



NORTHWEST FIRE SCIENCE CONSORTIUM

ACTIVITY IMPACT STATEMENTS

1

EQUITY AND ENVIRONMENTAL JUSTICE IN WILDFIRE WEBINAR SERIES

Societal Impacts: Conceptual, Connectivity, Socio-environmental

Wildfire poses disproportionate hazards to vulnerable populations. Access to resources to prepare and recover from fire events can also be uneven. Several recent journal articles have examined these issues, and during the summer of 2022 the Northwest Fire Science Consortium worked with a new partner, the newly-funded Oregon State University Extension Fire Program, to plan a webinar series featuring scientists and recent research. The goal of this series is to highlight new knowledge, ideas, and efforts focused on integrating equity and environmental justice into the management of wildfire risk reduction and recovery. The series includes four webinars that touch on how recent research around this topic is being used to guide policy around wildland fire, direct management actions on the ground, and highlight growing or unmet research needs. Specifically, the webinars focus on:

1. Developing a Social Vulnerability Index for Wildfire Risk in Oregon

This webinar was presented on July 26, 2022 by Mindy Crandall & Caitlyn Reilley from the Oregon State University College of Forestry. They described their recent work around the development of a Social Vulnerability Index for Oregon and its incorporation into the Wildfire Risk Explorer tool mandated through state Senate Bill 762, which passed in 2021. Their presentation included an overview of social vulnerability and how it is measured, along with information on reliability, strengths, and limitations of social vulnerability indices and maps. 125 people attended the webinar, and feedback was overall very positive, including comments such as:

"Really fantastic job and presentation everyone"

"Great presentation with a wonderful applied focus."

"Thank you all so much! This was so helpful and inspiring!"

"Excellent presentation on a valuable tool. I'm working in CA so trying to figure out how we could replicate such an effort for application in Sonoma County. Thanks"

"Thank you for this strong work, and for this presentation."

At the optional survey at the end of the webinar, 38 out of 40 respondents reported that they were "very satisfied" with the webinar (the other 2 reported "somewhat satisfied"), and 65% said that they would use the information from the webinar in their work. The webinar was [recorded](#), and thus far the recording has 298 views.

2. Addressing Equity and Environmental Justice in the U.S. Forest Service's Wildfire Crisis Strategy

On November 2, Susan Charnley and Mark Adams from the USDA Forest Service Pacific Northwest Research Station will examine how the agency's new Wildfire Crisis Strategy and the Bipartisan Infrastructure Law that is funding the agency's initial investments to reduce wildfire risk under the Strategy, both call for considering equity & environmental justice when implementing projects. They will present practical applications from their research on the environmental justice implications of hazardous fuels reduction, including new tools, that help address this need. Then, Alex Enna, Partnerships Program Manager on the Deschutes National Forest, will share some current perspectives from the forest level on how the mapping work around social vulnerability that the presenters have been working on may be valuable in informing planning and decision-making. Registration for this webinar is currently at 150, with additional registrations expected prior to the event.

3. Wildfires, Communities, and Environmental Justice

On November 8, 2022, Francisco Escobedo from the US Forest Service Pacific Southwest Research Station will share results of a recent literature review of studies that focus on the environmental justice aspects of wildfire. He will also present preliminary findings on how different socio-demographic groups have been affected by wildfires across California in the last decade. We are working with the California Fire Science Consortium to help advertise and co-host this webinar, to ensure that it reaches all areas of the state of California, where some of the research and mapping discussed during this presentation is underway. Registration for this webinar is currently at 163, with additional registrations expected prior to the event.

4. Considering Equity in Wildfire Risk and Protection

The final webinar is scheduled for December 1, 2022. Matthew R. Auer from the University of Georgia School of Public and International Affairs will summarize recent research he has led examining the equity implications of rising wildfire risk and associated costs, including insurance coverage and the comparative costs for risk management activities in populations with different incomes. Registration for this webinar is currently at 129, with additional registrations expected prior to the event.

Northwest Fire Science Consortium created a [series flyer](#) with detailed descriptions and registration for each webinar. After all webinars are complete and the recordings are uploaded to our YouTube channel, we will work with the presenters across the series to develop a resource guide summarizing main themes and takeaways from the series. We envision this document highlighting the key findings presented in each webinar, as well any identified gaps and needs for ongoing research, lessons learned, and emerging opportunities.

Although this series is ongoing into the next reporting period, the key work of putting the series together occurred during this fiscal year. Ultimately, the series represents Northwest Fire Science Consortium's efforts with a new partner (OSU Extension Fire Program) to 1) identify a wildland fire science topic with critical interest and recent research, policy, and management implications; 2) work with leading scientists publishing new scientific results on the topic to

formulate and plan a series of webinar presentations; and 3) lead a successful outreach effort to target individuals across a wide geography with interest in learning about recent research on the topic and how state and federal policy, as well as on-the-ground management, is incorporating the research.

2

BARRIERS TO BUILDING RESILIENT FOREST LANDSCAPES IN THE PRESENCE OF WEEDS

Societal Impacts: Capacity building, Connectivity, Socio-environmental

The spread of invasive annual grasses and weeds that can result from the disturbance of forest and rangeland management activities, such as prescribed fire and juniper removal, is a challenge for resource managers on both grasslands and national forests in the Northwest. In some cases, spread of these species can also change the fuel continuity across the landscape, changing the conditions for fire and fuels managers conducting prescribed burns. There is often a tension between managing to meet resource objectives and preventing invasive plant spread.

In the spring of 2022, the Northwest Fire Science Consortium, PNW Research Station, USFS Region 6, and the Great Basin Fire Science Exchange reconvened to discuss efforts and ideas for ways to better communicate around integrating weed management into fuels management. These conversations began in the prior year with the goal of understanding key issues and developing solutions and roadmaps, as well as identifying information gaps and useful tools to guide communication and implementation efforts. Below is a summary of key products originating from efforts in this area over the last year:

1. *Venttenata dubia* website and resource base (ongoing)

We updated an [existing webpage](#) on our website for the JFSP-funded project (ID # 16-1-01-21): *Ecosystem Change in the Blue Mountains Ecoregion: Exotic Invaders, Shifts in Fuel Structure, and Management Implications*. The webpage provides an overview of the research project as well as key results, publications, news, and resources. Over the past year, there have been 404 visits to the webpage.

2. Webinar: Invasion, Fire, and the Future of NW Wildlands *Venttenata dubia* in the Blue Mountains Ecoregion

In March 2022, we hosted a deep-dive webinar with project PI Dr. Becky Kerns and collaborating scientists to present and synthesize results from the project above, which was aimed at understanding the current and future *Venttenata dubia* (ventenata) invasion in the Blue Mountains Ecoregion. During wildfires in the ecoregion in 2014 and 2015, fire behavior and spread was

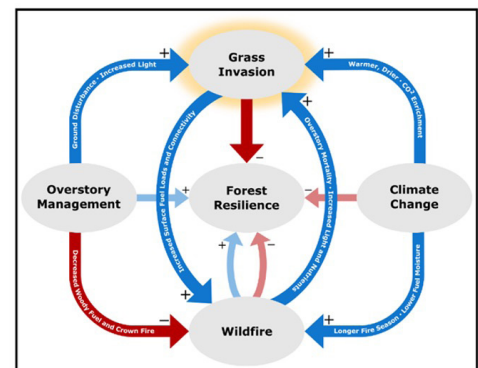


Figure: Conceptual overview on webpage showing how invasive weeds, with other inputs, influence forest resilience.

reportedly unusual and attributed to this invasive annual grass's role as fuel. Concern was raised that ventenata might be a "game-changer" for wildfire, and results from the studies showed that ventenata has ecosystem transformation potential and influences landscape-scale fire across the ecoregion. Presenters relayed findings with management implications and placed their results in the context of other plant invasion research. The webinar included 90 minutes of scientific presentations with short Q&A sessions between sessions, followed with a 30-minute wrap-up and panel discussion. 181 people attended the webinar in person. The webinar was [recorded and uploaded](#) to our YouTube channel and currently has 125 views.

Responding to a survey after the webinar, 73% of attendees indicated that they would use the information presented in their work, and 82% found the material discussed very useful. Comments from attendees included:

"This is a great topic; let's expand it and fold it in to its role with the other invasive annual grasses."

"Thanks for organizing this. This style of webinar-panel is a really good format for interaction and idea sharing."

"Excellent content and excellent questions."

3. Finalized and distributed infographic showing how weeds can be an unintended consequence of fire and fuels management, challenging resilient forest landscapes

One of the first activities of this working group was to begin production of an infographic that clearly laid out the issue without pejorative or accusatory language. A draft of this infographic was produced in FY 2021 by the Great Basin Fire Science Exchange, and over this past year the Northwest Fire Science Consortium took over the edits, redesign, and completion of the infographic. We convened several meetings with USFS Region 6 ecologists and botanists to review progress on the draft infographic and gather feedback, suggestions, and revisions. We incorporated edits and redesigned the final product to be more engaging and inclusive of suggestions. Once completed, we shared the [final infographic](#) via all available means (targeted emails, social media, newsletters, website highlights) and encouraged anyone interested to download and share it. Outreach efforts and outcomes included:



Figure: Final weeds, fire risk, & resilient forest landscapes infographic

- A targeted email to 53 botanists and ecologist in Region 6, many of whom had provided feedback on drafts
- 114 clicks on the infographic in recent newsletters
- 46 downloads of the pdf from our website. We have seen the infographic shared widely on local and regional weed management groups via social media
- The infographic was also provided to an Oregon State University professor who is intending to use it to facilitate discussion during an undergraduate-level forestry class

3 SALVAGE SCIENCE SUMMIT 2: TECHNOLOGY AND ECOLOGY

Societal Impacts: Instrumental, Conceptual, Capacity Building

On December 7-8, 2021 the Northwest Fire science Consortium, in partnership with the US Forest Service, the Northern Rockies Fire Science Network, and the Southern Rockies Fire Science Network held the second in a series of Salvage Science Summits. This series addressed new research and tools for salvage logging management and planning. The objectives of the Summit Series included:

1. Providing best management practices of salvage logging with regards to ecosystem health
2. Identifying examples and considerations for salvage economic recovery
3. Presenting lessons learned

The first Summit occurred in May 2021 (FY 21) and focused on consideration of salvage logging operations with regards to soils and run-off, woodpecker habitat, post-fire management, and tree mortality. Summit 2, which is reported here, was a 2-day workshop focusing on ecological and operational issues associated with salvage logging including ecosystem effects, stream side buffers, and post fire logging considerations. Participants were provided pre-recorded presentations and were asked to view these prior to the Summit. All presentations are available to view on the [Salvage Science Summit 2: Technology and Ecology event webpage](#). To date, the videos for the Summit have cumulatively received over 11,200 views.

The Summit itself was a virtual 2-day event, each day consisting of a panel discussion with the presenters in which participants were given the opportunity to interact with the presenters for questions and discussion. A total of 261 people registered for day 1 and 162 for day 2. Participants could attend one or both days. Society of American Foresters Continuing education credits of 1.5 Category 1 CFE were available to attendees.

Presentations viewed and discussed for Day 1 of the Summit:

- Regeneration in Engelmann Spruce Forests Following a Spruce bark Beetle Epidemic and Salvage Harvest. *Presenter: Mike Battaglia, US Forest Service Rocky Mountain Research Station*

- Ecosystem Effects of Salvage Logging – Colorado Case Studies. *Presenter: Chuck Rhoades, US Forest Service Rocky Mountain Research Station*
- Streamside Buffers, Skid trails and Dirty Water: Understanding Their Role During Postfire Salvage Operations. *Presenter: Pete Robichaud, US Forest Service Rocky Mountain Research Station*
- Post Fire Soils and Salvage Operations. *Presenter: Alex Rozin, Forest Service Regional Soil Scientist*

Evaluations from Day 1 of the Salvage Science Summit 2 were positive, with 70% of survey respondents indicating that the information presented was very applicable to their work, and 29% somewhat applicable. Ninety-eight percent (98%) said that the subject matter was effectively presented, and 98% indicated that this event helped to increase communication between researchers and managers. Eighty-two percent (82%) indicated that they would apply the information from the Summit in their work. Feedback from the Summit, Day 1:

"LOVE this format. It was helpful to be able to watch the presentations ahead of time and be able to rewind when I didn't understand something. Also, form my questions ahead of time. Plus, watching on my own time was a bonus. THANK YOU for providing this awesome series. I would love to see fire studies from the west side of the Cascades b/c it so different from drier forests/rocky mountains."

Presentations viewed and discussed for Day 2 of the Summit:

- Logging System Considerations in Fire Salvage. *Presenter: Lisa Ball, US Forest Service Logging Specialist*
- Fire Salvage Forest Operations: A Contractors Perspective. *Presenter: Loren Kellogg, Professor Emeritus at Oregon State University and Operations Manager at Intermountain Wood Energy*
- In-woods Biochar Production Using Big Box Kilns. *Presenter: Darren McAvoy, Extension Assistant Professor at Utah State University*
- Air Curtain Burners: Application in Postfire Recovery. *Presenter: Phil Monsanto, Timber Program Manager on the Mt. Hood National Forest*

Evaluations from Day 2 of the Salvage Science Summit indicated that 55% of survey respondents found the information presented to be very applicable to their work, and 45% somewhat applicable. One hundred percent (100%) said that the subject matter was effectively presented, and 98% indicated that this event helped to increase communication between researchers and managers. Sixty-two percent (62%) indicated that they would apply the information from the Summit in their work and 38% were not sure. Feedback from the Summit, Day 2:

"It was an excellent meeting and the focus point(s) were perfect for the current needs and questions here on the Kootenai National Forest (NW MT)."

"Sounds like we need a biochar summit!"

"Thank you! Excellent series!"