# BAER Analysis Briefing:
# Upper Falls Fire 10/13/2014

**Team Leader: TJ Clifford, Boise District BLM**
**Contact: Stuart Woolley**
**swoolley@fs.fed.us**
**509-664-9332**

**Upper Falls Fire**
**Okanogan County, Washington**
**Okanogan-Wenatchee National Forest, Methow Valley District**

The Upper Falls Fire started August 5, 2014 and burned 8,378 acres of National Forest System (NFS) lands in the Upper and Lower Chewuch River watersheds. The fire was contained on August 25 at a cost of $5,255,000.

The fire began as a combination of several wildfires ignited by lightning about 17 miles north of Winthrop between Falls Creek and Farewell Creek. The fire burned in steep and rugged terrain in dense stands of subalpine fir and Douglas-fir with a high percentage of bug-killed trees.

Elevations throughout the burned area range from 3,800 to about 7,500 feet. Vegetation include- dry pine forests on south-facing slopes, riparian habitats, mid-elevation mesic forest, and high elevation mixed conifer montane forests. Primary conifer species include ponderosa pine, Douglas-fir, larch, lodgepole pine, and Engelmann spruce, with subalpine fir found on the upper slopes. Aspen also occurs throughout most forest types. The area includes 3.9 miles of perennial streams and 13.6 miles of intermittent streams, with 3.9 miles of roads and 8.1 miles of trails.

Burn severity by watershed:

| Watershed | Low | Moderate | High |
|---|---|---|---|
| Falls Creek | 2,452 | 1,785 | 1,204 |
| Lake Creek | 410 | 414 | 370 |
| **Total** | **2,862** | **2,199** | **1,574** |

The BAER team assessed 2,830 acres in the burn area with water-repellent soils. Soil erosion hazard ratings included 17 acres at low hazard, 771 acres at moderate hazard, and 7,419 acres at high hazard rating, with an overall erosion potential at 4.4 tons per acre across the area. Sediment potential was assessed at 603 to 804 cubic yards per square mile. Vegetative recovery is estimated at 3 to 5 years.

The BAER team included interagency personnel from the USFS, NPS, BIA, FWS, and BLM, representing Engineering, Hydrology, Fisheries, Soils, Cultural Resources, Vegetation, and Geographic Information Systems. On September 2 an in-briefing was held with officials and staff from the Okanogan-Wenatchee National Forest's Methow Valley Ranger District to strategize field assessments, which were conducted between September 3 and 9 by the team.

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## Identified values-at-risk:

**Road safety:** Hazards exist from flooding, hazard trees, and rockfall along roads that downstream or downslope of burned areas, especially those with moderate-high burn severity. The team identified risks to major NFS roads at intermittent and perennial drainages; undersized culverts are expected to plug or overtop and could severely damage road infrastructure. Forest Road 5140000 is a paved road along the southwest side of the fire area; six significant drainage crossings along this road are susceptible to damage. The team also identified risks to Forest Road 5140400 at intermittent and perennial drainages.

**Steelhead, Spring Chinook and Bull Trout** and designated Critical Habitat may be threatened by post-fire runoff, erosion, and sediment delivery. There is no designated Critical Habitat within the fire area, but there are 2 miles of critical habitat (steelhead and salmon) and 15 miles of critical habitat (bull trout) within 3 miles of the fire perimeter.

**Riparian habitat** is at risk for damage to hydrologic function of hillslopes and channels as a result 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. Channel widening and excessive gully formation are likely. About 49 percent of the fire burned at moderate-to-high severity, creating risk to riparian areas from increased stream flows, channel erosion, and loss of grass, forb, and shrub components in areas of moderate-to-high soil burn severity.

Native or naturalized communities in non-forested areas will experience slow natural regeneration in areas of moderate-to-high burn severity. Shrub and grass communities are very limited within the high-elevation areas; known noxious and invasive weed populations exist within and adjacent to the burned area, and they will compete aggressively with native species.Significant tree mortality occurred in forested areas of the fire, and natural regeneration will be delayed by the loss of forest canopy, seed bank, and organic soil layer. The loss of effective ground cover and above-ground organic matter will leave the soil resource susceptible to erosion for 3 to 5 years in high-severity areas (1,628 acres) and 2 years in moderate-severity areas (2,481 acres).

## Planned treatments:

**Invasive plants and weed assessments** will be conducted in FY2015 for Early Detection and Rapid Response (EDRR) on any new infestation within the fire perimeter. Treatments will occur at proper phenology of each species to ensure maximum control. The fire area will be assessed for new infestations of noxious weeds; assessments from FY2015 will establish baseline data to be tracked through the Methow Valley Ranger District GIS databases and will be used to determine the priority, level, and intensity of control for new infestations for one year after the fire containment date. Integrating weed projects with Okanogan County, Cooperative Weed Management Area on state and private lands will reduce noxious weed populations and weed control costs to all cooperators. Treatment sites will be evaluated annually for the next three years. Known

locations for noxious weeds are limited within the burn area, but there is a very high risk for new infestations within the fire perimeter because of disturbance caused by the wildfire and the suppression equipment used to fight the fire. Canada thistle is known to cover 19 acres within the burn perimeter. Species on the early detection list include diffuse knapweed, white top (hoary cress), Dalmatian toadflax, and oxeye daisy. Orange hawkweed is a primary species of concern for invasion of the burned area; other species on the early-detection list include Bohemian knotweed, spurge flax, and hound's tongue. Manual and chemical treatments are planned for weeds within the fire area on NFS lands.

**Culvert removals** are planned at stream crossings on Forest Service Road 5140410. The stream channel will be reconstructed with stream simulation material to reduce the risk of head cutting and scour through the new channel. The treatment is planned for undersized pipe crossings on maintenance level 1 roads, which are closed to all motorized traffic when the cost of replacing culverts exceeds the benefit to the road system. Monitoring will be handled USFS staff, who will check the site after high-intensity thunderstorms and after spring runoff.

**Regular storm patrols** will monitor for plugged culverts and washed-out roads and will clear damaged roads. Patrols will focus on roads and bridges with the most traffic, including Forest Road 5140000 (Falls Creek) and 5140320 (Sheep Creek crossing at Falls Creek).

There is an immediate and future threat to travelers along these roads within the burned area from rolling and falling rocks and falling trees, flash floods, and mudflows. Post-fire flooding could interrupt access, and even normal storms can initiate rill and gully erosion on slopes. Storm patrols will evaluate roads and bridges for motorized access and will identify work needed to maintain road surfaces, culverts, and bridges. Patrols will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows.

**Safety signs** will be installed at major entry points into the burned area, including Forest Road 5140000 at the edge of the fire.

**Ongoing monitoring** will ensure that 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 ensure public safety.

**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.