Great Basin Fire Science Exchange - Annual Report FY2025
Impacts of Exchange Efforts

The primary fire management challenge for the semi-arid Great Basin region remains the conversion of native perennial grasslands and shrublands to nonnative grasses, fueling increases in large fires. At the same time, loss of these grasslands and shrublands is also occurring through conversion to woodlands from changing weather, fire, and land use patterns. Great Basin Fire Science Exchange products and activities focus on understanding the factors contributing to native ecosystem loss and approaches for conservation and restoration. These topics are high priorities of the region's land managers, practitioners, and researchers who are entrusted with maintaining functioning ecosystems and community livelihoods. To better understand and accurately communicate where fire occurrence has deviated from historical conditions, we supported the *Changing Fire Regimes in the Great Basin, USA* journal article (Strand et al. 2025) and story map and supported the writing and printing of *An Indigenous Perspective of Fire in the Upper Snake River Basin* booklet (Stone 2024). We prioritized capacity-building by responding to a direct request from an agency partner to help produce and deliver the latest sagebrush ecosystem and rangeland fire science and tools through the *USGS Sagebrush Ecosystem and Fire Science 2025 Webinar Series*. These highlighted activities are detailed in Section 2, Success Stories.

Section 1. Fire Science Topics
This year the Great Basin Fire Science Exchange (GBFSE) contributed, directly or in partnership with other exchanges or organizations, to all 16 key fire science topics identified by the Joint Fire Science Program (Table 1). Key topics from our success stories are found in the following section. Our commitment to regular delivery of newsletters, website updates, and posts through social media platforms also allows us to provide information of interest to the Great Basin on all key fire science topics.

Table 1. All key fire science topics were addressed by Great Basin Fire Science Exchange programming in FY 2025 (X). Success story (SS) key topics are identified for each of the three stories; (1) fire regimes publication, (2) Indigenous use of fire publication, and (3) sagebrush ecosystems and fire webinar series.

FY 2025		SS			SS
X	Wildlife	3	X	Fuels management	2,3
X	Invasive plant species	3	X	Prescribed fire	2
X	Vegetation	3	X	Smoke, air quality, and health	
X	Soil	3	X	Wildland urban interface and infrastructure	
X	Watershed processes	3	X	Firefighter safety and incident management	
X	Postfire recovery and management	3	X	Social science and human dimensions	
X	Fire behavior		X	Indigenous knowledge	2
X	Fire regimes	1	X	Economic impacts	

Success Stories

Providing Baseline Fire Information for Decision-Making

GREAT BASIN FIRE SCIENCE EXCHANGE

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Research Supporting Sound Decisions

Fire regimes describe the frequency, intensity, severity, seasonality, and spatial distribution and variability of fire.

Understanding historical fire regimes and comparing them to contemporary fire regimes improves the understanding of vegetation dynamics and landscape composition changes within ecosystems.

-Morgan and others, 1999

When your fire community requests a summary of Great Basin fire regimes, and you realize it does not yet exist...

- People living and working in the Great Basin have observed altered fire conditions, but information about the degree and direction of change from historical fire regimes was not well understood.

- Initial discussions about how best to summarize changing fire regimes in the Great Basin developed into a full analysis and documentation of changing fire regimes.

- The Great Basin Fire Science Exchange and its research partners worked together to characterize how fire regimes have changed in common Great Basin vegetation types over the past 60 years.

- The results were published as a journal article and interactive story map.

Read the story...

Land managers, researchers, and stakeholders living and working in the Great Basin are no strangers to fire. Most have watched fire burn on their district, and many have been impacted personally.

Observations have shown us that fires in our region have become more common, frequent, and larger in the last 20 years, but a data-driven baseline of historical frequency was lacking.
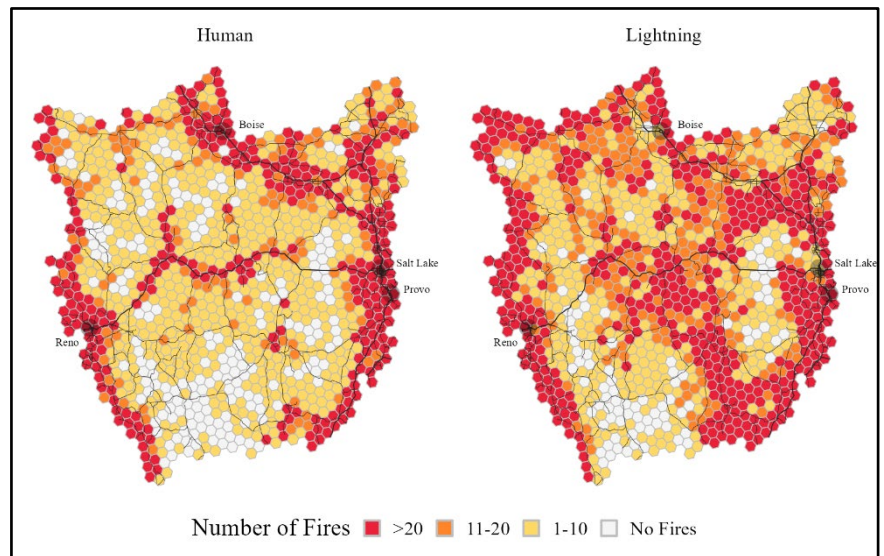
The Great Basin Fire Science Exchange was asked by the fire community for a reference on historical and current fire regimes in our most common vegetation types without high levels of nonnative annual grass.

Number of fires by ignition type and proximity to cities and major roadways in the Great Basin. Credit: Kori Blankenship, TNC LANDFIRE.

We gathered experienced researchers with the appropriate backgrounds and supported development, analysis, and publication of *Changing Fire Regimes in the Great Basin, USA* (Strand et al. 2005) and an accompanying interactive Story Map.
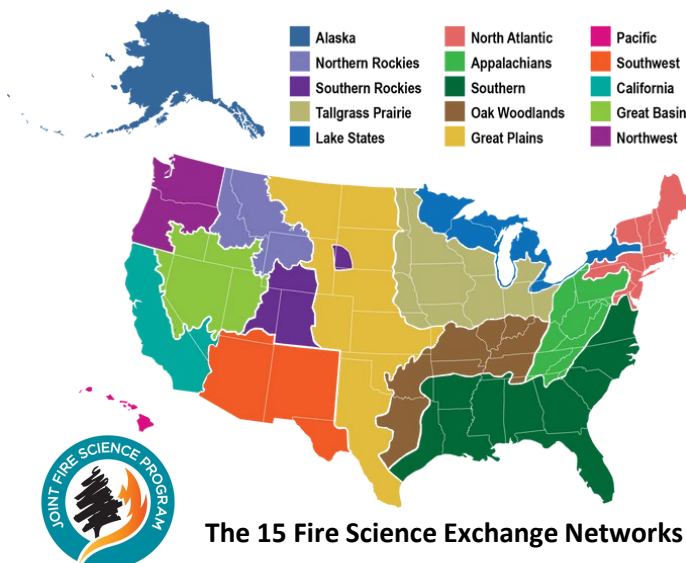
This analysis and paper gave baseline estimates of historical fire frequency and provided information on potential drivers of changing fire regimes in the region, including nonnative grass abundance and human ignition sources.

🌿

The Great Basin now has a baseline reference characterizing fire regimes throughout all major vegetation types, which provides improved understanding of vegetation dynamics and landscape composition change.

The 15 Fire Science Exchange Networks

The GBFSE is part of the Joint Fire Science Program (JFSP) Fire Science Exchange Network, a national collaboration of 15 regional fire science exchanges. Learn more at firescience.gov.

Success Stories

Gaining a Tribal Perspective on Fire in Aspen Stands

GREAT BASIN FIRE SCIENCE EXCHANGE

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Building relationships with Indigenous partners as we improve knowledge and understanding

"Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect."
– *Chief Seattle*

- Evidence pointing to historically frequent fire in quaking aspen woodlands suggested intentional burning by Indigenous peoples.

- Our community wanted to learn more about how tribes used fire in the past.

- To learn more, we supported this work of Shoshone-Bannock tribal member and leader, Daniel Stone.

- This fire story emphasizes that tribal relationships with fire are continuous – fire was important and used in the past, still today, and will continue in the future.

- Shoshone-Bannock fire management weaves together Western and Indigenous knowledge and tools.

Read the story...

Daniel Stone, Shoshone-Bannock tribal member and Environmental Program Director of the Upper Snake River Tribes, led the development of the Indigenous Perspective of Fire booklet. He dispels preconceived ideas of an "historical" practice of the past that is separate from current knowledge and management, and articulates that relationships with fire are interconnected and continuous: important and used in the past, present, and future.

This perspective of fire, fire use, and fire management of one Shoshone-Bannock tribal member emphasizes that successful fire management and fire prevention on reservation lands


Pretreatment logging/thinning prior to prescribed fire in a quaking aspen-conifer forest on the Shoshone-Bannock Reservation. Credit: Daniel Stone, Executive Director of the Shoshone-Bannock Tribes.

is accomplished by understanding and weaving Indigenous and Western knowledge and practices. Read about this fire continuum in the [Indigenous Perspective of Fire in the Upper Snake River Basin](#) booklet.

"Balancing fire being present on the landscape with protecting critical resources is why we need to use good information and assessments to help our Tribal decision makers maintain our permanent homeland. We need to be strategic about how fire is used on the landscape, along with suppression, so we are making the best resource decisions and creating defensible space."
– Chad Colter, Shoshone-Bannock Tribes Fish and Wildlife Director
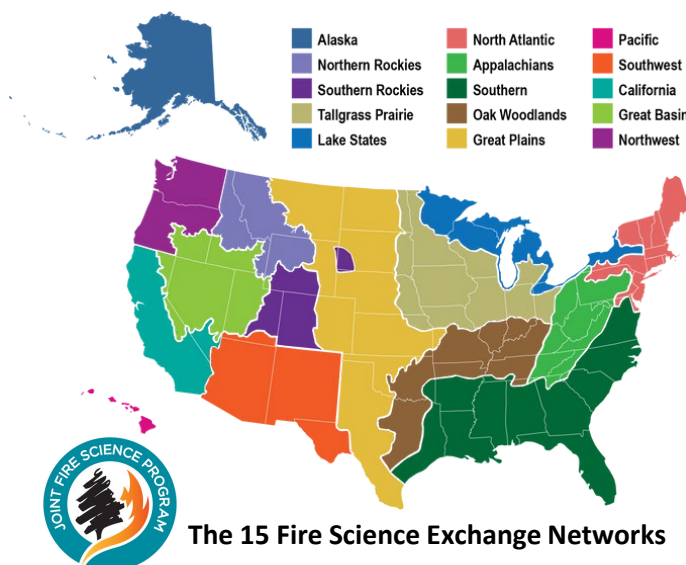
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Success Stories

Tools and Capacity to Reach a Broader Fire Community

GREAT BASIN FIRE SCIENCE EXCHANGE

FIRESCIENCE.GOV
Research Supporting Sound Decisions

When a science need falls outside of your expertise and capacity, make a call to your friendly fire science exchange

"This is the document that I need to write effective prescriptions using best available science and practices."

"The series was very informative and provided great management data and insight for us to apply on the ground."

-Anonymous USGS Webinar Series Attendees

- The Department of Interior's land management (Bureau of Land Management, BLM) and research (US Geological Survey, USGS) agencies both work to address land and fire management needs and federal priorities.

- Annually, the USGS provides updates to the BLM that highlight new findings as they relate to land management research priorities and related tools.

- Until 2025, USGS provided these updates through a series of agency webinars that, while highly popular learning opportunities, were not accessible to the broader management, practitioner, and stakeholder base, and included no follow-up summarization.

- The USGS enlisted the services of the Great Basin Fire Science Exchange for advertising, delivery, archiving, and evaluation of the webinar series.

The Great Basin Fire Science Exchange (GBFSE) accelerates the awareness, understanding, adoption, and implementation of wildland fire science throughout the region by providing a platform and forum for managers, scientists, policy makers, and stakeholders to interact and learn.

USGS
science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Read the story...

USGS and the GBFSE teamed up to deliver sagebrush ecosystem and fire science research updates. This was done through a five-part webinar series in early 2025. The series included presentations on fire, fuels management, pinyon-juniper, invasive species, restoration effectiveness, sage-grouse, carbon, and big game.

Webinars were attended live by 832 participants. Most participants represented state land management agencies, USGS researchers, and the BLM but were also attended by members of private industry, universities, non-government, tribal, county, and other federal organizations including the Agricultural Research Service, Bureau of Reclamation, Department of Defense, Department of Energy, National Park Service, Natural Resources Conservation Service, Forest Service, and Fish and Wildlife Service.
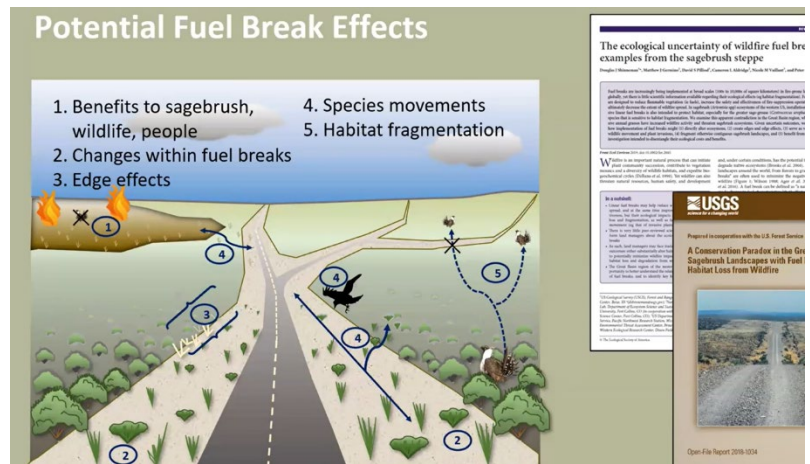

Figure and published resources described and highlighted in Douglas Shinneman's (USGS) webinar on: A Collaborative and Iterative Framework for Delivering Fuel Break Science

All webinars were recorded and have been viewed 449 times. Live attendance numbers surpassed previous years, and all recorded views represent increased participation since webinar recordings were previously unavailable.

Sagebrush ecosystem and rangeland fire science webinars remain viewable on the GBFSE website and its YouTube channel. All recordings also include accurate transcripts for accessibility.

More than 70% of webinar survey respondents indicated that the information presented would likely change or support their current approaches to fire, fuels, and vegetation management for nearly all webinars in the series.
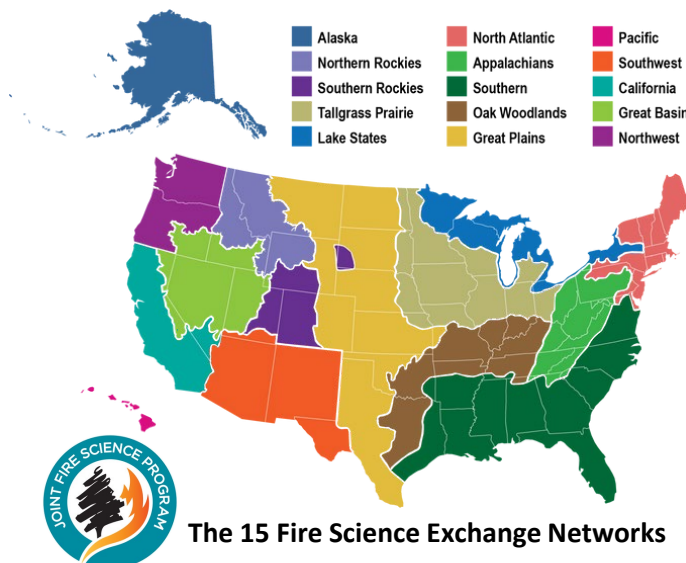
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Section 3. Connecting Short-Term and Long-Term Objectives

The key fire science topics addressed in the above success stories include nearly all of those identified as important by the Joint Fire Science Program (Table 1, Section 1). They also address nearly all impact categories (conceptual, connectivity, capacity-building, and socio-environmental) identified as contributing to our long-term objectives of *normalizing collaboratively identified treatments*, *applying fire where needed*, and *long-term support for co-produced science activities*. By working collaboratively with our regional entities and disciplines, communication becomes second nature, fire and fuels knowledge is shared and understood broadly, and we come closer to *consensus on treatment identification*. This supports better *application of fire where it is needed* (recognizing limitations of agency capacity and funding) and *long-term support for co-produced science activities* by agency staff and planning efforts.

While we do not see a need to adjust our long-term objectives, we continue to discuss ways to adjust activities to realize our long-term societal impact objectives and outcomes. We continue to increase our capacity for relationship building by meeting people near their field offices, reservations, ranches, or communities by increasing attendance at regional meetings, summits, and conferences, while balancing attendance at larger in-person national events.

Long-term outcomes identified in our logic model remain valid for the fuels, fire, and postfire restoration issues facing our region. Research and management challenges facing our region require cooperation, collaboration, and co-produced science. For this reason, the GBFSE will continue to prioritize supporting, connecting, and adding capacity to those studying and managing Great Basin ecosystems. We see these efforts as our region's best chance for identifying land treatments and tools for decision making to improve ecosystem resilience to disturbance and resistance to nonnative species and support more historically normal and socially tolerable fire regimes.

Citations

Stone, D. 2024. An Indigenous perspective of fire in the Upper Snake River Basin. Reno, NV: Great Basin Fire Science Exchange and Upper Snake River Tribes Foundation. 56 p. Available: https://greatbasinfirescience.org/wp-content/uploads/2025/02/IndigenousFirePerspective2024-WEB-MID-144ppi.pdf

Strand, E.K.; Blankenship, K.; Gucker, C.; Brunson, M.; MontBlanc, E. 2025. Changing fire regimes in the Great Basin, USA. Ecosphere. 16(2): e70203. Available: https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.70203