



16th International Wildland Fire Safety Summit & 6th Human Dimensions of Wildland Fire Virtual Conference

Monday, May 24

02:30 PM - 03:30 PM

Nature Journaling for Fire Situational Awareness – Look Up, Down and Around - Part One

By Miriam Morrill

This is a two part workshop, for the best experience you should plan to join both sessions. Pre-Registration is required for this workshop. Registered attendees will receive the link to join a few days prior. If you are not registered and would like to participate, please email us. CostL \$25 Day 1 will introduce key nature journaling concepts and practices that can be used to increase fire situational awareness leveraging the National Wildfire Coordinating Group Incident Response Pocket Guide's Look Up, Down and Around criteria. The exercises are intended for place-based experiences that help map multiple sensory observations to key fire ...

Monday, May 24

03:00 PM - 04:00 PM

Pre-Conference Networking

Monday, May 24

04:00 PM - 05:00 PM

Opening Remarks and Keynote: Success and sacrificing decisions in the field; human performance and hindsight

Keynote

Sidney Dekker, PhD

Opening Remarks by Toddi Steelman, IAWF President. Dr. Dekker will run through how sacrificing decisions (while being tentative but decisive in the field) under uncertainty and resource constraints, how capacities in a team can help make things go well despite this, and how, in hindsight, we might avoid second-guessing firefighters' sacrificing decisions under pressure, in part by being clear(er) about agreed decision criteria or 'freedom in a frame' upfront.

Monday, May 24

05:00 PM - 05:15 PM

Networking Break

Monday, May 24

05:15 PM - 05:45 PM

Approaching the Edge of Safety: A Cultural Approach

Concurrent

Doug Cupp

Fire Chief, Greater Eagle Fire Protection District

Hugh Fairfield-Smith

Wildland Corrdinator, Greater Eagle Fire Protection District

Wildfires bring a very complex and dynamic situation to the world of safety. The work that we are tasked to do on a daily basis is inherently dangerous and complex. Complex work in rapidly changing environemnts requires a new look at how we approach safety leadership. To reach high performing organizations and reduce critical incidents during the most aggressive and significant fires we have ever seen, we have to bring it to a deeper level. The creation of a new safety culture, organizational and operational learning, must involve the lowest levels of the organization. We need to empower and educate ...

Monday, May 24

05:15 PM - 05:45 PM

A New Platform for Eco-appropriate Homescaping for Wildfire Resilience

Concurrent

Antoine Kunsch

Community Resilience Coordinator, Resource Conservation District of the Santa Monica Mountains

The 2020 California wildfire season has caused historic losses of life, property, and wildlands. Southern California, one of the most fire-prone environments in the world, has more homes and area burned per decade than any other region in the United States. As wildfires are part of the ecosystem, it is of utmost importance we prepare our homes and property for this threat. In September 2020, the Resource Conservation District of the Santa Monica Mountains (RCDSMM) launched a new online platform -defensiblespace.org- to provide guidance for creating and maintaining a sustainable defensible space. This tool is designed for homeowners and residents ...

Monday, May 24

05:15 PM - 05:45 PM

Trends in Wildfire-Related State Legislation in California, 2001-2020*

Concurrent

Rebecca Miller

PhD Candidate, Stanford University

The California State Legislature has responded to recent catastrophic wildfire seasons with a substantial increase in the number of wildfire-related bills proposed. Each legislative session lasts two years; in the 2001-2002 through 2015-2016 sessions, the legislature proposed an average of 24 wildfire bills per session. But during the 2017-2018 session (which included the Sonoma Complex, Thomas, Carr, Mendocino Complex Fires), the legislature proposed 59 wildfire bills. In addition, during the 2019-2020 session (Camp, Woolsey, Kincade, 2020 lightning complex fires), the legislature proposed 181 wildfire bills. Here, we explore recent trends in wildfire-related bills from the last ten full legislative sessions ...

Monday, May 24

05:15 PM - 06:15 PM

Volunteer Firefighter Leadership Learning - an exploration of methods, approaches and what works best*

Deep Dive

Haydn McComas

PhD Candidate / Volunteer Firefighter / Leadership Researcher, Griffith University - School of Government & International Relations / 2020 Churchill Fellow

Sara McAllister

Australian volunteer firefighters lead teams in a variety of situations, interoperating with partner agencies, and increasingly across state and international jurisdictions. Leadership roles are often filled by those without leadership qualifications. In January 2020 the Australian Productivity Commission found that Australia's volunteer firefighting force declined 10% (or 16,000 volunteers) in the past decade, with poor local leadership quality cited as a major reason. Yet Australia, along with many jurisdictions has no consistent or defined volunteer firefighter leadership development pathways. This interactive workshop aims to explore leadership learning methods and approaches for volunteer firefighters and develop strategic insights towards investment for ...

Monday, May 24

05:15 PM - 06:45 PM

The Responder Exposure Index: Co-producing analytics to assess hazards to fire responders

Deep Dive

Christopher Dunn

Research Associate, College of Forestry, Oregon State University

Kit OConnor

Research Ecologist, USDA Forest Service RMRS

Mickey Campbell

Research Assistant Professor, University of Utah

The complexity of the fire environment has increased dramatically in recent decades because of historical management strategies, a changing climate, and expanding wildland urban interface. As the fire management system looks to new strategies for overcoming the wildfire paradox and meeting the challenges of the contemporary fire environment, minimizing risk to fire responders becomes increasingly important. This deep dive focuses on USDA Forest Service progress around a key pillar of the National Cohesive Wildland Fire Management Strategy—safe and effective response. In the Interagency Red Book, the Forest Service defines wildland fire response success as achieving reasonable objectives with the least ...

Monday, May 24

05:45 PM - 06:15 PM

Evaluating Fireline Effectiveness with Operations Data: Recent Progress and Future Directions

Concurrent

Benjamin Gannon

Postdoctoral Researcher, Colorado State University Department of Forest and Rangeland Stewardship

Improved collection of geospatial operations data has spurred the development of new tools to measure the performance of wildfire management. Among these are incident-level metrics of fireline effectiveness (FLE) calculated from easily quantifiable outcomes of fireline length that burned over, held, or did not engage with fire including the total fireline length to perimeter ratio (Tr), engaged to total fireline ratio (Er), held to engaged fireline ratio (HEr), and held to total fireline ratio (HTr). We analyzed FLE performance metrics for a diverse set of recent large wildfires from the western USA to understand how performance metrics vary with incident ...

Monday, May 24

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Trust between Members of IMTs: Factors that Contribute to Trustworthiness in Supervisors and Subordinates

Concurrent

Claire Rapp

PhD Candidate, Ohio State University

Though trust is likely critical to the functioning of an incident management team, relatively little research has examined what factors members of IMTs look for in each other to determine trustworthiness. Work in organizational psychology suggests that trustworthiness is based on the competence, integrity, and benevolence of the trustee. However, the importance of these characteristics may vary depending on the trust context. In IMTs, for example, individuals are members of a team with a strict hierarchy and clearly defined roles. Thus the factors that contribute to trustworthiness for a supervisor may not be important for trust in subordinates and vice ...

Monday, May 24

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A holistic framing of wildfire governance – insights from natural resource governance*

Concurrent

Judith Kirschner

PhD candidate, European University Cyprus, Centre of Excellence in Risk and Decision Sciences (CERIDES), 6 Diogenous Street, 2404 Nicosia, Cyprus

The urgency to increase resilience to wildland fires through holistic management approaches has become evident against a backdrop of intensified fire seasons during the last decades in Europe and globally. While integrated fire management is acknowledged as the way forward, innovative governance concepts (defined as the formal and informal structures and processes that encourage and accommodate representation by societal groups in decision-making and decision-taking) are needed to develop, implement, and communicate strategies, directives, and policies across different sectors and on local, national, and regional levels. The goal of this paper is to conceptualise wildfire governance in the 21st century. To ...

Monday, May 24

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Key Themes and Insights for Collaborative Fire Planning

Concurrent

Matthew P. Thompson

Research Forester, Wildfire Risk Management Science Team, USDA Forest Service Rocky Mountain Research Station Human Dim

Collaborative, cross-boundary fire response planning with partners and stakeholders helps build a shared understanding of wildfire risks and management opportunities. A key innovation and emerging best practice in planning is the development of potential operational delineations (PODs), which facilitate assessment, communication, mitigation, prioritization, and incident response strategy development. PODs are spatial units delineated by fire managers using potential fire control features (e.g., roads, ridge tops, streams, fuel transitions), within which relevant information on ecology, forest conditions, fire behavior, suppression difficulty, and wildfire risk can be summarized and then combined with local expertise to define strategic wildfire response objectives. PODs and ...

Monday, May 24

06:15 PM - 06:45 PM

If it was never about the money: What makes volunteer firefighters feel relevant?

Concurrent

John Mason

Ph.D. student., Monash University

Climate change is causing more bushfires in regional Queensland and drives increased community dependence on the services of rural fire brigade (brigade) members. Resulting need for improved brigade member (member) sustainability parallels significant nation-wide declines in emergency management volunteer recruitment and retention rates. For these reasons, leaders at brigade level, and within emergency management volunteer support agencies, require fuller appreciation of member motivations to stay or go. In search for deeper understanding of sustainability issues, our multicase study explores the brigade onboarding experiences of twenty-three participants located throughout the Queensland Fire and Emergency Services (QFES) North Coast Region. As a ...

Monday, May 24

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Transforming fire governance in British Columbia, Canada: Reigniting local to landscape approaches*

Concurrent

Kelsey Copes-Gerbitz

PhD Candidate, University of British Columbia Faculty of Forestry

Catastrophic wildfire seasons in British Columbia (BC) in the 21st century demonstrated that the dominant "command-and-control" wildfire governance model is ineffective at coping with modern wildfire challenges. In 2018, an independent review in consultation with wildfire-affected communities called for transforming governance structures to enable resilience to future wildfires, but it remains unclear exactly what structures may constrain or enable this transformation. To better understand the historical structures and processes that have shaped wildfire governance through time, and explore how these structures influence potential transformative pathways, we tracked governance structures in 157 provincial historical documents supplemented by 20 semi-structured interviews with ...

Monday, May 24

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Developments in Common Operating Pictures and Resource Tracking for Wildland Firefighters

Concurrent

Brad Schmidt

Wildland Fire Projects Manager, Colorado Division of Fire Prevention and Control

This session will focus on the developments surround the integration of TAK (Team Awareness Kit) in enhancing operational coordination among wildland firefighters. The role of TAK as part of the interagency response to the Dingell Act's firefighter location tracking mandate will be discussed, and examples from deployments of TAK on fires in Colorado and California will be provided.

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Pre-season Fire Management Planning: The Use Of Potential Operational Delineations (PODs)

Concurrent

Michelle Greiner

Research Associate, Public Lands Policy Group, Colorado State University Department of Forest and Rangeland Stewardship

US fire scientists are developing Potential Wildfire Operational Delineations, or 'PODs', as a pre-fire season planning tool to identify possible wildfire control locations on a landscape in advance of ignitions with the goal to enhance safe and effective fire response and better align fire management objectives. Strategic planning efforts offer the opportunity to build agreement and apply risk management principles with partners outside of the emergency management context. Through interviews with personnel engaged in PODs planning and implementation we investigated the trajectory and anticipated utility of PODs as a support tool for decision-making during wildland fire events. We also conducted ...

Monday, May 24

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Red Flag Warnings: Fire Practitioners' Perspectives on Using National Weather Service Products for Fire Weather Safety and Operations*

Concurrent

Tamara Wall

Associate Professor, Desert Research Institute

Tim Brown

Director, Western Regional Climate Center, DRI

The need for a revamped Red Flag Warnings (RFW) and Fire Weather Watches Product has been expressed over recent years by both fire management and fire weather meteorologists. An NWS workshop was held in Boise, ID in September 2018 that brought together NWS fire weather personnel, USFS researchers, and academic researchers to examine needs and potential research for improving both consistency and messaging of the RFW product. Changing the RFW has challenges not seen in most other NWS hazard messaging products because it needs to include aspects of both weather and vegetation conditions and may or may not include the ...

Monday, May 24

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Wildfire Risk to Communities: A New Tool To Understand, Explore, and Reduce Wildfire Risk

Concurrent

Eva Karau

Spatial Analyst, USFS Rocky Mountain Research Station

Scott Story

GIS Analyst/DBA, Headwaters Economics, Inc.

Wildfire Risk to Communities (wildfirerisk.org) is a new easy-to-use website with interactive maps, charts, and resources to help communities understand, explore, and reduce wildfire risk. It was created by the USDA Forest Service under the direction of Congress. Wildfire Risk to Communities builds on nationwide LANDFIRE data to provide new information about wildfire risk for every community, county, and state in the U.S. The Wildfire Risk to Communities website is intended to foster collaboration between managers, firefighters, residents, and communities across the United States to identify places with the highest risk to homes and guide those users to solutions that ...

Monday, May 24

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Local social adaptation to post-fire flood risk: Insights from a decade of experience after wildfires in Flagstaff, Arizona

Concurrent

Catrin Edgeley

Assistant Professor, Northern Arizona University

Recent wildfires in the greater Flagstaff area have prompted heightened concerns about post-fire flood risk. Surface runoff in burned areas often exacerbates flooding from intense summer monsoon rains, putting property and life at risk for years at a time depending on burn severity. As more communities across the US West document conditions associated with high-impact flooding from burn scars into wildland-urban interface areas, longitudinal understandings of how residents and professionals respond and work to maintain awareness have become paramount to successful risk reduction. Establishing a foundational understanding of social responses is critical as the next precipitation event may arrive only ...

Monday, May 24

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Forged in Fire: Enhancing the International Bushfire/Wildfire Cooperative Relationship for Mutual Capacity Building and Enhanced International Resilience

Concurrent

Robert Baird

Director, Fire and Aviation Management, Pacific Southwest Region, USDA Forest Service

In the foreseeable future the reality of hotter, drier, and more devastating "fire years" instead of seasons will drive nations to think, plan and operate more cooperatively against bushfires/wildfires. Bushfire/wildfire seasons are becoming longer, more intense and more destructive across multiple nations. The United States, despite all its firefighting resources, has consistently needed increased international wildfire support from other countries and will likely need to continue this practice in the future. In 2017 amidst the largest wildfire at the time in California (the Mendocino Complex), the speaker was the Director of Fire and Aviation for the USDA Forest Service in ...

Monday, May 24

07:15 PM - 07:45 PM

Networking Break

Tuesday, May 25

12:01 AM - 01:00 AM

Opening Remarks, Award Presentation and Keynote: Wildland Fire Management under COVID-19: Results of Two Global Surveys

Award Presentation: 2021 IAWF Early Career in Fire Science

Keynote

Cathelijne Stoof

Assistant Professor, Department of Environmental Science, Wageningen University, the Netherlands

This talk summarizes the results of two global surveys that were conducted at the start of the pandemic and in February 2020 to clarify implications of COVID-19 impacts on wildland fire management. These surveys were held to collate any plans, protocols or procedures to generate generic guidance for wildland fire professionals in developing and developed countries, and to stimulate sharing of best practices between agencies, regions and countries. Results of the two surveys allow comparison of expectations and lessons learned about fire management during the pandemic. Topics explored include COVID-19 effects on general fire management, sharing of resources, fire suppression ...

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Networking Break

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Fire spread on a slope with and without canyon

Concurrent

Andre Rodrigues

Forest Fire Research Center, Association for the Development of Industrial Aerodynamics

"Forest fires have been increasingly severe, not only due to the large burned area, but mainly due to the recorded personal accidents, some of them fatal. The loss of heritage is felt but the loss of human life is particularly regretted. Portugal will never forget the fatalities linked to forest fires in recent years. The great fires are strongly marked in the memory of the people, due to the extreme and devastating spread of the fire, causing the loss of property and lives. Many of these accidents and deaths are associated with canyons. Insufficient knowledge about fire behaviour, especially about ...

Tuesday, May 25

01:15 AM - 01:45 AM

Comparing Wildfire Risk Indices' Performances in Swedish Regions

Concurrent

Claude Pagnon Eriksson

PhD Student, Division of Fire Safety Engineering, Lund University

Wildfires are a naturally occurring phenomenon in many parts of the world, including Sweden, where the number and severity of wildfires have varied over the past century. In the last two decades, the wildfire seasons of 2014 and 2018 have been extremes in terms of burned area. These recent events have led to an increased focus on wildland fire managing strategies in Sweden. Numerous different models and tools for wildfire risk management have been developed globally. One type of tool used to predict wildfire danger and support decision-making are fire danger indices or wildfire risk indices. Many of the available wildfire ...

Tuesday, May 25

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Is it time for a SEA change? Using self-evacuation archetypes as a lens to apply to bushfire community safety approaches.

Concurrent

John Gilbert

Program Manager Research and Evaluation, CFA

Kenneth Strahan

PhD, Strahan Research

In order to more effectively engage with people about bushfire risk, and address their specific needs, requires new ways of thinking and a willingness to try new approaches. Existing research has shown that householders facing a bushfire threat respond in a variety of ways depending on a diversity of factors including risk perception, stakeholder perceptions, the perceived effectiveness of protective actions, self-reliance, experience and their intended protective actions. Seven self-evacuation archetypes attempt to capture this diversity of attitudes and responses to bushfire (Strahan et al., 2018). Strahan and Gilbert (2020) conducted a study, under the auspices of Safer Together, to ...

Tuesday, May 25

01:15 AM - 03:30 AM

Envisioning different firefighting futures

Deep Dive

Claudia Berchtold

Senior Researcher, Project Manager, Fraunhofer Institute for Technological Trend Analysis (INT), Germany

Florian Neisser

Senior Researcher, Project Manager, Dr. / PhD, Fraunhofer Institute for Technological Trend Analysis (INT), Germany

Sebastien Lahaye

PhD, SAFE Cluster / FIRE-IN project

In our interactive workshop (Deep dive session) we will discuss and explore a participatory approach to challenges and potential futures of firefighting organisations. The idea is to introduce a method following a structured explorative approach to assess the status quo of Firefighting and First Responder Organisations as socio-technical systems. Different aspects of these systems are subject to change including for example incident scenarios but also socio-economic, demographic and technological developments will determine future capability needs and related organisational development options. Thus, we address future course(s) of practice, management, and research in response to local, regional, and global challenges resulting from ...

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Human Frailties in Decision-Making for Wildland Fire

Matt Holmstrom

Regional Risk Management Officer, USFS/BLM

Tuesday, May 25

01:45 AM - 02:15 AM

Preliminary Analysis of Junction Fire with Two Non-symmetric Fire Fronts.

Concurrent

Carlos Ribeiro

N/A, Forest Fire Research Center, Association for the Development of Industrial Aerodynamics, Department of Mechanical Engineering, Faculty of Sciences and Technology, University of Coimbra, Portugal
Annually, the average of forestry burned areas is over than 460MHa (Randerson et al. 2012). The 2017 was a particularly serious year for wildfires in Portugal, not only because large areas were burned in two phases of the year (June and October), but mainly, due to personal accidents, the highest number of civilian's deaths and socio-economic losses (Viegas et al. 2017). The presented work was motivated by the wildfire that occurred on 17th June 2017 in Pedrogão Grande, Portugal. In this wildfire, during three hours, the interaction and the convergence of the two non-symmetric fire fronts, Escalades Fundeiros (EF) and ...

Tuesday, May 25

01:45 AM - 02:15 AM

Informing Firefighters and Community Members About the Risk From Fire Triggered Debris Flow and Flash Floods*

Concurrent

Andy Ackland

Predictive Services Specialist, Country Fire Authority

The 2019-2020 Australian Summer bushfire season was unprecedented in size and severity. Across several States and Territories an area of over 17 million hectares were burned, 1.5 million hectares were within Victoria. Within the Eastern half of the State 400 homes were destroyed and 5 lives lost. The area consisted of small settlements and isolated rural properties scattered amongst the mountainous forested landscapes. Fire intensities on steep slopes resulted in significant fuel consumption and fire impacted soils exposed. Victoria has previously experienced tragic consequences from flash flooding and debris flow resulting from storm and rainfall events over areas recently impacted ...

Tuesday, May 25

01:45 AM - 02:15 AM

Capability of concentrated sunlight on the smoldering ignition of wildland fuels*

Concurrent

Shaorun Lin

Ph. D. candidate, The Hong Kong Polytechnic University

Siyang Wang

Miss, Research Center for Fire Safety Engineering, the Hong Kong Polytechnic University

Sunlight concentrated by disposed water vessels is a common ignition source for wildland fire, but its capability of ignition and fire hazard is still poorly understood. Herein, well-controlled experiments are designed to study the smoldering ignition of the multiple-layer tissue by the concentrated sunlight. The sunlight is concentrated by a transparent glass sphere with a diameter of 150 mm and a focal length of 108 mm. The diameter of light spots on paper ranges from 1.5 mm to 21.5 mm by varying the position of sample within sphere focal length. The concentrated radiant heat flux increases, as the sunlight intensity ...

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02:15 AM - 02:30 AM

Networking Break

Tuesday, May 25

02:30 AM - 03:00 AM

Forest fire risk assessment in central Portugal by monitoring fine forest fuels moisture Content

Concurrent

Sérgio Lopes

Centre for Studies in Education, Technologies and Health (CI&DETS), Polytechnic Institute of Viseu

Forest fuel moisture content is an important parameter in forest fire risk assessment because it's relation with fire ignition and fire spread potential. Due to the complexity of fuel moisture content modelling, direct field measurement, included in a larger monitoring program applied to different environmental conditions, is an appropriate methodology for establishing fire risk. In the present work, direct field measurements of fine forest fuels moisture content were performed in Central Portugal, namely in Viseu and Coimbra (Lousã), and the results obtained were used to improve the knowledge on fuel moisture content and fire risk assessment. In the two sampling ...

Tuesday, May 25

02:30 AM - 03:00 AM

Pyro-convective Hazards: Trying to Protect Firefighters from Risks We're Still Learning About*

Concurrent

Musa Kilinc

Predictive Services Specialist, Country Fire Authority

Tim Wells

Commander - Safer Together, Country Fire Authority

Victoria, in south-eastern Australia, is one of the most fire prone areas in the world and has experienced many bushfire disasters over the last century. During the 2018-2019 fire season, Victoria experienced an unusually large number of fire-initiated thunderstorm (pyro-cumulonimbus) events. These events, and the associated severe fire behaviour, posed additional dangers to both firefighters and the broader community. While pyro-cumulonimbus events are rare, over the last couple of decades they have increased in frequency. During the three years prior to the 2019-2020 Victorian bushfire season there had been a protracted drought in the rugged and heavily timbered hills in the ...

Tuesday, May 25

02:30 AM - 03:00 AM

Scenario-strategic Safety and Empowered Tactical Decision-Making

Concurrent

Marc Castellnou Ribau

Strategic Fire Analyst, Catalan Fire and Rescue Service

Marta Miralles

Fire Analyst, Catalan Fire and Rescue Service

Fire Rescue Services (FRS) have been overwhelmed by extreme wildfire behavior, bringing in defensive strategies with a focus on known risk, self-protection protocols, and risk mitigation measures. This has proven not to be enough, with fire entrapments of fire-fighters and civilians and extreme seasons (Portugal-2017, Greece-2018). FRS confronts different challenging scenarios (FIRE-IN EU project): from the need to sustain efforts in time and space, to low-frequency of high impact events, to working with multiple leaderships, to confront uncertain scenarios. Most of the recent accidents fall in this last category, confronting uncertainty, for which FRS have no specific tools. Firefighters start ...

Tuesday, May 25

03:00 AM - 03:30 AM

Estimation of Carbon Loss from Boreal Peatland Fire in 21st Century

Concurrent

Shaorun Lin

Ph. D. candidate, The Hong Kong Polytechnic University

Boreal peatlands and permafrost are increasingly vulnerable to wildfires as climate change continues deteriorating. Fires consume substantial quantities of organic soil and rapidly transfer large stocks of terrestrial carbon to the atmosphere. Herein, we quantify the minimum environmental temperature that allows the moist peat to smolder, as the fire threshold of peatlands. We then applied a typical vertical soil temperature profile to estimate the increased depth of burn and carbon emissions in peatland fires under the impact of global warming. If boreal peatlands continue warming at a rate of 0.44 °C/decade, we estimate that the carbon loss from the peat ...

Tuesday, May 25

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Fire-Adaptive Communities in an Australian Context: what lessons can be learnt from current work with communities?

Concurrent

Zoe D'Arcy

PhD Candidate, RMIT University

"What could fire-adaptive communities look like in an Australian context? Often defined as communities 'co-existing with fire', the concept of fire-adaptive communities has been adopted by several countries experiencing an increased frequency of extreme wildfire events. The concept has not really gained traction in Australia at a policy level, which focuses primarily on an emergency risk management approach to wildfires. As Australian communities face a future that is projected to bring more wildfires, however, there are potentially lessons to be learnt from some of the current initiatives and programs that do exist – both formal and informal – that seek ...

Tuesday, May 25

03:00 AM - 03:30 AM

The wildland urban interface as a socio-ecological system

Concurrent

Sven Christ

N/A, PGM Department, ITC Faculty, University of Twente

Wildfire is a global concern ecologically and societally, where this is most noticeable to people is at fire prone and fire dependent wildland urban interfaces (WUI). Here, urban areas often require protection from wildfires, whereas fire dependent wildland requires wildfire within certain intervals to remain ecologically viable. Recently, the WUI has been seen as a socio-ecological system (SES) which incorporates feedbacks between urban systems and wildland. Most of these studies, however, focused on fire prone wildlands. We adapted an SES approach for wildfire to aim specifically at a fire dependent WUI and traced the SES dynamics over time. We used ...

Tuesday, May 25

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Networking Break

Tuesday, May 25

08:00 AM - 09:00 AM

Opening Remarks, Award Presentation and Keynote: Former Prime Minister, Felipe Gonzalez

Award Presentation: 2021 IAWF Wildland Fire Safety Award

Tuesday, May 25

09:00 AM - 09:20 AM

Networking Break

Tuesday, May 25

09:20 AM - 09:30 AM

Wildfire Mitigation on a Homeowner Level in Northern California Suburbs

Just in Time

Celina Mohni

Undergraduate Student, University of Waterloo

This session will be going over the research of my undergraduate thesis paper looking at homeowner-level wildfire mitigation in the suburbs of Northern California, an area with repeat hazards. The research examines the homeowner's role in reducing wildfire risk on a personal and community level, available options for wildfire mitigation, and barriers in pursuing such options. Factors of risk are studied using an assessment framework that can be used as a homeowner's guide of how to reduce individual and community wildfire risk.

Tuesday, May 25

09:20 AM - 09:30 AM

Coarse-scale risk assessment model for wildfires in the Yukon

Just in Time

Amanda Eskridge

Student Research Assistant, Yukon University

Brandon Whey

Yukon University

Jaclyn Semple

Instructor/Research Scientist, Yukon University

We have developed an automated process that provides a course-scale risk assessment of wildland fire occurring in the Yukon. This model takes into account the fuel environment, Values at Risk (VaR), and critical Fire Management Zones (FMZ) to perform a local 20km risk analysis for any fire in near real-time. The calibrated sum of the calculated risk values is assigned a relative rating (low, moderate, high, very high, extreme) to be incorporated into Yukon Wildland Fire Management's decision-making process. An additional output currently in development is a geospatial representation of the specified risk assessment area provided via an automated email ...

Tuesday, May 25

09:30 AM - 10:00 AM

National forests without targeted federal funding: Restoration underdogs or a different breed of forest?*

Concurrent

Chad Kooistra

Wildfire Management Research Program Lead, Public Lands Policy Group, Colorado State University

Courtney Schultz

Associate Professor, Colorado State University

Sarah McCaffrey

Research Forester, USDA Forest Service, Rocky Mountain Research Station

Wildfire mitigation and ecological restoration are increasingly important activities on public and private lands. Innovative and collaborative approaches are required to increasing the pace and scale of work. The US Forest Service (USFS) prioritizes fire mitigation, improving forest and watershed health, and other restoration activities through targeted investments in fire-prone landscapes with programs such as the Collaborative Landscape Forest Restoration Program (CFLRP) and the Joint Chiefs' Landscape Restoration Partnership. Projects selected to receive support from these programs are typically evaluated by criteria including the readiness to begin work, risk mitigation potential, the collaborative nature of planning and implementation, and other ...

Tuesday, May 25

09:30 AM - 10:00 AM

Joint Leadership in Wildfire Management: Lessons Learned from the 'Elephant Hill' Fire in Secwepemcúl'ecw, British Columbia*

Concurrent

Char John

Natural Resource Community Coordinator, Secwepemcúl'ecw Restoration and Stewardship Society

Sarah Dickson-Hoyle

PhD Candidate, Faculty of Forestry, University of British Columbia

Throughout the summer of 2017, wildfires burned a record-breaking 1.2 million hectares in the province of British Columbia (BC) Canada, prompting a ten-week provincial state of emergency and the evacuation of over 65,000 people. First Nations communities and their territories were disproportionately affected, and social, cultural, economic and ecological recovery processes are still ongoing. In the wake of these 'megafires', many First Nations communities were catalyzed to take action, and the resulting Provincial Flood and Fire Review recommended establishing equal partnerships with First Nations governments across all stages of fire management and planning. In light of this recommendation and Canada's ...

Tuesday, May 25

09:30 AM - 10:00 AM

The Vulnerability of California's Wildland Urban Interface Communities to Wildfire

Concurrent

Alyssa Thomas

Social Science Analyst, USDA Forest Service Pacific Southwest Research Station

Across the globe the social, economic, and ecological impacts of recent and unprecedented wildfires have increased dramatically over the past thirty years. News stories of these fires typically focus on loss of forests and structures, but much less is known about their impacts on communities. Similarly, there is a large body of research on the probability of fire ignition, fire modeling, and identification of high-risk wildfire zones. Although this research informs managers on which communities are at high risk, it does not inform stakeholders on who are considered highly vulnerable populations. For example, in 2018 communities of color were more ...

Tuesday, May 25

09:30 AM - 11:30 AM

Meeting Challenging Times with Embodied Mindfulness & Compassion Practices*

Deep Dive

Michelle Reugebrink

Resilience & Personal Effectiveness Program Manager, USDA Forest Service

This workshop will provide a more in-depth interactive experience of the Workforce Resilience Ignite Talk given on February 23rd. Considering the intensity of the past year, from historic wildfires to social and economic tensions to a global pandemic, it is no wonder that many people are experiencing burnout, stress, and anxiety. The stress load for first responders who already were exposed to critical incidents and ongoing stress climbed to a new level. Many first responders are what compassion researcher Peter Frost (1939 – 2004) calls a “toxin handler.” A toxin handler is “a manager who voluntarily shoulders the sadness, frustration, ...

Tuesday, May 25

09:30 AM - 11:00 AM

Emerging Research Applications for the PODs Strategic Fire Planning Framework*

Deep Dive

Benjamin Gannon

Postdoctoral Researcher, Colorado State University Department of Forest and Rangeland Stewardship

Christopher Dunn

Research Associate, College of Forestry, Oregon State University

Kit OConnor

Research Ecologist, USDA Forest Service RMRS

Matthew P. Thompson

Research Forester, Wildfire Risk Management Science Team, USDA Forest Service Rocky Mountain Research Station Human Dim

Michael Caggiano

Wildland fire Decision Support Program Manager, Colorado Forest Restoration Institute, Colorado State University

Michelle Greiner

Research Associate, Public Lands Policy Group, Colorado State University Department of Forest and Rangeland Stewardship

This session is happening in ZoomJoin Zoom Meeting<https://us02web.zoom.us/j/87171949815?pwd=bTlZU1hDenk3TEluWjRjNXZuSWVOUT09MeetingID:87171949815Passcode:132003>Dial by your locationFind your local number: <https://us02web.zoom.us/u/kelbFOAPF7>This Deep Dive session is focused on new research and applications of the Potential Wildfire Operational Delineations (PODs) strategic cross-boundary fire planning framework. To date this process has been adapted for use on more than 40 national forests and surrounding lands in the western US, providing a rich base of experience with pre-season fire planning and communication, incident-response and large fire decision support, and strategic project-level applications. Building on this experience, a series of extensions of the PODs framework are being ...

Tuesday, May 25

10:00 AM - 10:30 AM

2020 Wildfire Impacts in Napa and Sonoma Counties, CA - What Have We Learned?

Concurrent

David Shew

Wildfire Resiliency Consultant - Retired CAL FIRE Chief, Wildfire DefenseWorks

Wildfires set unwanted records during 2020. Many were ignited by lightning storms, with many counties surrounding the San Francisco Bay Area finding themselves especially hard-hit. Both Napa and Sonoma Counties suffered from these events, even while many residents were still recovering from the devastating wildfires of 2017. As these events seemingly become more commonplace, what are the lessons we can learn from them, and how do we prepare for the next one? As a retired CAL FIRE Staff Chief, and a resident of Napa, I have experienced these events in both professional and personal contexts. This presentation will review these ...

Tuesday, May 25

10:00 AM - 10:30 AM

Field experiments on wildfire risk communication and household behavior

Concurrent

Hilary Byerly

Postdoctoral Research Associate, University of Colorado, Boulder

The growing frequency and intensity of wildfires raises risks to communities. To reduce community wildfire risk, wildfire organizations and government agencies increasingly seek to influence homeowner behavior. Yet it practitioners lack causal evidence on how to capture homeowners' attention and engage them in wildfire programs. We partnered with local wildfire organizations in Oregon and Colorado to test how different outreach strategies affect homeowner behavior. In two studies, property owners were mailed a postcard from the local fire department describing their properties' wildfire risk and directing them to visit a personalized webpage to learn more. Subjects were randomly assigned to receive ...

Tuesday, May 25

10:00 AM - 10:30 AM

Wildfire as a management strategy to restore resilience to ponderosa pine forests in the southwestern United States

Concurrent

Jesse Young

Postdoctoral Fellow, Oak Ridge Institute for Science and Education

The long-term outcomes of accelerating forest restoration by expanding resource objective wildfire in combination with fuel management on fire excluded landscapes in the western US is not well studied. Most studies of meeting resource objectives with wildfire focus on protected areas and many questions remain about combining forest and wildfire management over time. We used simulation modelling to examine the potential long-term tradeoffs and synergies of combining wildfire and contemporary forest restoration treatments on a 1.5 million ha landscape over 56 years. We hypothesized that non-additive effects between forest and wildfire management will emerge over time and place, with the ...

Tuesday, May 25

10:00 AM - 10:30 AM

Co-management: What is it?

Concurrent

Branda Nowell

Professor, North Carolina State University

Co-management is of increasing importance in wildfire response. The concept is framed as an important part of the pathway to a more cohesive fire management strategy and is increasingly relevant as wildfires become larger and involve greater numbers of jurisdictions and individuals in the response. However, it is unclear how actors affected by wildfires conceive of co-management on multi-jurisdictional events. Additionally, wildfire co-management connects to the larger body of co-management literature in unclear ways. To provide clarity to these outstanding issues, we focused on how co-management was defined and understood by jurisdictional leaders during a complex wildfire event, using an ...

Tuesday, May 25

10:30 AM - 11:00 AM

Wildfire Risk to Indigenous Communities in Canada

Amy Cardinal Christianson

Fire Research Scientist, Canadian Forest Service, NRCan

David Young

Social Science Researcher, Canadian Forest Service, NRCan

Despite officially owning less than 6% of the forests in Canada, Indigenous communities here bear a disproportionate share of wildfire and evacuation impacts. We will share results from a recent analysis of the Canadian Wildland Fire Evacuation database, exploring evacuation events and the impacts on Indigenous peoples between 1980 and 2020. We will also address the contemporary risk to Indigenous communities in Canada, showing results from a community risk profiling exercise. Our results show that Indigenous communities are more at risk to wildfire than non-Indigenous communities, and we recommend culturally based wildfire prevention and mitigation strategies to be funded comparable ...

Tuesday, May 25

10:30 AM - 11:00 AM

Preparing for the Inevitable: Efforts and Barriers to Wildfire Preparedness in Rural Communities, Northeastern California*

Concurrent

Ryan Tompkins

Forestry and Natural Resources Advisor, Univ. of Calif. Cooperative Extension

California wildfires continue to burn more acres each year resulting in evacuations of rural communities in the wildland urban interface. As part of a regional needs assessment for rural counties in northeastern California, the University of California Cooperative Extension surveyed rural communities to understand how residents are preparing for wildfire. We asked residents to share what actions they were taking to improve home resistance to fire, create and maintain defensible space, and plan for emergency evacuation, and what barriers were perceived in improving their preparedness for wildfire. Most rural communities indicated they have been impacted by fire in the past ...

Tuesday, May 25

10:30 AM - 11:00 AM

Calculating Carbon Emissions for Wildfires during FIREX-AQ 2019

Concurrent

Amber Soja

Senior Research Scientist, National Institute of Aerospace

Emily Gargulinski

Research Engineer, National Institute of Aerospace

"In order to understand the impact wildfires have on air quality and human health, it is necessary to quantify the carbon they release into the atmosphere, and the relative influence both flaming and smoldering fire processes have on these emissions. During the Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ) campaign, approximately 40 Wildfires in the Western United States were sampled by NOAA and NASA platforms to investigate the impact wildfires have on air quality and climate. Our group, Fuel-2-Fire, aims to connect the fuel and fire conditions to the emission of carbon into the atmosphere as ...

Tuesday, May 25

11:00 AM - 11:30 AM

Collaboration and Proactive Wildfire Management: the Role of Community Forests in British Columbia, Canada*

Concurrent

Sarah Dickson-Hoyle

PhD Candidate, Faculty of Forestry, University of British Columbia

Worldwide, recent years have seen increasing socio-economic and ecological impacts resulting from high severity wildfires. In British Columbia (BC), Canada, the 2017 and 2018 wildfires burned a record-breaking 2.5 million hectares, further highlighting the risk posed to communities and forest ecosystems. While the COVID-19 pandemic has elevated the urgency of proactively addressing wildfire risk, many communities throughout BC remain unprepared and continue to face challenges in accessing the funding and expertise needed to effectively prepare for and respond to wildfires. At the same time, overarching forest planning and legislative frameworks, and the diversity of values on the forested land base, ...

Tuesday, May 25

11:00 AM - 11:30 AM

The Use of Science in Wildland Fire: A Review of Barriers and Facilitators

Concurrent

Molly Hunter

Research Professor, University of Arizona; Joint Fire Science Program

Science plays a critical role in natural resource management, and the use of science in decision-making is mandated by several policy initiatives. Other disciplines have documented the challenges associated with applying science to management and possible solutions to overcoming challenges, but the evaluation of science use in wildland fire management is relatively immature. In this study, we developed a conceptual model that describes the possible uses of science in fire management (perception, planning, forecasting, implementation, assessment, communication, and policy), common barriers to science use (lack of science, uncertainty, funding/capacity, conflict), common facilitators to fire science use (collaboration, trust, boundary organizations, ...

Tuesday, May 25

11:00 AM - 11:30 AM

Pandemic Impacts on Aviation Use and Risk Transference in Wildland Fire*

Concurrent

Crystal Stonesifer

Ecologist, USDA Forest Service, Rocky Mountain Research Station

July 7, 2020 marked the beginning of a two-month period that would see five aircraft crashes in wildland fire in the United States; tragically, these accidents resulted in five fatalities for the pilots. Additionally, prior to the start of the US core fire season, three US pilots died on January 23, 2020 when their large airtanker impacted terrain following a retardant drop on a fire in New South Wales, Australia. Separately, a pilot was also killed, and a co-pilot seriously injured following the crash of a water-scooping airtanker working on a Portuguese wildfire in August. For the US, these 2020 ...

Tuesday, May 25

11:00 AM - 11:30 AM

Operational Knowledge from the Aerial Firefighting Use and Effectiveness Study*

Concurrent

Keith Stockmann

Economist, USDA, Forest Service, National Technology and Development Program

In 2012, the USDA Forest Service began scoping a long-term study to investigate how airtankers, helicopters, and scoopers contribute to fire suppression strategies and tactics. After a brief refresher on study methodology I'll describe the sample we collected and how it compared to all activity. I will describe several limitations and potential bias. I will present overall mission profiles for the various aircraft. I'll also show drop outcomes by aircraft type and explain how we compared drop outcomes to drop objectives to derive effectiveness and two new performance metrics. I will present key findings from the AFUE Report, including how ...

Tuesday, May 25

11:00 AM - 11:30 AM

Pyro-terrorism; The Threat of an Arson-Induced Wildfires/Bushfires as a Terrorist Weapon

Concurrent

Robert Baird

Director, Fire and Aviation Management, Pacific Southwest Region, USDA Forest Service

"While security and defense elements of numerous governments across the globe are oriented on the readily apparent weapon of mass destruction scenarios, radical terrorists are adapting to avoid security and screening systems and are seeking new operational tactics. Instead of using expensive, complex, and readily detectable nuclear or radiological bombs as weapons of mass destruction, future terrorists can easily ignite several massive bushfires/wildfires to overwhelm suppression resources, wreak havoc during evacuations, destroy critical infrastructure and terrorize vulnerable publics. The potential destructive energy already exists in numerous forests plagued by the impacts of global warming such as beetle-killed forests and persistent ...

Tuesday, May 25

11:30 AM - 12:30 PM

Geospatial Analysis and Mapping Tools to Operationalize Spatial Fire Planning

Poster

Benjamin Gannon

Postdoctoral Researcher, Colorado State University Department of Forest and Rangeland Stewardship

Spatial fire planning with Potential wildland fire Operational Delineations (PODs) is gaining popularity in the western USA as a platform to develop localized fire response strategies based on control opportunities (e.g., roads, rivers, and fuel transitions), values at risk, and land management objectives. Early applications of the framework required significant investment of research staff time on spatial data management and analysis to attribute PODs with pertinent information for strategy development. Despite the utility of this information for planning and operations, we found we found that managers primarily used the final response strategy map and associated spatial data on control opportunities ...

Tuesday, May 25

11:30 AM - 12:30 PM

Lessons From the Past: How Can Paleoenvironmental Fire Reconstructions Help to Inform Future Fire Management in Siberia?

Poster

Ramesh Glueckler

Doctoral Researcher, Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research

Fire is an essential ecological process on Earth, controlled in large parts by climate, vegetation and human activity. Currently, we experience a rapidly warming climate, which will likely continue to affect and change the fire regimes we experience today. However, our perception of the present and future of wildfires also benefits from a look into the past. Long-term fire reconstructions can be useful for fire management, as they provide insights on how vegetation, climate and human activity have shaped and responded to previous changes in fire regimes over the last centuries to millennia. They could also be used to better ...

Tuesday, May 25

11:30 AM - 12:30 PM

Predicting Wildfire Effects on Streamflow Using Hydrologic Modeling

Poster

Katie Wampler

Master's Student, Forest Engineering, Resources, and Management, Oregon State University

Forested watersheds are critical sources of the majority of the world's drinking water. Almost one-third of the world's largest cities and two-thirds of cities in the United States (US) rely on forested watersheds for their water supply. These forested regions are vulnerable to the increasing incidence of large and severe wildfires due to increases in regional temperatures and greater accumulation of fuels. When wildfires occur, source water quantity and quality in burned catchments can be affected for many years. While past research has shown the likelihood of source water impacts from wildfire, the magnitude and timing of effects remains uncertain ...

Tuesday, May 25

11:30 AM - 12:30 PM

Mapping the Ethical Landscape of Wildfire Management

Poster

Dyllan Goldstein
CEMPRR lab

Eric Kennedy

Assistant Professor & Undergraduate Area Coordinator Disaster & Emergency Management, York University

There is broad agreement on the role of wildfire management in protecting public safety and ecological values. Yet, there are often contrasting or conflicting views on how exactly these goals should be achieved. The complexity of these issues has only grown with the scale and impact of our annual conflagrations. For example, many issues – like acceptable risk exposures, the use of prisoner firefighters, the form of 'nature' being preserved, and how much ought to be invested into mitigation versus response – offer vexing value trade-offs. All of these questions are deeply value oriented, and we argue, entirely concerned with ...

Tuesday, May 25

11:30 AM - 12:30 PM

The Southwest Fire and Climate Adaptation Partnership

Poster

Alicia Azpeleta Tarancon

SW CASC Fire and Climate Adaptation Coordinator, SW CASC and SW Fire and Science Consortium

The interior Southwest is experiencing increased warming with a continued declining trend of the snowfall fraction, unprecedented and unacceptable wildfires, tree die-off triggered by severe droughts, and increased tree-killing insect outbreaks, disrupting southwestern ecosystems and altering species interactions and ecosystem processes, all linked to climate change. The Southwest Fire and Climate Adaptation Partnership (SWFireCAP) is a new multi-organizational collaboration currently composed of the Southwest Fire Science Consortium (SWFSC), the Institute for Tribal Environmental Professionals (ITEP), two Regional Climate Adaptation Science Centers (CASCs), the USDA Southwest Climate HUB, the NPS Climate Change Response Program (CCRP), NAU's Center for Adaptable Western Landscapes ...

Tuesday, May 25

11:30 AM - 12:30 PM

Indicators of collective action to address post-fire flooding

Poster

Jack Burnett

Northern Arizona University - School of Forestry

Indicators of collective action to address post-fire flooding: Exploring the influence of perceptions, actions, and impacts ten years after the Schultz Fire Land management agencies, governments, and communities are increasingly invested in fostering safer and more sustainable relationships to live with wildfire. Current federal policy promotes the creation of fire adapted communities, which depend in part on collective action across boundaries. Existing research suggests that shared responsibility, understandings, and perceptions of risk may be indicators of household-level interest in collective action to address wildfire risks and impacts. However, few of these efforts have examined whether efforts to establish collective action ...

Tuesday, May 25

11:30 AM - 12:30 AM

Planning wildfire-adapted communities: Training and competency among municipal land use planners

Poster

Elise Gatti

Dr., University of Alberta

Community land use planning and development regulations are important tools for reducing the risks and impacts of wildfire. Yet research from countries without a legislative mandate requiring municipalities to address wildfire risk through municipal planning show that, when given the option, local governments tend to adopt voluntary rather than regulatory approaches. One of the potential obstacles to the integration of wildfire risk mitigation and land use planning is lack of knowledge and training among planners. However, few studies have explored planners' perceptions of wildfire and wildfire risk mitigation. As part of a larger study of municipal government wildfire mitigation in ...

Tuesday, May 25

02:30 PM - 03:30 PM

An Intro to Using StoryMaps for Wildfires

With Chris (Fern) Ferner

Workshop

Pre-registration is required for this workshop. Registered attendees will receive the link to join a few days prior. If you would like register, please email us. Cost: \$25 An Intro to Using StoryMaps For Wildfires Join us for a hands on introduction to ArcGIS StoryMaps. These are a very useful tool for disseminating information prior to, during and after wildfire events. Attendees will receive an introduction including examples of StoryMaps created for recent fires, a short demo and time to build a StoryMap, get resources for moving forward, and ask questions. Instructor Chris (Fern) Ferner, Esri Wildland Fire GIS Specialist Fern is the Wildland ...

Tuesday, May 25

04:00 PM - 05:00 PM

Opening Remarks, Award Presentation and Keynote Panel: Recovery and revitalization of Indigenous (wild)fire futures

Award Presentation: 2021 IAWF Firebreak Award for Excellence in Fire Management

Keynote

Amy Cardinal Christianson

Fire Research Scientist, Canadian Forest Service, NRCan

Bhiamie Williamson

Research Associate and PhD Candidate, Centre for Aboriginal Economic Policy Research, Australian National University

Brady Highway

Margo Robbins

Indigenous Nations and territories worldwide have diverse relationships with fire that evolved through time. Today, however, they are increasingly affected by modern 'megafires' with harmful and lasting impacts. While dominant narratives often describe Indigenous peoples as 'vulnerable' to wildfire, many Indigenous Nations are leading wildfire preparedness and recovery processes that are grounded in cultural and land-based health and wellbeing. These processes range from continuing or reintroducing cultural fire to adopting Indigenous FireSmart principles to planning and implementing eco-cultural restoration initiatives following wildfire events. Through these processes, Indigenous Nations are able to center their knowledge, language and traditions in support of ...

Tuesday, May 25

05:00 PM - 05:15 PM

Networking Break

Tuesday, May 25

05:15 PM - 05:45 PM

Increasing Support for Prescribed Fire by Letting People Burn: Increasing Social License using Social Learning Theory

Concurrent

Susie Kocher

Forest Advisor, University of California Cooperative Extension

"The need to increase the use of prescribed fire in western forests is becoming more urgent and understood across a wide variety of forest owners and stakeholders. Common framing of the problem identifies a lack of 'capacity' for carrying out fires and a need for agencies to create 'social license' to move forward with expanded burning programs. However, this framing carries a number of assumptions including: forested communities are against the use of prescribed fire, agency personnel will carry out most fires, and effort should be directed at educating the public to support prescribed fire. As the organizers of a ...

Tuesday, May 25

05:15 PM - 06:45 PM

Measuring Operational Effectiveness in Large Wildfire Management: Challenges, Progress, and Future Directions*

Deep Dive

Benjamin Gannon

Postdoctoral Researcher, Colorado State University Department of Forest and Rangeland Stewardship

Crystal Stonesifer

Ecologist, USDA Forest Service, Rocky Mountain Research Station

David Calkin

Supervisory Research Forester, US Forest Service

Erin Belval

Research Forester, Rocky Mountain Research Station

Heather Simpson

PhD Candidate, University of Wollongong Centre for Environmental Risk Management of Bushfires

Matt Plucinski

Research Scientist, Commonwealth Scientific and Industrial Research Organization

Matthew P. Thompson

Research Forester, Wildfire Risk Management Science Team, USDA Forest Service Rocky Mountain Research Station Human Dim

This session is happening in Zoom. Join Zoom Meeting <https://us02web.zoom.us/j/83074832132?pwd=WDZobzVaTzFuVnF2dUhBZDFseEw5dz09Meeting+ID%3A+83074832132Passcode%3A+102576>Dial by your locationFind your local number: <https://us02web.zoom.us/j/83074832132?pwd=WDZobzVaTzFuVnF2dUhBZDFseEw5dz09Meeting+ID%3A+83074832132Passcode%3A+102576>Many fire organizations are responding to the increasing damages from large wildfires with investments in suppression, but we have not yet achieved a comprehensive understanding of operational effectiveness to guide improvements in large wildfire management. Responder safety is closely tied to operational effectiveness – a major goal of risk-based decision-making is to reduce firefighter exposure to hazards associated with low success rate tactics. To date, the most significant progress in measuring operational effectiveness has occurred for single activities at flame- ...

Tuesday, May 25

05:15 PM - 05:45 PM

Geospatial Modeling of Wildland Firefighter Evacuation

Concurrent

Mickey Campbell

Research Assistant Professor, University of Utah

Escape routes are one of the most important safety tools available to wildland firefighters. They are designated pathways on the landscape that firefighters can use to evacuate from the fire line to a safety zone. Their effectiveness is largely dictated by how long it takes the crew to travel along the escape route. A good escape route will provide a positive margin of safety, meaning the crew can get to the safety zone before the fire gets to them. A bad escape route can result in injury or fatality. Thus, to understand escape route effectiveness, we need to first understand ...

Tuesday, May 25

05:15 PM - 06:15 PM

Pathways to Indigenous Fire Leadership*

Concurrent

Kelsey Copes-Gerbitz

PhD Candidate, University of British Columbia Faculty of Forestry

Sarah Dickson-Hoyle

PhD Candidate, Faculty of Forestry, University of British Columbia

A paradigm shift is occurring for (wild)fire management. In the wake of recent wildfire seasons that continue to challenge our proactive and reactive capacities, it is increasingly apparent that these complex wildfire challenges cannot be solved by a one-size-fits-all approach. Instead, solutions must be grounded in the histories and long-standing place-based relationships between people, fire and the land. In this context, many fire scientists and land managers are beginning to acknowledge the important roles and contributions of Indigenous fire stewardship systems in historical and future fire-adapted landscapes. Simultaneously, Indigenous peoples worldwide are leading the revitalization of cultural fire and the ...

Tuesday, May 25

05:15 PM - 05:45 PM

Lessons from Black Summer: how people experienced the 2019/20 NSW fire season

Concurrent

Josh Whittaker

Dr, New South Wales Rural Fire Service

The 2019/20 bush fire season was unprecedented in NSW, with destructive fires occurring across the state between August 2019 and February 2020. Tens of thousands of people were displaced by the fires, including residents, tourists and visitors to affected areas, with many fires occurring during the Christmas and New Year holiday period. Tragically, 25 people lost their lives in the fires. Many more people were affected by smoke in both metropolitan and regional areas. By season's end, bush fires had burned a record 5.5 million hectares of NSW, destroyed 2,448 homes and adversely affected industries including agriculture, forestry and tourism. ...

Tuesday, May 25

05:45 PM - 06:15 PM

Evaluating Burn Severity in Near Real-Time with GOES-R Satellite Imagery

Concurrent

Danielle Losos

Cloud Development Intern, ASTS Inc., Federal

"Burn scars from wildland fires leave landscapes immediately vulnerable to hazards like flash-flooding and debris flows. These risks can be forecasted by mapping the extent and severity of burned areas using remotely sensed surface reflectance imagery. The unique spectral signature of burned vegetation helps distinguish the affected area from the surrounding landscape. Burn severity maps have conventionally been derived from high-resolution imagery from polar-orbiting satellites, such as Landsat. These images are only produced every eight days, and are subject to cloud and smoke obstructions, leaving an information gap for hydrologic forecasters in the wake of wildfires. Satellites in geostationary orbit ...

Tuesday, May 25

05:45 PM - 06:15 PM

Risk Perception and Evacuation Decisions in the 2016 Chimney Tops 2 fire in Gatlinburg, TN

Concurrent

Erica Kuligowski

Vice-Chancellor's Senior Research Fellow, RMIT University

As wildfires occurring at the wildland–urban interface (WUI) continue to become more severe, there is an increasing need to understand human behaviour in these situations, and evacuation decision-making in particular. To contribute to this understanding, an online survey was disseminated to households impacted by the 2016 Chimney Tops 2 fire in Tennessee (US). The survey instrument measured pre-event variables such as awareness of fire risks and previous experience with evacuations as well as the types of warnings and fire cues received during the event, with a focus on factors known to impact evacuation decisions and risk perception. Also published in ...

Tuesday, May 25

05:45 PM - 06:15 PM

Increasing prescribed fire use on private lands: findings from prescribed fire workshops with private landowners in the Sierra Nevada region of California*

Concurrent

Amanda Stasiewicz

Assistant Professor of Environmental Studies, San Jose State University

Prescribed fire is widely recognized as a key tool for reducing wildfire risk across diverse land ownership types. The dominant culture of fire exclusion in the United States has resulted in a challenging regulatory and social framework through which local populations and managers need to navigate to implement prescribed fire in their management areas. The decrease in fire use in many areas over time and the devastation of the 2017, 2018, and 2020 fire seasons in California, USA have led to increased public and political interest in bringing more "good" fire to Californian landscapes. Private landowners play an important role ...

Tuesday, May 25

06:15 PM - 06:45 PM

A data-driven approach to improving wildfire evacuation time estimates in resort areas

Concurrent

Dapeng Li

Assistant Professor, South Dakota State University

Wildfire has caused significant loss of life and property in the western U.S. in the past few fire seasons. Computerized modeling of wildfire evacuation could help incident commanders improve situational awareness and facilitate protective action decision-making. In this study, we leverage traffic simulation model, big data, and geographic information systems to develop a wildfire evacuation model to improve evacuation time estimates in resort areas. Specifically, we take into account household vehicle ownership data and the occupancy rate of second homes based on a variety of data in model construction. The Tahoe Donner neighborhood in Truckee, CA was used as a ...

Tuesday, May 25

06:15 PM - 06:45 PM

How Well Does the 10% Wind Speed Rule of Thumb Work for Estimating Wildfire Spread Rates?

Concurrent

Marty Alexander

Proprietor, Wild Rose Fire Behaviour

In 2019 we described the development of a rule of thumb for estimating a wildfire's forward rate of spread in cases when burning conditions are severe (i.e., namely when wind speeds are high and fuels are critically dry) and the time available to prepare a more exacting prediction is limited. The rule of thumb was based on data obtained from wildfire runs that had occurred around the world in forests (conifer- and eucalypt-dominated) and shrublands. The rule of thumb states that the rate of fire spread is considered to be roughly 10% of the prevailing 10-m (33-ft) open wind speed, ...

Tuesday, May 25

06:15 PM - 06:45 PM

Wildfire Risk Perception and Preparedness of Wildland-Urban Interface Community in Aotearoa-New Zealand: Insights from a Central Otago Case Study

Concurrent

Lisa Langer

Social scientist Ms. E.R.(Lisa) Langer, Mr. Simon Wegner and Dr. Andrea Grant, Scion (New Zealand Institute of Forest Research Ltd)

"International literature records that some residents living in high-risk areas appear to recognize high wildfire risk and wildfire experience has increased awareness of wildfire risk. Nevertheless, evidence suggests that residents' perceptions of risk to their life and property may be lower than professionals' assessment of wildfire risk. At the same time, little is known about marginalized people such as indigenous populations' wildfire risk awareness, and some publications have identified inadequate planning and preparedness to help residents take protective action during a wildfire. Aotearoa-New Zealand brings a different social and physical environment to much of the international experience and research around ...

Tuesday, May 25

06:15 PM - 06:45 PM

Analyzing Wildfire Evacuation Behavior Using Big and Small Data: A Case Study of the 2019 Kincade Fire*

Concurrent

Xilei Zhao

Assistant Professor, University of Florida

Wildfire is a growing threat to communities across the United States. Research has shown that the intensity and frequency of and the social harm due to wildfires have increased in recent years, largely as a result of climate change. Meanwhile, urban and suburban growth has led to the expansion of the wildland-urban interface (WUI), making more communities vulnerable to wildfire risks. For example, the 2019 Kincade Fire burned 77,758 acres in Sonoma County, California within two weeks and forced nearly 200,000 residents to flee. To reduce the life safety risks of wildfires and to enhance the resilience of WUI communities, ...

Tuesday, May 25

06:45 PM - 07:15 PM

Preparing for wildfire evacuation and alternatives: Exploring influences on residents' intended evacuation behaviors and mitigations

Concurrent

Amanda Stasiewicz

Assistant Professor of Environmental Studies, San Jose State University

Understanding residents' intended evacuation behaviors is an increasingly important component of managing complex wildfire events in the United States and elsewhere. Growing evidence suggests that local populations consider a range of potential evacuation behaviors during fire events, yet fewer efforts explore rural residents' evacuation intentions or their relationship to wildfire mitigations that reduce risk or aid in fire suppression. This study explores evacuation intentions among wildland-urban interface residents in Pend Oreille County, Washington, USA. We explore how mitigation performance (e.g., fuel reduction efforts, structure improvements, active firefighting preparation) differs across three emergent categories of evacuation intentions and evaluate whether a ...

Tuesday, May 25

06:45 PM - 07:15 PM

Distributed Browser-Based Fire Behavior Monitoring with Realtime.Earth: Use Cases From the 2020 Fire Season

Concurrent

Kasra Manavi

Director of Research and Communications, Simtable

"Fire location and behavior intelligence is crucial during the initial hours of an incident, but reports of fire can be delayed for hours. With recent events like the Tubbs, Atlas, Camp and Gatlinburg Fires, more and more catastrophic wildland fire events are happening in places where significant structure damage is occurring and considerable numbers of lives are being lost. Real-time data streams relevant to wildland fire are diversifying e.g. increased activity on social media and publicly accessible imagery. With the increase in accessibility to live streaming, more and more sources of relevant imagery are becoming available during an incident. At ...

Tuesday, May 25

06:45 PM - 07:15 PM

Fire-weather drivers of severity and spread: Learning from past fire patterns to inform future wildfire decision making

Concurrent

Jesse Young

Postdoctoral Fellow, Oak Ridge Institute for Science and Education

Fire is an essential component in restoring and maintaining a healthy forest. However, historic land use and decades of fire suppression has excluded fire from millions of forested hectares across much of the western United States, including the Grand Canyon National Park. Forest restoration at the Grand Canyon aims to reduce wildfire vulnerability by applying fire to diversify or remove forest vegetation. However, the cost, complexity, and concerns associated with managing fire for resource benefit requires that fire managers utilize and implement locally-relevant, science-based knowledge to strategically identify when and where to use fire to produce the greatest benefits. This ...

Tuesday, May 25

06:45 PM - 07:15 PM

Modeling the redundancies in large fire suppression*

Concurrent

Yu Wei

Professor, Colorado State University

Redundancies have long been considered an important attribute of system resilience. Large wildland fire suppression managers often incorporate redundancy into suppression strategies using multiple layers of firelines developed under the PACE (Primary, Alternate, Contingency, and Emergency) decision framework. These contingency lines can expand the opportunity window for managers to stop the spread of a fire after a primary line is breached. However, past studies and reports have documented unintended consequences from adding contingency lines into the fireline system, e.g., a high level of firefighter effort spent building unengaged lines and firelines placed in unsuitable locations. In this study, we review ...

Tuesday, May 25

06:45 PM - 07:15 PM

A typology of fire management units in the American West

Concurrent

Will Downing

Faculty Research Assistant, Oregon State University

Fire managers in the western United States operate in increasingly complex fire environments. An important step toward addressing current and future management challenges is evaluating and characterizing fire management complexity at the scale of management units. Using the lands administered by the United States Forest Service as a study system, we use quantitative, multivariate methods to create a typology of national forests based on social and biophysical characteristics. We explore the factors that account for meaningful differences between management units and evaluate the degree to which suppression expenditures, fire management staffing, and fire management budgets reflect the complexity of various ...

Tuesday, May 25

07:15 PM - 07:45 PM

Networking Break

Wednesday, May 26

12:01 AM - 01:00 AM

Opening Remarks, Award Presentation and Keynote: What can we learn from Victoria's response to COVID in the aged-care sector?

Award Presentation: 2021 IAWF Early Career in Fire Science

Keynote

Joe Buffone

Director General, Emergency Management Australia (EMA)

Wednesday, May 26

01:00 AM - 01:15 AM

Networking Break

Wednesday, May 26

01:15 AM - 01:45 AM

Developing an Empirical Radiant Heat Flux Failure Model for Windows as part of a House Loss Model

Concurrent

William Swedosh

Research Technician, CSIRO

"Radiant Heat Flux (RHF) is a well-known fire attack mechanism which can cause building loss from wildfires. Potential maximum RHF is used to determine building standards in Australia, however time varying RHF profiles are a better hazard/failure metric for wooden components than maximum RHF. Wildfire simulation is becoming much more popular, and time varying RHF profiles are now able to be calculated / predicted much faster than real time. It therefore follows that the future of bushfire housing design should incorporate time varying RHF profiles. A gap in moving to such a paradigm is understanding the response of certain building ...

Wednesday, May 26

01:15 AM - 01:45 AM

Factoring in human behaviour and decision-making into natural hazard planning processes

Concurrent

Laura Gannon

Principal, Meridian Urban

"The past ten years have proven highly active from a disaster perspective across Australia, from widespread riverine and flash flooding, to catastrophic bushfire events. We are in a time where we are now witnessing a changing climate, which is interfacing with other mega-trends to impact on the exposure of our communities. As a result, the risk profiles of our landscapes are changing, and our vulnerability as a society is increasing. The consideration of natural hazard risk has for many years been a fundamental element of land use planning process across policy, strategic and statutory efforts. This has to date, largely ...

Wednesday, May 26

01:15 AM - 01:45 AM

Preventing farmer injury in prescribed fires through assessing common practice and risk factors

Concurrent

Karen Bayne

Senior Scientist, Scion

Despite a number of studies investigating safe practices and lessons learned to reduce risks from prescribed fire and fire suppression activities by firefighters, there is limited knowledge within New Zealand on what actions lead to injury and fatality during farmer controlled burn-offs. In response to the need, we compiled from both official and unofficial records a list of known rural fire incidents in the nation since 1878, resulting in 68 serious harm injuries, 38 fatalities and 72 persons involved in incidents but uninjured. Through analysis and interviews, we identified actions taken by farmers to reduce the risk of injury to ...

Wednesday, May 26

01:15 AM - 01:45 AM

The ignition of Wildland Fires related with the use of fireworks and their relation with Fuels Moisture Content Scenarios

Concurrent

Jorge Raposo

Dr., Forest Fire Research Center, Association for the Development of Industrial Aerodynamics

This work presents the result of a study on the use of pyrotechnic articles and their relationship with the ignition of Wildland Fires (WF), depending on the type of product used and the fuel moisture content scenario. An analysis of the number of occurrences and burnt area of forest fires occurred in Portugal, in the period from 2003 to 2020, is presented through the use of a database available on the Institute of Nature and Forestry (ICNF) website. In addition, tests were carried out with pyrotechnic articles to determine their possibility of igniting a WF. The analysis of a case ...

Wednesday, May 26

01:45 AM - 02:15 AM

The Advanced Fire Analysis Network*

Concurrent

Juan Caamano

Director training programs, Pau Costa Foundation

Marta Miralles

Fire Analyst, Catalan Fire and Rescue Service

What is fire analysis? What is the science that support fire analysis? What is the role and the responsibility of fire analysis in the decision-making process during a fire event? Can fire analysis be helpful to prevent big wildfires? These are some of the questions that the Advance Fire Analysis Network (AFAN) will try to answer. Fire analysis (or fire assessment) is a fundamental instrument for wildfire decision making. Thus, understanding and predicting fire behavior and patterns given a range of environmental conditions can lead to a certain resolution of the emergency. While this knowledge is crucially implemented in many ...

Wednesday, May 26

01:45 AM - 02:15 AM

The WUI-NITY simulation platform for wildfire evacuation of the wildland-urban interface: Case study of Roxborough Park in Colorado

Enrico Ronchi

Dr., Department of Fire Safety Engineering, Lund University

This presentation introduces a platform called WUI-NITY [1], [2] that simulates and visualises human behaviour and wildfire development during an evacuation of WUI communities. The aim of the platform is to enhance the situational awareness of responders and residents in evacuation scenarios by providing information on the dynamic evolution of the events. WUI-NITY represents the three key modelling layers of a WUI fire evacuation [3], namely fire, pedestrian and traffic in a coupled manner. This allows a projection of evacuation behaviour over time, enabling a dynamic vulnerability assessment. WUI-NITY has been developed using a popular game engine (Unity 3D) and ...

Wednesday, May 26

01:45 AM - 02:15 AM

Cross-Country Risk Quantification of Extreme Wildfires in Mediterranean Europe

Concurrent

Sarah Meier

Cross-Country Risk Quantification of Extreme Wildfires in Mediterranean Europe, University of Birmingham

We estimate the country-level risk of extreme wildfires defined by burned area (BA) for Mediterranean Europe and carry out a cross-country comparison. To this end we avail of the European Forest Fire Information System (EFFIS) geospatial data from 2006-2019 to perform an extreme value analysis. More specifically, we apply a point process characterization of wildfire extremes using maximum likelihood estimation. By modeling covariates, we also evaluate potential trends and correlations with commonly known factors that drive or affect wildfire occurrence, such as the Fire Weather Index (FWI) as a proxy for meteorological conditions, population density, land cover type, and seasonality. ...

Wednesday, May 26

02:15 AM - 02:45 AM

Networking Break

Wednesday, May 26

08:30 AM - 09:30 AM

Opening Remarks, Awards Presentation and Keynote: The Power of Purpose

Award Presentation: 2021 IAWF Ember Award for Excellence in Fire Science and 2021 IAWF Distinguished Service Award

Keynote

Dan Cable, PhD

Professor of Management, London Business School

We will discuss why purpose is important to humans in the context of our neurological seeking systems. The seeking system creates the impulse to look for the effects of our actions, and extract meaning from our circumstances. When we follow the seeking system's urges it releases dopamine— a neurotransmitter linked to motivation and pleasure— that makes us enthusiastic, curious, and resilient. This is why purpose is so critical to leaders: it inspires employee commitment and resilience, and helps people “speak truth to power”. Thus, purpose is particularly important when change, commitment, and creativity are necessary. Purpose also promotes health: when ...

Wednesday, May 26

09:30 AM - 09:45 AM

Networking Break

Wednesday, May 26

09:45 AM - 10:15 AM

Fire Management in Protected Areas in the Tropics: Achievements and Challenges in the Los Tuxtlas Biosphere Reserve, Mexico

Concurrent

Christoph Neger

Associate Researcher, Institute of Geography, National Autonomous University of Mexico (UNAM)

Forest fires are an important conservation issue all over the world. Among the ecosystems most endangered by changes in fire regimes due to human intervention are those, which are not naturally adapted to fire. This applies to many of the ecosystems in the tropics, including tropical rainforest. One of the strategies to preserve tropical forests has been the establishment of protected areas. We focus on one specific area, the Los Tuxtlas Biosphere Reserve in Southern Mexico, created in 1998. The reserve covers a volcanic mountain range with a rich variety of different types of vegetation: the northernmost tropical rainforest of ...

Wednesday, May 26

09:45 AM - 10:45 AM

Wildland Firefighter Psychological and Behavioral Health: Preliminary Data from a National Sample of Current & Former Wildland Firefighters in the US

Deep Dive

Duncan Campbell

Professor of Psychology, University of Montana

Patricia O'Brien

Clinical Psychologist, Department of Veterans Affairs

In recent years, topics such as depression, suicide, PTSD, and substance use have garnered increasing attention and discussion within the wildland fire community. Yet, little research has examined psychological and behavioral health variables among wildland firefighters. Accurate information about these characteristics is necessary to help frame discussions targeted at wildland firefighter wellness and to lay the groundwork for understanding associations between wildland fire service and mental/behavioral health. To this end, the present study employed a cross-sectional design to describe probable presence of mental health conditions (PTSD, depression, generalized anxiety disorder), past-year suicidal ideation, risky alcohol use and tobacco use among ...

Wednesday, May 26

09:45 AM - 10:15 AM

Integrating art and science to communicate the social and ecological complexities of wildfire and climate change in Arizona, USA

Concurrent

Barb Satink Wolfson

Senior Program Coordinator, Southwest Fire Science Consortium/Northern Arizona University

AbstractClimate change presents a great deal of complexity and uncertainty for land managers, scientists, and the public. There is an increasing need for adaptive management practices that incorporate the best available science and are supported by the public in order to foster resilience in social and ecological systems impacted by changing fire regimes. But effectively using the best available science in management, as well as communicating about science and management actions to the public is an ongoing challenge. One mechanism for enhancing understanding and support for complex topics is art; however, little is known about the outcomes of communicating science ...

Wednesday, May 26

09:45 AM - 10:15 AM

Views of Interagency Hotshot Crews on new practices developed to address COVID-19*

Concurrent

Sarah McCaffrey

Research Forester, USDA Forest Service, Rocky Mountain Research Station

In the 2020 fire season, the fire management community developed and tested a wide range of new practices to meet challenges posed by the coronavirus pandemic. Although developed in response to COVID-19, some practices might have utility beyond the, hopefully, rare need to manage fire in the face of a highly contagious respiratory disease. To help US national fire leadership better understand the effectiveness of different innovations and which should be considered for more permanent use, we surveyed Interagency Hotshot Crews (IHCs) in January 2021. As these crews form the backbone of on-the-ground operational wildland fire resources, they provide important ...

Wednesday, May 26

09:45 AM - 10:15 AM

FireFlocks: Wildfire Risk Reduction by Adding Value to Flocks' Products*

Concurrent

Guillem Canaleta

FireFlocks: Wildfire Risk Reduction by Adding Value to Flocks' Products, Pau Costa Foundation

"The Mediterranean basin is characterized by unmanaged forests, as a direct consequence of the rural exodus that have contributed to vegetation loading. These forests present an increasing vulnerability to large wildfires due to climate change and the absence of large-scale management policies. As a consequence, large and continuous forest masses represent a growing fire risk for society and the environment. Silvopastoralism is a useful tool for the implementation of sustainable management of Mediterranean forests from a biological, social and economic perspective. Silvopastoralism is a common practice with high benefits for society (i.e. landscape conservation, preservation of ecosystem services, fire risk ...

Wednesday, May 26

10:15 AM - 10:45 AM

Goats: Making Mitigation Popular Again

Concurrent

Einar Jensen

Risk Reduction Specialist, South Metro Fire Rescue

Are "ewe" ready for popular mitigation? South Metro Fire Rescue has partnered with multiple neighborhoods in its jurisdiction to provide wildfire risk reduction in Gambel-oak dominated open spaces via the Ready, Set, Goat! program. Residents who vehemently opposed masticators and chemical treatments voluntarily and warmly embraced goats as a strategy for performing similar if not better mitigation in their shared spaces. Goats have made mitigation not only possible but popular in parts of our fire district. At the end of the presentation, attendees will be able to explain how goats perform mitigation, explain how this form of mitigation impacts wildfire ...

Wednesday, May 26

10:15 AM - 10:45 AM

FireVoice: Exploring Photovoice on Community-Based Fire Management

Concurrent

António Patrão

Forest Engineer, III - University of Coimbra

In Portugal rural fires are a social problem and the major natural risk. In the last two decades rural fires became bigger, faster, and more severe. In 2017 rural fires killed 116 persons and destroyed many local economies. Vast majority of rural fires are caused by human activity which highlight the necessity of new fire management path and approach, by innovative solutions with focus on community empowerment and their engagement with professionals, specialists, entities, and other stakeholders. On this context, participatory methods, namely Photovoice, represents a new and promising tool in fire management, acting in community development. During 2019 and ...

Wednesday, May 26

10:15 AM - 10:45 AM

COVID-19 Exposure and Infection of an Area Command Team on the August Complex, California, USA, 2020 – Lessons Learned From An Unintended Outcome

Concurrent

Sydney Zerr

Founder, Wildfire Mitigation Network

Tom Zimmerman

Senior Wildland Fire Consultant, Management and Engineering and Technologies, International (METI)

The 2020 August Complex occurred in Northern California, USA, and became the single largest wildland fire and fire complex in California recorded history. It originated in mid-August as 38 individual fires that burned together and persisted until November 15th. By the time of containment, it had burned a total of 1,032,648 acres (417,898 ha), or 1,614 square miles (4,180 km²), about 1% of California's 100 million acres of land, and an area larger than the state of Rhode Island. The 2020 fire year in the US began under the shadow of the emerging COVID-19 pandemic. In preparation for ensuring continuity ...

Wednesday, May 26

10:15 AM - 10:45 AM

Revolutionary Respiratory protection for wildland firefighters against CO, Formaldehyde, NOx, VOCs and Particles

Concurrent

Ernest Mendoza

Founder & Scientific Advisor, ASTREA MATERIALS, S.L.

"Introduction Currently there is no satisfactory solution for the respiratory protection of wildland firefighters during extinction operations in the market. The reason behind the unavailability of a technological solution is the requirement for a long-lasting filter capable of removing carbon monoxide, formaldehyde, VOCs or NOx. Risks in wildland fires are extremely heterogeneous: heat, humidity, thermal radiation, incandescent particles, microparticles, nanoparticles, fog, aqueous dispersion, viruses, bacteria, enzymes, proteins, etc. and also the presence of organic and inorganic gases and vapours, acids, amines, carbon monoxide, formaldehyde, acrolein and VOCs. Therefore, our objective has been the development of a dedicated filter to match ...

Wednesday, May 26

10:45 AM - 11:15 AM

Characterizing the Context and Demand for the US Forest Service's Collaborative Forest Landscape Restoration Program in 2020*

Concurrent

Chad Kooistra

Wildfire Management Research Program Lead, Public Lands Policy Group, Colorado State University

Courtney Schultz

Associate Professor, Colorado State University

The U.S. Forest Service's (USFS) Collaborative Forest Landscape Restoration Program (CFLRP) uses targeted investment in fire-prone landscapes to mitigate wildfire risk, support local economies and the forest products industry, and achieve other landscape scale restoration goals through collaborative approaches. CFLRP was established in 2009 by the Omnibus Public Lands Act and reauthorized by the 2018 Farm Bill through 2023. A total of 23 projects have been funded across the continental U.S. since 2010. Agency reports to congress, project-specific progress reports, and academic research has highlighted significant accomplishments from these CFLRP projects. The USFS issued another request for CFLRP proposals in ...

Wednesday, May 26

10:45 AM - 11:15 AM

Lessons Learned from Conducting Wildfire Training During a Global Pandemic – Challenges, Opportunities and Growth

Concurrent

Kelsy Gibos

Wildfire Training Specialist, Alberta Wildfire, Government of Alberta

The Coronavirus Disease 2019 (COVID-19) global pandemic has dramatically changed the structure and delivery of education and training programs. Widespread lock-downs and forced isolation protocols pushed schools and workplaces to hastily design and implement online training options. The Hinton Training Center in Alberta, Canada is responsible for delivering provincial, national and external courses. This includes both wildfire and forestry topics ranging from basic Wildfire Crew Member to Wildland Fire Behaviour Specialist to Helicopter Coordinator to timber scaling. A handful of staff lead, develop and coordinate delivery of nearly 70 different courses in a mix of in-class (70%), blended (20%) and ...

Wednesday, May 26

10:45 AM - 11:15 AM

From the ashes: recovery and mitigation policy after wildfire in California*

Concurrent

Miranda Mockrin

Research Scientist, USDA Forest Service

Wildfire events and human losses are increasingly prevalent, yet household and community recovery from wildfire remain poorly understood. As local jurisdictions face repeated high severity wildfire events year after year, recovery and policy transformation become both more challenging and more essential. While the post-disaster recovery period provides a unique opportunity for policy innovation—both site-level mitigation and broader land use change—there are also many reasons why households and communities struggle to incorporate significant wildfire risk reduction into rebuilding and recovery efforts. To explore this issue, we examined political and practical barriers to wildfire risk reduction in northern California (2015-2020), focusing on ...

Wednesday, May 26

10:45 AM - 11:15 AM

Framework for Vegetation Treatment Prioritization and Shelter in Place Designations for Wildland Fire

Concurrent

Carol Rice

Wildland Fire Manager, Wildland Res Mgt

Nick Bartlett

Senior Fire Protection Engineer, Lawrence Berkeley National Laboratory

A framework at Lawrence Berkeley National Laboratory (LBNL) prioritizes vegetation treatments and creates shelter in place designations to guide targeted wildfire risk reduction. LBNL is one of 17 Department of Energy National Laboratories, performing basic and applied research to help answer fundamental scientific questions. LBNL is located on 203 acres in the Berkeley/Oakland hills, with over 180 structures and 4,500 staff on-site daily. The high occupant and building density in a wildland-urban interface, combined with the novel nature of the facility, make wildfire management a priority. A wildfire in 2017 required evacuation of the entire laboratory. Due to the occupant ...

Wednesday, May 26

10:45 AM - 11:15 AM

What Good is a Rapid Wildfire Risk Assessment? Just a Few Uses Include Post Fire Assessment, Targeting Programs, and Tailoring Outreach*

Concurrent

Chris Barth

Fire Mitigation Specialist, U.S. Bureau of Land Management - Montana/Dakotas

James Meldrum

Research Economist, U.S. Geological Survey

Many organizations that support wildfire risk mitigation on private property conduct some form of rapid wildfire risk assessment. Rapid assessments differ from detailed site visits in which practitioners meet with homeowners to discuss property-specific risk factors and mitigation actions. Instead, rapid assessments take a quick – approximately one-minute – look at select attributes of all the parcels in a community. For more than a decade, the research-practice collaboration Wildfire Research (WiRe) Team has developed a standardized rapid wildfire risk assessment tool and implemented it with numerous risk mitigation organization partners. With this presentation, we hope to encourage more organizations to ...

Wednesday, May 26

02:30 PM - 03:30 PM

Nature Journaling for Fire Situational Awareness – Look Up, Down and Around - Part Two

By Miriam Morrill

Workshop

This is a two part workshop, for the best experience you should plan to join both sessions. Pre-Registration is required for this workshop. Registered attendees will receive the link to join a few days prior. If you are not registered and would like to participate, please email us. Cost \$25 Day 1 will introduce key nature journaling concepts and practices that can be used to increase fire situational awareness leveraging the National Wildfire Coordinating Group Incident Response Pocket Guide's Look Up, Down and Around criteria. The exercises are intended for place-based experiences that help map multiple sensory observations to key fire ...

Wednesday, May 26

04:00 PM - 06:00 PM

Wildland Fire Leadership in Uncertain Times

Keynote

Allyson Lardner

Deputy Chief Fire Officer, Forest, Fire and Regions | Department of Environment, Land, Water and Planning

Ángela Iglesias Rodrigo

General Directorate of Biodiversity, Forests and Desertification, Ministry of Ecological Transition and Rural Development

Dr. L. Kaili McCray

Wildland Firefighter Medical Standards, U.S. Department of the Interior, Office of Wildland Fire

Euan Ferguson

Director, Euan Ferguson Pty Ltd

Julie Tompa

Director, Natural Resource Management, Parks Canada

Lara Steil

Coordinator of the Department for Interagency and Burning Control, Brazilian National Center for prevention and fighting wildfires

Murray Carter

Executive Director Rural Fire Division, Department of Fire and Emergency Services (DFES)

Peter Moore

Forestry Officer Fire Management, Food and Agriculture Organisation of the United Nations

Reinard Goldenhuys

In these volatile, uncertain and complex times we are being tested. Longer fire seasons, managing through a pandemic, political disruption and communities looking to their leaders to find a way forward. We need to look beyond traditional approaches and solutions for wildfire management. We need to think creatively and adaptively. Join our expert global panel to hear how other countries are moving forward in these dynamic times to improve safety of communities and fire personal (including mental health). Communities, fire management organisations, academics and front line fire managers should tune in to this unique and relevant discussion.

Wednesday, May 26

06:00 PM - 06:15 PM

Networking Break

Wednesday, May 26

06:15 PM - 06:45 PM

"We Had a Good Mind To Do It:" Knowledge & History of Indigenous Fire Fighters from Ft. Smith, NT

Concurrent

Lia Ruttan

Dr. Lia Ruttan, Independent Researcher

Pierre-Emmanuel Chaillon

Videographer

Raymond Beaver

Cultural and Technical Advisor

Indigenous fire knowledge and firefighting activity in Canada's boreal forest is poorly documented. This community-based research project was initiated at the request of former Indigenous firefighters from the Fort Smith region of the Northwest Territories. Proud of their knowledge and effectiveness in fighting fires, they wished to see information on their experience, skills and perspectives recorded, their accumulated knowledge respected and to share their knowledge with their own and other boreal communities, as well as, government and academic colleagues. They believe that valuable knowledge informed by traditional knowledge, methods and leadership practices needs to be recorded and place-based knowledge on ...

Wednesday, May 26

06:15 PM - 07:15 PM

Pivoting during the pandemic: How COVID-19 and the 2020 wildland fire season created a novel learning opportunity for US Forest Service wildland fire*

Deep Dive

David Flores

Research Social Scientist, USDA Forest Service

Joel Iverson

Professor of Communication Studies, University of Montana

Rebekah Fox

Associate Professor of Communication Studies, Texas State University

Steve Venette

Professor in the School of Communication, University of Southern Mississippi

The United States Forest Service (USFS) has developed sophisticated response to large scale acute disasters (wildfires, hurricanes, floods, etc.). COVID-19, however, represented a novel challenge for employees facing both normal dangers during the fire season and an uncertain, unfolding threat in the form of the pandemic. In March of 2020, the USFS codified it's experimental 'Risk Management Assistance Team' which previously assisted certain wildland fire incidents, to a standing group to help grapple with COVID-19. To assist in this, leadership established a national effort to gather information from the "field" through weekly virtual focus groups. The effort produced over 200 ...

Wednesday, May 26

06:15 PM - 06:45 PM

Data-driven analyses to inform strategic planning for off-season wildland fire resource needs*

Concurrent

Erin Belval

Research Forester, Rocky Mountain Research Station

A severe outbreak of wildland fire in California and the Pacific Northwest during August of 2020 led to a substantial amount of ongoing wildland fire on that landscape through late September. In September, the Fire Weather Outlooks predicted higher than usual fire activity to continue throughout the fall and into the winter in parts of California, along with higher than usual fire activity to occur in the Southeastern US in November. To help inform regional and national fire managers regarding how this potential fire activity could affect suppression resource needs, we developed visualizations of off-season resource use from past fire ...

Wednesday, May 26

06:15 PM - 06:45 PM

WISE: Wildfire Safety Evaluator App

Concurrent

Joaquin Ramirez

CEO & CTO, Technosylva

Wildland firefighters in the US are mandated to identify areas that provide adequate separation between themselves and the flames (i.e. safety zones) to reduce the risk of burn injury. This app implements the new research developed by Bret Butler at the Missoula Fire Lab to be able to calculate the safety zones based on a combination of wind, fuels, slope and number of resources on the field. The app has map interface that is easy to use, works disconnected and is able to share the results.

Wednesday, May 26

06:45 PM - 07:15 PM

Common Denominators of Human and Environmental Factors on Tragedy Fires

Concurrent

Lindon Pronto

Senior Expert - vegetation fire management, European Forest Institute (formerly USFS)

Matt Holmstrom

Regional Risk Management Officer, USFS/BLM

There four common denominators of fire behavior on tragedy fires that are widely taught: 1. Relatively small fires or deceptively quiet areas of large fires 2. Fires burning relatively light fuel such as grass or light brush 3. Unexpected shifts in wind direction or speed 4. Fire running up steep inclines Our preliminary research suggests that human and environmental factors may play an even larger role in firefighter deaths and injuries. Five additional scenarios should be carefully considered and mitigated (and included in training materials on FF safety); the additional factors are: 1. Communication breaks down and critical information is not given or received. 2. Unburned fuel separates crew members from the ...

Wednesday, May 26

06:45 PM - 07:15 PM

Modeling COVID-19 impacts on wildland firefighting workforce capacity*

Concurrent

Erin Belval

Research Forester, Rocky Mountain Research Station

The dynamics of the wildfire response system in the US are such that an outbreak of COVID-19 on a single fire could have cascading and substantial impacts on national wildland firefighting capacity. Due to the transient nature of wildland firefighters' assignments and the high level of reassignments, an outbreak of disease at one fire has the potential to seed outbreaks at multiple other fires, in multiple geographic areas. These cascading effects have the potential to result in accelerating COVID-19 spread across the national wildland firefighting workforce as the fire season progresses. Multiple fires with outbreaks could lead to a sizeable ...

Wednesday, May 26

06:45 PM - 07:15 PM

Can landscape fuel treatments enhance both protection and resource management objectives?

Concurrent

Joe Scott

Principal Wildfire Analyst, Pyrologix

Kevin Vogler

Spatial Wildfire Analyst, Pyrologix

"Land management agencies in the U.S. Departments of Interior and Agriculture can potentially accomplish ecological resource management objectives using unplanned wildfires, but only if such fires do not otherwise threaten to damage valuable resources and assets. Landscape-scale fuel treatments have been proposed as a strategy for mitigating wildfire threat to resources and assets. But what is the best way to implement landscape-scale fuel management? Is there a single fuel treatment implementation scheme that can both provide protection to assets, like homes, and simultaneously increase the opportunities for using wildfire to accomplish resource management objectives? This presentation reports on a simulation ...

Wednesday, May 26

07:15 PM - 07:45 PM

Networking Break

Thursday, May 27

08:00 AM - 09:00 AM

Opening Remarks, Scholarship Announcement, and Keynote: Fires and Storms and COVID, Oh My!

Presentation of the 2021 IAWF Student Scholarships

Keynote

Jennifer Symonds, D.O.

Fire & Aviation Management Medical Officer and Fire Medical Qualifications Program Manager, USDA Forest Service

Besides responding to floods and tornadoes from massive storms, United States federal agencies that also respond to wildfires had to react to the emergence of the SARS-CoV-2 virus just as the time of year when wildfire numbers typically increase drew near. Bringing hundreds to thousands of resources from across the nation to a single fire camp with the threat of being a COVID-19 super-spreader event, the agencies had to creatively think of ways to modify these camps. The Federal Fire Management Board created a team of individuals to provide evidence-based guidance and called it the Medical and Public Health Advisory ...

Thursday, May 27

09:00 AM - 09:15 AM

Networking Break

Thursday, May 27

09:15 AM - 09:45 AM

Cutting Through the Fog of War: Communicating Clearly about Ecological Fire Use in the New Fire Management Paradigm*

Concurrent

Timothy Ingalsbee

Executive Director, Firefighters United for Safety, Ethics, and Ecology (FUSEE)

For over 40 years fire ecologists and progressive fire managers have been wanting to increase fire use in wildfire response. Over this span of time, the language used for fire use have 'devolved' from original term (i.e. 'prescribed natural fire') that was intended to reassure the public and rally support for the practice, to terms that have grown increasingly vague, confusing, counterproductive, and are often reduced to jargonistic acronyms. Anecdotally, the phrase 'whatever the heck we're calling it these days' has been uttered repeatedly in recent fire management webinars when presenters were referring to fire use. What, indeed, are we ...

Thursday, May 27

09:15 AM - 09:45 AM

The Wildland Firefighter Exposure and Health Effects (WFFEHE) Study: Rationale and Study Design of a Prospective Cohort Study*

Concurrent

Corey Butler

Senior Industrial Hygienist, U.S. Department of the Interior

Kathleen Navarro

Research Industrial Hygienist, National Institute for Occupational Safety and Health

The wildland firefighter exposure and health effects study (WFFEHE) was a collaborative research project between the Centers for Disease Control and Prevention National Institute for Occupational Safety and Health, the USDA Forest Service, and the US Department of the Interior. The purpose of this presentation is to: (1) describe the study purpose, design, and challenges associated with conducting repeat exposure monitoring and health effects research with wildland firefighters (WFFs); (2) provide a summary of the study achievements, including an overview of the study population and the more than 30,000 clinical, research, and exposure monitoring measurements collected; (3) and outline next ...

Thursday, May 27

09:15 AM - 09:45 AM

The Sawtooth Fire Entrapment

Concurrent

Jesse Quinalty

Owner / Master Instructor, Red Helmet Training

This class will present a wildland fire burnover in which my crew was conducting structure protection and became trapped in the garage as the flame front passed through. This course is not only about the tactics and strategy that were used but the human factors involved. The presentation covers topics on the psychology of an entrapment, the quicksand theory, complacency and normalcy, Crew Resource Management and the Abilene Paradox. To view the episode of Firefighters in Fire Trucks getting Ice Cream that profiles this fire please visit www.FireIceCream.com

Thursday, May 27

09:15 AM - 09:45 AM

What can we learn from the single-family homes that survived the 2018 Camp Fire in Paradise, California?*

Concurrent

Yana Valachovic

Forest Advisor, University of California Cooperative Extension

The 2018 Camp Fire, which destroyed 18,804 structures in northern California, including most of the town of Paradise, provided an opportunity to investigate vegetation and housing factors associated with home loss and determine whether California's 2008 adoption of exterior building codes for homes in the wildland-urban-interface (WUI) improved survival. We randomly sampled single-family homes constructed: before 1997, 1997 to 2007, and 2008 to 2018, the latter two being before and after California adopted changes to the building code. We then quantified the nearby overstory canopy cover and the distance to the nearest destroyed home and structure from aerial imagery. Using ...

Thursday, May 27

09:45 AM - 10:15 AM

Collating Case Study Data on Human Fire Use at the Global Scale

Concurrent

Cathy Smith

Postdoctoral Research Associate, Leverhulme Centre for Wildfires, Environment, and Society, Royal Holloway, University of London

Fire use within rural livelihoods, including smallholder agriculture, pastoralism, hunting and gathering, is an important component of cultures and fire regimes. In recent decades, many rich case studies of livelihood fire use have been published. This literature highlights the role of traditional fire knowledge in sustaining livelihoods and ecosystems and reducing wildfire risk around the world. Yet, we know little about contemporary trends in human fire knowledge and use at the global scale. For example, the human component of fire regimes is represented in most existing global fire models using crude correlations between population density and fire ignitions or suppression. ...

Thursday, May 27

09:45 AM - 10:15 AM

The 1931 Forest Fires in the Boise Basin, Tragedy and Triumph in the Boise Mountains of Idaho

Concurrent

Richard Mccrea

Wildland Fire Consultant, Wildland Fire Associates

The 1931 Forest Fires in the Boise Basin Tragedy and Triumph in the Boise Mountains of Idaho The 1931 wildland fire season in the Boise Basin of Idaho was devastating, and the conifer forests were incredibly dry, impacted by extended drought and higher than normal temperatures. The Boise Basin of south-central Idaho, experienced large fires and two villages and several mining camps were destroyed along with wooden bridges, cabins, and flumes. Two firefighters lost their lives, when flames trapped them in a deep canyon on Sweet Creek. Firefighters in some instances fled into mining shafts or dove into mountain streams ...

Thursday, May 27

09:45 AM - 10:15 AM

The Case for Resiliency in the Wildland Urban Interface

Concurrent

Evan Reis

Executive Director, US Resiliency Council

Shamim Rashid-Sumar

Vice President, Fire Codes and Standards, National Ready Mixed Concrete Association

The consequences of wildfires have become increasingly real, personal and devastating. In terms of magnitude of damages due to wildfires, 2020 was the fifth most costly year on record (Masters, 2021). Extreme wildfire events in 2020 affected not only the Western United States, but elsewhere globally in Australia, the Arctic, and Brazil, as well as areas of the Levant region of the Middle East (Ahmed, 2020). The trend towards warmer and drier climatic conditions promises the risk of wildfire will continue to threaten our communities and their built environment for the foreseeable future. What is surprising in the aftermath of ...

Thursday, May 27

09:45 AM - 10:15 AM

Can chest skin temperature be used instead of core temperature to compute wildland firefighters' physiological strain index?

Concurrent

Ana Belén Carballo-Leyenda

Postdoctoral researcher, Universidad de León

The thermal strain is a risk in occupations such as wildland firefighting where heavy workloads, hot environments, and encapsulating protective clothing are common features. In these scenarios, physiological monitoring has been suggested as a mean to assess thermal strain and prevent injury. In this regard, the physiological strain index (PSI), which combines heart rate and core temperature into a numerical value, has been widely adopted for modelling thermal strain in occupational settings. However, direct measures of core temperature are difficult to implement in the field. Therefore, some authors have proposed using skin instead of core temperature to calculate the PSI. ...

Thursday, May 27

10:15 AM - 10:45 AM

Plant-Water Sensitivity Regulates Wildfire Vulnerability

Concurrent

Krishna Rao

PhD Student, Stanford University

Wildfire burned area has increased four-fold in the last four decades in the western US, in part due to increasing atmospheric aridity from global warming. The sensitivity of burned area to atmospheric aridity can vary significantly among ecosystems. Plant responses to atmospheric drought can affect live fuel moisture content (LFMC; mass of plant water per unit dry biomass) and thus fire spread, but this influence has been studied relatively little at ecosystem-scale, likely because of a lack of data on LFMC at large scales. We developed wall-to-wall maps of LFMC for the western US at 15-day intervals from 2016 - ...

Thursday, May 27

10:15 AM - 10:45 AM

2020 California's Fire Season: a Milestone in CAL FIRE's Use of Predictive Technology

Concurrent

Joaquin Ramirez

CEO & CTO, Technosylva

2020 has been the most extreme fire season on record for California. In this demanding scenario, CAL Fire has started to introduce a new generation of modeling, sensing, tracking and other intelligence tools to improve situational awareness from the field to the UNIT level, including a team of 24 new specialists to support the implementation of these new tools. The objective is to support the efficient initial attack and support safer operations.

Thursday, May 27

10:15 AM - 10:45 AM

The Wildland Fire Histomap: Learning from Our Past to Prepare for Our Future

Concurrent

Ben Iverson

Training Specialist, US Forest Service

"Whatever you do, don't just write another report that no one ever reads." The team tasked with writing the United States Forest Service's (USFS) 2020 Wildland Fire Meta-Review responded to this statement of leader's intent by creating the Wildland Fire Histomap. In this presentation we'll discuss how this idea evolved and then explore the Wildland Fire Histomap v1.0, currently in development by USFS Innovation and Organizational Learning (IOL) and Forest Service Enterprise Program GIS specialists. Utilizing GIS and the ArcGIS StoryMap platform each learning event in Forest Service history will be shown as a waypoint on a map. Waypoints, represented ...

Thursday, May 27

10:15 AM - 10:45 AM

Suffering Resource Benefit: A Review of Wildland Fire Decision Support System (WFDSS) Content.

Concurrent

Mike Beasley

Founding Board Member, Firefighters United for Safety, Ethics, and Ecology

Federal fire managers have the responsibility to manage land using the best available science. Since the emergence of ecology as a science, and before by indigenous people, the prevailing full suppression ideology has been questioned. This has resulted in decades, during which the agencies have struggled to communicate with the public about the importance of fire, while developing a policy framework that supports the return of fire as an ecological process, on par with private property protection, as an incident objective. The 2009 wildland fire policy revision eliminated wildland fire use. Though the full range of tools remain for fire ...

Thursday, May 27

10:45 AM - 11:15 AM

Risk Management Assistance

Concurrent

David Calkin

Supervisory Research Forester, US Forest Service

Richard Stratton

Fire Analyst, USFS

In December 2016, a group of US Forest Service leaders developed the Risk Management Assistance (RMA) program to assist local hosting units and Incident Management Teams (IMTs) in managing large complex wildfires. RMA provides access to experienced personnel skilled in risk management, fire operations, and enhanced fire analytics to improve fire management responses through a risk informed decision process. RMA products and personnel strengthen the ability to examine alternative strategies that better consider the tradeoffs between responder exposure and impacts to highly valued resources and assets and seek opportunities for realizing the beneficial effects of fire. The intent is to ...

Thursday, May 27

10:45 AM - 11:15 AM

A Brief History of Forest Service Accident Investigation Reform and Advice for the Future*

Concurrent

Ivan Pupulidy

Adjunct Professor , USDA Forest Service retired and University of Alabama at Birmingham

Unfortunately, progress in serious accident investigation reform in the Forest Service is closely associated with fatality fires. After the deadly South Canyon fire of 1994, Ted Putnam refused to sign the report, which generated the first human factors workshop in June of 1995. That fire and the ensuing workshop and TriData study were a wake-up call and the source of a number of innovations such as staff rides, after-action reviews, fire leadership development, and establishing the lessons learned center that would all contribute to accident investigation reform. Work with Karl Weick would culminate in the Managing the Unexpected Conferences of ...

Thursday, May 27

10:45 AM - 11:15 AM

Seeing the Burning Forest Through the Trees: the Challenge of Developing Relevant and Valuable Bushfire/Wildfire Intelligence.

Concurrent

Robert Baird

Director, Fire and Aviation Management, Pacific Southwest Region, USDA Forest Service

One challenge for bushfire/wildfire management in the information age is the abundance of data—raw, unfiltered, and time-sensitive. This data engulfs incident commanders and fire mangers from many directions—from individual cell phones and fixed cameras, to sensors on aircraft and even satellites in space. The data can vary in scale, fidelity and value from source to source, overwhelming decision makers with immense amounts of information. Images, videos, and relevant bits of data are produced at a tremendously rapid pace on a large wind-driven bushfire/wildfire, that will fluctuate wildly in validity and usefulness. Similar to what John Haywood wrote hundreds of years ...

Thursday, May 27

10:45 AM - 11:15 AM

Risk, Service, and Operational Participation. A Contractors perspective within todays increasingly difficult wildfire environment.

Concurrent

Troy O'Connor

President & CEO, RapidFire & Rescue Inc. Red Deer Alberta Canada

Going it alone as an independent contractor! What its been like to provide a continuous, safe, dynamic, professional private fire contracting safety service in the wildfire and WUI fire regime for over 20 years. After 30 plus years in oil and gas, marine and wildland fire response, prevention and safety, what are the most valuable lessons learned as a contractor within our complex wildfire industry. Not unlike a sports team, privateers must work to rebuild their talent and roster every 3 to 5 years, reorganize the front office every 5 to 7 years, coach well on game day, always be ...

Thursday, May 27

11:15 AM - 11:45 AM

Networking Break

Thursday, May 27

03:30 PM - 04:30 PM

An Intro to Using StoryMaps for Wildfires

With Chris (Fern) Ferner

Workshop

Pre-registration is required for this workshop. Registered attendees will receive the link to join a few days prior. If you would like register, please email us. Cost: \$25 An Intro to Using StoryMaps For Wildfires Join us for a hands on introduction to ArcGIS StoryMaps. These are a very useful tool for disseminating information prior to, during and after wildfire events. Attendees will receive an introduction including examples of StoryMaps created for recent fires, a short demo and time to build a StoryMap, get resources for moving forward, and ask questions. Instructor Chris (Fern) Ferner, Esri Wildland Fire GIS Specialist Fern is the Wildland ...