

# Third Annual **NATIONAL COHESIVE WILDLAND FIRE MANAGEMENT STRATEGY** *workshop*

**OCTOBER 21-24, 2019**  
HOTEL 1620 PLYMOUTH, MASSACHUSETTS

The International Association of Wildland Fire is presenting this workshop in partnership with the Wildland Fire Leadership Council (WFLC) and the Western, Southeast and Northeast Regional Strategy Committees.



International Association  
of Wildland Fire





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**Presented By**

International Association of Wildland Fire

**In Partnership With**

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and Northeast Regional Strategy Committees

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Fire Ecologist  
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**Katie Lighthall**

Coordinator  
Western Region National Cohesive Wildland  
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**Larry Mastic**

Coordinator  
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Wildland Fire Strategy

**Tom Zimmerman**

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**Mike Zupko**

Executive Manager  
Wildland Fire Leadership Council (WFLC)

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# Program Schedule

Monday, October 21, 2019				
7:00 PM	Regency Ballroom BC—WILDER THAN WILD: Fire, Forests and the Future Film [1 hour] Documentary that reveals how fuel build-up and climate change have exposed Western wildlands to large, high intensity wildfires, while greenhouse gases released from these fires contribute to global warming			
Tuesday, October 22, 2019				
	Regency Ballroom BC			
8:00-8:15	Welcome, Leaders Intent, Purpose Workshop Co-Chair: Joe Stutler, Deschutes County, Oregon			
8:15-8:30	Welcome from George “Chuckie” Greene, Director, Natural Resources, Mashpee Wampanoag Tribe			
8:30-8:50	KEYNOTE/OPENING PRESENTATION Jim Karels, State Forester, Florida Forest Service			
8:50-8:55	1.Ignite Talk: Not Your Father's Fire Organization: Jurisdictional Complexity in the New Era of Wildfire Branda Nowell			
8:55-9:05	Transition to Concurrent Sessions			
	Regency A	Regency B	Standish	Wampanoag
	Moderator: Kate Lighthall	Moderator: Gary Wood	Moderator: Ed Brunson	Moderator: Tami Parkinson
9:05-10:05	2. Promoting Partners: A Necessity and Advantage for the Eastern Fire Science Exchanges Inga La Puma, Helen Mohr, Nick Skowronski, and David Godwin	3. Red Flag Warnings and Watches—Wow, did they really think that would happen? Tamara Wall	4. Public-Private Sector Partnerships Help Change WUI Resident Behavior Tom Welle	5. Communicating Complex Wildfire Issues with the Community David Bruce
10:05-10:25	Networking Break with Exhibitors - Reception Area			
10:25-11:25	6. Transforming Wildland Fire Policy - Utah's Success Story Jennifer Hansen	7. Communicating the Relevance of Fire Research in the North-east: on collaboration, creative sharing, and being usable Erin Lane	8. What’s Hazard Mitigation Planning Got To Do With The Cohesive Strategy? Nan Johnson	9. Wrestling with relevance—Using sensational historical wildfires to communicate future risks Steve Norman
11:35-12:05	10. Short Film Into the Black produced by Southern Exposure	11. Wildfire Detection Cameras, Web-based Dispatch and Integrating Satellite Detection Gavin Hough	12. Ignition Point Location and Time Influence on WRF-Fire Output: Motivation for a Discussion of Wildfire Modeling Data Needs Amy DeCastro	13. LANDFIRE’s role in fuel treatments and wildfire risk assessments Megan Sebasky
12:05-1:20	Lunch - on your own			
	Regency Ballroom BC			
1:20-2:50	KEYNOTE PANEL - Tribal Implementation of the Strategy & Cultural Fuels and Fire Stewardship Bill Tripp, Karuk Tribe Department of Natural Resources; Chuckie Greene, Natural Resources Director at Mashpee Wampanoag Tribe; Monique Wynecoop, USFS Colville NF Fire Ecologist; and Sehoy Thrower, Environmental Protection Specialist at Poarch Band of Creek Indians Moderator: Frank Lake, USDA Forest Service			
2:50-2:55	14. Ignite Talk: How to use Social Media to Motivate Stakeholders—Anthony Small			
2:55-3:00	15. Ignite Talk: Early Notification App for Fires—Dawn Hutchinson			

# Program Schedule (Tuesday continued)

3:00-3:20	Networking Break with Exhibitors - Reception Area			
	Regency A	Regency B	Standish	Wampanoag
	Moderator: Barb Wolfson	Moderator: Craig Maier	Moderator: Dave Celino	Moderator: Jen Jenkins
3:20-4:20	16. The Cohesive Strategy and the Private Wildland Fire Service (PWFS), a partnership long in the making and a future full of opportunities Kevin Donham	17. Impacts of our experience: learning from California, the US and the world Michele Steinberg/ Tracy Katelman	18. Identifying Barriers to Incident Resource Sharing - Brainstorming Solutions in the Spirit of Safe and Effective Wildland Fire Response Tom Parent	19. Wildfire and Drought-- Collaborating with the National Integrated Drought Information System Tamara Wall
4:30-5:00	20. Short Film Facing Fire: Building Resiliency to Wildfire Produced by All Points Design, Inc.	21. Prioritizing a Cohesive WUI Wildland Technology Investment Strategy Geoffrey Berlin	22. Fire in the Southeast - Past, Present and Future Gary Wood	23. Using Cohesive Strategies to Manage Fire and Fuels in the Eastern Region Steven R. Miller
5:00-5:15	Day's Wrap Up Tami Parkinson, US Forest Service, RD&A			
5:30-7:00	Social Gathering with Exhibitors - Reception Area			
Wednesday, October 23, 2019				
	Regency Ballroom BC			
8:00-8:15	Welcome, Leaders Intent, Purpose Tami Parkinson, US Forest Service, RD&A			
8:15-9:15	KEYNOTE PANEL of State Foresters Laura McCarthy, N. Mexico; Jim Karels, Florida, Brad Simpkins, New Hampshire: Kasey KC, Nevada Facilitator: Pete Church, Director of Forest Stewardship at Department of Conservation and Recreation			
9:15-9:45	The Little Valley Escaped Prescribed Fire - The Lessons Nobody Wants to Share Kasey KC, State Forester, Nevada Division of Forestry			
9:50-10:10	Networking Break with Exhibitors - Reception Area			
	Regency A	Regency B	Standish	Wampanoag
	Moderator: Julie Hunter	Moderator: Helen Mohr	Moderator: Inga La Puma	Moderator: Joe Stutler
10:10 - 10:40	24. Beyond the Visual: Bridging Gaps in Situational Awareness John Widman	25. The Fire Tigers - Training the Future Fire Workforce Wes Bentley	26. Stakeholder Perspectives on California's New Wildfire Policies Following the 2017 and 2018 Wildfires Rebecca Miller	27. Interagency fuels treatment decision support system: facilitating fuels planning for all Caroline Noble
10:50-11:20	28. OPEN	29. Fire Has a Role: An Educational Campaign Cheyenne Warner	30. Southeast Prescribed Fire and Air Quality Workgroup: Addressing Tomorrow's Challenges Today Darryl Jones/Mike Zupko	31. TNC's Southern Blue Ridge Fire Crew Adam Warwick



# Program Schedule (Wednesday continued)

	Regency A	Regency B	Standish	Wampanoag
11:30-12:00	32. Strategies for Implementing the National Cohesive Wildland Fire Strategy at the Local Level <i>Justice Jones</i>	33. A CHANGE IN THE AIR: The Growing Threat of Wildfires and a New Approach to Winning the War Against Them <i>Brett L'Esperance</i>	34. Appalachian RC&D Fire Adapted Communities Coalition Reducing Risk in the WUI in Appalachian Mountains <i>Frank Riley, Melissa Patton, Steve Spangler, and Lynn Sprague</i>	35. Modeling Fires at the Wildland-Urban Interface: Challenges and Opportunities <i>Michael Gollner</i>
12:00	Lunch - on your own If attending the Field Tour, go directly to buses. Lunch will be served in the field.			
12:00-5:00	Field Tour to Myles Standish State Park			
	Regency Ballroom BC			
5:00-6:30	Field Tour Summary of Cohesive Strategy "aha" moments Joe Stutler, Deschutes County, Oregon and Dave Celino, MA Department of Conservation & Recreation Town Hall Social [Vendor Acknowledgment] Sponsored by Wildfire Solutions and Columbia Forest Products			
Thursday, October 24, 2019				
	Regency Ballroom BC			
8:00-8:15	Welcome, Leaders Intent, Purpose Dave Celino, Massachusetts Department of Conservation and Recreation			
8:15-8:45	KEYNOTE PRESENTATION Jeff Rupert, Director, US Department of the Interior, Office of Wildland Fire			
8:50-10:00	KEYNOTE PANEL - Post Fire Impacts and Recovery Panel Kimiko Barrett, Headwaters Economics; Jay Smith, Forest Restoration Director at Coconino County Arizona; David Puckett, Fire Administrator, Sevier County, TN; and Ryan Buras, Deputy Director, Recovery Operations, California Office of Emergency Services Facilitator: Katie Lighthall, Coordinator, Western Regional Strategy Committee			
10:00-10:20	Networking Break with Exhibitors - Reception Area			
10:20-10:50	KEYNOTE PRESENTATION Kim Connors, Director, Canadian Interagency Forest Fire Center			
10:50-10:55	36. Ignite Talk: Mad Men Need Not Apply: Digital Marketing for Ground Pounders and Dirt Foresters <i>Natalie Omundson</i>			
10:55-11:20	Networking Break with Exhibitors - Reception Area			
	Regency A	Regency B	Standish	Wampanoag
	Moderator: Caroline Noble	Moderator: Mary Cardwell	Moderator: Barb Wolfson	Moderator: Tamara Wall
11:20-11:50	37. Finding New Partners in all the Right Places <i>Kari Hines</i>	38. Climbing Beyond the Low Hanging Fruit: Increasing Landowner Fuels Mitigation Activities through Digital Marketing <i>Natalie Omundson &amp; Jessica Wentzell</i>	39. Monitoring and Mapping Wildland Fires in Alaska: Trading Pencils and Paper for Satellites and Services <i>Jennifer Jenkins</i>	40. Working Together to Reduce the Public Health Burden of Wildfire Smoke - An Interagency Smoke Ready Communities Program <i>Peter Lahm</i>
12:00-12:30	41. Rethinking our Wildland Fire Management Focus on Non-Forested Lands <i>Jolie Pollet</i>	42. OPEN	43. Case Studies: Wildfire Risk Portals - The what, how and why... <i>Lowell Ballard</i>	44. Pre Fire Planning to Improve Post Fire Outcomes <i>Doug Cram</i>
12:30-1:45	Lunch - on your own			

# Program Schedule (Thursday continued)

	Regency A	Regency B	Standish	Wampanoag
	Moderator: Joe Stutler	Moderator: Larry Mastic	Moderator: Ed Brunson	Moderator: Craig Goodell
1:45 - 2:15	45. Preparing for jurisdictionally complex wildfire: Are the right actors having the right conversations? <i>Toddi Steelman</i>	46.Choosing a Collaborative Adventure – The Southern Illinois Experience <i>Scott Crist</i>	47. Safer Together – A new approach to reducing the risk of bushfire in Victoria <i>Alen Slijepcevic</i>	48. COMPASS Communications Training presented by the North Atlantic Fire Science Exchange and the Consortium of Appalachian Fire Managers and Scientists <i>Meg Nakahara</i>
2:25 - 2:55	49. Applying situation, forecast, and outlook information in the decision process for emerging incidents, situations, and problems <i>Tami Parkinson, Marsha Henderson, Caroline Noble, Jessica Block, and Lowell Ballard</i>	50. Mapping Wildfire Hazard for Communities: Recent Examples and Feedback on Future Products <i>Kelly Pohl</i>	51. Models of Co-management <i>Anne-lise Velez</i>	
3:05-4:05			52. Strategies to Spark Interest and Increase Prescribed Fire Use on Private Lands <i>Jennifer Fawcett</i>	
4:05-4:15	Transition to Closing Session			
	Regency Ballroom BC			
4:15- 4:45	CLOSING PRESENTATION Jim Hubbard, Under Secretary for Natural Resources and Environment, USDA			
7:00 PM	WILDER THAN WILD: Fire, Forests and the Future Film [1 hour] Documentary that reveals how fuel build-up and climate change have exposed Western wildlands to large, high intensity wildfires, while greenhouse gases released from these fires contribute to global warming			

# Featured Presenters

## **KEYNOTE PANEL - Tribal Implementation of the Strategy & Cultural Fuels and Fire Stewardship**

**Panelists:** Bill Tripp, Karuk Tribe Department of Natural Resources; Chuckie Greene, Assistant Natural Resources Director at Mashpee Wampanoag Tribe; Monique Wynecoop; USFS Colville NF Fire Ecologist; Sehoi Thrower, Environmental Protection Specialist at Poarch Band of Creek Indians

**Moderator:** Frank Lake, USDA Forest Service

### **Monique Wynecoop; USFS Colville NF Fire Ecologist**

I am Mountain Maidu, a descendant of the Pit River/Maidu tribes of Northern California and my husband and children are Spokane Tribal members. Since 2008, I have been working as a Fire Ecologist for the US Forest Service (USFS) within my family's ancestral homeland in Northeastern Washington. I have recently become a co-coordinator/tribal liaison for the Northern Rockies Fire Science Network, as well as a board member for Northwest Scientific Association and Diversity & Inclusivity committee member for the Association of Fire Ecology. As Fire Ecologist, I have coordinated the development of the CNF fire and fuels monitoring plan and program, the annual CNF Joint Chiefs Landscape Restoration Initiative Annual Report, and co-coordinated the Northeast Washington Forest Vision 2020 Collaborative Forest Landscape Restoration Program (CFLRP) fire and fuels monitoring program. My passion lies in promoting tribal sovereignty through cross-boundary collaboration with tribal and non-tribal agencies and my research has focused on building transparency and trust between agencies and incorporating tribal and community feedback into forest management practices. My most recent publications are "Getting back to fire sumés: exploring a multi-disciplinary approach to incorporating traditional knowledge into fuels treatments" (<https://fireecology.springeropen.com/articles/10.1186/s42408-019-0030-3>), "Tribal fire and forest management: Confederated Salish-Kootenai fire history, philosophy, and resource management strategies" (<https://www.nrfirescience.org/resource/19687>), and "Western Rx Fire Science Research Burn: Extending southeastern prescribed fire lessons and science to the West" (<https://www.nrfirescience.org/resource/19856>).



### **George "Chuckie" Greene, Director, Natural Resources, Mashpee Wampanoag Tribe**

As the Program Manager to the *Santuit River Habitat Research Project*, George "Chuckie" Green (Wampanoag) has almost 30 years of conservation and environmental management experience. He served as the Assistant Director of the Natural Resource Department of the Mashpee Wampanoag Tribe from 2008-2017 before taking on his current role as Department Director. In this position, Chuckie ensures that the Tribe remains a steward of their ancestral lands through environmental conservation and protection programs. He has won multiple grants for the department that seek to preserve the Tribe's natural resources while also running the Native Youth in Science-Preserving our Homelands program. His years of community involvement and leadership in environmental groups range from participation in the Mashpee Conservation Commission through the 1990s and the Waquoit Bay Estuarine Research Advisory Board.



Currently Chuckie sits on multiple State/Tribal, committees and boards dedicated to preserving the natural environment and addressing pressing environmental concerns. In [Insert year], he joined the Shad Herring Advisory Committee of the Atlantic States Fisheries Management Council whose mission is to protect Atlantic coastal fishery resources. On this Committee, Chuckie works to specifically protect local shad and river herring fisheries. He also serves as a Board Member to the Cape Cod Conservation District that is dedicated to conserving land, water, forests and wildlife on Cape Cod. In addition, Chuckie is a representative for both the State Commission for Conservation of Soil, Water & Related Resources and the Regional Tribal Conservation Advisory Committee to the United States Department of Agriculture, Natural Resources Conservation Service. For the past 18 years, he has been a Wampanoag representative to the Northeast Regional Planning Body for the Oceans under the National Ocean Policy. On top of his extensive experience working on environmental councils shedding light on urgent environmental issues, Chuckie has years of experience working in Tribal government leadership.



### **Bill Tripp, Karuk Tribe Department of Natural Resources**

Bill Tripp is a Karuk tribal member and Deputy Director of Eco-Cultural Revitalization for the Karuk Tribe Department of Natural Resources. He is a specialist on forest management and was co-PP on the USDA-NIFA AFRI Food Security project. He is also the lead author on the Karuk Eco-cultural Resource Management Plan (ECRMP).



### **Sehoy Thrower, Environmental Protection Specialist at Poarch Band of Creek Indians**

Sehoy Thrower currently works as the Environmental Protection Specialist for the Poarch Band of Creek Indians. She grew up learning traditional ecological knowledge from family and eventually went on to study ecology in school. Along with protecting the Tribe's natural resources, her job involves teaching traditional ecological knowledge from a cultural and scientific perspective to the youth. She has been training with the Nature Conservancy to learn more about prescribed burning.



## **KEYNOTE PANEL of State Foresters**

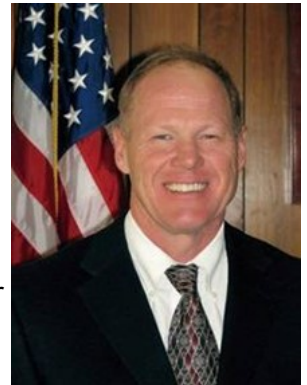
**Panelists:** Jim Karels, Florida, Kasey KC, Nevada, Laura McCarthy, N. Mexico, Brad Simpkins, New Hampshire

**Facilitator:** Pete Church, Director of Forest Stewardship at Department of Conservation and Recreation

### **Jim Karels, State Forester, Florida Forest Service**

James "Jim" Karels is the Florida State Forester and Director of the Florida Forest Service, which manages more than 1 million acres of state forests and provides forest management assistance on more than 17 million acres of private and community forests. The Florida Forest Service is also responsible for protecting homes, forestland and natural resources from the devastating effects of wildfire on more than 26 million acres.

Jim has more than 39 years of experience in prescribed burning, wildfire suppression and land management throughout the United States. A native of rural Minnesota, he graduated with a degree in Forest Management from the University of Minnesota and began his career by traveling west with the U.S. Forest Service, eventually making his way to Florida.



A national leader in both prescribed fire and wildfire management, Jim is the former president of the National Association of State Foresters (NASF) and is currently representing all 50 states as the NASF Fire Committee Chair. He also serves on other national committees including the Wildland Fire Leadership Council and the Wildland Fire Executive Council to provide support for the implementation and coordination of the National Fire Management Program in the United States.

While prescribed fire is one of the most valuable land management tools to reduce wildfire threats and to restore forest health, Jim believes people are the key. Developing partnerships before a disaster hits is critical. He is committed to developing quality incident management teams and believes that working together to effectively educate landowners and the public can guard our burning heritage which will ultimately preserve our forested ecosystems, enhance our wildlife and protect our citizens.

**Kacey KC, State Forester, Nevada Division of Forestry**

Kacey KC was appointed State Forester Fire warden for the Nevada Division of Forestry (NDF) in 2018. Kacey is a Nevada native, born and raised in Gardnerville. Kacey attended the University of Montana where she received a bachelor's degree in Forestry- Natural Resource Conservation. After college, she became a Peace Corps volunteer where she spent two years doing community forestry work in Nepal. Kacey started her career with NDF in 2002 as a seasonal for the nursery and seedbank program then moved into the state office working for both the fire program and the resource program. She spent more than ten years working collaboratively with state, local and federal partners in the fuel reduction program before moving into the Department of Conservation and Natural Resources in the Sagebrush Ecosystem Program. There she worked with partners, landowners and other industry trying to find a collaborative and sustainable approach to sagebrush ecosystem management in Nevada primarily for sage grouse and other obligate species. Kacey went back to Forestry in 2015 as the Deputy Administrator of Operations managing the natural resource, wildland fire management, aviation, and conservation camp programs.

**Laura McCarthy, State Forester, New Mexico**

Laura McCarthy is State Forester in New Mexico, a position she has held since March 2019. Previously she was Associate State Director for the Nature Conservancy in New Mexico and manager of the Rio Grande Water Fund. Laura's prior work includes more than a decade with the USDA Forest Service as a firefighter and planner in Idaho, California, Vermont and New Hampshire, and with the Santa Fe-based Forest Guild.

Laura's professional life was significantly altered by the Cerro Grande Fire in 2000, which fostered her interest in fire and forest restoration practice and policy, and Las Conchas Fire in 2011, with its post-fire debris flows that deepened her concern for water source protection. Laura enjoys her role building bridges that connect people to nature, including land and water managers, and urban, rural and traditional cultural communities. She has earned several awards for her work including New Mexico Environmental Leader of the Year in 2015 and the Yale School of Forestry and Environmental Studies Distinguished Alumna Award in 2017.

**Brad Simpkins, State Forester, NH Division of Forests and Lands**

Brad Simpkins is the Director and State Forester for the New Hampshire Division of Forests and Lands, where he has statutory authority for all matters pertaining to forestry, forest management, and forestlands. Prior to becoming the director in 2008, Brad served as Chief of Forest Protection where he oversaw the wildland fire management program for the division.

Brad is active on numerous state, regional and national boards, commissions and committees pertaining to forest management and protection, including serving on the Executive Committee of the Northeast-Midwest State Foresters Alliance, the Northeast State Foresters Association, the National Association of State Foresters Wildland Fire Committee, Northeast representative to the Cooperative Forest Fire Prevention Committee, past Chair of the Northeast Regional Cohesive Wildland Fire Management Strategy Committee, commissioner and past Chair of the Northeast Forest Fire Compact Commission, and liaison and past Chair of the Northeast Forest Fire Supervisors. He has been the recipient of several recognitions, including the Pete Anderson Current Achievement Award for Fire Protection, the Mollie Beattie Young Forester Leadership Award from the New England Society of American Foresters, The Alan Zentz Fire Supervisors Award, an Academy Award from the New Hampshire Fire Standards and Training Commission, the Two Chief's Partnership Award from the USDA, and an Alumni Award of Excellence from Plymouth State University.



Brad holds a B.S. in Environmental Resource Management with a forestry concentration from Penn State University and an M.B.A. from Plymouth State University. He is a licensed professional forester and serves on the Board of Licensure.

## KEYNOTE PRESENTATION

### **Jeff Rupert, Director, US Department of the Interior, Office of Wildland Fire**

Jeff Rupert is the Director of the Office of Wildland Fire (OWF) as of February 4, 2018. He has been with the Department of the Interior for over twenty years, beginning as a refuge biologist at the Lower Rio Grande Valley National Wildlife Refuge in Texas, along the U.S-Mexico border. Most recently, Jeff served as the Chief of the Division of Natural Resources and Conservation Planning for U.S. Fish and Wildlife Service (FWS), where he led a diverse program of work, which included FWS Fire Management located at the National Interagency Fire Center in Boise, Idaho, and the Natural Resource Program Center in Fort Collins, Colorado, which supports planning and management of environmental quality, resources, and health of the National Refuge System.



Before transferring to FWS Headquarters, Washington D.C., in 2010, Jeff was the Refuge Manager of the Wichita Mountains Wildlife Refuge in Oklahoma, and he managed the 90,000 acre Lower Rio Grande Valley National Wildlife Refuge on the US-Mexico border in Texas from 2000-2006. He began his career with the US Fish and Wildlife Service in 1991 as a Biological Technician at the National Ecology Research Center in Fort Collins, Colorado, where he conducted avian research.

Jeff earned a B.S. in Biology from Baker University in Kansas and an M.S. in Biology from the University of Texas-Pan American. Jeff and his wife Corinna are both outdoor enthusiasts, as are their two kids.

## KEYNOTE PANEL - Post Fire Impacts and Recovery Panel

**Panelists:** Kimiko Barrett, Headwaters Economics; Jay Smith, Forest Restoration Director at Coconino County Arizona; David Puckett, Fire Administrator, Sevier County, TN; Ryan Buras, Deputy Director, Recovery Operations, California Office of Emergency Services

**Moderator:** Katie Lighthall, Coordinator, Western Regional Strategy Committee

### **Kimiko Barrett, Headwaters Economics**

Kimiko Barrett has a deep interest in rural landscapes and the people who live there. Born and raised in Bozeman, Montana, she appreciates the outdoors and the intimate connections people have with the land. After obtaining undergraduate degrees in Political Science and Japanese, Kimi completed a Master's in Geography from Montana State University and a Ph.D. in Forestry from University of Montana. Her doctorate research focused on climate change impacts in high mountain ecosystems and took her to remote places in the western Himalayas. Kimi enjoys engaging with people on complex issues such as community resilience, adaptation, and vulnerability. When she's not working, Kimi enjoys traveling, downhill skiing, backpacking, interpreting maps, and picking huckleberries.



### **Jay Smith, Forest Restoration Director at Coconino County Arizona**

Jay Smith, Coconino County's Forest Restoration Director, has worked in the forest industry for the past 22 years. In his current role, Jay is working to re-establish forest industry in Northern Arizona to allow for accelerated forest restoration activities to take place on National Forest land. Coconino County's Board of Supervisors have identified catastrophic wildfires and post-wildfire flooding to be the number one health and safety threat to the citizens of the County. Jay works closely with forest industry and other partners to reduce these threats, especially on steep slope acres within the county through forest thinning projects.





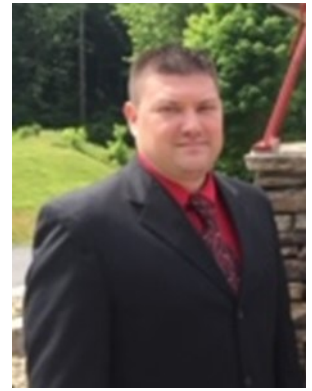
### **David Puckett, Fire Administrator, Sevier County, TN**

David Puckett is originally from Southwest Virginia. He started his career in the fire service in 1997 as a Volunteer Firefighter at the age of 16. He remained in Virginia until he was hired by the City of Gatlinburg in TN as a Firefighter Paramedic at the age of 19.

Early in his career he was tasked with heading up the wildland division and creating a WUI team. He established partnerships with the Great Smokey Mountains National Park and Tennessee Department of Forestry where they were able to offer 130, 190, L 180, 212, 215, and 211 training courses to our structural firefighters. Later in 2005 he helped introduce the Firewise concept to City of Gatlinburg and surrounding communities.

At the age of 29 he was promoted to Shift Supervisor and later became the president of the Gatlinburg Firefighters Association where their main goal was public education and outreach. He served in these roles during the Wildfires of 2016 and throughout the recovery effort. Post fire he took on the additional role as the Firewise Committee Chairperson for the City leading the charge in receiving national recognition for becoming a Firewise Community in 2018.

During the summer of 2019, he was appointed to the position of Fire Administrator for Sevier County where he has been tasked with ensuring responder readiness and creating cohesion between partnering agencies. He has also partnered with Sevier County EMA to help engage the public in becoming more involved with emergency preparedness. His belief is excellence is achieved through Cooperation, Education, Preparation, and Mitigation.



### **Ryan Buras, Deputy Director, Recovery Operations, California Office of Emergency Services**

Ryan Buras is the Deputy Director of Recovery Operations, which includes directing disaster recovery operations and managing hazard mitigation and debris operations. Prior to this, Buras worked at the Federal Emergency Management Agency, where he served in several positions since 2005, including senior advisor in the Office of Recovery Public Assistance and acting executive officer of the Office of Response and Recovery.



## **KEYNOTE PRESENTATION**

### **Kim Connors, Director, Canadian Interagency Forest Fire Center**

Kim Connors is the current Executive Director of the Canadian Interagency Forest Fire Centre (CIFFC) located in Winnipeg Manitoba Canada.

Born in the Province of New Brunswick (NB) on Canada's east coast, Kim worked with the NB Department of Natural Resources before, during and after college and served many aspects of the wildland fire management program for 25 years concluding his service with NB as Manager of the provincial program from 2000 to 2009.

In 2009 Kim accepted the position with the Province of Saskatchewan as Director of Operations for the Ministry of Environments' Fire Management and Forest Protection Branch where he served for 14 months before accepting his current position as Executive Director of CIFFC in November of 2010.



Kim is actively involved with the Canadian wildland fire community and helping them collectively deal with the challenges associated with climate change and its effect on the wildland fire management programs. Under the direction of the Canadian community, Kim is leading the CIFFC team in evolving CIFFC from an organization with a reactive approach to one that is strategically and pro-actively focused on meeting the current

resource demands of the fourteen Canadian fire management programs.

Kim is also actively involved with international affairs through and in association with the Government of Canada. He is an active participant with the Global Fire Monitoring Centre, the UNISDR Wildland Fire Advisory Group, International Fire Aviation Working Group, the North American Forestry Commission and the International Liaison Committee for the Global Wildland Fire Conference series.

## KEYNOTE PRESENTATION

### **Jim Hubbard, Under Secretary for Natural Resources and Environment, USDA**

Jim Hubbard was sworn into office as Under Secretary for Natural Resources and Environment at the U.S. Department of Agriculture, September 6, 2018. In this role, he oversees the work of the USDA Forest Service.

In 2016 he retired from the U.S. Forest Service as Deputy Chief for State and Private Forestry, with responsibility for Fire and Aviation Management, National Fire Plan, Cooperative Forestry Programs, Forest Health Protection, Conservation Education, Urban and Community Forestry, and the Office of Tribal Relations.

Between November 2004 and October 2005, Hubbard served as the Director of the Office of Wildland Fire Coordination with the Department of the Interior. In this position he had oversight for the implementation of the National Fire Plan and activities of the five land managing bureaus for forest fire prevention, mitigation, and partnerships with communities, tribes, and stakeholders.

Hubbard was a member of the Colorado Forest Service for over 34 years before coming to Federal Service in 2004. He served as Colorado State Forester from 1984-2004. Jim was a leader in the National Association of State Foresters (NASF) and Chaired the Council of Western State Foresters. He provided national leadership in the NASF through his many committee assignments, including the Chairman of the Legislative Committee. Jim served as Liaison to the Western Governor's Association during the development of the implementation strategy for the National Fire Plan.

He holds a Bachelor of Science degree in Forest Management from Colorado State University and is an Honor Alum of the College of Natural Resources.

Jim grew up in Neodesha, rural Kansas where he enjoyed being in the woods, exploring new territory, and working the land. He and his wife Cindy have three grown daughters.





# Sponsors

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### Southwest Fire Science Consortium

[www.swfireconsortium.org](http://www.swfireconsortium.org)

@swfirescience

The consortium is a way for managers, scientists, and policy makers to interact and share science. Our goal is to see the best science used to make management decisions and scientists working on the questions managers need answered. The Southwest is one of the most fire-dominated regions of the US, and the

Consortium is the only regional organization focused on fire research and information dissemination across agency, administrative, and state boundaries. We try to bring together localized efforts to develop scientific information and to disseminate that to practitioners on the ground through an inclusive and open process. Please join us by attending a field trip or workshop, reading and sharing the materials on this website, and/or contributing to the fire conversation by submitting a proposal for an event or product.



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[www.chestchattrcd.org](http://www.chestchattrcd.org)

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- Coastal Georgia
- Oconee River
- Golden Triangle
- Pine Country
- Limestone Valley
- Rolling Hills
- Seven Rivers
- Two Rivers
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The Resource Conservation and Development (RC&D) Program was created in the Agricultural Act of 1962 to assist local people in planning and carrying out activities that conserve natural resources, support economic development, enhance the environment, and improve the standard of living for all citizens. All programs and assistance of the RC&D Council are available without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status.

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## National Fallen Firefighter Foundation

[www.firehero.org](http://www.firehero.org)

@NFFF\_News

Congress created the National Fallen Firefighters Foundation (NFFF) in 1992 to lead the nationwide effort to honor America's fallen firefighters. The NFFF's mission is to honor and remember all of America's fallen fire heroes, assist their families in rebuilding their lives, and reduce firefighter deaths and injuries.

The NFFF is the only fire service organization that represents every facet of the American fire service – career, contractor, military, volunteer and wildland.



The Foundation is a 501(c)3 nonprofit organization headquartered in Emmitsburg, Maryland, site of the National Fallen Firefighters Memorial. The NFFF is registered as a corporation in the state of Maryland. When Congress created the NFFF, it did not provide funding or financial assistance, so the Foundation relies heavily on funding through private donations from caring individuals, organizations, corporations, federal grants, and other foundations.

In 2018, the NFFF embarked on a concerted initiative of collaboration with the Wildland Firefighter Foundation. The objective of the effort is aimed at pooling resources to better support the unique circumstances and needs of the wildland fire community when a LODD occurs. This initiative also led to a retooling of NFFF training programs, so they better address the needs of the wildland firefighter.

## Northeast Forest and Fire Management, LLC

[www.ne-ffm.com](http://www.ne-ffm.com)

Northeast Forest and Fire Management, LLC (NE-FFM) has been operating out of Sandwich, Massachusetts since 2006. Our professional consulting foresters, pre-



**Northeast**  
Forest and Fire Management LLC

scribed fire burn bosses, and natural resource staff provide unparalleled experience and service in planning and implementing natural resource management projects throughout New England and New York. We specialize in ecological management of rare communities and wildlife habitat restoration, with a focus on early successional habitats and pine barrens systems.

NE-FFM works with a range of client organizations including local and state agencies, non-profit groups, and private property owners. Working with our clients we develop customized and detailed management plans and studies including forest management plans, wildlife habitat plans, pollinator habitat plans, wildfire hazard assessments, fire management plans, prescribed burn plans, and monitoring protocols. We undertake ecological and forest management inventory and monitoring to evaluate fire and forest management objectives. NE-FFM assists clients in permit application and administration. We coordinate and instruct at fire management trainings and workshops. Additionally, NE-FFM plans, implements, and conducts the application of prescribed fire for a wide range of resource management goals; including ecological management, forest management, fuel hazard reduction, and view shed protection.

## Wildfire Solutions

Wildfire Solutions is working to create landscape products with low to no value hazardous fuels in order to create a solution that can be utilized to support the Cohesive Strategy.



**WILDFIRE**  
SOLUTIONS

# Exhibitors

## EnviroVision Solutions Inc

[www.evsolutions.biz](http://www.evsolutions.biz)

ForestWatch cameras for early wildfire detection as been integrated with FireWeb, a web-based wildfire dispatch management tool. Current development work integrating rules-based decision support focused on safety on the fire-line and providing integrated satellite detection with a focus on the long-term trends comparing both ground-based detection (from lookouts and cameras) and satellite detection with a view to exploiting the synergies of a single solution combining both ground and satellite based wildfire detection is highlighted here.



## FTS Forest Technology Systems Ltd

[www.ftsinc.com](http://www.ftsinc.com)

FTS began in 1980 with a focus on the fire weather meteorological niche. Since then, FTS has become a leading manufacturer of remote environmental monitoring systems, instrumentation and communications technology for the Hydrology, Fire Weather and Meteorology industries. Our equipment forms the backbone of some of the world's most sophisticated and demanding environmental monitoring networks. Our mission is to make our customers successful in their efforts to monitor, record, and analyze changes in the natural environment.

FTS is the world leader in environmental monitoring solutions for fire weather (weather as it applies to predicting, preventing and managing wildfires). FTS stations are used by 100% of the top 50 government forest management agencies in every corner of the United States and Canada.



Our equipment resides for decades in rugged terrain measuring environmental data that is transmitted back to government and private agencies that analyze and use it to make critical decisions. Our technology helps save lives, protects the environment, and is increasingly in demand due to the effects of climate change.

We pride ourselves on designing and manufacturing the world's most reliable, easy to use, and simplest to maintain weather monitoring systems. Our headquarters, research and design lab and manufacturing plant are located in Victoria, British Columbia, with a branch office in Blaine, Washington.

## North Atlantic Fire Science Exchange

[www.firesciencenorthatlantic.org](http://www.firesciencenorthatlantic.org)

@NorthAtlFireSci

The North Atlantic Fire Science Exchange (NAFSE) is a center for fire science information. We strive to promote communication between fire scientists and fire managers within our region. We also encourage the use of fire science to balance public safety, economic realities and sustainable ecosystems. With its high population and urban development, the North Atlantic area has unique concerns as it relates to wildfire. In an effort to create a safe and resilient region, we provide a trusted forum to share information between fire managers and scientists.



What we do:

- Promote opportunities for communication between scientists and land managers.
- Focus on innovative solutions for our region's unique science and management challenges.
- Provide easy access to current research and facilitate new research partnerships.
- Serve as an outlet for regional fire science communication and increase the flow of information.

### Northern Rockies Fire Science Network, RMRS

<https://www.nrfirescience.org/>

@NRfirescience

The Northern Rockies Fire Science Network (NRFSN) is a go-to resource for managers and scientists involved in fire and fuels management in the Rocky Mountains of Idaho, Montana, Washington, and Wyoming. We facilitate knowledge exchange among managers and scientists by bringing people together to strengthen collaborations, synthesize science, and enhance science application to critical fire and fuels management issues.



### SmartSource - Incident IT Solutions Overnight

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When placing an order, please email your Resource Order and completed SmartSource Order form to [FireSupport@SmartSourceRentals.com](mailto:FireSupport@SmartSourceRentals.com), then please confirm receipt by calling our SmartSource 24/7 after-hours number is: 480.588.2411, and 480.829.6336 during business hours.

### Southern Fire Exchange / University of Florida

<http://www.southernfireexchange.org>

@SEFireScience

The Southern Fire Exchange (SFE) helps to tackle America's wildland fire problems by moving science into practice. SFE bridges the gap between the fire science and natural resource management communities so that relevant cutting-edge fire science information can be applied to address wildfire and prescribed fire challenges in the Southeast. SFE works with key partners across the region to develop innovative programs, resources, and networks that move fire science and management forward. SFE publications, quarterly workshops, monthly webinars, and events facilitate meaningful connections between fire scientists and managers that foster collaborative approaches for solving real-world problems. As a member of the Joint Fire Science Program funded *Fire Science Exchange Network*, SFE is a collaborative partnership among the University of Florida, North Carolina State University, Tall Timbers Research Station, and the U.S. Forest Service Southern Research Station.



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# Session Abstracts

## 1. Not Your Father's Fire Organization: Jurisdictional Complexity in the New Era of Wildfire

**Presenter:** Branda Nowell - North Carolina State University

### **Additional Authors/Presenters:**

Toddi Steelman, Dean - Nicholas School of the Environment, Duke University

Anne-lise Velez - Virginia Tech

While we commonly reference the growing complexity of wildland fire, there is much we still don't know about the nature of the changes that are taking place. The changing nature of jurisdictional complexity on wildfires and its associated implications for the types of incident response organizations necessary is one domain in which data has been limited. This ignite talk will present national data offering a historical perspective on the changing face of jurisdictional complexity of wildfires in the United States. Implications of this complexity for co-management of wildfire will be discussed.

**Bio:** Dr. Branda Nowell, Professor, is an organizational-community psychologist specializing in inter-organizational relationships, social networks, and community capacity for multi-agent collaboration and coordination within complex problem domains. She teaches courses in network governance, organizational behavior, change management, organizational theory, and program evaluation. As an interdisciplinary scholar, she integrates community and organizational psychology with public management to better understand community-based networks of public and nonprofit agencies working in a common problem domain. She currently co-leads a research team ([firechasers.ncsu.edu](http://firechasers.ncsu.edu)) focused on advancing the science of adaptive capacity toward more disaster resilient communities. Since 2008, this team has worked in collaboration with the US Forest Service on research aimed to improve inter-agency coordination and communication during large scale wildfire events.

**Keywords:** co-management, multi-jurisdictional fires, effective fire response

## 2. Promoting Partners: A Necessity and Advantage for the Eastern Fire Science Exchanges

**Presenter:** Inga La Puma, Science Communication Director, North Atlantic Fire Science Exchange

### **Additional Authors/Presenters:**

Helen Mohr, Consortium of Appalachian Fire Managers and Scientists/ USFS

Nick Skowronski, Ph.D., North Atlantic Fire Science Exchange/ USFS-NRS

David Godwin, Ph.D., Southern Fire Exchange / University of Florida.

### **Increasing prescribed fire capacity through Prescribed Fire Training Exchanges (TREX)**

**Presenter:** Helen Mohr, Consortium of Appalachian Fire Managers and Scientists/ USFS

TREX events provide a cooperative burning model that services the needs of diverse partners, including federal and state agencies, private landowners and contractors, tribes, academics and international partners. The TREX model incorporates local values and issues to build the right type of capacity in the right places. The Southern Blue Ridge TREX was held in the fall of 2018 and served as a way to increase prescribed burning capacity on state, federal and private lands in the southern Appalachians. Fifty-five participants from across the US and 2 foreign countries came to help burn and complete important task book work for their individual growth.

### **Co-production of science as the foundation for successful research project development**

**Presenter:** Nick Skowronski, Ph.D., North Atlantic Fire Science Exchange/ USFS-NRS

In wildland fire science, there is often a chasm between research results and the usefulness of those results. To bridge this gap and find success, fire scientists must become “scientists/practitioners” and fire practitioners must become “practitioner/scientists,” working together to find win/win situations. A few imperfect examples will be highlighted focusing on relationship building and communications.

**Kids and Fire: How Cohesive Strategy Partners in the South are Engaging the Next Generation** Presenter: David Godwin, Ph.D., Southern Fire Exchange / University of Florida.

Successfully managing fire and ecosystems into the future depends upon having an informed and engaged public. Fire and land management partners from across North Florida have demonstrated that by partnering with regional youth organizations, exciting and innovative events can be developed for teaching kids about prescribed fire, fire ecology, fire science, forestry and wildfire preparedness. This presentation will talk about the successful “Longleaf Challenge” Scout camporee events held in 2017 and 2019 that connected with over 300 youth and adults.

**Bio:** As the science communications director for the North Atlantic Fire Science Exchange, Inga uses all forms of communication to help facilitate relevant wildfire research and promote access to meaningful fire science. For the last five years she has been focused on improving her communication skills and becoming an effective science writer in order to be a better communicator for the exchange. She has a Ph.D. in Ecology from Rutgers where she focused on the fire history of New Jersey and landscape level ecosystem modeling.

**Keywords:** Partnerships, Fire Science Exchange, Eastern

### **3. Red Flag Warnings and Watches—Wow, did they really think that would happen?**

**Presenter:** Tamara Wall, Deputy Director, WRCC, DRI/WRCC

**Additional Authors/Presenters:**

Tim Brown, Director, WRCC/DRI

A review of over 40 National Weather Service Forecast Office’s annual operating plans in 2018 found 524 unique criteria in use for issuing red flag warnings. At a workshop in Boise, ID in September 2018, several paths forward to refine and standardized RFW criteria were discussed. The need to be in alignment with the NWS Hazard Simplification program was also recognized and work is moving forward to do research to do an analyses of fire weather-danger-behavior indices to determine the best consistent set of inputs needed for established breakpoint criteria for fire weather watch/warning decisions and Determine categorical breakpoint criteria linked to fire management and public notifications and actions necessary for safety. In this session, we will use a scenario-based process to assess possible probabilistic hazard information, i.e., hypothetical forecasts in combination with varying weather and fire danger scenarios to view how different groups in the session interpret and respond to assess potential messaging for communicating forecast confidence and uncertainty. If you have every had the thought, “wow, did they really think that was going to happen” this is the session for you.

**Bio:** Dr. Tamara Wall is an assistant research professor at the Desert Research Institute in Reno, NV and deputy director of the Western Regional Climate Center. Additionally, Dr. Wall works with the Center for Climate, Ecosystems, and Fire Applications, and is a co-PI of California-Nevada Climate Applications Program (part of the national NOAA-sponsored Regional Integrated Sciences and Assessments network) and the Southwest Climate Science Center Consortium.

**Keywords:** Wildfire, Risk, Forecasts, Red Flag, Warnings

### **4. Public-Private Sector Partnerships Help Change WUI Resident Behavior**

**Presenter:** Tom Welle, Manager, Denver Field Office, Wildfire Division, NFPA

In order for fire adaptation to truly take hold in communities, social behavior change in how we accept and reduce our shared risk is necessary. Many elements of society, speaking with one clear voice, must be involved in the effort for results to occur. Effective community-based solutions must include public-private coalition stakeholders delivering shared messaging, subject matter expertise, funding resources, public outreach and leveraging of resources, opportunities and programs.

The economic well-being and sound development of communities is dependent on the housing market and insurance availability. Local and state government officials need to pay attention to how this impacts current and future development and construction.

This moderated panel will highlight current insurance, real estate, governmental and non-governmental partnerships in Colorado and the outreach engagement that has resulted from their collaborative efforts.

The panel will then move into the larger discussion of how the private sector can engage with residents, using consistent science-based outreach through their channels to add leverage and move residents to action.

**Keywords:** fire adapted communities, insurance, real estate, social behavior change

## **5. Communicating Complex Wildfire Issues with the Community**

**Presenter:** David Bruce, Communications Director, Bushfire and Natural Hazards Cooperative Research Centre and International Association of Wildland Fire

### **Additional Authors/Presenters:**

Ron Steffens, Executive Editor, Wildfire Magazine, International Association of Wildland Fire

Good science and good policy are, by their very nature, often complex, detailed and obscure. They are often multi-disciplined and assume a high level of subject matter knowledge. None of this helps in raising the community's understanding of wildfire risk nor convincing government of the need to act.

The challenge is to make the narrative around wildfire more accessible, useful and understandable to those who are in most need of this information but lack the time, resources, knowledge or expertise to be fully engaged.

The IAWF attempts to do this by various means including this conference, website and social media, and Wildfire magazine. In 2019 the IAWF released several Issues Papers to promote discussion and change on the matters that concern us most.

This interactive workshop proposes to draw from practical examples and case studies from the presenters and from the room on the stories we need to tell right now.

The workshop is based around basic communications principles:

1. Who do we want to talk to/listen to? (Defining the audience)
2. What do we all need to know? (Defining the issues)
3. How do we get the story out? (Defining the narrative)
4. Who received and used it? (Evaluation)

In the world of wildfire, the problem is acute because life and property are at risk. Such immediate and sometimes tragic impacts may overshadow the long-term risks to community and ecosystem as our fire regimes shift with changing land-use practices and climate change.

While wildfire problems increase around the world, the public narrative is mostly around the emergency response and immediate impacts – long term impacts and mitigation options remain poorly understood. To shift our dialogue, firefighters, emergency workers, relief agencies, governments, agriculture and industry, and the public must understand the connecting narratives between risk conditions and outcomes, and then work to collectively communicate, prioritize and implement solutions.

This workshop will discuss the merits of a range of media including written publications (journals, magazines, books, brochures), websites, social media and media (general, trade, science), conferences (international, national, multi-themed) and other events (workshops, masterclasses, trade shows, community gatherings).

What works? What fails? How do we get better at talking about wildfire?

**Bio:** The presenters have worked together on the IAWF Wildfire magazine for around five years with David as an IAWF Board Director and the current Chair of the Wildfire Communications Committee and Ron as a former Direc-

tor and now the current Executive Editor of the magazine. David has a background in journalism and public affairs and works as the Communications Director of the Bushfire and Natural Hazards CRC in Australia. Ron is a professor of communications and spends his fire seasons on duty at Grand Teton National Park.

**Keywords:** Wildfire communications, science and research, community information

## **6. Transforming Wildland Fire Policy - Utah's Success Story**

**Presenter:** Jennifer Hansen, Utah Wildfire Risk Reduction Coordinator, Utah Division of Forestry, Fire and State Lands

Following Utah's record-setting catastrophic 2012 fire season, the Utah Division of Forestry, Fire and State Lands began overhauling its Wildland Fire Program. From the Governor's Catastrophic Wildfire Reduction Strategy (Utah's approach to the National Cohesive Strategy), to the creation of a new wildfire management system, to the Utah Wildfire Risk Assessment Portal (on-line risk assessment tool), to millions of dollars of funding to meet the three goals of the NCS, Utah has created a progressive wildfire policy and fire management system that emphasizes fire risk reduction in partnership with communities. Attendees will learn about the philosophical shift Utah has undertaken; the numerous policy, administrative, organizational and statutory changes that have been made; and the consensus-building approach with cities, counties and fire chiefs, all to build a comprehensive, statewide system focused on proactive wildfire risk reduction and, over time, systematically reducing the threat and cost of wildfire across the state.

**Bio:** Jennifer graduated from Texas A&M University in 2003 with a Bachelor of Science in Forestry with an emphasis in Forest Policy. Shortly after, she began working for the Department of Natural Resources, Division of Forestry, Fire and State Lands based in Salt Lake City. She received her wildfire certifications in 2008 and her enthusiasm for pursuing a career in Forestry switched to fuels management and wildfire mitigation, education and prevention. In 2009, she accepted a position in the field as the Bear River Area Sovereign Lands/Wildland Urban Interface (WUI) Coordinator in Logan, Utah. For those five years, she worked with educating communities on their wildfire risk and mitigation techniques along with implemented several hazardous fuel reduction projects. She was also over the management and administration of sovereign lands for the area which included Bear Lake and the Bear River. In 2014, she accepted the State-wide WUI Program Administrator over all Division fuel mitigation, community education and prevention efforts. Being in the position now for 5 years, she had loved the opportunity to be influential in changes in the wildfire policy and supporting the six area field staff to overcome challenges and moving the program forward to better serve the public in Utah.

**Keywords:** Policy, NCS Goals, Cooperative Agreements, Risk Reduction

## **7. Communicating the Relevance of Fire Research in the Northeast: on collaboration, creative sharing, and being usable**

**Presenter:** Erin Lane, North Atlantic Fire Science Exchange, USDA Forest Service Northern Research Station

### **Additional Authors/Presenters:**

Bethany Muñoz Delgado, Research Ecologist, USDA Forest Service

Wildland fire management and is recognized as an important part of land management throughout the northeastern United States. However, the relevance of wildland fire research to the northern landscape and to support management has been subject to challenge. Additionally, there are few research programs focused on northeastern fire science and resources to support such are scarcely available. To best convey the relevance of wildland fire research to this complex landscape, the North Atlantic Fire Science Exchange and partners have been working towards finding new ways to improve fire science communications. We have identified key elements that best tell the story of fire science research as well show its significance to management. More specifically, we found that collaborative work that highlights useable management implications should be shared in a creative and interactive way to bring research and management together.

Successful projects engage partners early in the research process through a co-production model. Through involvement of multiple agencies at varying scales (e.g. local, state, federal, private, public), the relevance of wildland fire

research is extended. Furthermore, by using varied methods of interactive communication (e.g. virtual tours) the research narrative reaches a broad audience and the implications are made clearer and relate-able. The relationship between science and management can then be improved leading to more actionable approaches. Using a case study of fuel management research in Maine, we will discuss collaborative approaches to co-production, communication tools for creative sharing, and how to best convey the research findings to be used. The presentation will further facilitate an open discussion on why and how research is relevant in our landscapes.

**Bio:** Erin Lane, also with the USDA Forest Service Northern Research Station, is one of the leaders of the North Atlantic Fire Science Exchange. She also is coordinator for the USDA Northeast Climate Hub. Her focus is on science communications and linking research with management for both climate adaptation and wildland fire research.

**Keywords:** science communications; co-production; prescribed burning; fuel management; northern mixed-woods; long-term research; virtual tour; public outreach

## **8. What's Hazard Mitigation Planning Got To Do With The Cohesive Strategy?**

**Presenter:** Nan Johnson, Community Planner, Risk Analysis Branch, FEMA Region I – Mitigation

### **Additional Authors/Presenters:**

Jessica Gibson, Senior Community Planner, FEMA Region IV

Anne Fuchs, State Hazard Mitigation Planner, State of Maine Emergency Management Agency

Sarah White, State Hazard Mitigation Planner, Commonwealth of Massachusetts, Emergency Management Office

FEMA Community Planners partnering with the State Hazard Mitigation Officer(s) will engage the session's participants in a confidence building leadership session. Will delve into the only tool that reaches into every state, tribe, territory, and local community in the country that affords the opportunity to understand wildfire risk, vulnerability, action planning, public processes, implementation for long term risk reduction and fire adapted communities. That is, Hazard Mitigation Plans/Planning including the integration with Community Wildfire Protection Plans as a foundation for fire adapted communities and resilient landscapes.

The session will then build on this awareness to offer a facilitated discussion centered around interactive Q&As and mini-exercises that - simplifies information; brings meaning to often misunderstood concepts; promotes open learning, active listening, knowledge and idea sharing; and, ultimately inspires participants to lead their states and communities in all-hazards and wildfire mitigation community protection planning and risk reduction.

**Bio:** FEMA Community Planner, 14+ years serving currently Region I (Boston/New England) & previously Region VIII (Denver-based) & many disasters. Implements the Hazard Mitigation Planning (HMP) program by managing the plan reviews & approving plans while providing tech assistance with planning, risk analysis, plan integration & implementation.

Prior to FEMA, 13+ years in local govt planning depts (Boulder, CO and Flagstaff, AZ) as a long range & current land use planner/GIS specialist. Then, state govt with the Colorado State Forest Service on a new USFS/BLM/NPS-led partnership (Front Range Fuels Treatment Partnership) coordinating & planning w/ stakeholders for wildland fire.

Nan's Boulder team developed the country's first parcel-based wildfire hazard ID and assessment system (WHIMS). In CO, she was a volunteer wildland FF & land use & wildfire mitigation expert having published and presented on the subject nationally.

**Keywords:** FEMA, SHMOs, wildfire, hazard mitigation, hazard mitigation plans and planning (State, tribal, local), community wildfire protection plans (CWPPs), integration, risk and vulnerability assessments, mitigation strategies and actions, long term risk reduction, fire adapted communities, resilience, climate change, tools, education, disaster recovery, assistance



## **9. Wrestling with relevance—Using sensational historical wildfires to communicate future risks**

**Presenter:** Steve Norman, Research Ecologist, USDA Forest Service, Southern Research Station, Threat Assessment Center

When we think about the potential for extreme and destructive wildfire in the East, we recall the megafires of a century or so ago. Given their scale and destruction, these sensational historical firestorms still invoke fear and curiosity and in many cases wildfire danger can be more readily communicated when that local knowledge is incorporated in fire-safe messaging. But as drought, ignitions, fuels and exposure keep shifting, how relevant are these fiery episodes from our past for predicting future risk? Widespread forest mesophication may have reduced the potential for fire spread while elsewhere, the loss of frequent fire may have made severe fire more likely. What's more, slash logging no longer reigns as it once did when these epic fires burned, so the potential for such megafires today is often discounted. Particularly in the East, human ignitions are far more constrained than they were decades ago, yet climate trends may bring more frequent and intense hot drought than what fed these fires a century ago. This question of historical relevance is especially difficult in the East where the return of megafires has lagged the West and we have fewer recent large fires to learn from.

Using a series of high profile examples from the eastern US, we will interactively discuss the potential and pitfalls of using historical knowledge to anticipate extreme wildfire risks. Examples may include the 2016 Chimney Tops 2 Fire from Tennessee, the 2011 Pagami Creek Wildfire in Minnesota, Coastal Plain fires from the Carolinas, the Great Fires of 1947 in Maine, recent fires from the New Jersey pine barrens, and others. The presentation portion will cover the problem of historical relevance, methods for research, and considerations for weighing the relevance of historical megafires for characterizing future risk.

## **11. Wildfire Detection Cameras, Web-based Dispatch and integrating Satellite Detection**

**Presenter:** Gavin Hough

ForestWatch cameras for early wildfire detection has been integrated with FireWeb, a web-based wildfire dispatch management tool. Current development work integrating rules-based decision support focused on safety on the fire-line and providing integrated satellite detection with a focus on the long-term trends comparing both ground-based detection (from lookouts and cameras) and satellite detection with a view to exploiting the synergies of a single solution combining both ground and satellite based wildfire detection is highlighted here.

[1] To share data - large volumes of data - in order to develop machine vision based detection solutions which can assist operators pick up wildfires while they are still small.

[2] This may sound overly technical but live web-based imagery demonstrating the workflow of real-time systems which have been running for FPA members like USFS, ODF and others for over a decade is an interesting visual narrative driven by the Douglas Fire Protective Association and other clients with the vision and skill to fold technology into operations in a way that keeps solutions robust, simple and successful.

[3] A tribute to development, support and solution engineering teams that made this possible is touched on in the presentation. We hope to attract new developers to vision systems in forestry.

## **12. Ignition Point Location and Time Influence on WRF-Fire Output: Motivation for a Discussion of Wildfire Modeling Data Needs**

**Presenter:** Amy DeCastro, Associate Scientist, National Center for Atmospheric Research, Research Applications Lab

In 2018, wildfires burned over 8.7 million acres in the United States resulting in over \$3.1 billion in suppression costs. Effective, efficient wildland fire management can be bolstered by decision support systems that provide accurate predictions of fire spread characteristics such as fire area, location, and direction of propagation. In addition to appropriate model structure, model accuracy relies on accurate input data. Wildfire behavior forecasts using the WRF-Fire decision support framework are initiated using an estimated ignition point location and time. However, the accuracy of reported ignition points is cause for concern, due to miscommunication or inconsistency of the time-zone used in reporting, contradictory reports between sources, and/or illogical locations. We performed a sensitivity-

ty study to bound the uncertainty of the area, location, and direction of fire propagation of WRF-Fire simulations based on adjustments to the ignition point location and time. Our results show that model output can vary well beyond negligible ranges for all three of these fire behavior metrics. Shifts in model output in this study provide a step towards better quantification of confidence in modeled decision support forecast under uncertain ignition conditions. This study yields progress towards improved impact of coupled atmosphere-wildfire behavior forecasting with WRF-Fire. It provides both motivation and context for further discussion between scientists and wildfire responders on data needs and collaboration opportunities in such a decision support system.

**Bio:** Amy DeCastro is an Associate Scientist in the Research Applications Laboratory at the National Center for Atmospheric Research. Before joining NCAR, Amy completed a master's in Applied Mathematics from the University of Colorado Boulder with a focus in spatio-temporal statistics. She is currently working on her PhD, also at the University of Colorado Boulder, on the derivation of wildfire fuel information with Dr. Jennifer Balch. Her work at NCAR focuses on data verification and model validation for WRF-Fire.

**Keywords:** wildfire modeling, data needs, WRF-Fire

### **13. LANDFIRE's role in fuel treatments and wildfire risk assessments**

**Presenter:** Megan Sebasky, Northeast-Midwest LANDFIRE Coordinator, Wisconsin Department of Natural Resources

LANDFIRE is a national mapping program that provides over 20 geospatial layers (e.g. vegetation, fuel, disturbance), databases, and ecological models for the entire US. The spatial data are provided in 30m<sup>2</sup> pixel format and intended for landscape-scale mapping and modeling. LANDFIRE data has been used for a wide variety of applications, including wildfire risk assessments, fuel treatment planning, and species habitat modeling.

Due to the importance of LANDFIRE data and the impact of its uses across the country, the Northeast Cohesive Strategy Committee (representing 20 states in the Northeast-Midwest) identified the improvement of LANDFIRE mapping as one of their top priorities. LANDFIRE is an extremely complex program and set of datasets, and to adequately address the issue a full-time staff was necessary. USFS State and Private Forestry provided the funding to support this position, which I have currently held since March 2017.

This presentation will describe why LANDFIRE and a regional LANDFIRE coordinator are important, how the coordinator position has been successful, highlight LANDFIRE progress in the Northeast to date, and discuss future planning.

**Bio:** Megan Sebasky is a spatial ecologist at the Wisconsin Department of Natural Resources and serves as the Northeast Region's (USFS Region 9) LANDFIRE coordinator. She has been in this position since March of 2017 and focuses on fire ecology and addressing a variety of LANDFIRE-related needs specific to the 20 states in the Northeast-Midwest. Prior to this position, Megan worked in environmental consulting for two different firms in a wide variety of environmental sectors. She obtained her undergraduate degree in biology and environmental studies from the University of Richmond, and Master's degree in biology at the University of Virginia.

**Keywords:** LANDFIRE, wildfire risk, mapping, GIS, planning

### **14. How to use Social Media to Motivate Stakeholders**

**Presenter:** Anthony Small, Digital Media, Joint Fire Science Program

One of the challenges in running a organization is motivating stakeholders to do what you want them to do. Whether it's a critical land manager, a team of employees or a local politician, you have to be able to convince stakeholders that your organization is worth supporting. Motivation often comes down to knowing your audience, having a plan and communicating your desires clearly in a way that makes it easy for stakeholders to support you.

**Bio:** Over the past nine years, Anthony has leveraged his expertise in public affairs to deliver innovative communica-

tions strategies within military and government organizations. During this time he created a dynamic new web presence for the Air National Guard, boosted social media engagement for the Joint Fire Science Program, and co-developed a new social media strategy for the Bureau of Land Management.

**Keywords:** Communications, Social, Media

### **15. Early Notification App for Fires**

**Presenter:** Dawn Hutchinson, GISS, IRIN, Paid Call Technical Specialist, Big Bear Fire Department/FEMA

This app will notify citizens in a timely manner of potential fire activity nearby. With help from ESRI I have created a web app which is linked to UCSD's WIFIRE software which runs a fire behavior prediction model, which creates a polygon for the alerting area, then notifications are sent out through FEMA's Integrated Public Alert Warning System (iPAWS) to alert everyone within the area that there is a potential fire nearby and instructing them to go to a website URL for information.

We will soon be testing the app in the iPAWS test environment and monitoring the results to see what adjustments we may need to make in order to get the results we are looking for. We do not want to send out alerts on small fires in low wind events that are not going to take off, we want to make sure notifications are sent out only when necessary. This app will save lives!

Popular myths associated with public response to warning messages:

People usually panic in response to warnings: People DO NOT panic in response to warnings. People do not go running wildly through the streets when they hear a warning. Rather, they seek additional information to make a response decision.

If you false alarm or "Cry Wolf" with your warnings, the public will tune you out: While there is a limit to the public's trust, "Cry Wolf" syndrome is NOT a problem IF "false alarms" are well explained and understood; people do take into account that officials are making difficult decisions to protect them from harm.

An effective warning message is a simple one, with as little detail as possible: The 'less is more' principle does not apply for public warnings. Research has shown that people need sufficient information to validate their risk and spur them to take appropriate action.

People usually understand what the sounding of various siren signals mean: People DO NOT always understand what the sounding of various siren signals mean. The best use of outdoor warning sirens is to alert people to immediately seek additional information about an imminent threat."

**Bio:** Longtime GIS Specialist and GISP, Have worked on California Incident Management teams as GISS, IRIN for 10 years, also a reservist Emergency Manager GIS for FEMA

**Keywords:** Early Notification App for Fires

### **16. The Cohesive Strategy and the Private Wildland Fire Service (PWFS), a partnership long in the making and a future full of opportunities**

**Presenter:** Kevin Donham, Wildland and Prescribed Fire Specialist, National Wildfire Suppression Association

The members of National Wildfire Suppression Association, or NWSA, represent the majority of the Private Wildland Fire Service companies across America and have a long history of providing a professional workforce and equipment that responds to the needs of local, state, and federal stockholders throughout the country in every aspect of fire management. NWSA members are locally based throughout the U.S. and are an integral part of their local communities. Having learned to live with wildland fire they understand the challenges of moving forward with the tenants of the Cohesive Strategy. The all-hands all-lands approach in solving the wildfire problems in our country is a bold aspiration, and NWSA members want to be part of this positive initiative. We see it as a call to action, and if given the opportunity, would be a valuable asset.

As a partner in wildland fire suppression and risk mitigation, providing over 50% of the resources needed each year,

a concern of the NWSA is that we are kept on the outside looking in regarding policy changes, regulations, certifications, and qualifications. Without peer to peer involvement and input regarding these issues, which affect all of our organizations, ours being an important support system to the government, keeps us on the outside. We believe the Cohesive Strategy opens the door to look at all the opportunities and road blocks that make or break the Cohesive Strategy from becoming reality and a legacy into the future that is inclusive. NWSA members want to build a stronger relationship with government agencies and view being a part of the Cohesive Strategy as just one path to achieving that true peer to peer partnership.

Can the Cohesive Strategy move the needle and shape the future of the country's ability to live with wildfire?

Here are some examples:

- What would a future look like with an incident qualification system that include all responders including re-sources from the PWFS?
- Could the PWFS standup an Incident Management Team, Type 1 crews, additional Type 2IA crews, etc. to build capacity and add to safe and effective incident response?
- What about a single reporting porthole to share accomplishments in treatment acres to get a full view of the pace and scale of our ability to treat our landscapes.
- Could the PWFS be recognized as a "cooperator" with its peers in the agencies and afforded opportunities to participate as an equal partner?

Being part of the Western Region Senior Leadership Committee has opened a door for the PWFS to be an active player, participant, and peer with our partners in meeting the goals of the Cohesive Wildland Fire Strategy. We don't take this opportunity lightly as it is the only place we are officially recognized as peers with our agencies brothers and sisters. Now is the time for all of us to take bold and prudent actions to capitalize this relationship.

## **17. Impacts of our experience: learning from California, the US and the world**

**Presenter:** Michele Steinberg, Wildfire Division Director, NFPA

### **Additional Authors/Presenters:**

Tracy Katelman, Executive Director, California Fire Safe Council

Recent experience with wildfire disasters in the US and abroad is having both expected and unexpected consequences and ramifications. What happens when California suffers back-to-back multibillion-dollar losses? When 100 people perish in Portugal? When places nobody expects to see large flames are devastated by fire? The Executive Director of the California Fire Safe Council and the director of the National Fire Protection Association's Wildfire Division will share findings and experiences regarding legal, political, social and financial impacts from the past few years, with examples from communities in the US and other countries. They will also share examples and ideas of how wildfire safety advocates can take advantage of the significant attention being focused on wildfire across the nation and the world.

**Bio:** Michele Steinberg is the Wildfire Division Director at the National Fire Protection Association (NFPA). Her work covers a broad spectrum of fire safety education, advocacy, professional training, and international outreach. She is a longtime member of the American Planning Association and a founding member of APA's Hazard Mitigation and Disaster Recovery Membership Division. She serves on the Board of Directors of the International Association of Wildland Fire, and holds a Master of Urban Affairs degree from Boston University.

**Keywords:** home destruction, wildfire disasters, community risk reduction

## **18. Identifying Barriers to Incident Resource Sharing - Brainstorming Solutions in the Spirit of Safe and Effective Wildland Fire Response**

**Presenter:** Tom Parent, Executive Director, Northeast Forest Fire Protection Commission

**Additional Authors/Presenters:**

David Celino, Chief Fire Warden, Massachusetts Department of Conservation and Recreation. Chair, Northeast Regional Strategy Committee

Kim Connors, Director, Canadian Interagency Forest Fire Center

Dan Smith, Fire Director, National Association of State Foresters (proposed participant)

Representative from Alliance of Forest Fire Compacts (TBD)

The U.S. and Canadian wildland fire communities, through the National Wildfire Coordinating Group (NWCG) and the Canadian Interagency Forest Fire Center (CIFFC), have developed and used effective qualifications and mobilization systems over many years in responding to wildland fires. In the U.S., the original focus of the system was to serve the U.S. federal agency's needs and the states have benefited by having access to the system, both to provide and obtain resources. In Canada, the system was initiated and established by the provinces and is managed by a governing board for the provinces. However, there are substantial barriers to freely exchanging qualified resources within these mobilization systems.

The wildland fire season varies greatly from east to west. Typically, when one geographic area is busy with wildland fires, another has less activity and can typically provide resources. There are many resources available within the U.S. and Canada that are not available to the national systems for a variety of legal or administrative reasons.

Among the barriers are issues related to training and qualifications where there is little recognition of prior learning and proper evaluation of true skills and abilities that are transferable from other experiences. In addition, there are legal issues on liability, workers compensation, financial or other agreements, and authorities. Administratively, there are barriers due to internal policy conflicts, varying fitness standards, different hiring procedures, mutual aid incentives, and political perceptions, to name a few. As a result, the U.S. and Canada often seek resources from other countries during very busy times, when in reality, there may be many resources available that are not being recognized or accepted in the system.

With this situation as a background, the Alliance of Forest Fire Compacts (AFFC), covering almost all of the U.S. and Canada, has been working to remove as many barriers as feasible from the resource exchange system. There are many times when both countries are competing for the same resources and experiencing similar barriers.

**Bio:** TOM PARENT - Executive Director for the Northeastern Forest Fire Protection Commission (NFFPC) since January 1, 2002. Tom began his career 44 years ago with the Maine Forest Service - 14 as state forest fire supervisor. He was the Co-Founder and Co-Chair of the NFFS Aviation Committee; He was a Steering Committee and cadre member for the States Complex Incident Management Course (CIMC) for 15 years. He is an active member of the Alliance of Forest Fire Compacts and was the founding chair.

Tom graduated with a B.S degree in Biology from University of Maine at Orono (UMO) in 1975 and received a Pulp & Paper Engineering degree from UMO - 1976

**Keywords:** Compacts, Response, Barriers, National, International, Capacity, Collaboration, Partnerships

**19. Wildfire and Drought--Collaborating with the National Integrated Drought Information System**

**Presenter:** Tamara Wall, Deputy Director, WRCC, DRI/WRCC

**Additional Authors/Presenters:**

Ellen Mecray, NOAA

Elizabeth Ossowski, NIDIS

Britt Parker, NIDIS

Arthur Degaetano, Cornell University

The National Integrated Drought Information System (NIDIS) is involved in identifying the ways in which drought

plays a role in wildfire. We know that the timing, intensity, and frequency of drought events can have wildly divergent impacts on fuel flammability and fire behavior. To address the intersection of wildfire and drought, NIDIS has been involved in developing a number of tools and programs to build collaborations across fire management agencies. In this session, we propose to share a number of these tools, information sources, and programs that can support the cohesive strategy goals, including the Evaporative Demand Drought Index (EDDI), the U.S. Drought Monitor, NIDIS Drought and Wildfire Nexus, Soil Moisture indices, and Drought Dashboards. We will wrap up the session with an interactive discussion session that looks at barriers to making progress at local, regional, and national scales on wildfire and drought issues, and what can be accomplished in the near term to improve the gap in information use and application effectively to respond to wildfire and manage prescribed fire.

**Bio:** Dr. Tamara Wall is an assistant research professor at the Desert Research Institute in Reno, NV and deputy director of the Western Regional Climate Center. Additionally, Dr. Wall works with the Center for Climate, Ecosystems, and Fire Applications, and is a co-PI of California-Nevada Climate Applications Program (part of the national NOAA-sponsored Regional Integrated Sciences and Assessments network) and the Southwest Climate Science Center Consortium.

**Keywords:** Drought, Wildfire, Tools

## **21. Prioritizing a Cohesive WUI Wildland Technology Investment Strategy**

**Presenter:** Geoffrey Berlin, Operations Research, DHS Science & Technology

### **Additional Authors/Presenters:**

Ruth Vogel, Senior Professional Staff, Johns Hopkins Applied Physics Laboratory

Michele Givens, Associate Director, Decision Lens

The Department of Homeland Security WUI Wildfire Initiative stems from a high-priority request from FEMA to investigate technologies—whether existing or on the horizon—that can be deployed to save lives in the event of a wildland fire. Working with several local, state and federal organizations, the DHS Science and Technology Directorate developed a data driven approach to researching and prioritizing technology investment alternatives to support the response to WUI wildfires and save lives.

The Wildfire Requirements Project Team conducted four workshops with fire service, fire science and emergency management experts. Facilitated discussions during these workshops yielded a list of technology requirements that were then matched to a large number of potential solutions. Fire science and emergency evacuation subject matter experts (SME) assessed the available technologies which became the basis for prioritizing investment recommendations. The SMEs then reviewed the assessments of the various technologies according to their feasibility, affordability, usability and impact. The analytic hierarchy process (AHP), a multi-attribute value analysis technique for organizing and analyzing complex decisions, based on mathematics and subject expertise, was used to prioritize these technologies from different investment perspectives such as budget, leadership, operations, programmatic, and strategic alignment. The AHP provides a transparent, repeatable and flexible methodology for developing an investment strategy that aligns with the organization's strategic goals and consider budgetary requirements.

Our workshop will provide an interactive demonstration of this first responder-driven requirements methodology.

**Bio:** Geoffrey Berlin is a member of the Science & Technology Directorate for the Department of Homeland Security. His technical expertise is in applied mathematics including operations research, econometric modeling, statistics, and transportation

He is currently assisting the Federal Emergency Management Agency to investigate the current state of WUI fire technology capabilities to save lives. He has also developed a Value Focused Model and integrated Bayesian Threat Model to enhance CBP's aviation threat detection capability and a geospatial computer application to describe Air Domain Awareness. He received his doctorate from the Johns Hopkins University, served as Director of Research for the NFPA, and is Vice President of the 11,400 member Washington DC chapter of PMI.



**Keywords:** Wildfires, Investment Strategies, Decision Methodology, Gap Prioritization

## **22. Fire in the Southeast - Past, Present and Future**

**Presenter:** Gary Wood, SE Regional Coordinator Cohesive Wildland Fire Management Strategy, Southern Group of State Foresters

This presentation will look at wildfire and prescribed fire in the Southeast. I will discuss fire history with Native American and early Settler use of fire. The creation of State, Federal and local suppression agencies. I will follow a historical timeline of events detailing significant wildfire events in the SE. I will discuss the "Dixie Crusaders" prevention efforts of 1928-1931. The evolution of detection systems and specialized suppression equipment in the SE. I will discuss the unique ecosystems wildfires burn in such as pocosin (swamps) containing organic peat rich soils that burn for months requiring massive suppression efforts, fire impacts from major hurricanes, invasive species. The evolution of prescribed fire use, current use, and future of prescribed fire in the SE. Discussion of a fragmented landscape with urban sprawl and WUI. Share outstanding interagency and cooperative efforts before Cohesive Strategy, and how they have grown with implementation of the Cohesive Strategy. Discussion of current and future prescribed and wildfire issues and efforts to address them through implementation and support of the Cohesive Strategy.

**Bio:** Gary is the Southeast Regional Coordinator for Cohesive Strategy. He received his Associates Degree of Forest Resources from Wayne Community College in 1982. He started his career with the North Carolina Forest Service in 1984 and served as Assistant County Ranger, County Ranger, District Ranger, Fire Department Training Specialist, and Wildfire Mitigation Specialist / State Firewise Liaison. He served on IMT's as Information Officer, Safety Officer, Liaison Officer, and Structural Protection Specialist. He retired in 2015 and received the Order of the Long Leaf Pine, the highest award granted by the Governor for exemplary service to the state. He served 22 years as an NC Certified Volunteer Fireman. He resides in Smithfield, NC.

**Keywords:** History, Wildfire, Prescribed Fire, SE, Challenges, Collaboration, Implementation

## **23. Using Cohesive Strategies to Manage Fire and Fuels in the Eastern Region**

**Presenter:** Steven R. Miller, Regional Director Fire and Aviation Management, USDA Forest Service, Milwaukee Wisconsin

Over the past few years the fire program of the Eastern Region of the USDA Forest Service has experienced some dramatic changes. The fire programs of the Eastern Region and the Northeastern Area combined in 2019. Expectations for prescribed fire have nearly tripled since 2017, creating a work environment in which the effort towards prescribed fire is the predominant fire management activity. All of this in a region that includes twenty state partners and 43 percent of the nation's population. To be effective, staff in the Eastern Region have focused on working together to be efficient and effective. This presentation will share the results of our cohesive strategy.

**Bio:** Steven R. Miller became the Regional Director for Fire and Aviation Management for the Eastern Region of the USDA Forest Service in August 2018 after completing a thirty-one year career working for the State of Florida in various capacities. Steve is the Secretary for the International Association of Wildland Fire and was the 2017 recipient of the IAWF Firebreak Award for Excellence in Wildland Fire Management.

## **24. Beyond the Visual: Bridging Gaps in Situational Awareness**

**Presenter:** John Widman

My interactive presentation will explore how wildland firefighters use different senses in the process of fire suppression and promote sharing and proposals of exercises that can improve how we address the intersensory nature of fire suppression. Currently, in the formal training of wildland firefighters in the United States, discussions about situational awareness mostly concern what we can see. For example, in the S-133 "Look Up, Look Down, Look Around" course, we are encouraged to look at smoke columns, slopes, and fuel types. Although there is one brief encouragement to pick up fuels to feel them, all of the other references to senses used are visual. Additional

mentions of situational awareness in wildland fire courses, such as in L-180 “Human Factors on the Fireline” and in courses required for advanced firefighters and single resources, also emphasize the visual when bringing up gathering information. While there is nothing inherently wrong with these formal approaches, since they work well in a classroom environment, seeking methods of including other senses might help us add depth to our current practices and open new avenues for safe and effective wildland fire responses.

I will begin with a brief presentation of literature covering how humans process their sensory field from anthropology, ethnomusicology (which studies how human cultures interact with music and sound), and biology. This will be followed by a short summary of preliminary findings of fieldwork interviews conducted with firefighters working for Alaska State Forestry in 2016. After laying this quick foundation based on previous and ongoing research, I will open the floor for a more dynamic discussion based on the following questions: what senses are most important to you for safe fire suppression; how do you use different senses for information gathering; how do you use different sense for communication; and how have different situations changed which senses are most important? After this discussion, I will ask for examples of exercises that incorporate multiple senses from those attending my presentation. I will also come prepared with three exercise proposals of my own that emphasize different senses and will solicit feedback.

**Bio:** John Widman graduated with PhD from UCLA’s Ethnomusicology department in June of this year (2019) focusing on the relationship between music and language. Spending ten seasons (2006-2017) as a wildland firefighter based in Alaska, he is also conducting research that applies contemporary studies concerning sound and interactions between senses to human factors in wildfire suppression.

**Keywords:** Situational Awareness, Safety, Intersensory, Wildland Fire Response

## **25. The Fire Tigers - Training the Future Fire Workforce**

**Presenter:** Wes Bentley, Assistant Fire Management Officer, USFS

### **Additional Authors/Presenters:**

Helen Mohr, Forester USFS Southern Research Station, Director of Consortium of Appalachian Fire Managers and Scientists

The Fire Tigers is currently made up of 26 forestry and wildlife students at Clemson University. Since the creation of the program, in October of 2016, 30 students have participated. This is a completely voluntary student fire crew that has had the opportunity to help with prescribed fire and wildfire on the Andrew Pickens ranger district of the Sumter National Forest. The district along with the Consortium of Appalachian Fire Managers and Scientists sponsors this group by providing instructors from a variety of agencies for the 1-week official university class. The week of instruction includes S-130 and S-190 fire training along with field days and pack tests. The sponsors have provided \$12,000.00 of funding to purchase the required personal protective equipment that is required for firefighter safety. The program just received a large multi-year grant from the Washington Office of the Forest Service to purchase additional gear and to cover travel costs that will allow the crew to help with prescribed fire on multiple cooperator lands outside the Sumter National Forest. Clemson University is currently working with their fundraising department to secure additional funds to support the program. The opportunity to join this group is in high demand and space is limited. The students are required to submit a one-page essay discussing why they wanted to join and how serving with this group would benefit them in the future.

This group was formed with 3 main goals in mind. The first was to increase capacity for the district on operational and fire prep days. This district has a very small fire crew but burns a large proportion of the forest each year. With added volunteers more work can get done along with giving these young people the opportunity to learn about fire. The second goal of the program is to pull in fire researchers and managers to interact with the student group on a regular basis through a weeklong fire camp and presentations to the group during the spring and fall semesters. Helping these students understand how to use fire research to make management decisions on the ground is key in effective burn programs across the United States. The final goal of the program is to help Clemson University recruit quality students and to develop their knowledge of fire as an effective management tool. The hands on

learning that this program offers during undergraduate natural resources programs at Clemson will translate into each student's career after graduation.

This program is very young (not even 3 years old) but has already gotten numerous students out to prep fire lines and help with prescribed burns over the past three spring fire seasons. This program has also grabbed the attention of NBC Nightly News and was a featured segment this past September. We have a long list of goals for the future one of which is for the crew to be self-sufficient with oversight from the US Forest Service and capable of fire assignments throughout the United States. To get to this point we will offer advanced training and taskbook work to continue to develop each student. We envision this group of students as a pool of experienced young people for the Forest Service to aid in successional planning including local 1039 positions on the Andrew Pickens ranger district. These young people are the future of fire and to "bring them up" in fire during their undergraduate studies is an exciting opportunity to help shape the future of the fire workforce. Already, we have had the great joy of transferring knowledge from our seasoned USFS fire employees to young people that are excited about fire.

**Bio:** Wes Bentley is an Assistant Fire Management Officer on the Andrew Pickens Ranger District of the Francis Marion and Sumter National Forests located in Mountain Rest, South Carolina. The fire program is responsible for active fire suppression and ecological based prescribed burning for approximately 7,500 acres annually.

Wes graduated from Western Carolina University in Western North Carolina with a bachelor's degree in Natural Resource Management.

**Keywords:** fire training, future workforce, capacity building

## **26. Stakeholder Perspectives on California's New Wildfire Policies Following the 2017 and 2018 Wildfires**

**Presenter:** Rebecca Miller, PhD Candidate, Stanford University

Policymakers in Sacramento responded to the devastating wildfires in 2017 and 2018 with new policies and proposals. In preparing national strategies for wildfire prevention and protection, it is important to understand regional experiences with and responses to wildfires. Here, we examine how policymakers and policy implementers in California interpreted recent catastrophic wildfire seasons. We combine (1) analysis of reports released by executive branch agencies and working groups, (2) legislative proposals, and (3) interviews with key policy stakeholders to explore policy reactions and proposals designed to reduce the threat of wildfires throughout California. We recognize immediate issues such as bankrupt public utilities companies, millions of acres that need fuel treatments, housing pressures and expansion into the wildland-urban interface, and California's climate change goals throughout this analysis. This research examines policymakers' practical responses to wildfires after the two most severe wildfire seasons in California's history. These findings are particularly critical given recent wildfires and the growing risk of wildfires throughout the state. Understanding how policymakers interpret and perceive opportunities for policy change to promote wildfire prevention and protection in California may help inform national efforts to improve wildfire preparedness and to protect lives and property.

**Bio:** Rebecca Miller is a PhD Candidate at Stanford University in the Emmett Interdisciplinary Program in Environment and Resources. She researches historic and current wildfire protection and prevention policies in California and their potential impacts on future wildfires in the state. Rebecca examines how the federal, state, and local governments in California respond to and prepare for wildfires.

**Keywords:** wildfire policies, stakeholder perspectives, California

## **27. Interagency Fuels Treatment Decision Support System: Facilitating Fuels Planning For All**

**Presenter:** Caroline Noble, Fire Management Specialist, USFS – Wildland Fire Management Research, Development, and Application

The Interagency Fuels Treatment Decision Support System (IFTDSS) is a web-based application designed to make fuels treatment planning and analysis more efficient and effective. IFTDSS provides access to data and models through one simple user interface. It is available to all interested users, regardless of agency or organizational affiliation.

IFTDSS is designed to address the planning needs of users with a variety of skills, backgrounds, and needs. A simple and intuitive interface provides the ability to model fire behavior across an area of interest under a variety of weather conditions and easily generate downloadable maps, graphs, and tables of model results. Additionally, the application provides a step by step process for testing a variety of fuels treatment impacts (thin, clear cut, prescribed burn) on fire behavior and comparing results to determine which modeled treatment best achieves desired results in terms of reduced fire behavior potential. It can be used at a variety of scales from local to landscape level.

IFTDSS hosts a complete set of reference data available for the entire US including LANDFIRE fuels information, SILVIS Wildland Urban Interface, Agency Ownership, as well as a modern map interface allowing users to create or upload their own data.

**Bio:** Caroline has a long career of federal service beginning in 1984 spanning several National Forests and Parks in the northern Rocky Mountains and the southeast United States. She has experience in all facets and in all levels of Fire Management organizations and has held positions Hotshot, Fuels Specialist, Fire Ecologist/Planner, and Fire Management Officer. Caroline currently serves as the USFS Technical Lead for the development of the Interagency Fuels Treatment Decision Support System Application (IFTDSS).

**Keywords:** Technology, Cloud, Data, Fuels Planning, Collaboration software tool

## **29. Fire Has a Role: An Educational Campaign**

**Presenter:** Cheyenne Warner, Lead Fire Prevention Technician, USDA Forest Service, Prescott National Forest

The Prescott National Forest's Fire Has a Role program started as an educational platform for the Fire Management and Prevention programs to fill an informational need within the urban interface area of the Prescott Basin. When the public, stakeholders, and media heard the words "prescribed fire", questions and concerns started to roll in about unwanted smoke in the valley. However, land management is about so much more than just "putting unwanted smoke in the air." As a team, Fire Management Specialists started discussing the disconnect, and often times misunderstanding, between our audiences and the tools that we use for land management, including fire, timber thinning, mastication, and natural ignitions used for multiple resource benefit.

Fire Has a Role is designed to be an educational tool. The intent of this program is to help the public and stakeholders understand fire's historic role in our ecosystems, as well as to demonstrate the benefits of fire on the landscape to the many positive ecosystem impacts that are important to all of us. Working with specialists in multiple disciplines, we aim to inform our audiences about topics such as forest vegetation health, watershed sustainability, wildlife habitat, and wildland firefighter and public safety.

Ultimately, this new and innovative program will change the dynamics of traditional fire prevention messaging from continually telling our audience that "fire is bad", to "fire is a natural and needed process in our ecosystem, when implemented and managed at the right time, in the right place, and under the right conditions".

**Bio:** When Cheyenne Warner graduated high school, her White boot crossed the threshold of the Forest Service Ranger Station doorway and she never looked back. An only child, she knew that her mother was not thrilled about the path she chose in life, but who else can really say that their office is boxed in pine and juniper trees?

Working 13 years for the USDA Forest Service Fire Management program, 9 years specifically in Fire Prevention, she has truly found her calling.

**Keywords:** Educational Platform

### **30. Southeast Prescribed Fire and Air Quality Workgroup: Addressing Tomorrow's Challenges Today**

**Presenter:** Jennifer Fawcett, Extension Associate, NC State University

Many surveys have identified challenges that fire managers and landowners face related to prescribed fire use in the United States. Although informative, these surveys do not address the challenges state agencies navigate in managing fire programs. In particular, it is often overlooked that the states' are actually responsible for administering prescribed fire use. States operate independently to develop policy and regulations that work for their own interests; as a result, prescribed fire programs differ greatly by state and region. In 2013, state forestry and environmental protection agencies from eight southern states, as well as the U.S. Environmental Protection Agency, convened a first of its kind forum to discuss issues and concerns related to prescribed fire, smoke management, and air quality. The result was the identification of prescribed fire coordination needs, at a multi-state scale, that benefit both the southeast region and individual states. The outgrowth of the inaugural meeting (i.e., Smoke Summit I) has been the development of the "Southeast Prescribed Fire and Air Quality Workgroup." The work group convenes quarterly by phone to provide updates on progress and challenges, and has met in person biannually at subsequent Smoke Summits in 2015, 2017, and 2019. The workgroup's primary goal is to foster collaborative efforts to support and increase the appropriate use of prescribed fire as a natural resource management tool to enhance forest health and public health and safety.

**Bio:** Jennifer Fawcett serves as Coordinator for the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) Prescribed Fire Work Group and assists in implementing prescribed fire-related education and outreach programs across the Southern region through her role with Extension Forestry at North Carolina State University (NCSU). She received her B.S. from the University of Delaware, M.S. in Forest Resources from Clemson University, and is working towards her Ed.D. in Agricultural and Extension Education at NCSU. She currently serves as an Advisory Board member for the Southern Fire Exchange and is a lifetime member of the North Carolina Prescribed Fire Council.

**Keywords:** Southeast Prescribed Fire and Air Quality Collaboration

### **31. TNC's Southern Blue Ridge Fire Crew**

**Presenter:** Adam Warwick, Stewardship Manager, The Nature Conservancy

The Southern Blue Ridge Fire Learning Network identified "capacity" as the primary barrier to increasing the pace of restoration and scaling up prescribed fire in the SBR. We addressed this challenge by adapting the traditional burn crew model into an as-needed crew. This model addresses the "new normal" of partner capacity limitations while helping at-risk communities learn to live with fire.

Since 2015, the The Nature Conservancy's Southern Blue Ridge Fire Crew has demonstrated increasing success for this first of its kind fire crew model. Through the Spring 2019 burn season, the crew has supported the efforts of eleven partners to complete 82 controlled burns on over 44,000 acres. Partner support has increased from 5 burns (2700 acres) in 2015 to 28 burns (11,000 acres) in 2019.

The irregular nature of burn days throughout the burning season and tighter budgets require a strategic crew that increases partner capacity for prescribed fire in the SBR. Each fall, TNC-North Carolina hires twenty firefighters for an as-needed crew.

While most TNC crews and supplemental contracted modules consist of four-person, six month full-time crew, the objective of this model is have ten firefighters available on short notice to help partners on any burn day. The value of this model is 100% efficiency and minimal down time. Crew members work when they are needed for prescribed

burning, preparation for burning, and helping communities live with fire.

We have found that for a typical SBR burn season, which generally consists of 25 “burn days,” \$100,000 provides crew support for 30 controlled burns or about 15,000 acres. The crew has also led Fire-Adapted Communities workdays to demonstrate home hardening and defensible space for residents. In our most recent seasons, we have had four occasions to support three partner burns in a single day with about four-six crew each, which makes a big difference to partners. We have been fortunate to benefit from a solid core of wildland firefighters from greater Asheville. In fact, each season our crew combines about 150 years of fire experience and eight EMTs, which is hard to match yet critical when showing up to burn in an unfamiliar area. The as-needed model is attractive to many because other commitments preclude some from having a full-time job and also provides much needed wildland fire experience to rural firefighters.

In this presentation, I will detail how and why the crew works, the tools we have developed to make this model successful, what Fire Management Officers are saying, strategies for success, how and where to recruit, and begin developing future crew.

**Bio:** Adam has been the Fire and Stewardship Manager for The Nature Conservancy's Southern Blue Ridge Program since 2013, based out of Asheville. He oversees management of about 20,000 acres of rare natural communities, established and directs a 20-person fire crew that is bringing fire back to the mountains, and leads the Bog Learning Network. Adam obtained a Bachelor of Science degree in Zoology from the University of Tennessee and a Masters of Science in Fisheries and Wildlife from the University of Missouri and is world famous for his rescue of a drowning black bear.

**Keywords:** prescribed fire, crew, building capacity, partnership, Fire Learning Network, Southern Blue Ridge

### **32. Strategies for Implementing the National Cohesive Wildland Fire Strategy at the Local Level**

**Presenter:** Justice Jones, Wildfire Mitigation Officer, Austin Fire Department, Wildfire Division. IAFC Wildland Fire Policy Committee

The Cohesive Strategy was developed with the intention that it be integrated and implemented at all relevant levels. In reality with out the engagement of communities at the local level, it will remain in the realm of great ideas. In Austin and Travis County a conscious decision was made to a develop comprehensive Community Wildfire Protection Plan based on the three tenets of the Cohesive Strategy. In order for this effort to be successful the Austin Fire Department had to step out of its comfort zone and step up to the plate to help lead this effort.

**Bio:** Justice Jones currently service as the Wildfire Mitigation Officer for the City of Austin and manages the Austin Fire Department's Wildfire Division. In addition Justice helps coordinate the Austin Travis County Wildfire Coalition, which focuses on the implementation of the National Cohesive Wildland Fire Strategy at the local level. Prior to joining AFD in 2013, Justice served as the Texas A&M Forest Service's Wildland Urban Interface and Prevention Coordinator. He also serves on the International Association of Fire Chief's Wildland Fire Policy Committee, is a lead instructor for the IAFC Fire Department Exchange Program and is a member of the Fire Adapted Communities Learning Network.

**Keywords:** National Cohesive Wildland Fire Strategy, Collaboration, Community Wildfire Planning

### **33. A CHANGE IN THE AIR: The Growing Threat of Wildfires and a New Approach to Winning the War Against Them**

**Presenter:** Brett LEsperance, CEO, Dauntless Air

State foresters and wildland firefighters know all about the “new abnormal” we face as a country: Longer and hotter fire seasons, faster moving blazes, and intensifying cost pressures. Today's fire season is almost 80 days longer than it was 25 years ago. Landscapes have not been managed to withstand the onslaught of longer, dryer and hotter seasons and have become more prone to larger fires. State and federal agencies are being asked to do more



with static or decreasing budgets.

These factors have created an unhealthy cycle: More fires are burning which is increasing suppression costs and forcing the borrowing of funds from forest management budgets, creating fire-prone landscapes that are restarting the cycle. To break from this, we must focus on the first pillar of the National Strategy--improving the safety and effectiveness of wildfire response. By doing so, we can more quickly put out wildfires that threaten human life, reduce the use of fire borrowing, and ensure that programs to restore and maintain US landscapes are positioned (and funded) to succeed.

To improve the effectiveness of wildfire response, we have to reevaluate a mechanism that is core to federal and local strategies: fire aviation.

Firefighting aircraft have been used for decades to suppress wildfires, however, as time passes, traditional fire aviation strategies have remained mostly unchanged despite the shifting fire environment and the introduction of new aircraft, technologies and tactics. It's time to revisit these approaches to be sure we have the strategy and resources in place to rapidly jump on fire starts near human development, contain wildfires to 10 acres or less, and use the dollars saved from shorter suppression missions to fund forest health programs and other prevention imperatives outlined in the National Strategy.

In this session, we will cover:

- The current state of aerial firefighting and where its at odds with the principles of the National Strategy
- A new model for rapid initial response that's working in states like Washington, where 94% of wildfires in the last three seasons have been 10 acres or less, overall suppression dollars have decreased, and forest health spending has increased

**Bio:** Brett L'Esperance is the CEO of Dauntless Air, an aerial firefighting company deeply dedicated to protecting people, land and property from the devastation of wildfires. Since joining Dauntless in 2017, Brett has spearheaded several growth and improvement initiatives, including a 2018 rebrand from Aero Spray to Dauntless Air, two fleet expansions that have increased the company's aircraft to 12 owned and operated Fire Bosses and one wheeled AT-802F, and the addition of several new Dauntless crew members including pilots, mechanics and ground crew. The Company is 100% focused on fighting wildfires and keeping small fires...small.

**Keywords:** Wildfire Response; Rapid Initial Attack; Aerial Firefighting; Direct Attack

#### **34. Appalachian RC&D Fire Adapted Communities Coalition Reducing Risk in the WUI in Appalachian Mountains**

Presenter: Frank Riley, Executive Director, Chestatee-Chattahoochee RC&D Council

##### **Additional Authors/Presenters:**

Melissa Patton, Steve Spangler and Lynn Sprague, Executive Director Southwest North Carolina RC&D

The Appalachian RC&D FAC Coalition (AppCoFAC) is 6 Resource Conservation & Development (RC&D) councils covering an area of Appalachian Mountains from North Georgia, Western North Carolina, and Southwestern Virginia. This is an area of increasing wildfire risk in and around the communities located in the Wildland Urban Interface (WUI) across the region. Working in concert with the US Forest Service to match priorities on nearby federal land, the RC&Ds & FAC communities can leverage actions and build joint priorities to reduce risk and enhance community and homeowner responsibility. The goal of wildfire education is to demonstrate to homeowners the risks where they live, what they can do to reduce the risks, and how a careless action by one them or their neighbors can lead to a catastrophe with loss of their property and forests. The intent of building the AppCoFAC is to initially work thru the 6 RC&Ds to leverage other potential funding sources to help build the FAC programs going forward. This project is not intended to be a cookie cutter approach since no two communities or landscapes are alike and each community will have a program that is tailored to its unique needs and characteristics. The programs will utilize shared learning; building upon the work of the Chestatee-Chattahoochee RC&D's, FAC pilot project in Towns County Georgia, and leverage successes that each RC&D grows along the way. There are also opportunities to build up-

on work of other RC&Ds who work within wildland fire areas and to contribute to a learning network, both within the FAC-Fire Learning Network and within structure the Forest Service has a desire to build regionally. Proposed Topics to be covered are: 1. Why the Appalachians need to be Fire Adapted – Fire history and WUI. 2. Why and how the AppCoFAC was developed. 3. How to start a FAC Citizen’s Coalition. 4. What has Worked & Not. 5. How to Promote Prescribed Fire in a community - and make them like it. 6. How to build and develop FAC partners across boundaries and landscapes. 7. Where does AppCoFAC go from here?

**Bio:** Frank M. Riley, Jr. Forest Resources 1971 - MBA 1973 University of Georgia. Frank has worked 48 years as a Professional Forester including Interim, Executive Director of the Georgia Forestry Association. Frank is Executive Director of the Chestatee/Chattahoochee RC&D Council and is Georgia Firewise liaison, Appalachian RC&D FAC Coalition administrator, and NRCS natural resource programs administrator. Frank is a Firefighter and First Responder with Towns County Fire for 21 years and leads the Towns County Firewise USA Communities program with 22 Firewise communities. Frank leads the Towns County Fire Adapted Communities Network, one of the first 8 national pilot FAC projects.

**Keywords:** Appalachian Fire Adapted Communities

### **35. Modeling Fires at the Wildland-Urban Interface: Challenges and Opportunities**

**Presenter:** Michael Gollner, Associate Professor, University of Maryland

While the wildland-urban interface (WUI) is not a new concept, fires in WUI communities have rapidly expanded in frequency and severity. The number of fatalities and structures lost per year has drastically increased, due in part to increased development in rural areas, fuel management policies, and climate change, all of which are projected to increase in the future. Modeling the transition between fire spread in wildland fuels into WUI communities is of great interest to the fire research community; however, there are many challenges before this goal can be achieved. In this talk, a review of the mechanisms governing both wildland and WUI fire spread will be presented, including new research in both areas. Available knowledge and techniques that currently exist will be reviewed and opportunities for future modeling presented. Finally, the opportunities WUI fire modeling unlocks, such as refined risk assessment, community design, and emergency response will also be covered.

**Bio:** Prof. Gollner is an Associate Professor in the Department of Fire Protection Engineering at the University of Maryland, College Park. His research includes experiments and physical modeling of fire phenomena in both the built and wildland environments, especially at the wildland-urban interface. He serves on the board of directors for the IAWF.

**Keywords:** Wildland Urban Interface (WUI), Wildfire, Risk-informed planning

### **36. Mad Men Need Not Apply: Digital Marketing for Ground Pounders and Dirt Foresters**

**Presenter:** Natalie Omundson, Western Conservation Manager, American Forest Foundation

#### **Additional Authors/Presenters:**

Jessica Wentzell, Marketing Manager, AFF

Many practitioners in the forestry and wildland fire worlds have a healthy skepticism of methods like targeted outreach and digital marketing to increase landowner adoption of wildfire mitigation practices.

In this 5-minute Ignite Talk, staff from the American Forest Foundation will share the most surprising lessons learned and helpful tips for digital marketing based upon its work over the past five years testing these strategies in Montana, California, and Oregon.

Salty fire dogs, luddite foresters, and early adopters will all come away from this presentation with a keener understanding of how digital marketing works in a natural resources concept and one or two tried-and-true tricks they can put into practice on their own.

Please note that this presentation can only be offered contingent upon AFF's proposal for a full presentation being accepted.

**Bio:** Natalie Omundson is the Western Conservation Manager at the American Forest Foundation (AFF), managing a portfolio of place-based projects across California, Colorado, Montana, New Mexico and Oregon. In this role, Omundson is testing new ways to engage with family forest landowners in targeted watersheds, while ensuring that on-the-ground partners have what they need to help those landowners restore their forests and reduce fire risk.

Before joining AFF, Omundson was the Senior Brand Manager at Conservation International, where she managed international marketing campaigns. Prior to joining the workforce, Omundson received undergraduate degrees in Business and Economics from American University, in Washington DC.

**Keywords:** Digital Communications, Social Media Engagement, Private Lands, Forest Management, NIPF, West

### **37. Finding New Partners in all the Right Places**

**Presenter:** Kari Hines, Firewise Coordinator, Texas A&M Forest Service

#### **Additional Authors/Presenters:**

Wade Powell, Land Management Specialist, Travis County Parks Department

One of the core missions of forestry and fire departments across the nation is to educate the public on the threat that wildfires poses and ways to minimize this threat. In some parts of this country, this is a must as the majority of land is privately owned. Even states where there are large amounts of publicly owned land have had plenty of recent examples of how work done by private citizens prior to disasters makes a difference in survivability.

It is simply not possible to have enough public officials on staff to reach our potential audiences. The more people communicating the message of wildfire readiness, the better for all of us.

This workshop will cover some of the relationships we have built in Texas and challenge attendees to brainstorm new opportunities for collaboration in their home units.

**Bio:** Kari Hines graduated with a Bachelors of Sciences in Forestry from Northern Arizona University. She has been with the Texas A&M Forest Service since 2012, first as an Inventory Forester and then with the Mitigation and Prevention Department. She has a deep desire to help people realize wildfire risks and learn how to protect themselves, their families and communities, all while balancing the environmental needs of their property. Kari lives in Bastrop with her husband, daughter, pets and an ever-changing collection of foster dogs.

**Keywords:** collaboration, partnership, community preparedness

### **38. Climbing Beyond the Low Hanging Fruit: Increasing Landowner Fuels Mitigation Activities through Digital Marketing**

**Presenter:** Natalie Omundson, Western Conservation Manager, American Forest Foundation

#### **Additional Authors/Presenters:**

Jessica Wentzell, Marketing Manager, AFF

Knock and talk, educational brochures, and community meetings are all important tools in building fire adapted communities and motivating landowners to take action. But, if we want to create resilient forest landscapes at a meaningful pace and scale, we also need to start investing in and leveraging digital outreach strategies.

When it comes to digital outreach, it's not always clear where to start, what to say, or how much to invest in digital strategies. At the American Forest Foundation, we've spent the last few years testing digital outreach strategies for

private landowner engagement, and we're ready to present our lessons learned – implementation strategies, successes and failures, and upcoming opportunities for collaboration.

Importantly, in this presentation we will also introduce a new digital outreach tool called WoodsCamp, which leverages social media to connect private landowners with resources help them take forest management action on their land. Most recently launched in California, WoodsCamp will play an important role in our efforts to engage landowners in fire risk reduction and reforestation work across the Sierras.

**Bio:** Natalie Omundson is the Western Conservation Manager at the American Forest Foundation (AFF), managing a portfolio of place-based projects across California, Colorado, Montana, New Mexico and Oregon. In this role, Omundson is testing new ways to engage with family forest landowners in targeted watersheds, while ensuring that on-the-ground partners have what they need to help those landowners restore their forests and reduce fire risk.

Before joining AFF, Omundson was the Senior Brand Manager at Conservation International, where she managed international marketing campaigns. Prior to joining the workforce, Omundson received undergraduate degrees in Business and Economics from American University, in Washington DC.

**Keywords:** Digital Communications, Social Media Engagement, Private Lands, Forest Management, NIPF, California

### **39. Monitoring and Mapping Wildland Fires in Alaska: Trading Pencils and Paper for Satellites and Services**

**Presenter:** Jennifer Jenkins, GIS Specialist, BLM Alaska

Monitoring and mapping wildland fires across a landscape the size of Alaska poses some unique challenges. Aircraft-based monitoring wildland fires is labor intensive, costly, and, under certain conditions, can be hazardous. Only a few of the wildland fires in Alaska are mapped using agency-owned or contract aircraft equipped with infrared sensors. As a result, many of the historical fires have been mapped using GPS tracks from aircraft or hand-sketched on paper maps. Over the last few fire seasons, the Alaska wildland fire community has steadily moved towards an increased use of unclassified satellite imagery and other publicly available remotely-sensed data. Using these technologies has dramatically increased the accuracy and precision of the fire maps and also allowed for a more strategic use of aircraft for monitoring purposes. This presentation will include examples of the data products used to map and monitor wildland fires in Alaska, explore the use of these data products for purposes other than wildland fire, demonstrate one of the web-based applications used to disseminate wildland fire information; and discuss future plans.

**Bio:** Jennifer Jenkins is a GIS Specialist with the Bureau of Land Management (BLM) Alaska State Office and Alaska Fire Service. She has a B.S. in Biology from Adams State College (now Adams State University), a M.S. in Biology from The University of South Dakota, and a M.S. in Natural Resource Management from the University of Alaska Fairbanks. Jenn spent a decade working for the U.S. Fish and Wildlife Service before moving over to BLM in late 2014. At BLM, she has focused on using remote sensing data and online/mobile resources to meet the diverse information and mapping needs of the Alaska Wildland Fire community.

### **40. Working Together to Reduce the Public Health Burden of Wildfire Smoke - An Interagency Smoke Ready Communities Program**

**Presenter:** Peter Lahm, USDA, Forest Service

Wildfire smoke is a complex and far-reaching problem that crosses jurisdictions and disciplines, and no one agency can address how to reduce the risks of smoke. As smoke events become even more common, there is a need for clear, federal leadership to assist with the evidence-based planning necessary to reduce adverse health outcomes related to wildfire smoke.

Planning for smoke events, even in the absence of nearby fire, should be considered for inclusion to the national cohesive strategy. This way community leaders would be better prepared to protect their public from the risks of

smoke. Through engagement with land and fire managers, as well as state air quality regulators and public health departments, we would promote the idea that preparing for smoke should be part of preparing for wildfire season. Getting buy in from these stakeholders will be critical for the success for any smoke mitigation planning program.

The US Environmental Protection Agency and the US Forest Service, with other federal agencies, are initiating a Smoke Ready Communities Program bringing together important disciplines and expertise across the federal government to prepare state, local, and tribal agencies for smoke. We envision this to be a multi-faceted planning process, much like Fire Adapted Communities, where each local jurisdiction can customize a plan for the specific needs and capabilities in their community.

The US EPA and USFS will support our partners to (1) make available evidence-based information on wildfire smoke and health, and (2) facilitate connections and discussions to protect public health ahead of a wildfire smoke event. To meet these objectives, the US EPA and USFS are compiling materials in the Smoke Ready Toolbox for Wildfires which serves as an online clearinghouse of information for community leaders to be equipped to be prepared for wildfire smoke. In addition, we are considering an in-person workshop that will leverage resources and shape our vision of how this interagency program can best prepare the state-, local- and tribal-level leadership.

Together, we are developing the framework for community leaders to mitigate the risks of wildfire smoke and become Smoke Ready.

**Keywords:** Smoke, Health, Preparation, Air Quality, Communities

#### **41. Rethinking our Wildland Fire Management Focus on Forested Lands**

**Presenter:** Jolie Pollet, Division Chief, Fire Planning and Fuels Management, BLM Fire and Aviation, National Inter-agency Fire Center

Wildland fire has a long and varied history on our public lands. For most of the 20th century through recent times, national wildland fire policies concerning fire suppression and fuels management have primarily focused on forested lands. We recently quantified a new trend of wildfire burning more acreage in shrubland and grassland ecosystems than in forested ecosystems over the past few decades. Furthermore, more acreage burned in invasive non-native grasslands than any other vegetation type. This trend is significant across all land ownerships and jurisdictions for the conterminous United States, the western states, and Department of Interior lands. The new trend highlights significant and frequent fire events for western cold desert ecosystems where fire was once relatively infrequent. Cold desert ecosystems have experienced increases in annual area burned, fire frequency, and fire sizes, that result in substantial increases in fire suppression costs for the Department of Interior. The reason this trend has emerged for cold desert ecosystems is primarily due to the increasing dominance of the “non-native grass-fire cycle.” Fire-adapted non-native annual grasses provide contiguous fine fuels that increase fire occurrence and spread. In this new fire environment, these fire-adapted nonnative species rapidly recover after fire, outcompeting native species that eventually disappear across the landscape. The result is high rates of conversion of native shrubland to non-native annual grasslands that continue to spread across landscapes and promote this uncharacteristic fire regime. This accelerated non-native annual grass/fire cycle needs to receive greater focus in current wildfire policy and management efforts. We offer a large-scale risk assessment and multi-scaled management approaches based on the concepts of resilience and resistance.

**Bio:** Jolie Pollet is the Fire Planning and Fuels Management Division Chief at the Bureau of Land Management’s national Fire and Aviation office in Boise, Idaho, where she provides leadership for BLM’s national programs including fuels management, fire ecology, wildfire reporting and data management, fire planning, and community assistance. For the past 23 years, Jolie has worked in federal fire and resource management – from wildland fire crews to managing essential national programs. Jolie holds a bachelor’s degree in Geography from the University of New Orleans and a master of science degree in Forestry from Colorado State University.

**Keywords:** fire, sagebrush, invasives, invasive grass-fire cycles, forests



### **43. Case Studies: Wildfire Risk Portals - The what, how and why...**

**Presenter:** Lowell Ballard, Director of Geospatial Solutions, Timmons Group

Many organizations are currently using Wildfire Risk data to support all aspects of the National Cohesive Strategy. This presentation will demonstrate various case studies detailing how technology and Wildfire Risk data are coming together to better communicate with citizens, inform planning decisions and support national initiatives toward shared stewardship on the landscape.

This talk will cover various projects that include public portals for citizens, professional portals for more advanced natural resources professionals and planning tools for agency staff. Examples will be included that show how these Wildfire Portals (WRAPs) are being used for all aspects of the National Cohesive Strategy and for the creation of wildfire protection plans (CWPPs).

The session will strive to provide opportunities for interaction with attendees and open dialogue.

**Bio:** Lowell Ballard is the Director of Geospatial Solutions for Timmons Group. He works closely with State, Federal and NGO wildfire professionals to increase their effectiveness through the use of technology. His projects range from strategic planning consulting on forestry performance measures to the development of Wildfire Risk portals and Community Hazard Assessment mobile solutions.

**Keywords:** Technology, Wildfire Risk Portals, WRAP

### **44. Pre-fire Planning to Improve Post-fire Outcomes**

**Presenter:** Doug Cram, Extension Forest and Fire Specialist, New Mexico State University

The vision of the national cohesive strategy, in part, is for our nation to live with wildland fire. We interpret this to mean the citizenship of the nation continues to recognize fire as a natural and inevitable part of the natural landscape, and thereby are ever implementing practices toward resilient co-habitation with wildland fire, including post-fire response. As the nation embraces preparedness for post-fire scenarios, it will simultaneously reinforce proactive practices to live with fire.

While post-fire challenges are not as glamorous as fire fighters battling flames, the longevity of post-fire trials and tribulations are ever present for local communities and managers left in the ashes. This interactive presentation will build on a post-fire learning exchange we hosted in New Mexico in the fall of 2018. We will present the planning mechanisms and outcomes of our post-fire learning exchange with the goal of sharing perspectives and experiences so others can host similar post-fire learning exchanges. One overarching outcome from our learning exchange was the simple fact that local communities are generally unprepared for high severity fire events, particularly when no federal lands are involved (as was the case in the 2018 Ute Park Fire). For example, in the absence of a federal BAER team, who from the community or state can initiate, coordinate, fund and implement a landscape recovery plan?

Our original planning partners in this pilot effort included The Nature Conservancy, The Forest Stewards Guild, the U.S. Army Corps of Engineers, and New Mexico State University Cooperative Extension Service. Additional content and curriculum was collaboratively developed by an organizing committee that included representatives from: New Mexico State Forestry, New Mexico Department of Homeland Security - Emergency Management, USDA Natural Resources Conservation Service, Promise PCES, LLC, and High Watermark, Inc. Other agencies and organizations included the City of Santa Fe Fire Department, the National Oceanic and Atmospheric Administration, and the U.S. Forest Service.

**Bio:** Doug Cram is an Associate Professor and Extension Forest and Fire Specialist in the Extension Animal Sciences and Natural Resources Department at New Mexico State University. His research and Extension efforts focus on management of forests, rangelands, and riparian areas with a particular interest on the interaction of fire within these systems.

**Keywords:** Pre-fire planning to improve post-fire outcomes

#### **45. Preparing for jurisdictionally complex wildfire: Are the right actors having the right conversations?**

**Presenter:** Toddi Steelman - Dean of the Nicholas School of the Environment

**Additional Authors/Presenters:**

Branda Nowell, Professor - School of Public and International Affairs, North Carolina State University

Anne-lise Velez - Assistant Professor Virginia Tech

Honey Minkowitz - Doctoral Student

As the jurisdictional complexity of wildland fire increases, safe and effective wildfire response will require a new type of conversation. This conversation should build capacity for diverse government and private actors to come together in a coordinated, safe, and cohesive response in the event of wildfire that spans two or more jurisdictions. We invite you to join us for a critical about the conversations that are taking place among land agencies and other jurisdictions when fires are not burning. Specifically, we ask the questions: are the right people having the right conversations? What conversations are we not having that we need to be having? Are we talking to the right people?

**Keywords:** co-management, multi-jurisdictional fires, effective fire response

#### **46. Choosing a Collaborative Adventure – The Southern Illinois Experience**

**Presenter:** Scott Crist, Fire Management Officer, USDA Forest Service, Shawnee National Forest

**Additional Authors/Presenters:**

Tharran Hobson, Program Director, The Nature Conservancy

Ben Snyder, District Forester, Illinois Department of Natural Resources

Southern Illinois has undergone profound shifts in the extent, acceptance, and use of fire as a management tool. The landscape evolved with frequent low- and mixed-severity fire, and a major shift in species composition and structure has emerged in its absence in the last several decades. Recognizing this, agencies and organizations in southern Illinois individually and then collectively began to increase the use of prescribed fire treatments, encountering numerous obstacles along the way. By embracing concepts now codified in the Cohesive Strategy, including landscape-scale approaches, cross-boundary burning, and community-based planning, we have increased the pace and scale of treatments, and are seeing an increase in community engagement around and public acceptance of this vital tool.

We invite the audience to go on a “choose your own adventure” type of trip, with the last several decades of our southern Illinois experience as the basic story outline. As we travel through time the audience will encounter the same decision points we did. They will then be polled (electronically or by show of hands) to make a decision. Using the audience’s decisions, we will fast forward to a likely theoretical outcome. If they choose differently than the decision we made in reality, we will discuss why it might turn out that way. After that, or if they choose the same decision we made, we will continue to follow our historical journey to where we are now: widespread prescribed fire acceptance and “partnership burning” being the new normal. We will end with audience suggestions on where we might go in the future.

**Bio:** Scott Crist has worked for three federal land management agencies in many parts of the country. For the last 16 years, he has been trying to improve the landscapes of southern Illinois. He is currently the Fire Management Officer for the Shawnee National Forest. He is on the Board of Directors for the Illinois Prescribed Fire Council and the Advisory Board for the Oak Woodlands and Forests Fire Consortium.

**Keywords:** Prescribed fire, collaboration, cross-boundary, landscape-scale

#### **47. Safer Together – A new approach to reducing the risk of bushfire in Victoria**

**Presenter:** Alen Slijepcevic, Deputy Chief Officer Bushfire, Country Fire Authority, Victoria, Australia

The threat of bushfire is rising significantly globally, with Victoria being one of the most bushfire prone areas in the world. Bushfire risk is significantly increasing with climate change already affecting the fire regime, with the likelihood and severity of bushfires higher than it has been historically. Bushfire risk in Victoria is also increasing due to population growth and changing demographics, particularly in the rural-urban fringe, causing a greater number of people to be exposed to bushfire.

After the devastating Black Saturday Fires on 2009, the Royal Commission (VBRC 2009) used the expression 'shared responsibility' with the purpose of implying increased responsibility for all concerned, albeit at different levels. The Commission proposed that state agencies and municipal councils assume augmented roles in relation to emergency management, contingency planning and education which included that municipal councils designate community refuges and bushfire shelters for the community. In turn, communities (and individuals and households in those communities) will assume greater responsibility for their own safety.

In November 2017, The Victorian State Government released a new policy called 'Safer Together'. This policy has four main areas that collectively will work towards the outcome of 'shared responsibility':

- Community first - Local communities will be involved in decision making about bushfire management all year round - this means understanding what they care most about and working with them to determine local solutions to reduce bushfire risk.

- Land and fire agencies working together – Agencies will plan and deliver bushfire management activities across public and private land. Risk reduction will drive all our activities from planned burning to fire response.

- Measuring success – Agencies will measure and report on our progress: where they have reduced bushfire risk and what the impacts are on people and the environment. Agencies will also measure how effective their partnerships are.

- Better knowledge = better decision - Agencies will continue to invest in science and technology. They will use this insight to target their actions to where the risk is and ensure they are appropriate for the local environment.

This paper and a subsequent presentation will cover the progress of the policy implementation, its successes and challenges as well as discuss the future work.

**Bio:** After gaining a Master of Science (Forestry) Degree, Alen started his working career in Croatia from where he immigrated to New Zealand and later to Australia. He is worked in numerous operational and research roles within Tasmania and Victoria. In 2012, Alen started working with the Country Fire Authority as the Deputy Chief Officer. Alen is a self-motivated and highly organized senior executive with extensive expertise in leadership, emergency and risk management; and research. He is an author of a numerous research papers, technical reports and conference papers. Alen regularly presents at the national and international conferences.

**Keywords:** fire policy, integrated fire management, community engagement

#### **48. COMPASS Communications Training presented by the North Atlantic Fire Science Exchange and the Consortium of Appalachian Fire Managers and Scientists**

**Presenter:** Meg Nakahara, Science Communications Director, North Atlantic Fire Science Exchange

##### **Additional Authors/Presenters:**

Helen Mohr, Consortium of Appalachian Fire Managers and Scientists/ USFS  
COMPASS Staff

Introductions & Overview: Beginning with the End in Mind Bridging the Cultural Divide: Presentation and discussion of the different communication styles of scientists versus non-scientists

The Message Box- Introductory Lecture: Introduce the basics of this simple yet powerful tool for identifying and framing scientific and professional messages for various audiences, and identifying the “so what” of your work

The Message Box- Putting it into Practice: Participants revise their message boxes individually followed by small group peer-to-peer feedback\*

**Bio:** As the science communications director for the North Atlantic Fire Science Exchange, Inga uses all forms of communication to help facilitate relevant wildfire research and promote access to meaningful fire science. For the last five years she has been focused on improving her communication skills and becoming an effective science writer in order to be a better communicator for the exchange. She has a Ph.D. in Ecology from Rutgers where she focused on the fire history of New Jersey and landscape level ecosystem modeling.

**Keywords:** communication, training

#### **49. Applying situation, forecast, and outlook information in the decision process for emerging incidents, situations, and problems**

##### **Presenters:**

Marsha Henderson, Program Manager, Selkirk Systems

Caroline Noble, USFS- IFTDSS

Jessica Block, Assistant Director, WIFIRE Laboratory within the Supercomputer Center at the University of California at San Diego

Lowell Ballard. Director of Geospatial Solutions, Timmons Group

**What is my greatest risk to fire? Using artificial intelligence to help inform my decisions** - Marsha Henderson – Selkirk Systems has been working for the last two years exploring the application of artificial intelligence (AI) and expert knowledge in assisting decision makers to be successful in an increasingly complex decision environment. Selkirk is pursuing the application of AI to help answer questions like “What is my greatest risk?”

**Bio:** Marsha Henderson has 25 years of wildfire experience across the US, working 16 years for the National Park Service and the remaining nine years for the State of Alaska as Chief of Fire Operations and then Strategic Fire Planner. She been a Program Manager for Selkirk Systems, a software development company based in Victoria, BC for the last five years.

##### **Using the Interagency Fuels Treatment Decision Support System for Situational Awareness – Caroline Noble**

The Interagency Fuels Treatment Decision Support System (IFTDSS) is a web-based application designed to make fuels treatment planning and analysis more efficient and effective. IFTDSS is available to all interested users, regardless of agency or organizational affiliation. Although billed as a fuels treatment decision support tool, IFTDSS provides numerous products that are useful for situational awareness and wildland fire response planning.

The presentation will include: A brief description and demonstration of current functionality for situation awareness using a local example.

**Bio:** Caroline Noble: USFS - Wildland Fire Management Research, Development, and Applications - Tallahassee FL (virtual). Caroline currently serves as the Technical Lead on the IFTDSS Development Team. Her job duties include oversight of the IFTDSS application development, technology transfer, and coordination with stakeholders and subject matter experts.

##### **Making the National Cohesive Strategy “cohesive” through technology** - Lowell Ballard

This session will focus on leveraging technology to bridge all major components of the National Cohesive Strategy. It will focus the use of GIS and spatial data integration including suppression, communities at risk and landscape fuels to provide enhanced decision support during events.

**Bio:** Lowell currently manages the Geospatial Solutions Team at Timmons Group which includes over 100 staff focused on strategic planning, solving complex data management issues and developing web and mobile solutions. His team focuses on helping organizations use technology to solve complex natural resource management issues across all aspects of forestry, fisheries and wildlife. Over the past 10 years, his focus has been on wildland fire solutions development across all aspects of the National Cohesive Strategy.

#### **The WIFIRE Lab – Jessica Block**

The WIFIRE Lab (<http://wifire.ucsd.edu>) is a data science research and response group at UC San Diego focused on developing and serving the next generation disaster cyberinfrastructure through data and artificial intelligence. The WIFIRE system provides end-to-end management from data collection to modeling efforts to data driven knowledge. Their Firemap interface serves real-time integrated datasets related to wildfires and fire behavior modeling and forecasting. They are currently part of the Fire Integrated Real-Time Intelligence System (FIRIS) pilot program in Southern California where, for the first time, aircraft-collected perimeters are provided to generate real-time intelligence and forecasting on a growing fire on initial attack. This opportunity for collecting accurate data in the early stages of fires is being leveraged to advance techniques in operational fire simulation.

**Bio:** Jessica Block is the Assistant Director for the WIFIRE Laboratory within the Supercomputer Center at the University of California at San Diego. Her research centers on the dynamic relationship between urban and wildland environments. She works to mitigate disasters using emerging technologies such as satellites, sensor networks, machine learning tools, and virtual reality. She holds a bachelor's degree from UCLA and a master's degree from ASU in Geology with a focus in sustainability and urban ecology.

### **50. Mapping Wildfire Hazard for Communities: Recent Examples and Feedback on Future Products**

**Presenter:** Kelly Pohl, Policy and Communications Director, Headwaters Economics

#### **Additional Authors/Presenters:**

Kimiko Barrett, Researcher and Policy Analyst, Headwaters Economics

Greg Dillon, Spatial Analyst, US Forest Service US Forest Service, Rocky Mountain Research Station, Fire Modeling Institute

Eva Karau, Spatial Analyst, US Forest Service US Forest Service, Rocky Mountain Research Station, Fire Modeling Institute

Mapping wildfire hazard at the community level can aid all three pillars of the Cohesive Strategy: helping identify and prioritize projects to sustain healthy landscapes, informing the needs of wildfire response, and helping develop fire-adapted communities by informing land use decisions. This presentation will share insights and examples from detailed community hazard assessments and gather feedback on a new national program to evaluate wildfire hazard and exposure for all communities across the United States.

Community Planning Assistance for Wildfire (CPAW) is a voluntary program that provides cities and counties with land use planning training and recommendations to reduce wildfire risk in the built environment. In partnership with the U.S. Forest Service Rocky Mountain Research Station, CPAW provides wildfire hazard assessments to communities. Hazard assessments can help identify and prioritize where different land use planning tools such as building codes, landscaping regulations, slope setbacks, and subdivision design standards can be effective at reducing wildfire risk. This session will share examples and stories from CPAW communities.

In 2020, the U.S. Forest Service will release a new national assessment of community exposure to wildfire. It will provide wildfire hazard maps and data that are consistent nation-wide and are designed to be useful at the local community scale. Examples of maps and data planned for delivery in the spring of 2020 through a web-based dashboard will be unveiled, and participants will have the opportunity to provide feedback. This session will gather input and suggestions to make the products of this national project as robust, practical, and applicable to community needs as possible.



**Bio:** Kelly Pohl and Kimiko Barrett, Ph.D., are with Headwaters Economics, an independent, nonprofit research organization working to improve community development and land management decisions. It co-founded the Community Planning Assistance for Wildfire (CPAW) program in 2015. Kimiko leads wildfire research and manages the CPAW program. Kelly leads policy and communications efforts for CPAW and Headwaters Economics. Greg Dillon and Eva Karau are spatial analysts with the US Forest Service Rocky Mountain Research Station's Fire Modeling Institute. Greg leads the national assessment of community exposure to wildfire. Eva collaborates with communities to develop detailed wildfire hazard assessments through the CPAW program.

**Keywords:** Risk; Hazard assessment; Land use planning

## **51. Models of Co-management**

**Presenter:** Anne-lise Velez, Assistant Professor, Virginia Tech

### **Additional Authors/Presenters:**

Branda Nowell - North Carolina State University

Toddi Steelman - Duke University

Co-management is of increasing importance in wildfire response, as the concept is framed as an important pathway to more cohesive fire management strategy in the national policy discussion. But, it is unclear how actors affected by wildfires conceive of co-management on multi-jurisdictional events. In examining co-management aspects of network governance during 10 of the most complex multi-jurisdictional 2017 wildfires in the United States, we found differing conceptions of co-management among actors in the response network, highlighting the need for a grounded understanding of how people conceive of co-management in multi-jurisdictional spaces. Many reported being unfamiliar with co-management in a wildfire context. For others, the focus tended to be on structural aspects co-management, co-management as outcome-based, or a blend of the two. Respondents describing co-management as either structural or outcome-based had two descriptions that were mutually exclusive: one commander, and one direction. This is important because people with these lenses on co-management see it as being one thing or the other, not both. One commander emphasizes the importance of having a single decision-maker, with clear authority as enabled by ICS. Should mission objectives come into conflict in this model, the commander is responsible for hearing different opinions and weighing them to come up with a strategy. One direction models emphasize the need for consultation and agreement among affected agencies so that they may give a clear leaders intent to the IMT. Differences in conceptions of co-management matter because they have implications for how to best communicate expectations for co-management structures like unified command or joint delegations of authority, and implications for those managing and coordinating response networks, as different actors may have different expectations for co-management. This may suggest different approaches to network governance can be used to encourage processes.

**Bio:** Anne-Lise Velez is a collegiate assistant professor in the College of Architecture and Urban Studies at Virginia Tech, where her responsibilities include conducting transdisciplinary scholarly research on management and policy. Anne-Lise is also responsible for instruction and program design in the VT Honors College, where she teaches courses on policy and disaster response, and serves as a member of the Calhoun Discovery Program Design Team. She held previous academic appointments as a postdoctoral associate for the Center for Excellence in Teaching and Learning at VT, and as a postdoctoral scholar for the School of Public and International Affairs at NC State University. Anne-Lise earned a PhD in Public Administration from NC State University, as well as master's degrees in Public Administration and in Architecture from NC State, and a Bachelor of Architecture from VT. This interdisciplinary background led to an interest in transdisciplinary research, and she currently works with researchers across a number of disciplines and on issues that cross disciplinary boundaries. Her research broadly relates to management and decision-making at the intersection of the public and nonprofit sectors, especially around environmental and urban policy relating to community well-being and sustainability. Much of her research focuses on co-management and collaboration among wildfire responders, and how these processes are informed by and inform policy. She collaborates with the NC State Fire Chasers Project, and is currently serving as co-principal investigator on a Joint Fire Science Project grant to investigate co-management priorities among the different land interests affected in multijurisdictional

**Keywords:** co-management, multi-jurisdictional fires, effective fire response

## 52. Strategies to Spark Interest and Increase Prescribed Fire Use on Private Lands

**Presenter:** Jennifer Fawcett, Extension Associate, NC State University

A majority of the forest land in the Southern U.S. is under private ownership, yet most of the prescribed burning takes place on public lands. This deficit of burning on private lands could be due to a lack of awareness of the importance of fire, concerns about liability, little to no experience in burning, challenges in finding a burn contractor, negative perceptions, or a number of other reasons. In order to “spark” an interest and increase prescribed fire use on private lands, it is essential to communicate the importance of prescribed fire to private landowners and community members; provide them with tools, knowledge and experience; and build a positive network that supports prescribed burning efforts. A variety of approaches have taken place around the Southern region to accomplish this, and will be discussed during the workshop. For example, prescribed fire field days and “Learn & Burn” workshops introduce private landowners to the basics of burning, while engaging them in the process through hands-on learning. Fire festivals emphasize the benefits of prescribed fire to the general public, and bring the culture of fire that is so rooted in southern forestry into the mainstream. Demonstration burns allow participants to see how fire behaves and to have a better understanding of how prescribed burns are conducted. Prescribed Burn Association members pool their knowledge, resources and equipment to conduct prescribed burns, while also allowing the opportunity for inexperienced burners to learn from their more experienced peers. Examples of other types of approaches, lessons learned and possible strategies to engage both the general public and private landowners in order to increase prescribed fire use on private lands will be solicited from and further discussed by workshop participants.

**Bio:** Jennifer Fawcett serves as Coordinator for the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) Prescribed Fire Work Group and assists in implementing prescribed fire-related education and outreach programs across the Southern region through her role with Extension Forestry at North Carolina State University (NCSU). She received her B.S. from the University of Delaware, M.S. in Forest Resources from Clemson University, and is working towards her Ed.D. in Agricultural and Extension Education at NCSU. She currently serves as an Advisory Board member for the Southern Fire Exchange and is a lifetime member of the North Carolina Prescribed Fire Council.

**Keywords:** Strategies for increasing prescribed fire

## Notes

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