Suppressing Fire at the Wilderness Boundary

The Bear Creek Fires of 2015, Spotted Bear Ranger District

Field Trip Summary 10 | July 2016

As a warm up for the 2016 Learning from a Legacy of Wilderness Fire Workshop, Spotted Bear Ranger District of the Flathead National Forest and the Northern Rockies Fire Science Network (NRFSN) hosted a field trip just outside the wilderness boundary. Forty-four managers, scientists, and students learned about fire management on this wilderness district.

Figure 1. Bear Creek Fire Field Trip. Photo courtesy of NRFSN.

In 2015, the most expensive fire season in the Northern Rockies since 2006, Spotted Bear Ranger District recorded 42 fire starts. The Bear and Trail Creek fires together burned 86,155 acres (Bear Creek fire alone burned 65,438 acres) and cost $1,874,895, a relatively low cost for managing fire on 86,155 acres. On August 20th, the Bear Creek fire ran more than 9 miles and burned more than 16,000 acres in approximately 5 hours. Despite 3 vehicles and some camper and hay trailers burnt, the district was able to evacuate >70 head of stock. No firefighters, public, or stock were injured.

To Suppress or Not to Suppress?

Initially, fire managers attempted to suppress both fires because of scarce firefighting resources, proximity to values at risk, and fire weather concerns. However, after the initial attack was unsuccessful, they moved to a point protection strategy to protect values and allow fire to play its natural role both inside and outside the wilderness. While protecting resources, they gained 40,000 acres of resource benefit within the wilderness. Field trip leaders explained Spotted Bear Ranger District manages some fires in and near the wilderness for multiple objectives.

Managing fire for multiple objectives is more intentional than a "let it burn" policy. While most wilderness fires on this district are suppressed, fire managers at Spotted Bear watch for opportunities to allow fire to play it's natural role, when weather conditions and resource availability allow, to reduce risks to values outside the wilderness. This is facilitated by a landscape mosaic that reflects 30 years of intentionally managing fire for resource benefits.

In 2015, the Trident fire, deep in the Bob Marshall Wilderness, was suppressed because of a lack of resource availability. This was contrasted with conditions in 2014, a more common scenario, when it was so moist that the largest fire on the Flathead National Forest was 200 acres. Field trip participants acknowledged that landscape patterns are affected by fire suppression, which is 97% successful, and that most acres burn during high fire years.

Importance of Fire Experience

Notably, during a time of scarce resources in the region, the Spotted Bear Ranger District was able to manage the 2015 Bear Creek Fires with a Type III Incident Management Team comprised mostly of local managers. This was attributed to oversight by an agency administrator with fire experience, the tenure of fire managers on the district, and the cohesive nature of staff on this remote wilderness district.

Field trip managers and scientists discussed the value of having agency administrators with fire experience and also of sharing firefighting resources among incidents during times when regional resources are scarce. Being specific about these requests can help fill such needs.

Figure 2. Following fires, it can take a lot of resources to clear blowdown across wilderness trails. Photo courtesy of NRFSN,.

Public Access

One of the greatest challenges for fire managers on a large wilderness district is managing public access during fires. Spotted Bear Ranger District staff understand the importance of backcountry trips to wilderness visitors and outfitters and appreciate the value of allowing the public to witness fire. When possible, they avoid closing trails due to fire activity. However, when there was potential for visitors to be threatened by fire, staff and outfitters spent extra effort to locate and communicate with visitors, help reroute them, and move private and outfitter vehicles out of harm's way. These logistics and communications were important, and district staff attended to many details, substantially increasing fire-related workloads.

Fuel Treatment

Field trip leaders discussed the effects of hazardous fuel reduction three years prior to the Bear Creek fire, shaded fuel breaks added during the fire, prescribed fire at the wilderness boundary, and earlier wildfires on fire activity, fire effects, and the ability to protect values. Hazardous fuel reduction was seen as the reason fire managers were able to protect the bridge over Meadow Creek Gorge, which is a major wilderness access point and would have been expensive and difficult to rebuild. Managers also explained they were able to more safely fight the fire by installing shaded fuel breaks in strategic locations and using these to conduct burnout operations. Shaded fuel breaks are most successful when used as a tactical strategy, which is different from hazardous fuel reduction.

Figure 3. Hazardous fuel treatment reduced fire severity at the Meadow Creek trailhead . Photo courtesy of NRFSN.

Additionally, prescribed fire implemented two years earlier, just outside the wilderness, and several earlier wildfires were attributed by local staff with slowing the fire's rate of spread and / or reducing burn severity and fire mortality. In fact, managers were able to delay evacuating wilderness visitors because of the 15-year-old Chipmunk Fire. As the Bear Creek fire burned through fires from 2000, 2003, and 2005, managers observed the value of multiple fire entries for restoring ecosystems by removing blowdown from previous fires.

Fire Spread Predictive Modeling

The Bear Creek fire took a different path than managers expected based on local knowledge and fire modeling. Current fire behavior models cannot account for plume-dominated behavior or roll-outs of burning logs. Long-term fire spread probability models can help managers understand where a fire might burn in 7-30 days based on weather, topography, and fuels. However, this information is not always readily available to the modeling team to ensure the best results. Modeling over shorter time periods with more predictable weather often gives more reliable results, but the trade-off is a shorter outlook for planning fire strategy.

After the Fire

In addition to concerns about erosion and weeds, post-fire concerns in wilderness include clearing trails to maintain access for outfitters, private citizens, and administrative use as well high elevation whitebark pine. The importance of Burned Area Emergency Rehabilitation (BAER) funds for stabilizing, restoring, and clearing trails was highlighted. Crews spent three months following the Bear Creek fire clearing trails, and two crews were fully dedicated to this the following year. District recreation funds alone would have been inadequate and resulted in trail closures and damage. Fire impacts to trails can be long-term, and the cost of future work is absorbed by the local units.

For Additional Information—

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The Northern Rockies Fire Science Network (NRFSN) aims to be a go-to resource for managers and scientists involved in fire and fuels management in the Northern Rockies. The NRFSN facilitates knowledge exchange by bringing people together to strengthen collaborations, synthesize science, and enhance science application around critical management issues.