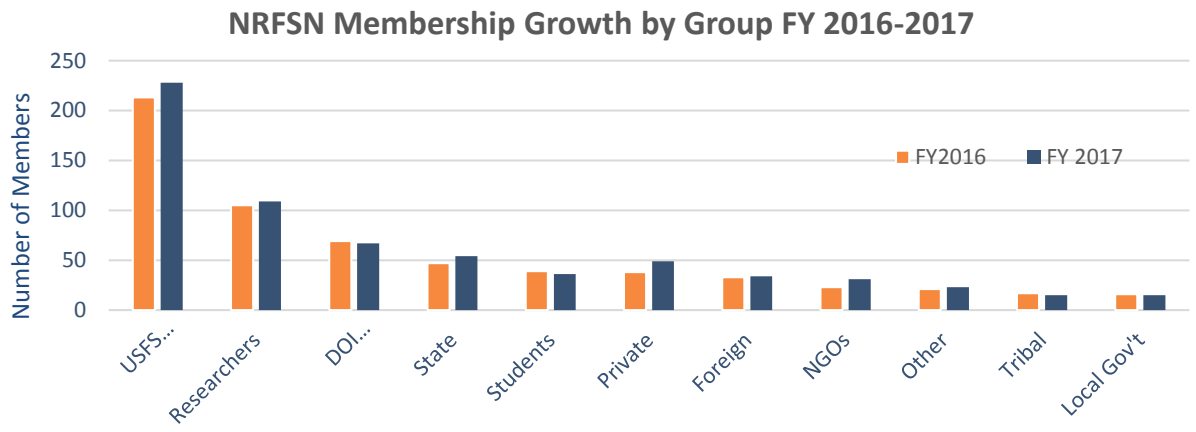
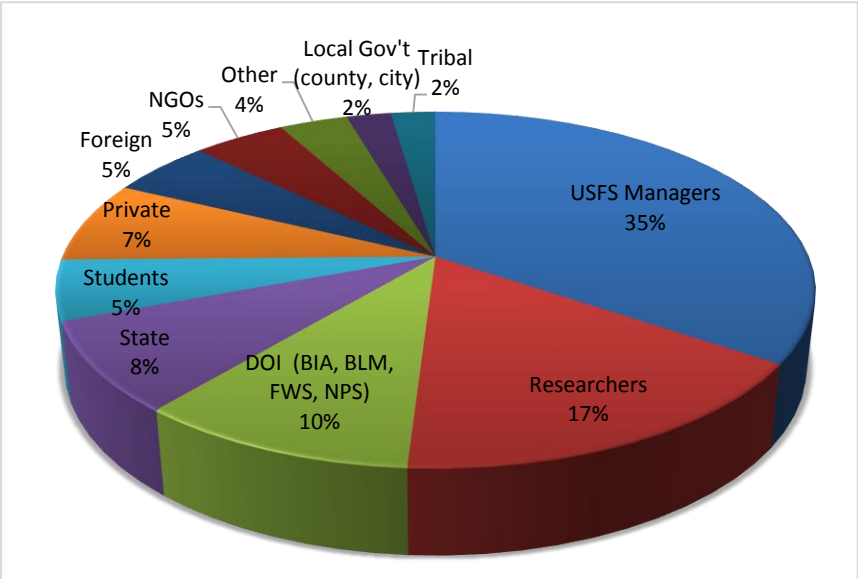
# Northern Rockies Fire Science Network (NRFSN)
# Annual Report for Fiscal Year (FY) 2017

**Participation by Organization, FY2017**

In FY17, NRFSN membership grew 6% from FY 2016, bringing current membership to 661 (not counting 24 JFSP Fire Science Exchange Network members). The most notable increases in membership were from non-government organizations (35% growth), private groups (29%) (landowners, associations, companies, consultants) and state managers (15%) This growth stemmed from an intentional effort to diversify our relationships through engagement with groups like the Blackfoot Prescribed Fire Working Group, FireSafe Flathead, Flathead Chapter of the Society of American Foresters, and the Idaho Forest Restoration Partnership. This was in addition to continued engagement with the U.S. Forest Service (USFS) through the Intermountain Region's annual fuels specialist meeting.




The NRFSN has a high proportion of federal, tribal, and state managers (55%) and researchers (17%). This membership reflects the high public and tribal land ownership in the Northern Rockies. Manager membership includes 228 USFS, 54 state, 26 BLM, 26 NPS, 15 tribal, 15 local government, 9 FWS, and 5 BIA managers, predominantly from ID, MT, OR, WA, WY and Canada. Research membership includes 60 University, 45 USFS and 4 USGS researchers.



**Participation by Activity, FY 2017**

In FY17, the NRFSN continued to gain visibility through co-hosting, and attending in-person events and through personal briefings and consultations. In addition to direct engagement, we continued to produce and facilitate access to online resources, including original written products and videos, expanding our searchable databases, developing new topic-focused web pages, and building our past event webpages, and engagement through Twitter.

**Direct Engagement**

***Workshops and Field Trips.***

In December 2016, we worked with the Southwest Crown Collaborative Forest Landscape Restoration Partnership, the USFS Northern Region, and the National Forest Foundation to host a Landscape-Level Restoration Workshop. The *From Theory to Practice: Landscape-Level Restoration Principles to Implementing Priority Work on the Ground* workshop took place at the Lubrecht Experimental Forest. The workshop featured presentations by Paul Hessburg (Research Landscape Ecologist, Pacific Northwest Research Station), Bill Gaines (Washington Conservation Science Institute), Derek Churchill (Research Associate, University of Washington), Bob Keane (Supervisory Research Ecologist, USFS), and Timory Peel (Regional Planner, USFS Northern Region). Presentations stimulated discussion with local resource managers and planners around existing past and present collaborative restoration projects. Specifically, the workshop used the 2015 publication, *Restoring fire-prone Inland Pacific landscapes: seven core principles*, and past restoration project examples to guide discussions about collaborative landscape-based project planning in fire-prone, mixed-conifer forests of the Northern Rockies. The workshop involved attendees and presenters from 8 National Forests, two Regions, 7 non-government organizations, 2 businesses, and 2 federal and one state agency.

In February 2017, the NRFSN partnered with a JFSP-funded research team led by Monica Turner to host two *Dimensions of Resilience* workshops, which brought together a diverse group of participants who shared their thoughts about which social and ecological factors will be important for landscape resilience in the coming decades. Information collected from workshop participants will be used to inform the indicators and management options modeled by the research team. The project, with input from these workshops, will assess how 21st-century climate and fire regimes are likely to alter the resilience of Northern Rocky Mountain forests and identify management options likely to promote landscape resilience under a range of possible futures.

In FY17, we also devoted a considerable amount of time and effort to bringing Paul Hessburg's Era of Megafires presentation to many Idaho and Montana locations. The Era of Megafires was a multi-media presentation featuring videos from North 40 Productions, wildfire photography from John Marshall, and fire ecology discussions with Paul Hessburg, Research Landscape Ecologist for the USFS Pacific Northwest Research Station. The NRFSN was instrumental in bringing this multi-media event to Missoula, Kalispell, Seeley Lake, and Lincoln, Montana, and served as the planning coordination lead for all western Montana collaborators at all locations. The Missoula, Kalispell, Seeley Lake, and Lincoln locations engaged audience sizes of 270, 167, 101, and 215, respectively. While working through the logistics and advertising of these locations, we learned of opportunities to help with the logistics and advertising for the same presentation in Coeur d'Alene, Sandpoint, Moscow, McCall, Boise, Twin Falls, and Pocatello. The NRFSN provided a web presence, developed poster templates, and communicated all logistic, advertising, and budgeting information learned in earlier planning for all Idaho locations. The NRFSN offered similar support and capacity to the Era of Megafires presentations in Helena, MT in the summer of 2017.

The Era of Megafires allowed the NRFSN to build and expand relationships with a diverse group of collaborators, including: Montana Department of Natural Resources, FireSafe Montana, Lolo Restoration Committee, Missoula County Fire Protections Association, Flathead Area FireSafe Council, Blackfoot Challenge, SW Crown Collaborative, Swan Valley Connections, Fire Adapted Network, Idaho FireWise, the City of Boise, and the Tri-County FireSafe Working Group.

In September 2017, the NRFSN was scheduled to co-host three field trips: one to visit 15-year old treatment sites that were part of the Fire-Fire Surrogate Study at the Lubrecht Experimental Forest, and two focused on mastication treatments in Idaho. Unfortunately, all three trips were postponed due to the busy fire season and smoky conditions present in the field trip areas. The Lubrecht trip has been rescheduled for FY18, and the mastication trips have been canceled by the research team as they are moving on to other research priorities.

***Presentations and Exhibits.*** NRFSN talks and briefings were given at the Flathead Society of American Foresters Chapter (2 CE credits in Kalispell, MT), FireSafe Flathead Meeting in January (Kalispell, MT), Annual Meeting of the Region 4 Fuels Group (Ogden, UT), Idaho Forest Restoration Partnership Meeting (Boise, ID), Blackfoot Prescribed Fire Working Group meeting (Lubrecht Experimental Forest, MT), and a meeting with the RMRS Forestry Lab staff and scientists (Missoula, MT). In addition, NRFSN materials were distributed at the 2016 Association for Fire Ecology Conference (Tucson, AZ).

***Webinars*.** Because there are already a lot of webinars offered, the NRFSN does not host a regular webinar series. Rather, we host webinars on key topics as requested by scientists and managers. In FY17, we hosted the following two webinars: Modifying LANDFIRE Data with a focus on fuels data for the Northern Rockies with Kori Blankenship (Ecologist, The Nature Conservancy) and Fundamental Research on How Wildfires Spread with Sara McAlister (Research Mechanical Engineer, USFS).

***Network of Fire Science Champions.*** With all the time the NRFSN put into hosting the 11 Era of Megafires presentations, the NRFSN only hosted one Network of Fire Science Champions meeting. In October, the NRFSN hosted a Network of Fire Science Champions working call. The kickoff topic was the *Ecological Effects of Severe Fir*e with an introduction with Dr. Dick Hutto and was followed by a lively question, answer, and discussion session, ending with a round robin where participants had the opportunity to discuss other current management dilemmas and share resources. This topic is one of high interest in the Northern Rockies and the NRFSN is contemplating ways to help disseminate science related to this topic (for example, see Hot topics).

***Briefings and Consultations.*** In FY17, we continued to take advantage of opportunities for one-on-one briefings and consultations to increase awareness of the NRFSN, showcase products and services, and explore potential future collaboration or partnerships. Our field consultations in FY17 included discussions with 28 fire or forest managers and scientists. Additionally, we provided personal briefings to the following leaders: USFS Northern Region - Fire Director and Regional Fuels Specialist; RMRS Leadership; Director and Deputy Director of the Organizational Learning and Innovation RD&A; Director and Deputy Director of the Human Performance & Innovation RD&A; Field representative for Montana senator, Jon Tester; Forest Supervisor, Salmon-Challis National Forest; and Dean, WA Franke College of Forestry and Conservation, University of Montana.

***Requests for Information*.** Each year we are increasingly being contacted by scientists interested in soliciting manager input to research and/or disseminate research results. In FY17, we were asked for six Letters of Support for JFSP proposals. These requests resulted in several new research connections and interesting conversations about proposed projects and discussions about how to collaborate in both the input gathering and result sharing phases of the projects.

**Online Resources**

In addition to in-person engagement, we expanded not only the abundance of online resources, but also the accessibility of our website and databases.

***Past Event Documentation.*** In FY17, the NRFSN continued to capture and highlight our past events through webpage development that includes links to related resources, video recordings, and production of event summaries.

We documented the Whitebark Pine Ecosystem Foundation Science and Management Workshop in Whitefish, MT by recording all 17 science presentations. The presentations can be accessed from the past event webpage, our YouTube channel, and our Webinar & Video archive. Presentations were wide-ranging in their content and included discussions about all facets of whitebark pine restoration, conservation, wildlife and alpine vegetation importance, and management.

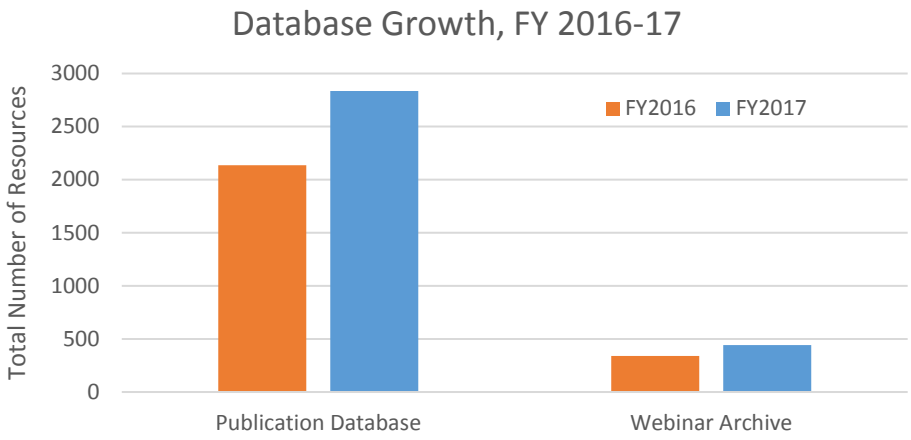
In FY17, we produced two workshop summaries highlighting key discussion points from our past events:

- **Workshop Summary No. 3:** Adapting fuel treatments in a changing climate - Prescribed fire, mechanical treatments, wildfire, and restoration
- **Workshop Summary No. 4:** Using landscape-level restoration principles to prioritize work on the ground - An interdisciplinary workshop

Since all three planned field trips were canceled due to fires and smoke, we were unable to develop any field trip summaries this year.

***Searchable Databases*.** Because the number of available recorded webinars and videos continue to increase and can be difficult to find, we continue to grow our searchable Webinar Archive database. In FY2017, we added 104 webinar and video recordings to our database. We now provide access to 443 webinar recordings and videos, which are searchable by topic and ecosystem. According to Google Analytics, there were 509 page views of our Webinar & Video archive database in FY 2017.

We also expanded the NRFSN Research & Publications Database to more than 2,800 total searchable and filterable documents, with 697 documents added to the database in 2017. The increasing number of resources in the database was the impetus behind developing our hot topic pages. This year, the database received 3,513 page views.




***Hot Topics Webpages.*** In FY 17, we developed "hot topic" webpages that focus on key themes that are important for current fire and fuels management in the Northern Rockies. These topic-focused web pages feature important resources (webinar recordings, videos, scientific articles, reviews, and briefs) that inform specific issues. While these webpages pull from our existing databases, they are more refined than searches using the web and database filters. These have also been reviewed by subject matter experts to ensure they include the most current and relevant resources on a given topic. The following Hot Topic webpages were created and shared with our users in FY17: Climate and Disturbance Interactions; Ecological Effects of Severe Fire; Effects of Repeated Fires.

***Briefs, Syntheses, and Annotated Bibliographies*.** In April 2017, the *Returning Fire to the Land – Celebrating Traditional Knowledge and Fire* review article was published in the Journal of Forestry. This paper synthesized the work of two workshops conducted in 2012 and 2014, which brought together a diverse community of tribal and non-tribal managers, scientists, and students to discuss challenges and solutions to cross-jurisdictional management of cultural and ecological resources.

In FY17, the NRFSN completed several science reviews: we partnered with the University of Idaho to produce *Quaking Aspen in the Northern Rockies: Considerations for Retention and Restoration*; we partnered with Montana State University and the Rocky Mountain Research Station to produce, *Post-fire debris flows: causes, prevention and mitigation*; and we partnered with the Fire Effects Information System to make substantial updates to the Mountain Big Sagebrush (*Artemisia tridentata* subsp. *vaseyana*) review, develop a fire-focused research brief from the review, and produce a fire regime synthesis for the mountain big sagebrush habitats in the Northern Rockies.

This year we produced our second research brief: *Aging Masticated Fuels – What Are the Changes over Time?*, which summarizes research by Pam Sikkink, Bob Keane, and Faith Ann Heinsch all with the RMRS Fire Sciences Laboratory. This was a collaborative writing, editing, and layout effort between the researchers and NRFSN staff.

Also completed in FY17, was the *Characterizing Canopy Fuels – Annotated Bibliography*. It was compiled by Megan Keville, Ecology Research Coordinator with University of Montana, and represents a cooperative project with the NWCG Fire Behavior Subcommittee. The bibliography was made available to the Fire Behavior Subcommittee and it was also used to ensure that our Research & Publications database was current with respect to this canopy fuels topic. Additional work will be done to summarize literature in this annotated bibliography in FY18.

***Newsletters.*** We produced 3 bimonthly newsletters outside of the spring/summer field and fire season. NRFSN newsletters are resource-focused with short articles about new scientific resources and categorized lists of new and relevant publications, upcoming events, etc.

***Social Media.*** In FY17, we sent out 238 tweets and increased our number of followers by 165 during FY17, which brought us to a total of 1195 followers.

**Highlights and Achievements, FY2017**

***An Established Resource in the Northern Rockies.*** In our fifth year, the NRFSN continued to grow its reach within the fire research and management communities with increasing engagement from both managers and scientists. We continue to expand the audiences we serve beyond federal and tribal managers to include state and local managers as well as non-government organizations, private landowners, and community members engaged in fire and fuels management.

***Governance & Staffing.*** The NRFSN continues to leverage partnerships in leadership with the USFS Rocky Mountain Research Station – Human Performance, Innovation and Organizational Learning, and Wildland Fire Management RD&As, RMRS Fire, Fuels, and Smoke Program, and Northern Region; National Park Service Branch of Wildland Fire; University of Idaho, University of Montana, Montana State University, and Salish Kootenai College. In FY 2017, Stu Hoyt, retired Regional Fuels Specialist with the USFS Northern Region stepped down from our Project Team. His liaison role with the Northern Region was filled by Kristen Sanders, Fire/Fuels Planner for the USFS Northern Region. We look forward to Kristen's networking and sensing on the relevance of NRFSN activities and products to the fire and fuels planning community. In addition, Chuck Mark, Salmon-Challis Forest Supervisor has joined the NRFSN Advisory Board. Chuck has a long history with both fire and wilderness in the Northern Rockies, and we look forward to his input on the relevance of potential NRFSN activities to communicate science to managers.

After three years as NRFSN Coordinator, Corey Gucker has moved on to author a book designed to guide the use forbs in restoration in the Intermountain West. Beginning in FY18, the NRFSN Coordinator position will be shared by Megan Keville, University of Montana, and Linda Mutch, National Park Service. Megan began with the NRFSN during Summer 2017, and Linda will begin in November 2017. Coordinator salary savings were used to hire a temporary Fire and Fuels Science Information Specialist, Pam Sikkink, from the Rocky Mountain Research Station's Fire, Fuels, and Smoke Program. Although the NRFSN will miss Corey, we look forward to the skills and enthusiasm for fire science communication that Megan, Linda, and Pam bring to the table.

***FY17 Highlights.*** FY17 was a largely administrative year for the NRFSN. We put much energy into the NRFSN's renewal proposal, which has been funded for two more years (FY18 and FY19), fostering partnerships, and the turnover of the Coordinator position. With these tasks behind us, the NRFSN looks forward to implementing our FY18 program of work.

In FY17, NRFSN products continued to focus on several priority fire issues in the Northern Rockies, including the effects and significance of repeat fires, ecological effects of severe fires, big sagebrush, aspen, fuel treatment, and fire behavior. Within these topics, we used a variety of in-person, online, and written communication methods to foster dialogue and disseminate results.


The NRFSN worked with many new partners to bring Paul Hessburg's Era of Megafires presentation to 5 communities in Montana and 7 communities in Idaho, reaching over 1,700 local fire professionals and community members. We also provided logistical information to support bringing this presentation to Jackson, WY. In the debrief for these events, each location reported that audience engagement was phenomenal, and pre- and post-event conversations were highly constructive. Aside from administrative tasks described above, this was the greatest energy expenditure of the NRFSN in FY17. These presentations were well received by these communities, and we expect the new partnerships we developed will lead to a variety of future collaborations.

We also partnered with the Southwest Crown Collaborative, USFS Northern Region, and National Forest Foundation to host a landscape-level restoration workshop titled *From Theory to Practice: Landscape-Level Restoration Principles to Implementing Priority Work on the Ground*. There was a lot of excitement around this workshop and bringing methods used for landscape-level fuels planning from eastern Washington to Montana. A local three-forest planning group is currently applying the approaches discussed in this workshop.

The NRFSN is proud of a suite of new written products in FY17, including science reviews on *Quaking Aspen in the Northern Rockies: Considerations for Retention and Restoration* and on *Post-Fire Debris Flows: Causes, Prevention, and Mitigation*; an update to the FEIS Mountain Big Sagebrush species review; and new research briefs on *Aging Masticated Fuels – How Do They Change Over Time?* and on *Mountain Big Sagebrush – Fire Ecology and Management*.

Supporting integration of western science and traditional knowledge into fire and fuels planning continues to be a priority for the NRFSN. This year, the NRFSN published insights from the 2012 and 2014 workshops we hosted on traditional knowledge and cross-jurisdictional management in a Journal of Forestry article titled *Returning Fire to the Land – Celebrating Traditional Knowledge and Fire*. We also began work in FY17 to host an FY18 meeting with the tribal land managers of northwest Washington and north Idaho to see how the NRFSN can help tribal land managers in these areas access science for fire and fuels management.

***Transition to FY18.*** In the coming year, the NRFSN plans to continue building relationships and leveraging partnerships to increase our relevance and ability to serve the Northern Rockies fire and fuels management and research communities. We plan to expand our topic-based activities and products, while maintaining flexibility to attend to emerging needs and requests from the field.

We will continue to network with tribes and participate with the Montana Forest Collaboration Network and the Idaho Forest Restoration Partnership. We will also look for ways to expand our interdisciplinary reach by interacting with specialists such as with wildlife biologists, soil scientists, and foresters. We will also work to expand our university and government research partnerships to actively network with additional scientists.

The NRFSN looks forward to working with the western Montana fire-fire surrogate research team to host the Fuel Treatment Effects in Ponderosa Pine and Mixed Conifer Forests: 17 Years after the Fire-Fire Surrogate Study field trip. This was rescheduled from September 2017 owing to Montana's intense wildfire and smoke year. We also plan on hosting at least one fuel treatment effectiveness field trip with Sharon Hood, RMRS Fire, Fuels, and Smoke Program, on the results of JFSP-funded remeasurement studies, and we are excited to help with the field trips for the Fire Continuum Conference in Missoula, MT in May 2018.

We will continue disseminating science around key themes that are important to fire and fuels managers in the Northern Rockies. In FY18, we will continue to expand our website to include topic-focused "hot topic" web pages, which will feature new and important resources (webinar recordings, videos, scientific articles, reviews, and briefs) that inform specific issues. Featured topics will likely include:  human factors of firefighter safety; fire and traditional knowledge; fire and wilderness; and big sagebrush ecology and management.