Uinta-Wasatch-Cache National Forest

Burned Area Emergency Response (BAER)

Post-Fire BAER Assessment

October 18, 2018 **BAER Information: (415) 881-1871**

BALD MOUNTAIN-POLE CREEK BAER ASSESSMENT REPORT SUMMARY

The Bald Mountain Fire was started by lightning on August 24, 2018, in the Mt. Nebo Wilderness, near the top of Bald Mountain which is about 50 miles south of Salt Lake City, Utah. The lightning-caused Pole Creek Fire started on September 6, 2018, in the Nebo Loop area about 5 miles southeast of the Bald Mountain Fire. On the afternoon of September 12, both fires became very active and rapidly spread due to low relative humidity (RH) and high winds. Before being 100% contained on October 3 and October 7, respectively, the two fires burned across 124,760 acres: 90,583 acres of National Forest System (NFS) land; 166 acres of other federal land, 9,740 acres of state land, and 24,271 acres of privately owned land.

In addition to direct impacts from the Bald Mountain and Pole Creek fires, there is an extremely high level of concern for post-fire conditions to impact the health and safety of forest visitors and Forest Service employees, as well as severely damage the transportation and recreation infrastructure within and downstream from the burned area. Because of the high potential risk to these values, a Burned Area Emergency Response (BAER) team was established by the Uinta-Wasatch-Cache National Forest and Manti-La Sal National Forest to assess threats from the post-fire environment to human life and safety, property, and critical natural and cultural resources.

The Forest Service (FS) is responsible for addressing post-fire risks on NFS land. The BAER team evaluated the burned watersheds to determine post-fire conditions, and identify values-at-risk such as human life and safety, property, and critical natural and cultural resources. These critical values are methodically assessed for unacceptable risk from threats such as post-fire flooding, sediment flows, rock slides, hazard trees and noxious weed spread. Proposed emergency stabilization treatments are recommended by the BAER team which are intended to reduce these potential threats and decrease the risk.

The BAER assessment team's analysis of the burn area and recommended emergency treatments for the Uinta-Wasatch-Cache National Forest (NF) are documented in a Forest Service Burned-Area FS-2500-8 report and funding request. This report was reviewed by the Regional Forester for the Intermountain Region (Region 4) and funding was approved on October 16, 2018. The BAER report also provides relevant information that is shared with its inter-agency cooperators to help identify potential threats to lands downstream of the fire.

The following is a summary of the BAER team's burned area assessment:

- There are about 69,288 (55%) acres of unburned/low soil burn severity, 51,087 (41%) acres of moderate soil burn severity and 4,387 (4%) acres of high soil burn severity.

- 14 sub-watersheds were analyzed and modeled to compare pre-fire conditions to post-fire predicted response: Peteetneet Creek, Summit Creek, Nebo Creek, Lower Thistle Creek (includes Bennie Creek), Lower Diamond Fork, Wanrhodes Canyon, Middle Diamond Fork, Lake Fork, Beer Creek, Spring Creek, Pole Creek-Salt Creek, Middle Thistle Creek, Lower Soldier Creek, and Upper Spanish Fork Creek.

- There are approximately 19 miles of perennial streams.

- There are approximately 137 miles of NFS roads, and 116 miles of NFS trails.

- There are 39,426 acres with high hazard ratings for soil erosion, 16,104 acres with moderate hazard ratings for soil erosion, and 69,233 acres with low hazard ratings for soil erosion. Elevated soil erosion hazard is only applicable for the first few years following wildfires- until revegetation occurs to stabilize the slopes.

Soil burn severity is the fundamental indicator used to evaluate post-fire conditions. The soil burn severity categories reflect changes in soil properties from pre- to post-fire and are a key element used to identify post-fire threats. The distribution of unburned, low, moderate, and high soil burn severity levels become a baseline for resource specialists to monitor changes in soil-hydrologic function and vegetative response as the burned watersheds recover. Hydrophobic soil conditions are common within moderate and high burn severity areas and rare in the low burn severity areas.

High and moderate soil burn severity categories have evidence of severe soil heating and the consumption of organic material; the soil seedbank and water infiltration characteristics are degraded. Natural recovery is slower where the seedbank is affected by heating, or where soil fertility is affected by either organic matter consumption or increased soil erosion. Areas of moderate soil burn severity have viable roots and some soil cover, but may still be vulnerable to erosion on steep slopes. The low to very low soil burn severity areas still have good surface soil structure, intact fine roots and organic matter, and should recover more quickly once revegetation begins and soil cover is re-established.

Identified Values-at-Risk, Threats, and Emergency Conditions

Potential threats to recreating public, FS personnel, and residents of private lands include flooding and debris flows, hazard trees, loss or damage to road prisms impacting ingress and egress, and rock fall along roads, trails, developed and improved dispersed recreation areas, and permitted uses downstream or downslope of burned slopes, especially those with a moderate-high burn severity. Risk is increased with higher probability in places having greater, and more frequent concentrations of people. Locations with increased risk include: Santaquin Canyon, Payson Canyon, and the Nebo Creek, Bennie Creek, Diamond Fork, and Lake Fork drainages because of the NFS road and trail infrastructure that provides easy access to developed and improved recreation opportunities for forest visitors.

Emergency post-fire conditions for Bald Mountain-Pole Creek assessment were identified by the BAER team for the following values-at-risk:

- Human Life and Safety: There is very high risk for forest visitors and to be impacted by rockfall, flash floods, debris flows, and hazardous trees along NFS trails, and at recreation areas. Specific locations include Blackhawk, Nebo Creek, and Bennie Creek trails; Santaquin Canyon, Blackhawk and Tinney Flats campgrounds, and Trumbolt picnic area; and dispersed recreation areas in Nebo, Bennie, and Wanrhodes drainages.

  There is very high risk to forest visitors using travel routes within and downstream of the Payson Canyon, Santaquin Canyon, Bennie Creek, Nebo Creek, and Page Fork drainages due to increased threat of flooding and debris flows. There is a high risk to forest visitors using the Diamond Fork and Koholowo Camp roads due to the increased threat of flooding and debris flows. There is an intermediate risk to travelers using Maple Lake, Wanrhodes, and Little Diamond roads due to the increased threat of flooding and debris flows.

  There is also an increased threats to life and safety of occupants of private property within and downslope of the burned areas from the potential for flash flooding, debris flows, falling rocks, and hazard trees as well as loss of ingress and egress to landowners if road systems are impacted. Areas of concern include Diamond Fork drainage, State Highway 6 near the Covered Bridge community, State Highway 89, and Wasatch front range drainages from Crooked Creek near Spring Lake, northeast through Payson Canyon Road, through Loafer Canyon north to Maple Canyon.

- Property: There is high risk to NFS trails from increased overland flow and accelerated erosion. Many of the trails affected by the fire are located on steep slopes or are in the drainage bottoms. Failure of trail segments constitute a loss of FS infrastructure.

  There is high risk for hazard trees to substantially damage developed recreation infrastructure at Blackhawk Campground, recreation facilities, and trailheads. Fire weakened trees pose a threat to buildings and infrastructure at these developed recreation sites.

  There is high risk to the water transmission system at Tinney Flat Campground. There is increased probability for debris flows and flooding to expose and damage the water line and contaminate the spring source.

  There is very high risk for damage to or loss of road and bridge infrastructure due to threats of flooding, debris flows, and erosion on the following roads: Santaquin Canyon, Mt. Nebo Scenic Byway, Nebo Creek Road, Page Fork Road, and Bennie Creek Road.

  There is high risk for damage to or loss of road and bridge infrastructure due to threats of flooding, debris flows, and erosion on the following roads: Diamond Fork Road, and Koholowo Camp Road.

  There is intermediate risk for damage to road infrastructure from threats such as flooding, debris flows, and erosion to Maple Lake, Wanrhodes, and Little Diamond roads.

- Natural Resources: An increased risk is anticipated to native or naturalized plant communities due to the threat from the spread of noxious weeds. The wildfire created conditions conducive to noxious weed spread and establishment by reducing competition, and exposing bare mineral soil. .

  There is high risk to the quality of the drinking water supply at the Tinney Flat Campground. Threats from accelerated erosion, increased overland flow with sediment increase the probability for high stream flows and debris flows that can impact the water source and damage the water transmission system, contaminating the drinking water.

  There is intermediate risk for loss of soil productivity and a high risk to soil-hydrologic function due to loss of ground cover, temporary water-repellent soil surface, and damaged surface soil structure.

- Cultural/Heritage Resources: A high risk is anticipated to critical cultural and heritage resources within the burn perimeters due to the threat of predicted increased overland flows, subsequent flash flooding and erosion will likely result in loss of sites and/or site integrity.

Emergency Stabilization Treatments

Treatment Objectives

The BAER assessment team's emergency stabilization objectives for the burned areas are to protect, mitigate and reduce the potential for identified post-fire threats, including increased water run-off flows, soil erosion/sediment yield, loss of road and trail access, introduction and expansion of invasive plant species, and falling burned trees, for:

1. Human life, safety, and property within and downstream of the burned area;
2. Forest Service infrastructure and investments such as roads and trails;
3. Critical natural and cultural resources; and
4. Native and naturalized plant communities from new noxious weed infestations.

The following post-fire emergency stabilization measures and treatments have been approved:

- Install burned area hazard warning signs to caution forest visitors traveling and recreating within the burned area.

- Install gates and implement temporary administrative area forest closures to prevent public access to at-risk areas within the burned area to protect human life and safety.

- Implement hazard tree removal at recreation sites to protect facilities and from road and trail work areas to insure worker safety during implementation of post-fire emergency treatments.

- Storm-proof and stabilize NFS transportation roads and stream crossings with improved water drainage structures and features to prevent damage resulting from post-fire watershed conditions such as soil erosion, storm water run-off, and public safety hazards to improve the safety of forest visitors and employees. Conduct storm inspection and response actions to ensure stream crossings and road treatments are functioning as intended.

- Storm-proof and stabilize NFS trails and trailheads with improved water drainage structures and features to prevent damage resulting from post-fire watershed conditions.

- Storm-proof and stabilize the Tinney Flat Campground water system. Conduct storm inspection and response actions to ensure the water system preventative treatment actions remain effective and function as intended.

- Assist cooperators, including local, county, state, and federal agencies with the interpretation of BAER assessment findings to identify potential post-fire impacts to communities and private land owners, domestic and agricultural water supplies, and public utilities (such as power lines, state roads, county roads, and other infrastructure).

- Continue to work and coordinate with interagency cooperators, partners, and affected parties and stakeholders.

- Continue to communicate risks to the public, community groups, and cooperating agencies.

- Conduct cultural resource protection patrols and monitor to determine if additional management action is required to protect these sites.

- Conduct early detection surveys and rapid response eradication with herbicide application on noxious weeds along areas disturbed by fire suppression activities, equipment concentration points, high and moderate soil burn severity areas near these fire suppression disturbed areas, and other high priority areas, to reduce the potential for impaired native vegetative recovery and the introduction and spread of invasive weeds.

SPECIAL NOTE: *Everyone near and downstream from the burned areas should remain alert and stay updated on weather conditions that may result in heavy rains over the burn scars. Flash flooding may occur quickly during heavy rain events-be prepared to take action. Current weather and emergency notifications can be found at the* ***National Weather Service*** *website: www.weather.gov/slc/.*

Bald Mtn-Pole Creek Post-Fire BAER Assessment information is available at https://inciweb.nwcg.gov/incident/6236/.

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