

Field Trip Summary 6 | May 2014

Forests that historically burned in mixed-severity fire regimes prove difficult to manage, especially when they border homes and prized recreation areas. This management challenge was the focus of the Fuels Reduction and Restoration in Mixed-Conifer Forests of the Southwestern Crown of the Continent field trip, following the May 2014 Large Wildland Fires Conference. The field trip included presentations by researchers, managers, residents, and other stakeholders who discussed challenges and successes with collaborative fuels reduction and restoration projects in mixed-conifer forests in the southwestern Crown of the Continent of western Montana.

GIRARD GROVE - OLD-GROWTH LARCH

In 1995, the Seeley Lake Ranger District worked with Rocky Mountain Research Station research foresters to determine the historical structure, composition, and fire regime of Girard Grove near Seeley Lake, Montana. The grove is home to the American Forest National Register's champion western larch (*Larix occidentalis*) tree estimated at 87 inches in diameter, 153 feet tall, and 1,000 years old.

The following researchers and managers described their historical analysis, development of treatments, and efforts at securing stakeholder support in Girard Grove management -

- Travis Belote, Forest Ecologist, The Wilderness Society
- Cory Davis, Monitoring Coordinator, Southwestern Crown of the Continent Collaborative
- Tim Love, District Ranger, Seeley Lake Ranger District, Lolo National Forest
- Sharon Hood, Forest and Fire Ecologist, University of Montana

Analysis of stand structure and fire history in Girard Grove revealed that many old western larch trees established in the early 1500s, and fires historically occurred at a mean fire-return interval of 25 years. The high frequency of fires was attributed to burning practices of Indians in the area. Beginning in the 1900s, fire was excluded from the Grove. From 1900 to 1995, basal area of Douglas-fir (*Pseudotsuga menziesii*) increased more than 6 times and basal area of lodgepole pine (*Pinus contorta*) increased almost 30 times.

Public concern and litigation are common when treatments are proposed in old-growth forests, so forest officials and researchers reached out to the public and area stakeholders before treatment implementation to -

- teach about the historical importance of fire in the old growth stands
- demonstrate methods that would limit fire-induced mortality of old large trees
- garner support for fall burning during a time of 'smoke fatigue' in the Seeley Swan Valley



Figure 1. Girard Grove treatment area. Photo courtesy of Mike Battaglia, USFS – Rocky Mountain Research Station.

Treatments to restore western larch dominance, maintain multi-aged forest structure, and reduce crown fire risk on the 200-acre project area included (Figure 1) -

- selective overstory and midstory tree removal and understory thinning with a total removal of 1 million board feet
- prescribed fire
- removal of duff and litter from the bases of large old trees, especially those with heart rot or fire scars, which were more prone to cambial injury from fire

JOCKO LAKES FIRE

The 2007 Jocko Lakes fire burned 36,000 acres near Seeley Lake, Montana. Management of the fire was challenging because of its proximity to the town of Seeley Lake and mixed land ownership. Land management following the fire

was challenging because of the large proportion of the area that burned severely.

Speakers with experience of the Jocko Lakes fire and post-fire management who spoke during the field trip were -

- Jon Haufler, Executive Director, Ecosystem Mgmt. Research Institute
- Scott Tomson, Wildlife Biologist, Lolo National Forest



Figure 2. Jocko Lakes high-mortality burned area. Photo courtesy of Mike Battaglia, USFS – Rocky Mountain Research Station.

The Jocko Lakes fire was ignited by lightning near the district boundary with the Mission Mountain Tribal Wilderness on the Flathead Reservation and the Seeley Lake Ranger District. The fire spread rapidly toward Seeley Lake through tribal, state, federal, and private land. More than half of the total burned area burned at high severity.

High tree mortality within much of the burned area (Figure 2) led to varied post-fire management across land ownerships. On privately owned portions of the forest, which are managed for timber production, salvage logging occurred after the fire and disturbances created by fire control efforts were not prioritized for rehabilitation. On National Forest lands, the post-fire management plan was nearly the direct opposite of that on privately owned timber production lands. While different post-fire management across jurisdictional boundaries created heterogeneity on the landscape, it did a poor job of mimicking natural post-fire heterogeneity that might have occurred naturally along ecological gradients.

Challenges and experiences with the Jocko Lakes fire in this multijurisdictional area resulted in lessons learned -

- Rumors are common and can spread rapidly during times of fear. Transparency, regular communication, and directly addressing rumors, works to build public trust and decrease misunderstandings.

- Community Wildfire Protection Plans (CWPPs) can be useful for identifying locations where suppression is a high priority (e.g., areas with cultural and spiritual value, prized recreation sites, and wildland urban interface) as well as those where suppression is a low priority (e.g., wilderness and other areas the public has already agreed may benefit from fire).
- Understanding when forest processes fall within historic and current fire regimes helps to evaluate fire effects and forest regeneration. Following the Jocko Lakes fires, agency personnel were unsure whether levels of tree mortality and patchy regeneration fell within the natural range of variability for mixed-conifer forests with mixed-severity fire regimes. Wilderness areas can be useful references to assess the degree of departure from historical ranges of variability.
- Flexibility in forest planning may result in better long-term post-fire management. In some areas, post-fire tree planting is mandatory after fires. However, if trees are planted and a pulse of natural tree regeneration occurs soon after planting, the stage is set for dense fuel development.

COLT SUMMIT PROJECT

Active management to restore multi-story forest structure, improve wildlife habitat, and treat fuels in the Wildland Urban Interface (WUI) was first proposed in 2010 in the Colt Summit region, near Summit and Rainy lakes on the Seeley Ranger District. After conducting Environmental Assessments and responding to stakeholder appeals, the 2,000-acre fuel treatment and restoration project was approved in April 2014.

The following researchers, managers, and community leaders described the challenges and concerns related to development of the Colt Summit Restoration Project and securing project support from area stakeholders -

- Scott Tomson, Wildlife Biologist, Lolo National Forest
- Cory Davis, Monitoring Coordinator, Southwestern Crown of the Continent Collaborative
- Marnie Criley, Community Program Coordinator, Northwest Connections
- Adam Lieberg, Conservation Program Coordinator, Northwest Connections

This project area poses many challenges to management -

- It is habitat to endangered and threatened species and species of concern including lynx, grizzly bears, fishers, wolverines, loons, and bull trout.
- It burns in mixed-severity fires, for which the understanding of the patchiness of fire effects is best understood and appreciated across large landscape scales and time frames.
- It is valued by a diverse group of stakeholders.



Figure 3. Colt Summit area. Photo courtesy of Mike Battaglia, USFS – Rocky Mountain Research Station.

Although treatments have not yet occurred in the project area (Figure 3), the planning and appeals processes together with stakeholder support resulted in many suggestions for developing future collaborative management plans -

- Engage a diverse group of stakeholders and solicit their input and feedback early and often. Building a collaborative network takes time but simultaneously develops supported projects and improves decision making.
- Incorporate a variety of management and treatment approaches and match them to ecologically meaningful gradients to encourage landscape heterogeneity.
- Focus treatments away from habitats with high value to endangered species. Use cumulative effects analyses to compare long-term benefits to short-term impacts.
- Be familiar with case law on National Environmental Policy Act and the area’s protected species.
- Use monitoring to improve project support and foster creative approaches to forest management. Establish control plots for meaningful comparisons and utilize third party researchers to collect monitoring data to increase trust in findings.

ADDITIONAL READING & INFORMATION

Arno, S.F., Smith, H.Y, and Krebs, M.A. 1997. Old-growth ponderosa pine and western larch stand structures of pre-1900 fires and fire exclusion. Res. Pap. INT-RP-495. USDA Forest Service, Intermountain Research Station, Ogden, UT. 22 p.

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- Hood, S.M. 2010. Mitigating old tree mortality in long-unburned, fire-dependent forests: a synthesis. Gen. Tech. Rep. RMRS-GTR-238. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO. 71 p.
- Southwestern Crown Collaborative. 2010. Southwestern Crown of the Continent landscape restoration strategy. Southwestern Crown Collaborative, Missoula, MT. 31 p.
- Wallace, G. 2005. Missoula County Community Wildfire Protection Plan. Missoula County Office of Emergency Services, Missoula, MT. 77 p.

Field trip leaders – Travis Belote, Forest Ecologist, The Wilderness Society, wilderness.org; Cory Davis, Monitoring Coordinator for the SCC CFLRP, swcrown.org

Field trip cadre – Jon Haufler, Executive Director, Ecosystem Management Research Institute, EMRI.org; Sharon Hood, Forest and Fire Ecologist, University of Montana, umt.edu; Tim Love, District Ranger, and Scott Tomson, Wildlife Biologist, USFS Lolo National Forest, fs.usda.gov/lolo; Marnie Criley, Community Program Coordinator, and Adam Lieberg, Conservation Program Coordinator, Northwest Connections, northwestconnections.org

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The Northern Rockies Fire Science Network (NRFSN) serves as 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.



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