DETAILED PROGRAM DAY 1 | SEPTEMBER 16, 2021 | 9AM-12PM

WILDFIRE

WEATHER | WATER | WEEDS | WILDLIFE

DAY 1 - Thurs. Sept. 16, 9am-12pm
DAY 2 - Thurs. Sept. 30, 9am-12pm
DAY 3 - Thurs. Oct. 14, 2pm-5:30pm

COUNCIL FOR
WATERSHED HEALTH

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WILDFIRE
WEATHER | WATER | WEEDS | WILDLIFE

SYMPOSIUM DESCRIPTION

TOGETHER WE WILL:

EXAMINE agency and utility wildfire safety, mitigation measures and resiliency planning for future fire weather

LEARN about research focused on wildfire effects on water quality (sediment, contaminants) and water supply in our region and how we can improve our practices

DISCUSS how forests, shrublands and rivers are recovering (invasive plants and biodiversity loss)

SHARE lessons learned to inform future development & land management

WILDFIRE SYMPOSIUM SERIES

WEATHER | WATER | WEEDS | WILDLIFE

DAY 1 | SEPTEMBER 16 | 9AM-12PM

12pm-1pm Lunchtime Poster Session

DAY 2 | SEPTEMBER 30 | 9AM-12PM

12pm-1pm Lunchtime Poster Session

DAY 3 | OCTOBER 14 | 2PM-5:30PM

WILDFIRE
WEATHER | WATER | WEEDS | WILDLIFE

DAY 1 TOPICS

climate

watersheds

weather science

physical impacts

geohydrology

soils

human communities

management

WILDFIRE
WEATHER | WATER | WEEDS | WILDLIFE

SYMPOSIUM DAY 1 AGENDA

9:00 - 9:15am	Welcome & Housekeeping
9:15 - 9:30am	Keynote Address
9:30 - 10:15am	Panel 1 Presentations
10:15 - 10:45am	Panel 1 Discussion and Q&A
10:45 - 11:30am	Panel 2 Presentations
11:30 - 12:00pm	Panel 2 Discussion and Q&A
12:00 - 1:00pm	Lunchtime Poster Session and Q&A

WILDFIRE
WEATHER | WATER | WEEDS | WILDLIFE

KEYNOTE ADDRESS

Jessica Morse

Deputy Secretary for Forest & Wildfire Resilience
California Natural Resources Agency

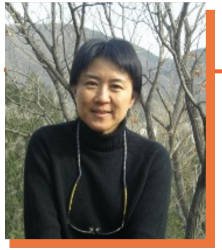
Jessica Morse joined the California Natural Resources Agency in April 2019. As the Deputy Secretary for Forest Resources Management, she is working to increase the pace and scale of science-based forest management to restore healthy forests, improve watershed health, protect California's unique ecosystems and make Californians wildfire resilient. Before joining Governor Newsom's administration, Jessica spent nearly ten years in National Security working for the Defense Department, State Department, and the U.S. Agency for International Development. Her assignments included a year and a half in Iraq and tours in India, Myanmar, and US Pacific Command. In 2018, Morse ran for U.S. Congress in California's 4th Congressional District in the Sierra Nevada region. Jessica is a fifth generation Northern Californian. Jessica holds a Masters of Public Affairs from Princeton University and a Bachelor of Arts in economics from Principia College.

PANEL 1 DISCUSSION & PRESENTATIONS

PANEL 1 DISCUSSION & PRESENTATIONS

MODERATOR

Marilyn N. Raphael, Ph.D., Director, Institute of the Environment and Sustainability, UCLA



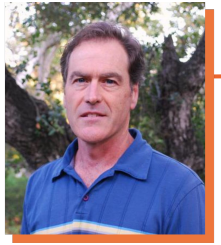
IMPACT OF CLIMATE CHANGE ON FIRE WEATHER IN CALIFORNIA

Rong Fu, Ph.D., Professor, Department of Atmospheric and Oceanic Sciences, UCLA

HOW CLIMATE AND WEATHER AFFECT FIRE SEASON (LENGTH AND INTENSITY)

Tom Rolinksi, Fire Scientist, Southern California Edison

PANEL 1 DISCUSSION & PRESENTATIONS



HOW WEATHER, FUELS, AND GEOGRAPHY PREDICT FIRE PROBABILITY

Max Moritz, Ph.D., Cooperative Extension Wildfire Specialist, Bren School of Environmental Science and Management, UCSB

IMPACT OF FIRE ON ECOSYSTEM FUNCTION AND BIODIVERSITY IN SOUTHERN CALIFORNIA

Wallace M. Meyer III, Ph.D., Director, Robert J. Bernard Field Station, Claremont Colleges, and Associate Professor of Biology, Pomona College

Marilyn N. Raphael, Ph.D.

Director, Institute of the Environment and Sustainability, UCLA

Dr. Marilyn Raphael is Professor of Geography at UCLA and served as Department Chair from 2010-2013. Her primary research focus is Southern Hemisphere (SH) atmospheric dynamics and climate change and her major scientific goals are to characterize the Antarctic sea ice variability and to define and understand the interaction between Antarctic sea ice and the large-scale Southern Hemisphere circulation, focusing on interaction at the seasonal, interannual and decadal time scales. Her work includes global climate modeling with an emphasis on improving the simulation of sea ice and the atmosphere in the Southern Hemisphere.

She is a member of the American Academy of Arts and Sciences, current Chair of the Scientific Committee on Antarctic Research's expert group, Antarctic Sea ice Processes and Climate (ASPeCt) and Co-Chair of the World Climate Research Programme's (WCRP) Polar Climate Predictability Initiative (PCPI). She has served on the National Research Council's Committees on Future Science Opportunities in Antarctica and the Southern Ocean and Stabilization Targets for Atmospheric Greenhouse Gas Concentrations.

Rong Fu, Ph.D.

Professor, Department of Atmospheric and Oceanic Sciences, UCLA

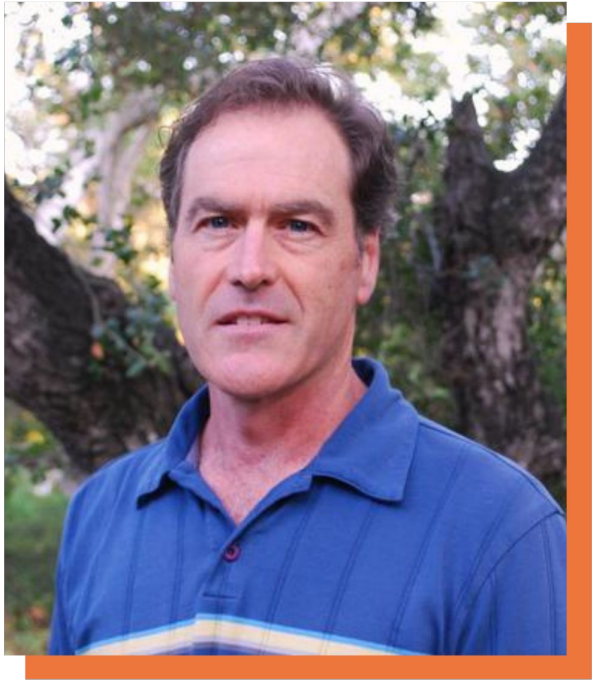
Rong Fu is a climate researcher and a professor in the Department of Atmospheric and Oceanic Sciences, University of California, Los Angeles. Her research focuses on the mechanisms that control droughts, rainfall seasonality and variability over Amazonian and North American regions, and how changes of global climate, local vegetation and biomass burning, and oceanic decadal variability have influenced these processes in the recent past and will influence rainfall seasonality and droughts in the future. She has also developed a drought early warning for US Great Plains working with regional water resource managers. Her research is among the earliest to observationally uncover significant roles of tropical rainforests in determining rainfall seasonality over Amazonia and Tibetan Plateau in determining water vapor transport to global stratosphere; She received NSF CAREER and NASA New Investigator Awards, and the American Meteorological Society (AMS) Outstanding Achievement Award for biometeorology. She is also an elected fellow of the AMS, the American Geophysical Union and the American Association For the Advancement of Science, respectively. She was the President of the Global Environmental Change Focus Group (2015-2016) and Leadership Team of the American Geophysical Union Council. She has served on many national and international panels, such as the National Research Council special committees on “Abrupt Impact of Climate Change” and “Landscapes on the edge”, the Climate Working Group for NOAA Science Advisory Board. She is a co-leader of NOAA Drought Task Force Phase IV and an Editor of Journal of Geophysical Research – Atmosphere, and the editor of the Climate and Climate Change Section, the 3rd Edition of the Encyclopedia of Atmospheric Sciences.

Website: https://dept.atmos.ucla.edu/rongfu

Tom Rolinksi

Fire Scientist, Southern California Edison

Tom Rolinski is currently the Fire Scientist for Southern California Edison (SCE), one of the nation's largest utilities. In this role Tom is responsible for bringing together the latest science and technology to help build a comprehensive fire program for reducing wildfire risk across SCE's service territory. Prior to joining Southern California Edison, Mr. Rolinski worked for the federal government for over 25 years as a fire meteorologist. During the last 15 years, he became a recognized leader in California's fire program. His pioneering approach to fire meteorology and his collaborative spirit have led the way in developing new tools to assess wildfire threat across the state.



Max Moritz, Ph.D.

Cooperative Extension Wildfire Specialist, Bren School of Environmental Science and Management, UCSB

Max got his PhD in biogeography in 1999, has been a statewide wildfire specialist with UC Cooperative Extension since 2004, and is an adjunct professor at the Bren School at UCSB. Much of his research is on the dynamics and effects of fire regimes at relatively broad scales, including drivers of fire hazard, projections of climate change effects, and home loss studies. Through his extension activities, Max aims to apply scientific information for sustainable planning and management decisions on fire-prone landscapes.

Website: https://moritzfirelab.org/

Wallace M. Meyer III, Ph.D.

Director, Robert J. Bernard Field Station, Claremont Colleges, and Associate Professor of Biology, Pomona College

Wallace M. Meyer III “Marty” is Director of the Robert J. Bernard Biological Field Station and Associate Professor of Biology at Pomona College. His research focuses on understanding how and why the species composition of local biotas are changing, and how such changes directly and indirectly affect ecosystem-level processes. His most recent work has focused on threats to and the preservation and restoration of California sage scrub ecosystems in southern California.

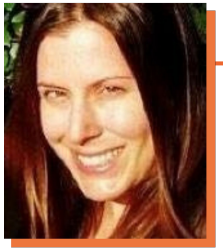
Website:
https://scholar.google.com/citations?user=vqw-Z1kAAAAJ&hl=en

PANEL 2 DISCUSSION & PRESENTATIONS

PANEL 2 DISCUSSION & PRESENTATIONS

MODERATOR

Sabrina Drill, Ph.D., Natural Resources Advisor - Los Angeles and Ventura Counties, University of California Agriculture and Natural Resources



IMPACTS OF WILDFIRES ON WATER QUALITY – A L.A. REGION CASE STUDY

Dawn Petschauer, Senior Water Biologist, City of Los Angeles, Watershed Protection Division
Matt Rich, Principal Program Manager, Wood Environment and Infrastructure Solutions, Inc.
Brianna Datti, Lead Engineer, Water Quality Science and Regulations, Craftwater Engineering

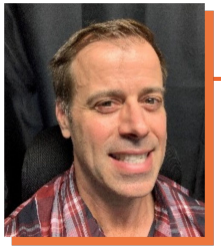
EFFECTS OF CATASTROPHIC FIRE ON SOIL

Anthony (Toby) O'Geen, Ph.D., Professor and Soil Resource Specialist in Cooperative Extension, Department of Land, Air and Water Resources, UC Davis

PANEL 2 DISCUSSION & PRESENTATIONS

POST-WILDFIRE DEBRIS FLOW MITIGATION MEASURES

Sterling Klippel, P.E., Principal Engineer, Los Angeles County Public Works



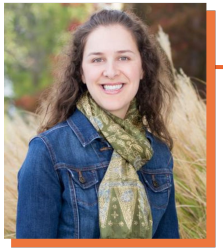
FLOOD AFTER FIRE IN CALIFORNIA TOOLKIT

Jeremy Lancaster, P.G., C.E.G., Regional Geologic and Landslides Mapping Program Manager, California Geological Survey

WILDFIRES AND AIR QUALITY

Scott A. Epstein, Ph.D., Program Supervisor, Air Quality Assessment, South Coast Air Quality Management District

PANEL 2 DISCUSSION & PRESENTATIONS



POST-FIRE FOOD SAFETY

Julia Van Soelen Kim, M.P.H., Food Systems Advisor, Cooperative Extension, University of California Agriculture and Natural Resources

Sabrina Drill, Ph.D.

Natural Resources Advisor - Los Angeles and Ventura Counties, University of California Agriculture and Natural Resources

Sabrina Drill is the Urban Natural Resources Advisor for University of California Cooperative Extension in Los Angeles County. She helps diverse communities get, understand, and co-generate scientific information to restore urban streams and habitats, manage wildland fire, flooding, and invasive species, and use urban nature to increase both ecological and social resilience to extreme weather and climate change. She has previously worked in the Colorado and Hudson Rivers and nearshore Cape Cod in the US, and in the East African Great Lakes. She holds a Ph.D in Geography and a Master's in Biology from UCLA.

Website:

Dawn Petschauer

Senior Water Biologist, City of Los Angeles, Watershed Protection Division

Ms. Petschauer is a Senior Water Biologist with the City of Los Angeles Watershed Protection Division. She has 19+ years of experience in water quality, NPDES/MS4 compliance and stormwater program management including serving as the watershed lead of the Upper Los Angeles River Watershed Management Group (ULAR WMG) for the last 6 years.

Most recently she led the development of the Fire-Effect Study for the ULAR WMG—successfully securing $805K in Safe Clean Water Program funds—to understand the interim and long-term impacts of wildfires on stormwater runoff and receiving water quality to inform stormwater management strategies in the LA Region.

Matt Rich

Principal Program Manager, Wood Environment and Infrastructure Solutions, Inc.

Mr. Rich has over 23 years of project management, environmental science, and hazardous materials and waste management experience. Following years of technical military and industrial experience, he has managed and played a key role in a wide range of environmental projects and has developed water quality monitoring plans using statistical techniques and innovative measures of risk to produce effective results with the lowest possible cost. His experience includes NPDES permitting and compliance program development, urban runoff and receiving water quality sampling and analysis, hazardous and non-hazardous waste characterization and management planning, TMDL compliance monitoring and planning, and regularly assistance to diverse groups of stakeholders. Mr. Rich has worked with federal, state, and local clients including Caltrans, the City of San Diego, the County of San Diego, Riverside County Flood Control and Water Conservation District, U.S. Navy, and the Port of San Diego.

Anthony (Toby) O'Geen, Ph.D.

Professor and Soil Resource Specialist in Cooperative Extension, Department of Land, Air and Water Resources, UC Davis

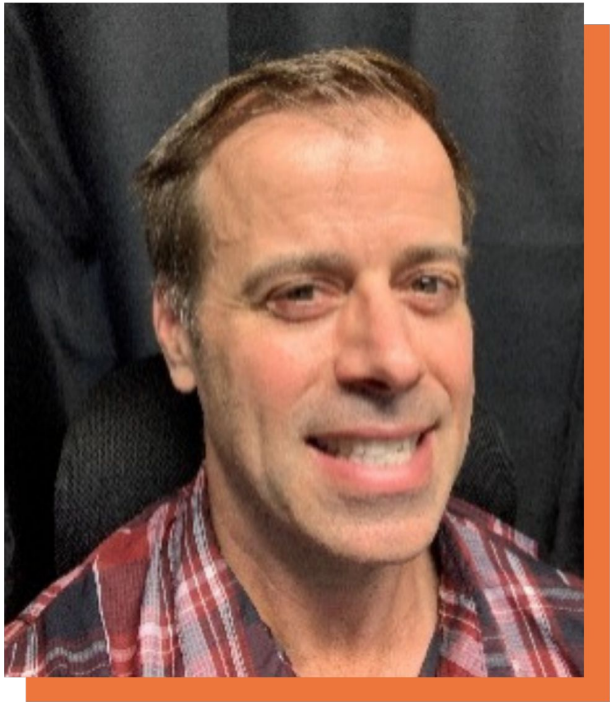
I am a Professor and Soil Resource Specialist in Cooperative Extension in the Department of Land, Air and Water Resources at UC Davis. My research program focuses on the application of soil-landscape relationships to address issues related to agricultural productivity, environmental quality and natural resource management. My outreach activities emphasize interactive online soil survey delivery mechanisms and decision support tools (apps) for the public.

Website: http://casoilresource.lawr.ucdavis.edu/

Sterling Klippel, P.E.

Principal Engineer, Los Angeles County Public Works

Sterling Klippel is a Principal Engineer at Los Angeles County Public Works in the Stormwater Engineering Division. Mr. Klippel oversees the operations of 14 flood control dams and 27 spreading grounds, development and implementation of flood control infrastructure projects, and management of post-wildfire engineering activities. Following wildfires, he is instrumental in directing responses to analyze burned watersheds for potential debris flows, implementing temporary regional structures to mitigate debris flows, organizing teams to evaluate individual properties and provide post-fire engineering advice to homeowners to mitigate debris flow impacts, and issuing debris flow forecasts for communities below recently burned watersheds. Working in the Water Resources field for over 30 years, Mr. Klippel is committed providing flood management and water conservation through expert water resources management.



Jeremy Lancaster, P.G., C.E.G.

Regional Geologic and Landslides Mapping Program Manager, California Geological Survey

Mr. Lancaster has over 20 years of experience working on geohazards issues in the State of California and is a Licensed Professional Geologist and a Certified Engineering Geologist. Jeremy has worked as a consultant in the private sector before coming to CGS in 2006. He has experience working on multi-disciplinary projects as well as performing geologic investigations including, pre- and post- wildfire burned watershed hazards assessment and evacuation planning, landslide mapping and mitigation, geologic mapping, wildlife habitat relationship assessment, and seismic hazards investigations and mapping. Mr. Lancaster has been working on post-fire debris flow assessments since 2007, including the 2017 Thomas Fire, and is one of the survey's technical experts on the subject.

Website: https://www.conservation.ca.gov/cgs

Scott A. Epstein, Ph.D.

Program Supervisor, Air Quality Assessment, South Coast Air Quality Management District

Dr. Scott Epstein is the Program Supervisor of the Air Quality Assessment Group at the South Coast Air Quality Management District, the regional governmental agency responsible for regulating air quality in the greater L.A. region. His group specializes in the analysis, interpretation, and dissemination of air quality and meteorological data. Among other tasks, his team issues air quality forecasts, smoke advisories, public health guidance, and helps the public interpret real time air quality readings. Dr. Epstein joined the South Coast AQMD in 2014 after a postdoc in Atmospheric Chemistry at the University of California, Irvine. He received his Ph.D. in Chemical Engineering from the Center for Atmospheric Particle Studies at Carnegie Mellon University and has a Bachelor of Chemical Engineering from the University of Delaware.

Website: www.aqmd.gov

Julia Van Soelen Kim, M.P.H.

North Bay Food Systems Advisor, Cooperative Extension, UCANR

Julia Van Soelen Kim is the North Bay Food Systems Advisor serving Marin, Mendocino, Napa, and Sonoma Counties. Julia holds a Master of Science in Community Development and a Master of Public Health, both from UC Davis. Her work at UC Cooperative Extension in the North Bay focuses on the viability, sustainability, and equity of regional food systems. Her efforts are directed at strengthening the connections between farmers and consumers by supporting the viability of small-scale and diversified agricultural production and expanding access to affordable local food.

Website:
http://cemarin.ucanr.edu/contact/Staff_and_Volunteers/?facultyid=24166

WILDFIRE

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POSTER PRESENTATIONS

1

"Modeling the Under-Protection of Human Development From Post-Fire Floods and Debris Flows"

Ariane Jong-Levinger, Ph.D. Student in Civil & Environmental Engineering, UC Irvine

2

"Potential of Green Infrastructure to Mitigate Water Quality Impact of Wildfire"

Onja Davidson Raoelison, UCLA

3

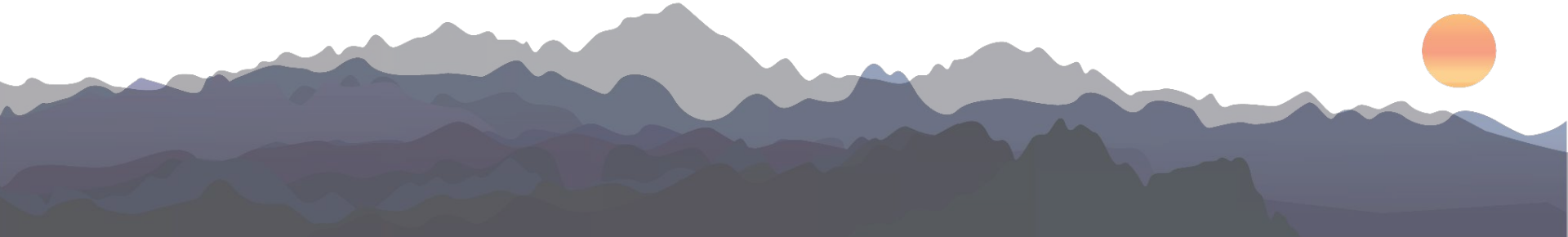
"Resilient Watersheds and Fire Management"

Diana (dee-ah-nah) Voss-Gonzalez, Local Government Commission

4

Learning to Live with Fire

Jeremy Klemic, SWA Group (Landscape Architecture)



1 "Modeling the Under-Protection of Human Development From Post-Fire Floods and Debris Flows"

Ariane Jong-Levinger, Ph.D. Student in Civil & Environmental Engineering, UC Irvine

Cycles of fire, rainfall, and flood are increasingly common within Mediterranean and semi-arid climates; precipitation over a burned, steep watershed can generate flash floods with high concentrations of sediment and unpredictable flow paths. In southern California, communities have defended themselves from these hazards with flood management infrastructure that includes debris basins located at the outlet of mountain canyons to capture sediment and debris, and flood channels that rapidly convey floodwater past urban development. Such infrastructure has proven effective at protecting communities from flood events equal to or less than what they were designed for. However, two major trends in California point to the increased likelihood that post-fire floods will exceed the capacity of flood management infrastructure: first, large wildfires are becoming more frequent and more severe, and second, precipitation extremes are intensifying. Moreover, development is expanding below and into mountain wildlands where these compound hazards are concentrated, exposing more lives and property to dangerous flooding and debris flows.

Extensive work has addressed the development of predictive models for the hydrologic effects of wildfires. However, previous work has yet to characterize the compound hazard from successive events that may fill and overtop debris basins, leading to the clogging of flood channels. We present an original model that captures the interrelatedness of wildfires, storms, and infrastructure with the aim of characterizing the compound hazard facing human development. Preliminary results show that the compound hazards associated with successive events may far exceed what is expected based on regional infrastructure design standards.

2 "Potential of Green Infrastructure to Mitigate Water Quality Impact of Wildfire"

Onja Davidson Raoelison, UCLA

Surface runoff from wildfire-affected areas carries ash and sediments containing high concentrations of heavy metals, trace elements, and toxic organic pollutants and deposits them downstream affecting surface waters and aquatic ecosystems. However, the runoff from wildfire areas can be intercepted by green infrastructure and natural stormwater management systems design to route and treat stormwater runoff. Thus, these treatment systems could provide a mitigation measure to limit the spread of wildfire residues downstream. Yet the potential of stormwater treatment systems to absorb or remove wildfire-derived pollutants from runoff has never been studied. Deposited wildfire residues could increase the concentration of heavy metals and dissolved organics in the influent and effluent of stormwater biofilters based on filter media properties and their release would depend on ash types, pH, and concentration of dissolved organic carbon in stormwater or biofilter pore waters.

To test the hypothesis, batch experiments have been conducted to better understand the leaching of heavy metals from wildfire residues surrounding the stormwater biofilter environment while columns experiments have been conducted to analyze the wildfire-derived pollutants removal capacity of model biofilters. The results could inform management efforts to implement green infrastructure to protect downstream wildfire-affected areas and their ecosystem functions from future wildfire threats.

3 "Resilient Watersheds and Fire Management"

Diana (dee-ah-nah) Voss-Gonzalez, Local Government Commission

"LGC's recent Pandemic Recovery work highlights the need for watershed-scale fire management preparedness. Climate change is intensifying California's natural drought-fire-flood cycle, leading to more devastating wildfires with greater financial impact. Three of the past four fire seasons have cost the state $10 billion each in damage, compared to the average $1 billion costs annually over the previous 50 years. As these costs accumulate, and compound with other climate impacts, the state's resilience to withstand wildfire is hindered.

LGC proposes a paradigm shift away from reactionary approaches, to forward-looking management techniques that minimizes the need for emergency response. The state is beginning some course-correction through the Wildfire and Forest Resilience Action Plan and associated funding, but institutional barriers to implementation still remain. LGC supports collaboration at the watershed scale and coordination with local, regional, and state entities. Intentional, measured, and preemptive action is necessary, especially fuel-load reduction and multi-scale coordination. LGC identifies several case studies that elevate community-driven efforts to thin trees, remove biomass, and promote cultural burning."

4 Learning to Live with Fire

Jeremy Klemic, SWA Group (Landscape Architecture)

California has entered an era of megafires. Last year, six of the state's most destructive fires burned ~4.3 million acres and 2021 may surpass this historic number. This presentation promotes urgency, solutions and implementation strategies for wildfire resilience.
Why now? Simply put, 100 years of fire suppression, combined droughts, insect and fungal death has gravely increased available fuel. The natural order of low, frequent fires has been disturbed and large catastrophic fires are common; coupled with Wildland Urban Interface (WUI) development, exposure has greatly increased. Hence, we need to relearn / discover new ways to live with fire.

That said, fire threatened communities are not idle; counties, cities and citizens are shifting resources and developing plans. The threat is eminent, but where should they focus? The twofold answer includes human and natural elements.
Life in the (WUI) must be reevaluated – including home hardening, defensible space and mindset. Developments in counties like Sonoma, Ventura and Orange are implementing increased emergency access, wildfire resilient planting and fuel modification (mechanical and animal). Communities are establishing emergency preparedness organizations and developing locally based Wildfire Protection Plans.

Fire science has moved beyond just mitigating spread and providing containment; leading to better understanding of forest maintenance and establishment of wildfire buffer zones / protective corridors. The studies, maps and metrics from the Tubbs fire (2017) and the Camp fire (2018) can be adapted to other threatened counties.

The dissemination of strategies and knowledge is crucial to the development of a state/nationwide solution – fire knows no borders.

REGISTER NOW FOR DAYS 2 AND 3!

www.watershedhealth.org/2021-wildfire-symposium

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