

# LOLO PEAK FIRE 2017

FROM THE WILDERNESS TO THE WILDLAND URBAN INTERFACE



## Field Trip Summary 12 | May 2018

The lightning-ignited Lolo Peak fire in the Selway-Bitterroot Wilderness was discovered on July 12, 2017, burning in an area of high tree mortality and rugged terrain. During the field trip, which was held as part of the May 2018 Fire Continuum Conference, managers, scientists, a county sheriff, and a property owner guided 41 participants through a series of stops with views of the burn area and prior fuel treatments. They highlighted the science, management and safety challenges, and public communication priorities that informed decisions on managing the fire, which burned until late October and reached 54,000 acres in size.

### OVERVIEW

Although most of Spring 2017 was wet and green in western Montana, numerous consecutive days of 90+ degree weather with no significant precipitation led to a flash drought, or a rapid-onset drought. By July 12<sup>th</sup>, lightning storms had started numerous fires near Missoula, and in surrounding areas. On July 15<sup>th</sup>, an air attack plane discovered the Lolo Peak Fire burning at high elevation in the Selway-Bitterroot Wilderness. Throughout the remainder of the fire season, many fires ignited and burned in the Northern Rockies and the Pacific Northwest, causing smoky conditions throughout the region (Figure 1).

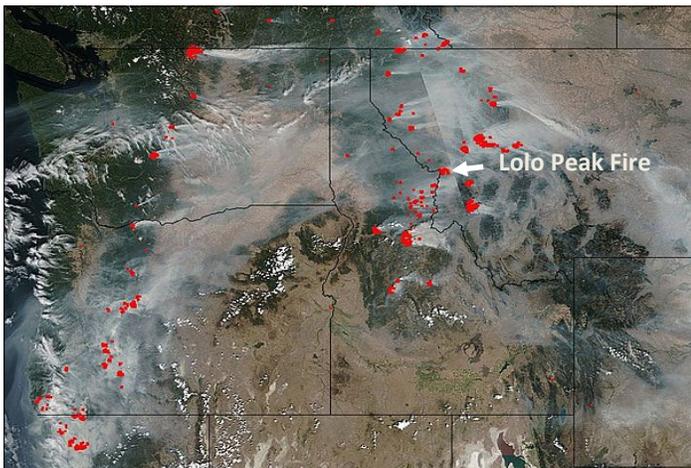


Figure 1. NASA satellite image from September 5, 2017, showing fires and smoke in the Cascades and northern Rocky Mountains.

## FIREFIGHTER SAFETY - A PRIORITY

At the first field trip stop near the town of Lolo, fire managers described the challenges of terrain and tree mortality as the group viewed slopes where the fire burned toward Highway 12 (Figure 2). 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 not safe places to insert firefighters where they could be readily evacuated. 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.

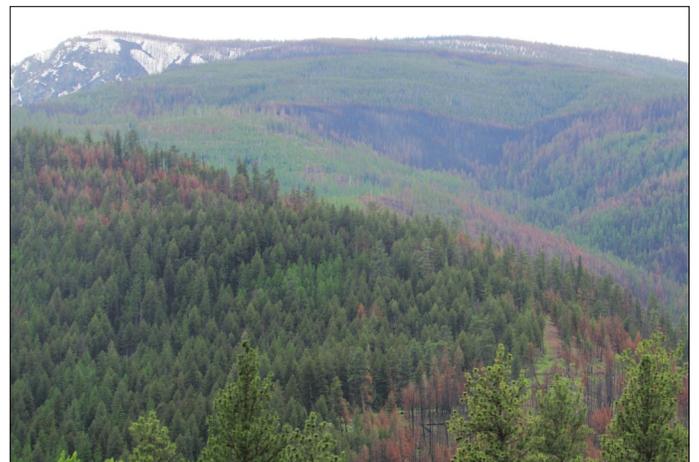


Figure 2. Burn patterns on slopes above U.S. Highway 12 near Lolo, Montana - Lolo National Forest. Photo by : Vita Wright.

### INFORMED ASSESSMENT & 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 on communicating their strategy with cooperators, stakeholders, and the Montana Department of Natural Resources, who managed adjacent 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 previous fires 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 management priorities. Early on, 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.

## COLLABORATION 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 (Figure 3).



Figure 3. LaWen Hollingsworth, USFS Rocky Mountain Research Station, shows a map of the Highly Valued Resources and Assets for the Lolo Peak Fire.

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 Advisor, 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 4).

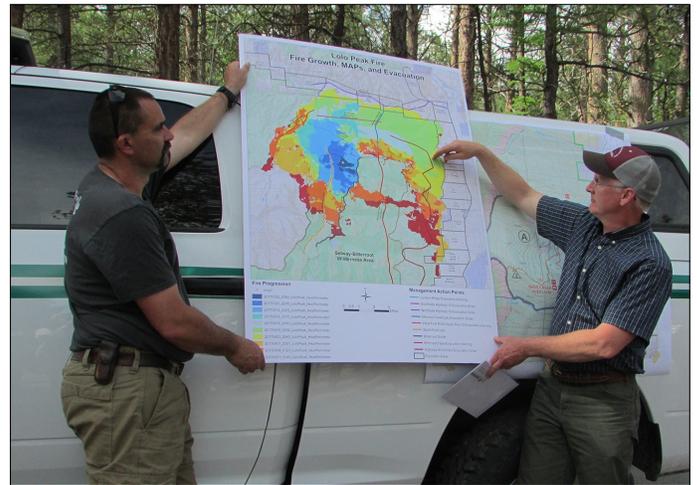


Figure 4. Warren Appelhans, Bitterroot National Forest (left) and Greg Poncin, Montana Dept. of Natural Resources and Incident Commander on Lolo Peak Fire Management Team (right) discuss a map showing management action points.

Planning and executing evacuations involved the Incident Management Team working closely with the Missoula and Ravalli County Sheriffs' Offices. 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 forest 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.

## PRIOR FUEL TREATMENTS HELPFUL

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 which 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 (Figure 5).



Figure 5. Steve Arno, local property owner and retired USFS Research Forester (left), discusses fire history and the importance of fuel clearance by private property owners.

## 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.

## 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 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.

## ADDITIONAL INFORMATION

*Field trip cadre – LaWen Hollingsworth, Fire Behavior Specialist, USFS Rocky Mountain Research Station; Jesse Kurpius, Fire Management Officer, and Dave Williams Asst Fire Management Officer, Missoula District, Lolo National Forest; Greg Poncin, Northwest Area Manager, Montana Dept of Natural Resources & Conservation; Steve Arno, property owner and Research Forester, USFS (retired); Shane Hendrickson, Fish Biologist, Lolo National Forest; Rob Taylor, Captain, Missoula County Sheriff’s Office; and Warren Appelhans, Fire Management Officer, Stevensville District, Bitterroot National Forest.*

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



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