# Great Basin Fire Science Exchange – FY 2018 Annual Report

Reporting Period: October 1, 2017 to September 30, 2018

## Participation

In FY 2018, the number of Great Basin Fire Science Exchange (GBFSE) members, as assessed by our MailChimp mailing list subscribers, was 753.  This is up from 668 in FY 2017, an annual increase of about 11%, similar to our previous year's annual increase in membership.  Exchange membership is largely federal agency personnel, which reflects the vast amount of federally administered lands across our region. Of the total GBFSE membership, the largest management group is the Bureau of Land Management (19%) followed by US Forest Service Managers (16%), and the largest research group is University Faculty and Staff (17%) (Fig. 1).
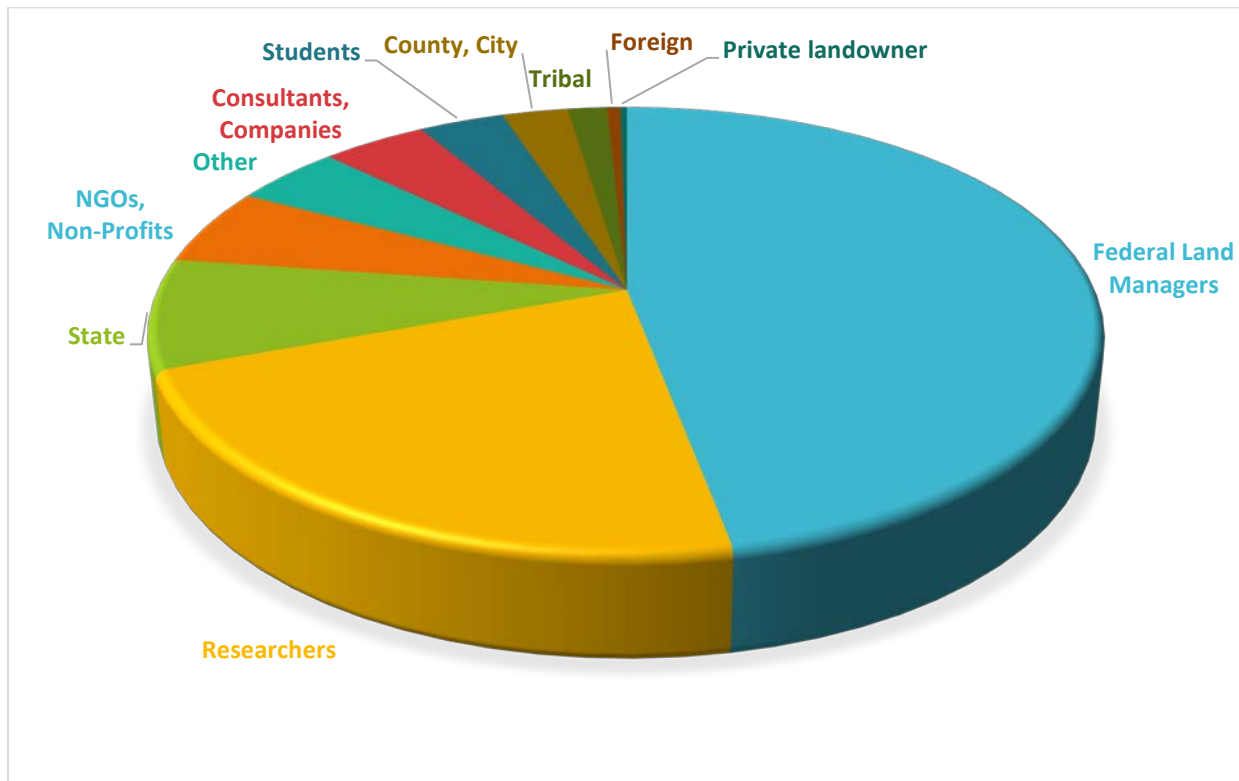


**Figure 1.** Current Great Basin Fire Science Exchange listserv subscribers by organization/association.

# Accomplishments

The GBFSE maintained its visibility as a fire science and relationship building resource hosting and attending in-person events, providing training opportunities, supporting fire and fuels management coursework, maintaining an up-to-date website, presenting webinars, producing newsletters, and contributing to the development of several written products.  We assisted with the planning or support of seven conferences and meetings this year, including providing speakers, planning talks and group discussions, and providing materials, resulting in exposure to nearly 2,500 participants.  We relayed Great Basin fire and vegetation management science information through newsletters and social media posts to 2,547 subscribers.  We hosted or co-hosted four workshops or training sessions with 159 attendees, provided seven webinars with 429 participants, and supported twelve fire science online courses with 208 students.  Below are some of the highlights.

**Training and Field Workshop Highlights**

This year we are particularly proud of our Restoration of Sagebrush Ecosystems week-long course. It is the third year of offering this class in the Great Basin and attendance was up 30% from last year. The April 2018 Restoration of Sagebrush Ecosystems class was attended by 42 managers, the majority of whom were federal land managers (35). Of the federal agency participants, 54% were BLM, 14% NRCS, 11% USFWS, 9% NPS, 6% USFS, and 6% tribal and private industry representatives. Although 42 people attended the training, the number of completed course evaluations ranged from 28 to 30 for any given day.

Overall, participants indicated that they found most days of the training to be highly relevant to their jobs (Fig. 2). Most participants rated their level of skill or knowledge gained as a 3 or 4 (highest) for all days of the training, with Tuesday's training, including Site Characterization, Land Treatment Digital Library (LTDL), Web Soil Survey, Project Objectives, and Case Study work rated the highest.

Positive written comments included:

> *I thought the class was taught well and wouldn't change a thing.*

> *I enjoyed the knowledge and enthusiasm of the presenters. The content was laid out well and followed a logical progression…This information will be very helpful in moving forward restoration efforts in my area.*

> *Great class. Exposed me to lots of great tools I wasn't previously aware of.*

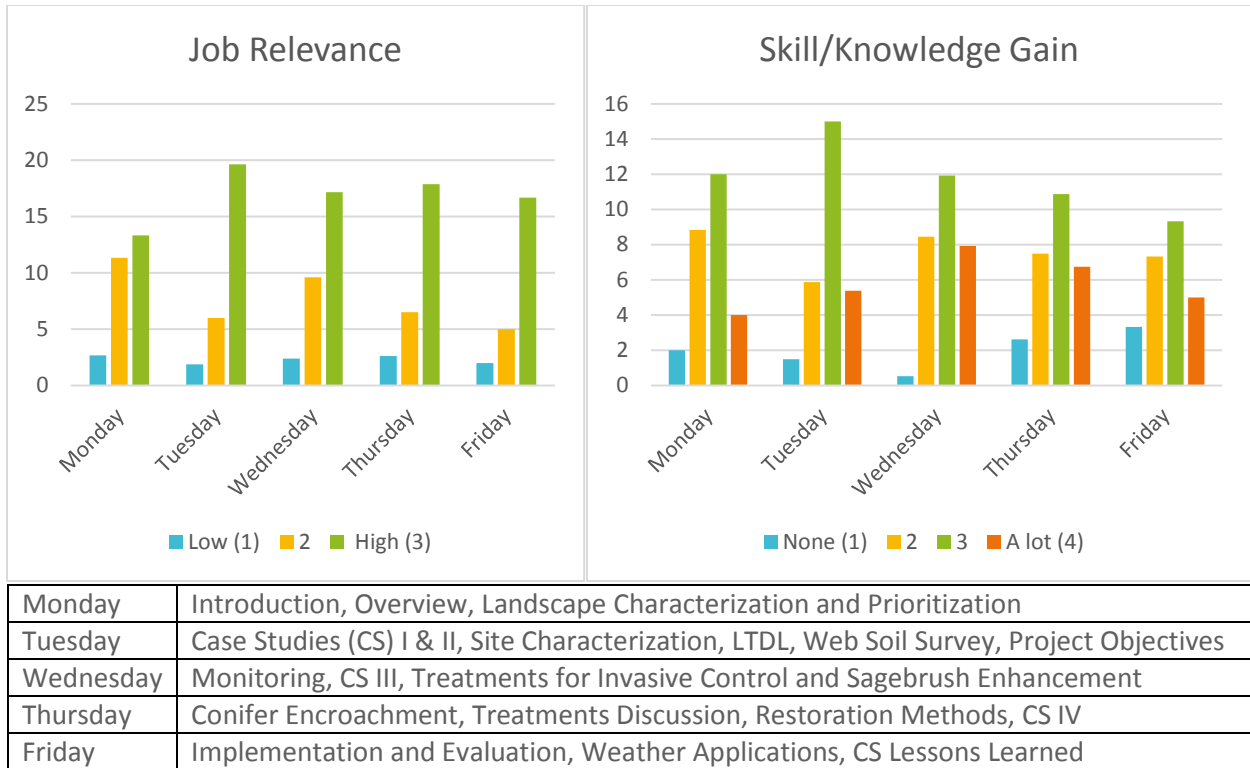| Monday | Introduction, Overview, Landscape Characterization and Prioritization |
| Tuesday | Case Studies (CS) I & II, Site Characterization, LTDL, Web Soil Survey, Project Objectives |
| Wednesday | Monitoring, CS III, Treatments for Invasive Control and Sagebrush Enhancement |
| Thursday | Conifer Encroachment, Treatments Discussion, Restoration Methods, CS IV |
| Friday | Implementation and Evaluation, Weather Applications, CS Lessons Learned |

**Figure 2.** Overall training relevance and knowledge gained in the Restoration of Sagebrush Ecosystems class.

We are also glad to have been able to once again offer our Pre- and Post-Fire Treatment Field Workshop, featuring presentations, discussions, and systematic land-analysis approaches and tools. This workshop was led by Rick Miller, Fire and Rangeland Ecologist Emeritus at OSU, and included several area experts, including our steering committee members Cheri Howell, US Forest Service, and Brad Schultz, University of Nevada Cooperative Extension. The field



**Figure 3.** Pre- and Post-Fire Treatment Field Workshop, June 2018 in Winnemucca, Nevada. Photo by Andrew Jenkins, USFS.

workshop was largely attended by land managers (76%), but also included researchers (18%), a grazing permittee, and a private landowner (Fig. 3).

More than 80% of workshop attendees rated the overall event as excellent or very good. No participants rated this event as fair or poor, although these options were provided on the evaluation form. More than half of the workshop participants strongly agreed with the following statements: *This event was well organized*; *I learned something new at this event*; *This event has helped my better understand resource science and its applications*; *I can apply what I learned at this event to my work or land*; *I met new professionals/individuals with whom I plan to keep in touch* (Fig. 4). More than half of the workshop participants agreed or strongly agreed with the following statements: *The information covered today was easy to understand*; *This event has helped improve communication between resource scientists and resource managers*.
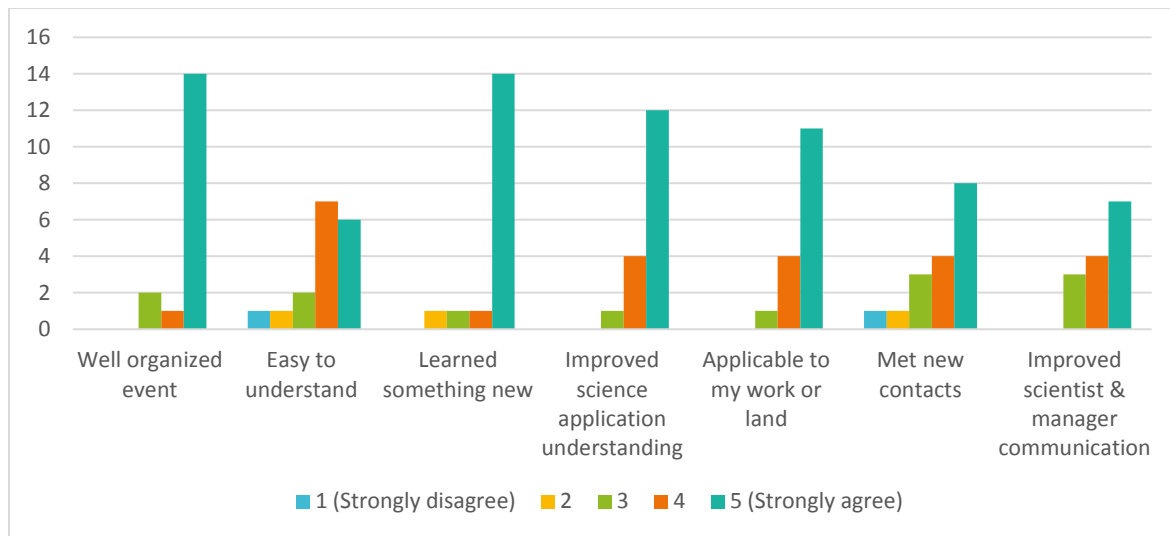


**Figure 4.** Survey results from attendees of the Pre- and Post-Fire Treatment Field Workshop.

Survey responses for*: What did you like best about the Pre- and Post-Fire Treatment Field Workshop?*

> *Learning and practicing in a field setting; first-hand observations and real world examples from a diversity of plots.*

> *Workshop presenters were knowledgeable, interesting teachers who provided great natural history insights.*

> *Participation, discussions, conversations, and stories from a diverse group.*

> *Getting a better understanding of fire severity.*

*Learning and going through the metrics and worksheets provided.*

*Learning about a field that is new to me.*

**Great Basin Fire Science Online**
Through our partnership with the University of Idaho and our support of the *Great Basin Fire Online* project, 208 students took one or more of the 12 online fire courses offered in FY 2018. About 60% of these students are practicing professionals now and almost all aspire to be involved in natural resource science and management.  Many courses were updated this year to include more current Great Basin fire and restoration content.  For example, *Integrating GIS and Field Studies in Rangelands* REM460 now includes two Great Basin exercises: A lecture and field exercise where the students evaluated the resilience to fire and resistance to invasion in a field setting using GTR-338 by Miller et al. (2015); and field trip stops at juniper-reduction treatments in the Owyhee Mountains in Idaho, where students discuss the effects on juniper reduction treatments on short- and long-term changes in fuel loads, sagebrush cover, herbaceous vegetation, carbon, and sage-grouse habitat.  And, *Wildland Fire Policy* FOR 587 now includes a discussion forum on Wildland Fire in the Great Basin Region, which includes the Sage-Grouse Initiative and Rangeland Fire Protection Associations.

The GBFSE-University of Idaho online training partnership also has tremendous impact in student learning and professional development. Sam Wozniak, MS student working on rangeland restoration and fuels treatments said, "The Resistance and Resilience framework I learned about via GBFSE webinars will help me stratify the statistical analysis for my graduate research."  PhD student Chris Bowman-Prideaux developed modules and co-instructed a new course for the MNR program: NRS 504 NEPA Policy and Practice in the summer of 2018.  He is currently completing his PhD evaluating vegetation and fuels treatments in Wyoming big sagebrush steppe and will produce a lecture based on his PhD work that we can use in online and classroom courses.

The GBFSE will also improve its online presence with the November 2018 launch of a new website utilizing a WordPress platform. To ensure minimal disruption to our users, the 'new' site will retain the look and feel of our current, and other Fire Science Exchange's websites, but will have enhanced search and request features and better organization. Working to develop the 'new' site has allowed us to tidy up our site's content, add features that allow users to quick scan search results, and streamline the process for adding new content.
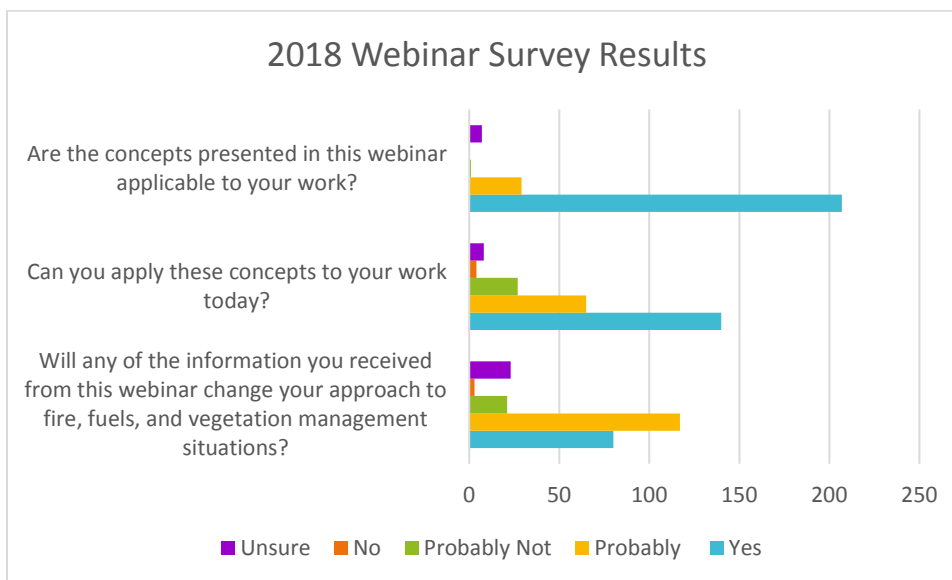
**Webinars**
Our annual webinar series continues to be a highlight of our program.  The GBFSE hosted seven webinars in FY 2018 (Table 1), the majority of these were part of the *Managing Cheatgrass by Putting What We Know* into Practice series.

**Table 1.** Webinars offered by the GBFSE in FY 2018, attendance and video views from our You Tube channel.

| Webinar Topic | Live Attendance | Recorded Views |
|---|---|---|
| Modeling dynamic fuels with an index system: MoD-FIS (co-hosted with LANDFIRE and other Fire Science Exchanges) | 24 | 152 |
| Cheatgrass control methods and impacts on perennial grass abundance: A systematic review spanning 64 years | 131 | 252 |
| Herbicides for downy brome (cheatgrass) control: What works? | 88 | 263 |
| Grazing to maintain perennial bunchgrasses and reduce exotic annuals | 87 | 125 |
| Capitalizing on strategic opportunities to reduce cheatgrass: Examples from the field | 40 | 67 |
| Ecologically-based invasive plant management for reducing cheatgrass: Lessons learned from area-wide demonstration projects | 41 | 78 |
| Targeted grazing applied to reduce fire behavior metrics and wildfire spread | 18 | 61 |

To evaluate the applicability of the webinars, attendees of the live sessions were asked to answer three survey questions. Surveys were optional and not completed by all attendees. Responses show that a large percentage of respondents find the information presented in the webinars useful to their work (Fig. 5).



**Figure 5.** Number of attendees who filled out the survey about the webinar's applicability to their work and future management decisions (all 7 webinar survey results grouped).

# Partners

Working with our Great Basin natural resource partner agencies, institutions, and organizations for eight years has made the partnerships more stable, boundaries more fluid, and cooperation more effortless.  Although the organizations and their leadership are continually changing and evolving (e.g. the disbanding of the Great Basin Landscape Conservation Cooperative, personnel shifts in the Great Basin Cooperative Ecosystem Studies Unit), project legacies and new partners are able to continue the joint efforts on products and events.  To increase the diversity of our own leadership and therefore the relevance of our activities, this year we added a Nevada Division of Forestry resource program manager to our steering committee.  This state forestry perspective has already been beneficial, providing new ideas for content and communication strategies that meet the needs of fire and vegetation managers.

Some of our current partnership activities include continued cooperation with US Geological Survey (USGS), Forest Service, Fish and Wildlife Service (FWS), and Bureau of Land Management (BLM) to complete the Actionable Science Plan Implementation Summary.  This is a "living document" that will capture discussions from our 2017 Great Basin Consortium workshop about available science, remaining research needs, and necessary cooperation for Great Basin and sage-grouse management success.  This spring we plan to again co-host the annual Restoration of Sagebrush Ecosystems training with the BLM.  We are part of a SageWest sub-group that includes the USGS, FWS, and Great Northern Landscape Conservation Cooperative that is developing a land treatment, climate, and data access decision-support tools webinar series for winter 2018-19.  We are also working with USGS partners on another webinar series, which will highlight those results of the SageSuccess project that can directly inform vegetation management options to improve ecosystem function and reduce the frequency and size of fires on sagebrush lands.