



Last March, around 80 researchers, students, and collaborators from the Nevada NSF EPSCoR RII-Track 1 Harnessing the Data Revolution for Fire Science (HDRFS) project gathered at the University of Nevada, Las Vegas (UNLV) for the 2024 Annual Meeting. The two-day conference allowed participants involved in the project to share research findings and outcomes, stimulate collaborations and plan for upcoming activities.



Attendees listening to a presentation during the 2024 HDRFS Annual Meeting held at UNLV, March 18-19, 2024. (Credit: Mayara Cueto-Diaz)

Presentations were given from the project leads in the different research areas, cyberinfrastructure, workforce development, and broadening participation. Additionally, the meeting hosted a student poster session, along with lab visits and a guest presentation by Ralf Zimmermann from the University of Rostock, Germany on the Health Effects of Wildland Fires. The conference was successful in showcasing not only some of the great research happening throughout the state of Nevada, but also the partnerships that have resulted from the continued NSF EPSCoR funding.

THE FUTURE OF FIRE SCIENCE:

HDRFS STUDENTS HIGHLIGHT RESEARCH DURING POSTER SESSION

Two dozen students and early career researchers came together during this year's meeting to present work spanning the HDRFS program's five research components. From remote sensing tools to techniques for simulating the natural aging of smoke, this research is making it possible to study fire in greater detail, advancing our understanding of how ecosystems respond to fire and the interplay between fires, climate change, and human health. Students further shared how the opportunity to collaborate on interdisciplinary teams is giving their work broader reach.



Lab visit to the Drone Aviary that is part of UNLV's newest building, the Advanced Engineering Building. (Credit: Amanda Heidt)

CONFERENCE ATTENDEES GET IN-PERSON LOOK AT HDRFS RESEARCH LABS IN LAS VEGAS

This year's in-person gathering gave people the chance to tour the grounds and research labs of the University of Nevada, Las Vegas, where several HDRFS scientists are based. Attendees visited the university's new drone aviary and its advanced engineering building, which opened in February, while students shared updates on current HDRFS projects, including a drone that can collect valuable soil data and a machine capable of breaking down the composition of smoke into thousands of individual compounds.

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Later this year, HDRFS ecologists and engineers will come together to lay the literal groundwork for a new type of experiment—a rolling, remotely-controlled greenhouse that will traverse the desert on a set of tracks outside Reno, collecting continuous measurements of carbon fluxes in the desert. Jay Arnone, a plant ecologist at the Desert Research Institute in Reno, will be working with his team to fully characterize the plant communities at each site before setting half aflame to study how sagebrush habitats, including those dominated by invasive species, respond to and recover from fire.

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Q&A WITH JAY ARNONE:

A GLIDING GREENHOUSE FOR TRACKING CARBON FLUX



Q&A WITH ROBERT WASHINGTON-ALLEN:

STUDYING THE 'HIDDEN CARBON' LOCKED UP IN UNDERGROUND BIOMASS

HDRFS scientists have been pioneering a burst of new technologies to image and analyze the plant communities that make up sagebrush ecosystems. But even as researchers develop algorithms that can identify plants based on the shape of their leaves, scientists like University of Nevada, Reno, drylands ecologist Robert Washington-Allen are interested in studying the below-ground biomass—the underground system of living roots—and its influence on dryland ecology. Washington-Allen recently received a \$30,000 seed grant to repurpose existing tools and unearth a hidden world.

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