

Lolo Peak Field Trip: From the Wilderness to the Wildland Urban Interface

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Abstract—Forty-one participants joined field trip coordinator LaWen Hollingsworth, Fire Behavior Specialist at the U.S. Forest Service Rocky Mountain Research Station, as well as local Forest Service managers, the Type I Incident Commander, and the County Sheriff's office, to learn about management of the 2017 Lolo Peak Fire. At four stops, participants had views of the burn area, heard about management decisions and actions and the Highly Valued Resources and Assets that informed decisions, talked with a local property owner, and saw previous fuel treatments and shaded fuel breaks that were useful in the long-term management of the fire. The Lolo Peak Fire ignited in an area that had not experienced significant fire in many years, and large portions of the area were dominated by lodgepole pine and mixed conifer forests comprising 40 to 50 percent dead trees. Most recent fires had been small or effectively suppressed. Thus, fuels and forest conditions along with remote, rugged terrain made direct line construction unsafe. The location of the primary fireline was based on creating a working zone for firefighting resources that had escape routes and safety zones in areas that were less steep with fewer snags and where fuels were more favorable for successful suppression actions. Indirect line construction combined with burnout operations was chosen as the best strategy to safely manage this fire.

Keywords: Lolo Peak Fire, Selway-Bitterroot Wilderness, firefighter safety, Highly Valued Resources and Assets, Management Action Points, wildland urban interface, fire management planning, LOLO

OVERVIEW

Although most of the spring of 2017 was wet and green in western Montana, numerous consecutive days of 90-plus degree weather with no significant precipitation led to a flash drought, or a rapid-onset drought, as summer progressed. By July 12th, lightning storms had started numerous fires near Missoula, Lolo, and in the Rock Creek drainage. On July 15th, an air attack plane responding to another fire discovered the Lolo Peak Fire burning at high elevation in the Selway-Bitterroot Wilderness (fig. 1). This was one of several fires in the region that contributed to air quality impacts in local communities, and by the time it was contained in late October, it had burned nearly 54,000 acres.

Forty-one participants joined field trip coordinator LaWen Hollingsworth, Fire Behavior Specialist at the U.S. Forest Service Rocky Mountain Research Station, local Forest Service managers, the Type I Incident Commander, and the County Sheriff's office (see list

of presenters at the end), to learn about management of the 2017 Lolo Peak Fire. At four stops, participants had views of the burn area, heard about management decisions and actions and the Highly Valued Resources and Assets that informed decisions, talked with a local property owner, and saw previous fuel treatments and shaded fuel breaks that were useful in the long-term management of the fire.

FIREFIGHTER SAFETY— A PRIORITY

The fire ignited in an area where 40-50 percent of trees were dead, and slopes were steep, ranging from 60-70 percent. Local fire managers and the incident management team determined there were no safe places to insert firefighters where they could be readily evacuated if there were a medical emergency. Initially bucket drops of water were used to stall growth but were largely ineffective. These safety issues informed the subsequent strategies used to manage this fire.



Figure 1—View of Lolo Peak in the background and lower elevation burned area visible on the ridge in the foreground.

INFORMED ASSESSMENT AND PLANNING

Forest Service staff and Incident Management Team members focused on planning strategies for indirect attack in areas with more favorable fuel types and topography and communicating their strategy with cooperators, stakeholders, and the Montana Department of Natural Resources, who managed lands in some of the areas proposed for indirect fireline.

Knowledge from prior fire and fuels planning and from previous fires in the area informed early decisions made on this fire. Fire behavior on the 2013 Lolo Creek Complex indicated that wind is funneled through Lolo Creek drainage that can result in significant fire spread from west to east. It was clear that once the Lolo Peak Fire crossed Lantern

Ridge northwest of Lolo Peak, it could burn towards the community of Lolo quickly as the fire would be exposed to west winds, potentially making a rapid transition from wilderness to wildland urban interface areas.

Potential indirect fireline locations were scouted in accessible areas adjacent to developed areas across all land ownerships. Structure assessments were done on 904 homes, and negotiations done to determine where the fireline would go. A shaded fuelbreak was established along the primary fireline.

Ultimately, Agency Administrators such as Forest Supervisors help the team managing a fire to prioritize where efforts are focused by identifying values at risk and voicing management priorities. The Lolo National Forest Supervisor's direction to invest in strategies

with a high probability of success and emphasize risk management and firefighter safety informed team decisions early on.

WORKING COLLABORATIVELY CRITICAL TO SUCCESS

Large, complex fires burning near wildland-urban interface require collaboration across disciplines, organizations, and property boundaries. On the Lolo Peak Fire, scientists and resource managers worked closely with fire managers to inform decisions and ensure natural resources were protected. The Incident Management Team worked closely with counties, state agencies, local property owners, law enforcement officers, and many others to protect Highly Valued Resources and Assets, such as public and firefighter safety and social and economic values (fig. 2).

Early on, there were as many working in the overhead team's Science Branch on this fire as in Operations and other branches. The positions in the Science Branch included Strategic Operational Planner, Long Term Fire Analyst, Fire Behavior Analyst, Incident Meteorologist, Air Resource Advisors, and Fire Effects Monitor. Fire behavior modeling characterized the fire as a small wilderness fire with great potential to grow, and modeling informed the identification of management action points. Management action points are geographic points on the ground or specific points in time where a management action is warranted based on the location and behavior of the fire. In the Lolo Peak Fire, these were all spatial points, and the action that occurred was usually an evacuation warning or order.



Figure 2—LaWen Hollingsworth, Long-term Fire Analyst on the Lolo Peak Fire, shows maps of Highly Valued Resources and Assets and Vegetation Types and Fire History of the area.

Planning and executing evacuations involved the Incident Management Team working closely with the Missoula and Ravalli County Sheriffs' Offices (fig. 3). The management action points were based on knowledge of expected fire behavior as well as available resources and evacuation authorities. The team worked to keep evacuation terminology simple and consistent. Warnings could turn into orders quickly, and once people were evacuated, their homes had to be kept secure until it was safe for them to return.

Another important area of collaboration was the liaison efforts between the Lolo National Forest and the management team coordinated by the Resource

Advisor, a local specialist familiar with resources at risk of impact from the fire or fire management actions. The Lolo NF Resource Management Plan identifies many of the objectives for resource protection, and communication of these to the team helped to prevent or mitigate impacts of fire management activities on resources. Examples of such resources included critical habitat (bull trout), wilderness, and alpine larch in the Research Natural Area. Examples of actions that reduced impacts of suppression efforts included avoiding retardant drops near bull trout habitat, lifting dozer blades when crossing streams, and cleaning equipment to prevent invasive species introductions.



Figure 3—Rob Taylor, Captain at the Missoula County Sheriff's Office, discusses evacuations and the collaborative efforts between the Incident Management Team and the local county sheriffs' offices. LaWen Hollingsworth displays map of fire growth, Management Assessment Points, and evacuation.

PRIOR FUEL TREATMENTS FACILITATE BURNOUT OPERATIONS

In the Bass Creek drainage, the last stop for the field trip, participants looked at open forest stands treated with a thinning project. After the 2000 fires, the Bitterroot National Forest planned and conducted numerous stand treatments, and these, in addition to fuel breaks on privately owned lands, made it more feasible to conduct burnouts that provided “blackline” between the fire front and the wildland-urban interface and helped prevent the fire from burning rapidly down canyons toward properties in the Bitterroot Valley. Fire restoration and WUI protection were priorities for the Bitterroot NF treatment planning. In addition to larger fuel treatments, the work of local property owners to

reduce fuels near their homes helped prevent structure loss where the fire did reach WUI zones (fig. 4).

COMMUNICATE EARLY AND OFTEN

Once the decision was made to manage the Lolo Peak Fire by backing off to more favorable fuel types and topography, and planning and establishing shaded fuel breaks and fireline, the Public Information Officers invested significant time in conveying this strategy to the public, cooperators, and other stakeholders. Building relationships and trust was critical, and helped the team more effectively communicate fire management strategy and evacuation warnings and orders as well as respond to questions and information needs.



Figure 4—Retired US Forest Service Ecologist Steve Arno talks about the Lolo Peak Fire from the perspective of a property owner, in addition to sharing his knowledge of the fire history in the area.

SUMMARY

The Lolo Peak Fire ignited in an area that had not experienced significant fire in many years, and large portions of the area were dominated by lodgepole pine and mixed conifer forests comprising 40-50 percent dead trees. Most recent fires had been small or effectively suppressed. Thus, fuels and forest conditions along with remote, rugged terrain made direct line construction unsafe. The location of the primary fireline was based on creating a working zone for firefighting resources that had escape routes and safety zones in areas that were less steep with fewer snags and where fuels were more favorable for successful suppression actions. Indirect line construction combined with burnout operations was chosen as the best strategy to safely manage this fire.

Incident Commander Greg Poncin said that he did not feel good about the number of people impacted by smoke, and emphasized his primary role on the fire was to ensure firefighter safety. While the Lolo Peak Fire had significant smoke impacts, early planning for a long-duration event allowed time to establish and implement a plan to reduce the probability of property damage and loss of life. This contrasts with a fire igniting in August, at a time of year when conditions favor more extreme fire behavior, and managers have fewer choices to influence where and how the fire burns.

FIELD TRIP PRESENTERS

LaWen Hollingsworth, Fire Behavior Specialist, U.S. Forest Service Rocky Mountain Research Station; Long-term Fire Analyst for Northern Rockies Team 1

Jesse Kurpius, Fire Management Officer, Missoula District, Lolo National Forest

Dave Williams, Assistant Fire Management Officer (Fuels), Missoula District, Lolo National Forest; Strategic Operational Planner for Lolo National Forest fires

Greg Poncin, Northwest Area Manager, Montana Department of Natural Resources; Incident Commander on Northern Rockies Team 1 overseeing the Lolo Peak Fire

Shane Hendrickson, Fish Biologist, Lolo National Forest; Wildland Fire Decision Support System (WFDSS) author and lead Resource Advisor for Lolo National Forest

Rob Taylor, Captain, Missoula County Sheriff's Office; Liaison Officer for Northern Rockies Team 1

Steve Arno, Retired U.S. Forest Service Rocky Mountain Research Station Ecologist and local property owner

Warren Appelhans, Fire Management Officer, Stevensville District, Bitterroot National Forest