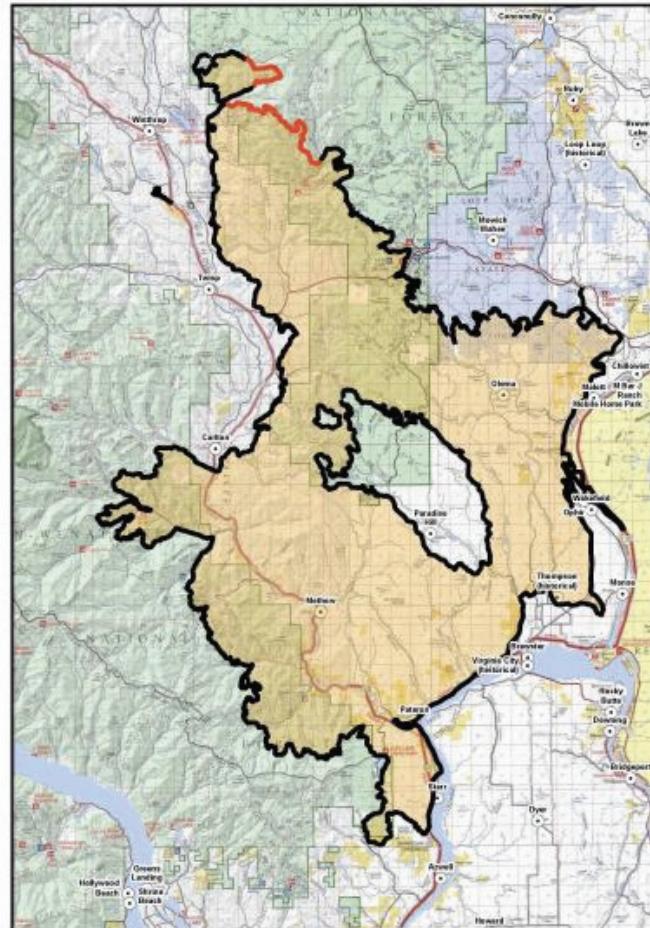


Road Drainage Reconstruction: Proposed projects include approximately 45 miles of the 215 miles within the fire perimeter. Improvements include drain dips, debris racks, culvert installation and/or cleaning, ditch cleaning, fill slop armoring, and road template projects. Projects will protect road infrastructure and minimize sediment delivery into the watersheds that run into Beaver Creek and the Methow River.

Storm patrols will identify drainage issues such as plugged culverts and washed-out roads and will clear, clean, and/or block damaged roads. Targeted roads include Benson Creek Road, South Summit Road, Volstead Creek Road, and Finley Mountain Road. Travelers along these roads are at risk of rolling and falling rock from burned slopes and falling trees, flash floods, and mudflows. Post-fire flooding can interrupt access and initiate erosion, resulting in road blockage or washouts.

Road closures may include installation of steel pipe or Powder River style gates to close roads when necessary for public safety. Road closure information will be posted on gates and via public notices, and safety signs are included in the projects.

Ongoing monitoring will ensure that the post-fire projects are completed as prescribed. Effectiveness monitoring for area closures is included to determine whether additional law enforcement presence or public information is needed to achieve compliance and provide for public safety.



Carlton Complex perimeter 08/20/2014

WHAT YOU NEED TO KNOW ABOUT DEBRIS FLOWS: <http://bit.ly/1nJ6P2t>

Questions? Check for updates on the BAER team website at CentralWashingtonFireRecovery.info or call the Okanogan-Wenatchee National Forest headquarters office at 509-664-9200.