

Long-Duration Fire and Re-Burn Effects in Yellowstone National Park – Field Tour

October 16 and 17, 2018

AGENDA

PRESENTERS

Diane Abendroth, Fire Ecologist, Teton Interagency Fire

John Cataldo, Fire Management Officer, Yellowstone National Park

Brian Harvey, Assistant Professor, School of Environmental and Forest Sciences, University of Washington

Becky Smith, Fire Ecologist, Yellowstone National Park

Monica Turner, Eugene P. Odum Professor of Ecology and Vilas Research Professor, Department of Integrative Biology, University of Wisconsin-Madison

Morgan Warthin, Public Affairs Specialist, Yellowstone National Park

Goal

This event is designed to create dialogue among scientists and managers and opportunities to learn how science can inform our understanding of reburn characteristics, fire effects, and fire behavior. Each session includes time for questions and discussion.

Day 1 – Overview Presentations and Visit to Fire Overlook at Fir Ridge

Meet at West Yellowstone Economic Development Council (WYED) building, 239 Firehole Avenue, West Yellowstone, MT

10:00 – 10:20 Welcome by Yellowstone staff (Becky Smith/John Cataldo), NRFSN overview (Vita Wright), and field trip logistics overview (Linda Mutch)

10:20 – 10:30 Brief introductions of all attendees

10:30 – 11:15 Overview of Maple Fire and managing a long-duration fire (Becky and John)
Becky served as Planning Section Chief during the early stages of the Maple Fire, and John played multiple roles, including Incident Commander and Agency Representative for a few days at a time, and then became Strategic Operations Planner with the Type 2 team.

Becky and John will provide background information about the fire, including an overview of fire behavior and fire progression. Long-duration fires are not uncommon in Yellowstone, due to characteristics of the park's fire regimes and the large size of the park and remoteness of many areas. They will discuss how decisions are made to manage long-duration fire, and will provide an overview of a decision-support tool the park has developed to facilitate the decision-making process.

11:15 – 11:25 **Break**

- 11:25-12:00** Fire behavior modeling and predictions (Diane Abendroth)
Diane served as a Long-term Analyst in the early stages of the Maple Fire, as well as on other reburns of 1988 fires. *She will discuss the approaches and challenges of modeling and predicting fire behavior in this fuel type – lodgepole regeneration from 1988 fires – and information that could help improve these modeling efforts.*
- 12:00 – 12:30** **Lunch** (box lunches at WYED)
- 12:30 – 1:15** Part 1: Climate change and fire—what are the models telling us?
Part 2: Burn severity, tree regeneration, and carbon storage—are reburns different? (Monica Turner)
Monica and her graduate students and collaborators have been studying the effects of fire on vegetation and fuels in Yellowstone since the 1988 fires.
Her talk will address the historical and changing fire regimes in the park and the implications of these changes for forest resilience. She will also discuss fire/climate dynamics and future fire predictions based on climate models. Fire activity has long been projected to increase as climate warms, with reburns becoming more likely. Monica will discuss her in-progress research on the reburns, including results specific to the short-interval Maple Fire (28 yrs) and the 2016 Berry Fire (28 and 16 yrs, in Grand Teton National Park). She will present data on burn severity, tree regeneration, and carbon stocks and contrast these with long-interval fires that have been the norm.
- 1:15 – 1:45** Regional trends in burn severity, reburns, and tree regeneration in the Northern Rockies (Brian Harvey)
Brian began doing research in Yellowstone in 2010 as part of his dissertation work with Monica Turner, for which he studied effects of bark-beetle outbreaks on burn severity and postfire tree regeneration in Greater Yellowstone, along with broad-scale patterns throughout the Northern Rockies. He has continued research projects in this region as a faculty member at the University of Washington.
Brian will discuss changes in regional patterns of burn severity over time, how postfire tree establishment is varying with climate, and how burn severity in reburns varies with time since fire. He will address the time interval over which past fires can potentially limit the spread of subsequent fires. He will also present analyses of the spatial patterns of burn severity in the Maple Fire and contrast these with the 1988 North Fork Fire. Brian’s talk will emphasize analyses of fire patterns and burn severity based on remote-sensing data that have been rigorously grounded in field data.
- 1:45 – 2:00** **Break**
- 2:00 – 2:40** Drive to Fir Ridge and hike (15 minutes) to a meadow that provides a distant view of the Maple Fire. Do a brief orientation and discussion of fire characteristics. (John, Becky, all)

- 2:40 – 3:10** Talking to the public about fire management decisions (John Cataldo and Morgan Warthin)
- Morgan Warthin is the Public Affairs Specialist in Yellowstone; she was involved throughout the Maple Fire, providing all of the Public Information Officers on the fire guidance from the park.
- John and Morgan will share their successes and lessons learned from communications with the public about the Maple Fire and management decisions, including the gateway community of West Yellowstone, visitors, and other stakeholders, focusing particularly on the early days of the fire.*
- 3:10 – 3:25** Additional questions or discussion from today’s talks
- 3:25 – 3:35** Review logistics for Day 2 and any evening activities or meeting place for dinner
- 3:35 – 4:00** Hike to trailhead and return to WYED
- 5:00 – 8:00** Dinner and drinks in the Canyon Room at the Holiday Inn Hotel, 315 Yellowstone Avenue
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See next page for Day 2 agenda.

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- Day 2** **Hike 2-4 miles along Gneiss Creek Trail**
- 8:30 a.m.** Meet at WYED and carpool to trailhead at Seven-Mile Bridge.
- 9:00 – 9:15** Orientation/brief safety review at trailhead – Park staff
- 9:45 – 10:00** **Stop 1:** Halfway up trail that parallels the Madison River – look across the river to the areas of very dense lodgepole pine that regenerated following the North Fork Fire. Discuss more generally the variation in forest structure and fuels in the forests that regenerated following the 1988 fires.
- 10:30 – 11:00** **Stop 2:** When trail hits top of ridge, NPS fire ecologists (Becky, Diane) talk about local monitoring and research data that inform the park’s understanding of fire effects. They will discuss NPS plot-based monitoring on the Maple Fire and in Grand Teton and additional datasets that help inform fire management decisions. Park staff who observed fire behavior of the Maple Fire may use this stop to share some of these observations.
- 11:30 – 12:00** **Stop 3:** Walk north along the trail, stop on east side of the trail where the Maple Fire burned as a “typical” crown fire. Fire-killed trees are standing, cones are visible on the trees. Discuss burn severity, postfire tree regeneration, and the remaining fuels.
- 12:00 – 1:00** Walk short distance north along the trail and **eat lunch** near stop 4.
- 1:00 – 1:00** **Stop 4:** On west side of the trail, the Maple Fire burned as a “crown fire plus.” Compare and contrast burn severity and regeneration, discuss combustion of fuels.
- 2:00 – 2:30** **Stop 5:** Cougar Meadow – Walk around meadow, look toward the east, and observe the landscape heterogeneity resulting from different levels of burn severity. Discuss how these patterns may change in a warming climate, how seed dispersal may become increasingly important (even in lodgepole pine), how the warming climate interacts with topography, and the experiments underway in this area to quantify these effects. Discuss implications for Greater Yellowstone and forests of the Northern Rockies.
- 2:30 – 3:30** Hike back to trailhead.
- 3:30 – 4:00** Travel back to WYED.
- 4:00 – 4:30** Closeout and evaluations at WYED