

40 YEARS OF WILDERNESS FIRE

IN THE SELWAY-BITTERROOT & FRANK CHURCH-RIVER OF NO RETURN



Field Trip Summary 7 | May 2014

Wilderness fire, its history, challenges, teachings, and future were the focus of discussions and presentations during the 40 Years of Wilderness Fire in the Selway-Bitterroot field trip at the May 2014 Large Wildland Fires Conference. Participants hoped to observe recent fire burn patterns in the region between the Selway-Bitterroot (SBW) and Frank Church-River of No Return (FCRNRW) wildernesses. Unfortunately, the field trip itinerary was abbreviated because the road to the final destination had not yet been cleared of its deep winter snowpack.

Regardless, insightful presentations and lively discussions during the trip included a diverse group of perspectives from researchers, managers, residents, and other stakeholders.



Figure 1. Ponderosa pine-dominated stand in the SBW. Photo courtesy of Ana Sala, University of Montana.

Bob Mutch, retired USFS fire researcher and one of the pioneers of the SBW Fire Program, shared his experiences and guided the tour. The SBW (Figure 1) has the oldest wilderness fire program in the Forest Service.

Dave Campbell, retired West Fork District Ranger for the Bitterroot National Forest (BNF), shared his experiences with the SBW fire program from 1996-2013, a time when the number of fires and acres allowed to burn increased substantially.

Current area managers and stakeholders discussed their involvement and perspectives of recent wilderness fires and their management, including –

- Rick Floch, Fire Management Officer for the BNF and Operations Section Chief for 2 weeks during the Gold Pan fire
- Diane Hutton, Fire Management Officer on the Wisdom Ranger District and Beaverhead-Deerlodge National Forest and Incident Commander during the Gold Pan fire
- Julie King, Forest Supervisor for the BNF
- Deb Gale, Wilderness Program Leader for the West Fork Ranger District, BNF

THE WILDERNESS ACT & ROLE OF FIRE

In 1964, the U.S. Congress passed the Wilderness Act, creating the National Wilderness Preservation System and allowing for the designation of additional wilderness areas. The SBW was designated as such in 1964, and the FCRNRW, which borders the southern part of the SBW, was designated in 1980.

Wilderness areas receive the highest level of land protection to allow maintenance of an area's natural condition, which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable".

Although there are provisions that allow for the use of aircraft or motorboats in the control of fires as deemed necessary by the Secretary of Agriculture, it is the Forest Service's policy in designated wilderness to -

- Permit lightning-caused fires to play, as nearly as possible, their natural ecological role.
- Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness.
- Permit lightning-caused fires to burn if prescribed in an approved plan.
- Conduct wilderness fire activities to impose only minimum impact on the landscape.

HISTORY OF FIRE IN THE SBW

Even prior to the passing of the Wilderness Act, some managers and researchers believed that fire suppression across the Bitterroots had been nearsighted. However, the

language of the Act provided a real opportunity to experiment with allowing fires to burn in wilderness areas.

In 1970, Bud Moore, USFS Regional Director of Fire Control, enlisted the cooperation of Orville Daniels, BNF Forest Supervisor; Bill Worf, Regional Director of Recreation; Dale Aldrich, Agency Planner; and Bob Mutch, Fire Researcher, to draft documents about the proper role of fire in wilderness and map areas where fire would be allowed to burn in the SBW.

In 1972, the Chief Forester, John McGuire, signed documents allowing the White Cap area of the SBW to be an exception to the policy of containing and controlling all fires on Forest Service lands by 10 a.m. the day following the report of a fire.

The very day after signing the exception, the first lightning fire was allowed to burn in the SBW. In the 10 years before this first fire was allowed to burn, only about 5,000 acres of the SBW and the area that would become the FCRNRW had burned. In the 1970s, almost 7,000 acres burned, and in the 1980s after designation of the FCRNRW, more than 100,000 acres of wilderness burned.

As the number of acres burned in these Idaho and Montana wildernesses has increased, so has the acceptance of the natural role of fire and the experience with managing them.

LEARNING FROM WILDERNESS FIRE

Wilderness areas, where naturally-ignited fires have been managed to burn more than in non-wilderness areas, have provided a unique opportunity to learn about fire behavior and its changes associated with fire history.

In the SBW and FCRNRW, the number of fires and area burned vary considerably year to year, and years with a large number of fire starts do not necessarily dictate a large number of acres burned (Figure 2). However, the increased amount of wilderness area burned has coincided with increases in global temperatures.

While area burned varies year to year, the percentage of total area burned at high severity has hovered around 50% from 1984-2012 (Figure 3). Recent wilderness fire studies suggest this could be an artifact of past wilderness fire history.

Recent wilderness fire studies, which included the FCRNRW, have found that fire history can affect subsequent fire behavior. When investigating the severity of wilderness fires since 1984, Sean Parks of the Aldo Leopold Wilderness Research Institute found that burn severity was significantly lower in recently burned areas than in unburned areas. This moderating effect persisted for at least 22 years, with burn severity tending to increase with increasing time between fires.

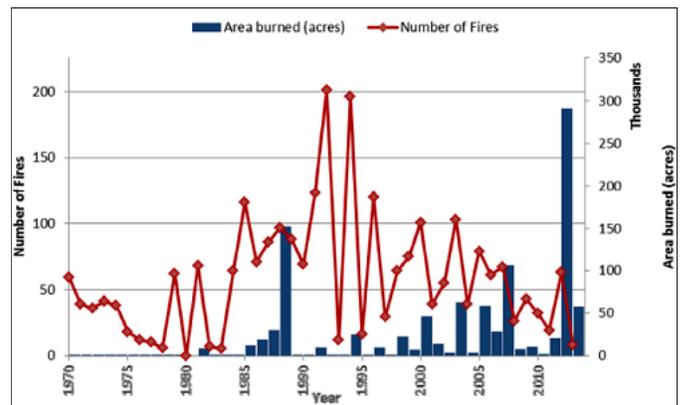


Figure 2. Number of fires and acres burned in the SBW between 1970 and 2014. Lisa Holsinger, Aldo Leopold Wilderness Research Institute, RMRS, USFS.

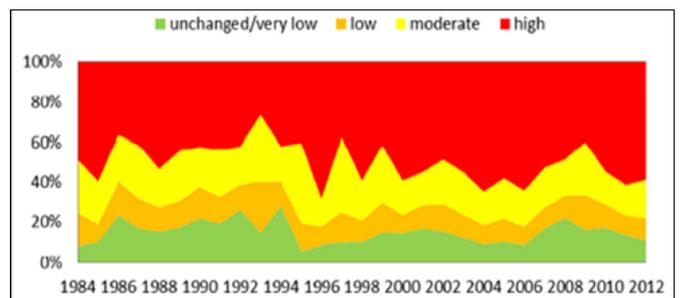


Figure 3. Burn severity (percentage of total area burned) in the SBW and FCW between 1984 and 2012. Carol Miller, Aldo Leopold Wilderness Research Institute, RMRS, USFS.

2013 GOLD PAN FIRE – A CASE STUDY

The Gold Pan Fire resulted from mid-July lightning in the FCRNRW. Management of the Gold Pan fire illustrated the complexity of wilderness fire management, which includes continual monitoring, reassessing, and adapting to changing forecasts and fire behavior.

Initial forecasts and fire behavior modelling indicated that although Gold Pan would potentially be a long-duration, large fire, it was not likely to grow beyond the wilderness boundary. In July, when the fire was just a few acres in size, Dave Campbell, West Fork District Ranger, decided to manage the Gold Pan fire for multiple objectives rather than suppressing it. Soon after this decision was made, humidity levels dropped dramatically, and by early August the fire had reached 16,000 acres.

Diane Hutton was the Incident Commander on the Gold Pan fire for most of the summer. Her Type II Wildland Fire Management Team worked to –

- Protect historic structures in the fire’s path.
- Alert backcountry guides about the fire’s direction when it threatened base camps.
- Use tactics to guide the fire in a way that kept it from escaping the wilderness border.

- Adapt strategies as fire behavior and forecasts were updated.

The Gold Pan fire made several big advances brought about by high temperatures, low humidities, and the availability of long-unburned dry fuels. There were also new wilderness fire ignitions. The growth and spread of the Gold Pan complex not only threatened its wilderness containment but presented multiple high-stress management situations and was temporarily elevated to a Type I Incident. Despite the potential threats, there were no serious injuries or property damage from the Gold Pan fire, and the lasting impacts of the natural event were beneficial.

FUTURE OF WILDERNESS FIRE



Figure 4. Mosaic of different aged burns in the White Cap region of the SBW. Photo courtesy of Carol Miller, Aldo Leopold Wilderness Research Institute, RMRS, USFS.

Despite the Forest Service’s successful history with allowing many fires to burn in the SBW and FCRNRW, and despite research suggesting that restoring a natural fire cycle may promote smaller, less severe fires in the future, the future of wilderness fire is uncertain (Figure 4).

For many reasons, support for wilderness fire ebbs and flows -

- Large fire years, and thus high smoke years generally result in lowered public support for all fires, including wilderness fires.
- Loss of homes to fire in the wildland urban interface, regardless of the fire origin, often results in lowered public and government support of natural fires.

Demonstrating the benefits of successful wilderness fire management through science and successful communication of the science is critical to the future of wilderness fire programs.

ADDITIONAL READING & INFORMATION

Parks, S.A., Miller, C., Nelson, C.R., and Holden, Z.A. 2014. Previous fires moderate burn severity of subsequent wildland fires in two large western areas. *Ecosystems* 17: 29-42.

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Smith, Diane M. 2013. From the archives: fire management planning. In: Heinsch, F.A., Innes, R.J., Hardy, C.C., and Lee, K.M. (editors). *Fire, fuel, and smoke 2013 research accomplishments*. Missoula, MT: USDA, Forest Service, Rocky Mountain Research Station: 11-12.

Wilderness.net. 2009. Online publication - Threats to wilderness from fire suppression. [8 December 2014].

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Field trip cadre – Dave Campbell, West Fork District Ranger, USFS (retired), Bob Mutch, Chair, Painted Rocks -West Fork FireSafe Council, firesafemt.org; Rick Floch, Fire Management Officer, Diane Hutton, Incident Commander, Julie King, Bitterroot National Forest Supervisor, and Deb Gale, West Fork Ranger District Program Manager, USFS, fs.usda.gov/bitterroot

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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.



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