BAER Analysis Briefing:
SW Carlton Complex 09/09/2014

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.

The Central Washington Burned Area Emergency Response (BAER) team assessed burned areas including the Lower Methow River and Swamp Creek / Columbia River watersheds. The assessment area covered 592 miles of stream channels including artificial path (35 miles), canal/ditch (3 miles), intermittent streams (196 miles), perennial streams (358 miles), and pipeline (1 mile) across the Carlton Southwest area, along with 950 miles of roads and 1.2 miles of trails. Soil burn severity surveys confirmed 3,627 acres (10 percent) at very low burn severity, 21,339 acres (61 percent) at low severity, 7,472 acres (21 percent) at moderate severity, and 2,456 acres (7 percent) at high severity burn. Most of the high severity acres are within the subwatershed of the Alta Coulee-Methow River, McFarland Creek / Methow River, Gold Creek, and Squaw Creek within the Lower Methow River Watershed.

The BAER team requested funding to improve road drainage, install ALERT storm warning systems, initiate storm patrol, install burned area hazard signs and gates, and complete drainage projects to protect roads and public safety.

Forest Service roads in the area are at risk of falling rocks or trees blocking the roadway, damaged or blocked culverts, debris flows, and lost portions of roadway. Access into or out of areas may also be compromised.

The fire caused damage to Hwy. 153, and additional problems caused by runoff and debris flows are expected. Trailhead and campground developments are at risk, along with portions of Hwy. 97, Hwy. 20, and numerous county and Forest Service roads. Also damaged or at risk are utilities infrastructure including phone lines, cable, and powerlines.

Foggy Dew Campground is at risk of flooding and debris flows from Gold Creek tributaries. Private homes in and adjacent to the burned area are at risk from storm runoff and moving debris. Areas of special concern include Pateros, Carlton, Methow, Twisp, Brewster, Okanogan, Malott, Chillawist, and other unincorporated areas of Okanogan County. Irrigation ditches, pipes, and reservoirs may be compromised by storm runoff and flash flooding.

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The Methow River Watershed and subwatersheds have a history of debris flows or sediment movement from post-fire events and other naturally occurring events. Risk-reduction projects for primary routes in the area are planned for Forest Service Roads (FSR) 4010, 4012-100, 4013-200, 4330-400, 4330-470, and 4330-477.

The southwest portion of the Carlton Fire lies in two watersheds – the Lower Methow River and Swamp Creek / Columbia River. With upcoming storms and snowmelt, BAER team specialists expect an initial flush of ash, erosion in drainages and on steep slopes, flash flooding, and debris flows. The severity of these events will depend on storm intensity, and should be reduced as vegetation in the area recovers over time.

The BAER team identified the Gold Creek, McFarland Creek, Squaw Creek, and Black Canyon subwatersheds for particular concern. Soil burn severity maps and modeling were combined with field surveys to assess threat and risk in and adjacent to the burned area, and to develop post-fire risk-reduction recommendations. Several post-fire debris flows have already occurred and more are expected.

Expected post-fire effects on the Methow River watershed include increased water temperatures, peak flows and channel scour, surface erosion and sediment delivery, and landslides and debris flows. These post-fire effects may negatively affect the survival of fish and fish habitat. Unlike some portions of the Methow in the main Carlton Complex, most of the lower fish-bearing tributaries within the Southwest Carlton Complex did not burn at high severity. Large vegetated buffers were intact below high/moderate severity burns, and these buffer areas can protect fish habitat from post-fire impacts.

Increased sediment may affect migrating fish in the lower Methow River, but most sediment increase is expected in steep non-fish-bearing streams. Sediment or a debris flow reaching the Methow River is likely (50-90 percent occurrence within 1-3 years), but consequences should be minor and the risk level is low.

Soil loss through post-fire erosion on high and moderate burn severity areas will likely result in a long-term loss of soil productivity. Areas of high and moderate burn severity are expected to contribute ash and sediment to debris flows; about 72 percent of soils in the area are rated as severe erosion hazard areas. The soils team discussed but did not propose erosion control treatments; seeding has not proven effective in the Pacific Northwest because of seasonal erosion-causing weather. The 2012 Goat Fire, for example, was evaluated by BAER specialists who noted that in the two years after the fire, natural recovery had progressed quite well, with established forb and grass cover in the area.

The BAER team identified 42 recorded cultural resource sites on Forest Service lands west of the Methow River Valley; those that are either eligible or unevaluated for the National Register of Historic Places are within unburned or low severity areas. None are at risk from post-fire effects.

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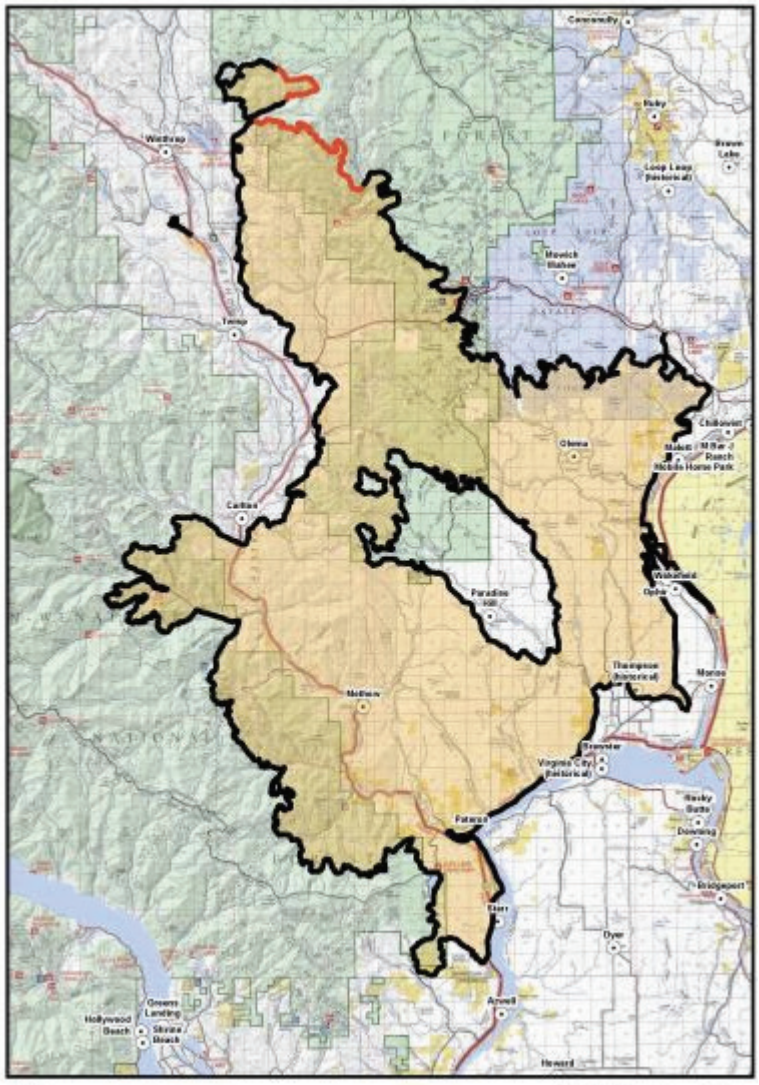
Planned risk-reduction projects for the area will provide for safety of downstream landowners, homes, and businesses and will support installation of Automated Local Evaluation in Real Time (ALERT) stations to provide precipitation data for flood forecasting and early warning. Closures will be ordered within and downstream of the burn area where road crossings or other sites are at high risk of flooding or debris flows. Other post-fire hazards include snags, stump holes, and falling rocks and trees.

Other projects are planned to protect recreation sites including Foggy Dew Campground, Black Canyon Snow Play Area, and South Fork Gold Creek Snow Play Area. Road projects include improving safe access and reducing road-related hazards, reducing surface runoff, and preparing for debris flows that could damage drainage structures.

Storm patrols will be activated during and immediately after storms to repair, unplug, or improve drainage structures along Forest Service roads. The patrols will monitor roads for emergency actions and early alerts.

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.