WestFAST Wildfire Webinar Series

Engagement

[Does Community Driven Strategic Planning Reduce Impact of Large Wildfires?](#)
Presenter: Monte Williams – Forest Supervisor, Arapaho and Roosevelt National Forests and Pawnee National Grassland, US Forest Service

This webinar tells the story of the largest recorded wildfire in Colorado's history, the Cameron Peak Fire of 2020, where community driven strategic planning was successful in getting treatments implemented that reduced impacts to the Upper Poudre River Watershed within the Arapaho and Roosevelt National Forests and Pawnee National Grassland.

[Denver Water's Post-Fire Lessons Learned: Why It's a Smart Business Decision to Invest in Forest and Watershed Resilience.](#)
Presenter: Christina Burri, Watershed Scientist, Denver Water

Christina shared about Denver Water's proactive investments in watershed health, and the lessons learned from past fires. Denver Water is experiencing a return on investment through forest and watershed health commitments, and Christina explained why investing in forest and watershed health is a smart business decision for Denver Water. She provided a summary of the long-term costs of being reactive after catastrophic wildfires, and what Denver Water is doing to recover after past fires. The participants learned why it matters to invest in forest and watershed health, and how connections can be made across all levels of government to leverage resources for watershed investments.

[NASA's Perspective on Living with Wildfires](#)
Presenter: David S. Green, PhD, Applications Program Manager for Wildfire Management, NASA Science Mission Directorate FireSense

NASA is advancing an earth systems approach to living sustainably with wildfires by piloting and demonstrating the value of integrated research, applications, and technology. This webinar highlighted NASA's FireSense strategy with new programs, initiatives and partnerships for interdisciplinary collaboration. The webinar promoted community engagement and discussed the opportunities in earth observation and analytics across fire-shed and watershed scales to improve fuel moisture forecasting, characterization of evaporative stress and soil moisture at the wildland urban interface for actions in the pre-fire, active fire and post fire regimes.

[Community Wildfire Risk Reduction Tools](#)

Presenter: Clint Cross – Assistant Director, Landscapes and Partnerships, Forest Service WO Fire and Aviation

The passage of the Bipartisan Infrastructure Law in November 2021 provides a great opportunity to more fully implement the National Cohesive Wildfire Strategy. An example includes the establishment of the Community Wildfire Defense program with $1 Billion in funding over 5 years. In addition, increased improvements to the Wildfire Risk to Communities mapping portal provide great opportunities for communities to learn their level of risk and steps for mitigation.

Policy and Process

Burned Area Emergency Response (BAER)
Presenter: Cara Farr – National BAER Program Lead, Forest Service, WO- Wildlife, Fish & Rare Plants

An introduction to the USDA Forest Service Burned Area Emergency Response (BAER) program roles and responsibilities. Describing what the program can do to address and opportunities to coordinate post-fire response across land boundaries.

Department of the Interior's Office of Wildland Fire
Presenters: Kristy Swartz, Wildland Fire Program Specialist, and Stephen Elmore, Budget Officer, U.S. Department of the Interior, Office of Wildland Fire

The Office of Wildland Fire makes sure that nearly one billion dollars is strategically invested to reduce wildfire risk, rehabilitate burned landscapes, promote a better understanding of wildfire, and support firefighters by providing the tools and training they need to work safely and effectively.

Wildfire, Smoke Exposure, Human Health, and Environmental Justice Need to be Integrated into Forest Restoration and Management
Presenter: Dr. Savannah D'Evelyn, postdoctoral fellow in the Department of Environmental and Occupational Health Sciences, University of Washington

Increasing wildfire size and severity across the western United States has created an environmental and social crisis that must be approached from a transdisciplinary perspective. This presentation summarized a recently published article in Current Environmental Health Reports that details how and why scientists, planners, foresters and fire managers, fire safety, air quality, and public health practitioners must collaboratively work together. This article is the result of a series of transdisciplinary conversations to find common ground and subsequently provide a holistic view of how forest and fire management intersect with human health through

the impacts of smoke and articulate the need for an integrated approach to both planning and practice.

Income and Insurability as Factors in Wildfire Risk

Presenter: Matthew Auer, Dean and Arch Professor of Public and International Affairs at the School of Public and International Affairs, University of Georgia

The increasing frequency of destructive wildfire incidents in the United States, particularly in the West, is well-documented, and the key causal variables are increasingly well understood. Among stakeholders with heightened concerns about risks from destructive wildfire are insurance companies and the homeowners they insure. The cancellation and nonrenewal of insurance due to wildfire risk has received media attention in the wake of major wildfire seasons. This presentation considered a less frequently examined (but increasingly serious) problem: insurability risks borne by lower-income policy holders in wildfire-prone areas.

Technical

Using Soil Moisture Information to Better Understand and Predict Wildfire Danger: A Review of Recent Developments and Outstanding Questions

Presenter: Dr. Tyson Ochsner – Department of Plant and Soil Sciences at Oklahoma State University

Most fire danger rating systems in use around the world rely on a relatively standard set of input variables that are routinely measured at weather stations, chief among them being air temperature, relative humidity, precipitation, and wind speed. However, a growing body of research provides strong evidence that soil moisture is a key predictor of wildfire danger that has been largely overlooked. Soil moisture supplies water to live vegetation, influencing growth and canopy water content; while low soil moisture increases surface air temperature via increased sensible heating and reduces near-surface humidity, which decreases the moisture content of dead fuels. Thus, soil moisture is fundamentally connected to both fuel loads and fuel moisture via mechanisms that are not fully accounted for in current fire danger rating systems. This presentation aims to 1) highlight examples from the rapidly growing body of research on soil moisture—wildfire relationships and 2) make a case for more widespread use of soil moisture information in operational fire danger rating systems.

Droughts and Wildfires Be Dammed: how beavers help build landscape-scale climate resilience

Presenter: Dr. Emily Fairfax, Assistant Professor of Environmental Science and Resource Management at California State University Channel Islands

Beaver-based restoration is gaining popularity as a low-tech, low-cost strategy to build climate resiliency at the landscape scale. Beavers slow and store water in their ponds, canals, and the surrounding soil during wet periods. During dry periods, the stored water is accessible to vegetation – effectively "irrigating" the riparian zone and keeping it green even during multiyear droughts. When wildfires ignite, especially in drought-stricken areas, the comparatively wet beaver-dammed landscapes are difficult to burn and instead can act as fire refugia. Having reliable drought and fire refugia, like those created by beavers, is of increasing importance for water quality and quantity issues and for the conservation of sensitive aquatic/semi-aquatic species (salmonids, amphibians, etc.).

The Relationship Between Wildfires, Geologic Hazards, and Climate Change
Presenter: Lynne Carpenter – Geologic Hazards Coordinator, Forest Service, WO Minerals and Geology Management

This talk discussed the relationship between post-fire landscapes and geologic hazards, especially debris flows and flooding. Also, how climate change may impact the relative level of geologic-hazard risk on post-wildfire landscapes. What can agencies do to increase post-wildfire geologic hazard preparedness?

Impact of Wildfires on Water Quality and Treatment
Presenter: Fernando L. Rosario-Ortiz, D.Env., Professor, Environmental Engineering, University of Colorado, Boulder

The frequency and intensity of wildfires has increased over the past few decades. Wildfires represent an acute perturbation to watersheds, and the impacts include changes in ecosystems, sediment mobilization and overall water quality. The changes in water quality are a particular concern to drinking water utilities. These effects include enhanced mobilization of sediments, increases in concentration of nutrients and TOC, and changes to the potential to form disinfection byproducts (DBP). Over the past 10 years, my group has studied the impacts that wildfires can have on water quality and treatment operations. This presentation provided an overview regarding the specific effects that wildfires can have on water quality, treatment, and disinfection byproduct formation. The presentation also covered issues related to fires at the wildland urban interface.

Building capacity for assessment and prediction of post-wildfire water availability
Presenters: Brian Ebel, Research Hydrologist, and Sheila Murphy, Research Hydrologist (US. Geological Survey)

Each year, millions of acres of land burn in the U.S., including watersheds that deliver drinking water to millions of people. After fires, storms can convey sediment, ash, fire retardants, pollutants, and debris to surface water, leading to impaired water quality, loss of reservoir

storage, and high costs to water providers. In addition, wildfire can alter runoff and snowmelt processes, which can affect both water quantity and quality. Thus, in order to accurately assess and predict water availability in the western U.S., we need to accurately measure and model the impacts of wildfire on water quality, quantity, and use. The hydrologic response to wildfires, however, poses challenges to current measurement, modeling, and prediction capabilities. This talk described recent efforts by the U.S. Geological Survey Water Mission Area to build the capacity to assess and predict wildfire impacts on water availability that include: foundational measurements for model development and testing, monitoring plans and best practices, determination of drivers of water quality impairment for different constituents, remote sensing assessment, and blueprints for physically based models.