



File Code: 2520
Subject: Gun Range Fire Burned Area Report

Date: September 4, 2019

US Forest Service (USFS) and National Weather Service (NWS) Burned Area Emergency Response (BAER) specialists responded to the Gun Range Fire (UWF-669) on Monday 9/3/18. The BAER team was staffed with a USFS Team Leader/Hydrologist and a NWS Hydrologist. Even though this fire was below the 500 acre threshold for USFS BAER response, the choice to respond to this incident was due to a number of contributing factors that included the fire's position on the landscape, the erosive nature of the soils and parent material, and the steepness of the burned slopes. The UWC NF has experienced wildfires in similar slope positions along the Wasatch Front that have resulted in flash flooding, debris flows, and substantial property damage following short duration, high intensity rainfall events.

The fire was located directly upslope of a residential area in Bountiful, UT on the Salt Lake Ranger District of the Uinta Wasatch Cache NF. The human caused fire started on 8/30/19 and was 100% contained on 9/1/19. The fire perimeter used for the BAER analysis was mapped at approximately 318 acres. Ownership within the burn scar is split between the USFS (257 acres) and Private (61 acres). Containment was achieved through the use of fixed wing air tankers, helicopters, handlines, existing trail and road prisms, and natural terrain features. Suppression costs are estimated at \$465,000.

Pre-fire vegetation was a mix of oak brush, sage, bitterbrush, grasses, and forbs. Slopes are generally 30-50 percent. There are multiple unnamed ephemeral drainages within the burn scar. The northern most drainage which terminates just above the intersection of Sunrise Circle and Ridgeline Circle has a small sediment detention structure located above the Fire Break road and below the "Viewmont V". Moving south through the burnscar, the next drainage terminates just above the ball field at Twin Hollow Park. This drainage does not have any sediment detention structures except for a very small basin at the stormwater culvert inlet just above the park. The final burned drainage is located one drainage north of the Ward Canyon/Stone Creek drainage. This drainage has a large detention basin where Northridge Drive intersects the channel, however there are multiple homes on Northridge Drive, north of the channel that are not protected by the basin.

Soil burn severity within the burn scar occurred in a mostly uniform pattern based on fuel type. Soil burn severity estimated to be 7% unburned/very low, 80% low, and 13% moderate. The majority of the accumulated organic material on the soil surface was scorched but not consumed by the fire. Where present, the ash layer was very thin. Soil water repellency was observed to be weak, with water drop penetration occurring in approximately 15- 25 seconds. The soil structure was unchanged, with granular aggregates found to be intact. Fine roots were also found to be intact and not charred. Due to the overall low soil burn severity, natural vegetative



recovery is expected to occur within the next 2-3 years. During this recovery period, the burn scar will be susceptible to an increased watershed response to short duration, high intensity rainfall events. The locally accepted minimum threshold for debris flow initiation is 0.5” of rainfall in 30 minutes. Should this event occur prior to the full recovery of the burnscar, muddy flows are expected to occur in the drainages mentioned above. However, due to the lack of large floatable material and relatively short channel lengths, extensive scouring of channel material and mobilization of large, boulder sized particles is not expected.

The following critical BAER values on National Forest System (NFS) lands were identified by the BAER team:

1. Human life and safety of Forest visitors.
2. Soil productivity and hydrologic function on the hillslopes within the burn scar.
3. Property – NFS roads (Fire Break/80236 and Shooting Range/80279).
4. Property – NFS trail segments within the burn scar.

Other critical values identified by the BAER team include:

1. Human life and safety of private land occupants.
2. Property – Bountiful Lions Club gun range.
3. Property – Homes below the burnscar.
4. Property – Bountiful Power transmission line.
5. Property – Waterline buried below the Fire Break road and associated above ground infrastructure.
6. Additional municipal infrastructure (multiple residential streets and recreation facilities at Twin Hollow Park).

Risk assessments were conducted for critical BAER values on NFS lands using the BAER Risk Assessment Matrix found in FSM 2523.1 Exhibit 02. All critical BAER values were found to have a low level of risk as a result of the Gun Range fire. Emergency stabilization treatments are not recommended. The individual ratings are presented below.

Critical BAER Value	Threat	Probability of Damage or Loss	Magnitude of Consequences	Risk Assessment Rating
Human Life and Safety - Forest Visitors	Injury from destabilization of hillslopes and falling material	Unlikely	Moderate	Low
Natural Resources - Soil Productivity	Erosion of soil horizons	Possible	Minor	Low
Natural Resources -Hydrologic Function	Accelerated runoff	Possible	Minor	Low
Property – NFS Roads	Accelerated runoff, surface erosion	Possible	Minor	Low
Property – NFS Trails	Accelerated runoff, trail erosion	Possible	Minor	Low

The BAER team has provided information about potential post fire effects on NFS lands that could result in impacts to downstream and downslope off-forest lands. These include increased rates of hillslope erosion, increased sedimentation, and increased runoff during storm events. Interagency coordination and information sharing with cooperating agencies (National Weather Service, Natural Resources Conservation Service, Utah Department of Public Safety, Utah Department of Natural Resources, Bountiful City, and Centerville City) has been initiated.

The information contained within this report was provided by Brendan Waterman, UWC BAER Team Leader on 9/3/2019.

BRENDAN WATERMAN
Forest Hydrologist and BAER Coordinator

Attachments: Gun Range Fire Soil Burn Severity map and kmz file.