

CLIMATE-READY WATER MANAGEMENT

February 27 - 28, 2020 Albuquerque, New Mexico

Presented by





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...for offering our attendees an opportunity to participate in the Rio Grande Basin Study.

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A magnificent historic property set among 25 acres of lavender fields, enormous cottonwood trees and lush formal gardens.

We are gratified by this diverse and generous community support for water conservation and thank the life-long learners with strong commitments to their professions and to their communities attending this conference, both speakers and audience, who recognize that agua es vida, water is life.

Thanks for coming!

George Radnovich, Judith Phillips, Hunter Ten Broeck, Margaret Menache, Marian Wrage, Kali Bronson, Megan Marsee, Patrick Chavez and the entire 2020 Land and Water Summit Planning Committee

Climate-Ready Water Management

With the theme of our 25th conference, **Climate Ready Water Management**, we offer diverse perspectives on the science and art of dealing with the uncertainties that ripple through our lives as temperatures rise.

We welcome back keynote Sandra Postel, the director of the Global Water Policy Project and author of several inciteful books on water issues worldwide. Her newest book, *Replenish: The Virtuous Cycle of Water and Prosperity*, suggests that we can re-shape 21st century water management to meet the challenges ahead based on projects that "build water security and resilience to climate change by working more with nature rather than against it."

In 2020 we bring together ecologist Puja Batra dedicated to the restoration of healthy, carbon-rich agricultural soils to draw down greenhouse gases while building food security and Tom Whitham (NAU), working to identify the plant species, genotypes and source populations that are best suited to survive future conditions and to apply these plants in reclamation at landscape levels on wildlands and in urban areas to minimize the heat island effect.

We survey work being done in New Mexico across disciplines, cultures and generations to address water resiliency. Our Secretary of the NM Environment Department, James Kenney, and Laura McCarthy, Forestry Division Director update us on policy and program adaptations on a statewide scale. Locally, Albuquerque Open Space Superintendent Colleen McRoberts describes the efforts involved in realizing the Tijeras Creek Watershed Collaborative by bringing together people from government agencies, nonprofit organizations, and east mountain communities to restore and preserve ecological and cultural resources within the Tijeras Creek watershed. Sarah Hurteau presents The Nature Conservancy's Climate Ready Trees; Vince Steiner summarizes the Arid LID Coalition 2019 Workshop: first steps toward standardizing green stormwater infrastructure. Jordan Stone and members of Rocky Mountain Youth Corps members who work in crews to complete high-priority conservation projects on public lands will describe work they're doing and lessons learned with pick and shovel. Another hands-on natural resource, Van Clothier of Stream Dynamics gives examples of turning nuisance stormwater into heat-mitigating vegetation and habitat.

This Summit we are once again changing up the format to encourage participation. Dagmar Llwellyn, Bureau of Reclamation Hydrologist, will introduce the Rio Grande Basin Study, a collaborative, watershed-based study that seeks to build resilience to a growing gap between water supply and demand. A breakout session immediately follows Dagmar's introduction, the purpose of which is to encourage Summit participants to provide relevant adaptation strategies to consider regarding the Basin Study. This could include strategies that may only have qualitative results or ones that the Basin Study may be able to quantitatively model.

This session is intended to build on the consensus circles introduced in recent Land and Water Summits, giving participants an opportunity to brainstorm strategies to adapt our water management to the changing climate. All attendees at the Summit will be mixed at assigned tables/ topics so that people of different skill sets and from different businesses/agencies will interact/discuss/propose adaptation strategies, deepening the discussion. Student note-takers will capture the ideas and suggestions, which will then be uploaded to our screens during breaks and lunches and turned over to Dagmar for use in the Basin Study.

There will also be three panel discussions with opportunities for Summit attendees to ask questions of the panelists. The panels will address Climate Projections for the Southwest and the Future of Water Management; Incentivizing GSI/LID; and Urban Landscapes: Designing for Maintenance – three topics that could be the themes of entire conferences – with plenty of thought-provoking discourse that will hopefully lead to deeper understanding and collaboration.

We end the 2020 Summit with author Amy Irvine, who, drawing from her experience as a western public lands advocate and the mother of a severely epileptic child, will speak about the act of wonder: as radical antidote to apathy, as strong medicine for what ails humanity—and, in turn, the natural world.

Thank you for participating!

Agenda: Thursday, February 27

	8:15 to 8:30	15 minutes	Welcome	George Radnovich, XCNM President
1	8:30 to 9:15	45 minutes	How Fixing our Broken Water Cycle Can Build Water Security and Resilience to Climate Change	Keynote: Sandra Postel, Director, Global Water Policy Project
2	9:15 to 10:15	60 minutes	Panel: Climate Projections for the Southwest and the Future of Water Management Moderator: Laura Paskus	Stacy Timmons, Hydrologist, Interstate Stream Commission; Kerry Jones, NOAA; Marcy Litvak, UNM Forest Ecologist
	10:15 to 10:30	15 minutes	~	Break ~
3	10:30 to 11:00	30 minutes	Rio Grande Basin Study	Dagmar Llewellyn, Hydrologist and Civil Engineer at Bureau of Reclamation
4	11:00 to 11:45	45 minutes	Breakout Session: Rio Grande Basin Study Adaptation Strategies	
			Rio Grande Basin Study Ad	aptation Strategies
	11:45 to 1:00	1 hour & 15 minutes	Rio Grande Basin Study Ad	Lunch ~
5	11:45 to 1:00 1:00 to 2:00	1 hour & 15 minutes 60 minutes	Rio Grande Basin Study Ad Re-connecting Urban to Rural through Soil, Water, and Food	Aptation Strategies Lunch ~ Puja Batra, Ecologist Batra Ecological Strategies
5	11:45 to 1:00 1:00 to 2:00 2:00 to 2:30	1 hour & 15 minutes60 minutes30 minutes	Rio Grande Basin Study Ad Re-connecting Urban to Rural through Soil, Water, and Food Climate-Ready Trees	Aptation Strategies Lunch ~ Puja Batra, Ecologist Batra Ecological Strategies Sarah Hurteau, TNC Albuquerque Urban Conservation Director
5 6 7	11:45 to 1:00 1:00 to 2:00 2:00 to 2:30 2:30 to 3:00	1 hour & 15 minutes60 minutes30 minutes30 minutes	Re-connecting Urban to Rural through Soil, Water, and Food Climate-Ready Trees Report-out on Fall 2019 AridLID Workshop on GSI/LID	Aptation Strategies Lunch ~ Puja Batra, Ecologist Batra Ecological Strategies Sarah Hurteau, TNC Albuquerque Urban Conservation Director Vince Steiner, PE and CFM at BHI
5 6 7	11:45 to 1:00 1:00 to 2:00 2:00 to 2:30 2:30 to 3:00 3:00 to 3:15	1 hour & 15 minutes60 minutes30 minutes30 minutes30 minutes15 minutes	Re-connecting Urban to Rural through Soil, Water, and Food Climate-Ready Trees Report-out on Fall 2019 AridLID Workshop on GSI/LID	aptation Strategies Lunch ~ Puja Batra, Ecologist Batra Ecological Strategies Sarah Hurteau, TNC Albuquerque Urban Conservation Director Vince Steiner, PE and CFM at BHI Break ~
5 6 7	11:45 to 1:00 1:00 to 2:00 2:00 to 2:30 2:30 to 3:00 3:00 to 3:15 3:15 to 4:15	1 hour & 15 minutes60 minutes30 minutes30 minutes15 minutes60 minutes	Re-connecting Urban to Rural through Soil, Water, and Food Climate-Ready Trees Report-out on Fall 2019 AridLID Workshop on GSI/LID Panel: Incentivizing GSI/LID Moderator: Tess Houle	Aptation Strategies Lunch ~ Puja Batra, Ecologist Batra Ecological Strategies Sarah Hurteau, TNC Albuquerque Urban Conservation Director Vince Steiner, PE and CFM at BHI Break ~ Vince Steiner, BHI; Dave Gatterman, SSCAFCA; Jarrod Likar, AMREP

Agenda: Friday, February 28

	8:15 to 8:30	15 minutes	Welcome	George Radnovich, XCNM President
1	8:30 to 9:15	45 minutes	NMED's Role in Climate-Ready Water Management	Keynote: James Kenney, Secretary of NMED
2	9:15 to 10:00	45 minutes	Climate Readiness Requires the Forest <i>and</i> the Trees	Laura McCarthy, Forestry Division Director, NMDOE, Minerals and Natural Resources
	10:00 to 10:15	15 minutes	~	Break ~
3	10:15 to 11:00	45 minutes	Rocky Mountain Youth Corps Projects	Jordan Stone, Middle Rio Grande Program Manager and Corps members Rachel Hendrix, Dakota Dominguez and Charisa Bell
4	11:00 to 11:45	45 minutes	Tijeras Creek Watershed Collaborative	Colleen McRoberts, CABQ Open Space Superintendent
	11:45 to 1:00	1 hour & 15 minutes	~	Lunch ~
5	11:45 to 1:00 1:00 to 2:00	1 hour & 15 minutes 60 minutes	~ Genetics Solutions to Global Change in Wildlands and Urban Environments	Lunch ~ Tom Whitham, Plant Genetics and Conservation, NAU
5	11:45 to 1:00 1:00 to 2:00 2:00 to 2:45	 1 hour & 15 minutes 60 minutes 45 minutes 	Genetics Solutions to Global Change in Wildlands and Urban Environments Panel: Urban Landscapes – Designing for Maintenance Moderator: Hunter Ten Broeck	Lunch ~ Tom Whitham, Plant Genetics and Conservation, NAU Joran Viers, CABQ; Aaron Zahm, MRWM; Richard Perce, ABCWUA, Chris Melo, Yellowstone Landscape
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5 6 7 8	11:45 to 1:00 1:00 to 2:00 2:00 to 2:45 2:45 to 3:00 3:00 to 3:30 3:30 to 4:15	1 hour & 15 minutes60 minutes45 minutes15 minutes30 minutes45 minutes	Genetics Solutions to Global Change in Wildlands and Urban Environments Panel: Urban Landscapes – Designing for Maintenance Moderator: Hunter Ten Broeck Yes! In My Backyard How Do We Live Now, When It Feels Like the Earth is on Hospice?	Lunch ~ Tom Whitham, Plant Genetics and Conservation, NAU Joran Viers, CABQ; Aaron Zahm, MRWM; Richard Perce, ABCWUA, Chris Melo, Yellowstone Landscape Break ~ Van Clothier, Stream Dynamics Amy Irvine, Environmental Activist and Author



4 2020 Land & Water Summit

How Fixing Our Broken Water Cycle Can Build Water Security and Resilience to Climate Change



Sandra Postel Director, Global Water Policy Project

Sandra Postel is director of the Global Water Policy Project and author of *Replenish: The Virtuous Cycle of Water and Prosperity.* She co-created Change the Course, the national water stewardship initiative,

and was awarded the 2017 U.S. Water Prize for restoring billions of gallons of water to depleted rivers and wetlands. From 2009-2015, she served as Freshwater Fellow of the National Geographic Society. Sandra is author of *Pillar of Sand: Can the Irrigation Miracle Last?* and of *Last Oasis*, the basis for a PBS documentary. Her work has appeared in *Science, Natural History*, and *Best American Science and Nature Writing*.

Abstract

Large dams, diversions, flood-control levees and other feats of engineering have brought enormous prosperity to the world. But they have also broken the water cycle – the way natural systems move, store and cleanse water. Especially as droughts, floods and wildfires intensify, a healthier water cycle is critical to water security.

Fortunately, with innovation and collaboration, we can re-shape 21st century water management to meet the challenges ahead. Irrigation upgrades in Arizona's Verde River Valley have doubled summertime flow in critical reaches, while boosting the local economy. U.S. farmers are adopting practices that sequester carbon, expand the soil's water reservoir, and reduce polluted runoff. And China's "sponge cities" are capturing rainwater to curb urban flooding and mitigate droughts.

If the 20th century was the age of dams, diversions and depletion, the 21st century can be the age of replenishment, the time when we build water security and resilience to climate change by working more with nature rather than against it.



Thursday, February 27

PANEL DISCUSSION

Climate Projections for the Southwest and the Future of Water Management



Laura Paskus, Author Moderator

Laura Paskus has been writing about environmental issues in New Mexico since 2002, when she began her journalism career at *High Country News*. Over the past 17 years, she's reported for magazines, newspapers, radio

and public television, winning too many awards to list here. In 2019, Paskus won two first-place awards in the same competition, one for her story "Federal climate report shows how climate change will impact U.S. economy, infrastructure and more" in the "Science and Technology: General Reporting" category and another in the "Public Service" category for her coverage of the Texas v. New Mexico water lawsuit in front of the U.S. Supreme Court. A former archaeologist and tribal consultant, she currently hosts a monthly show on New Mexico PBS, "Our Land: New Mexico's Environmental Past, Present and Future," and is a graduate student in the University of New Mexico's Geography and Environmental Studies Department. This year, she's finishing a book for the University of New Mexico Press, *At the Precipice: New Mexico's Changing Climate.* She's also mom to a 13-year old daughter, and a fan of feisty cattledogs.



Kerry Jones, NOAA Panelist

Kerry Jones is Meteorologist in Charge at the NOAA National Weather Service in Albuquerque. He previously served as the Warning Coordination Meteorologist and as Senior Forecaster in Albuquerque and has worked

at NWS offices in Spokane WA and Norman OK. Kerry is a New Mexico native and self-described weather geek who has a passion for developing innovative ways to expand weather-related awareness and preparedness programs. He received a BS in Meteorology from the University of Oklahoma in 1992 and a Masters degree in Water Resources from The University of New Mexico in 2007.





Marcy Litvak, UNM Forest Ecologist

Panelist

Marcy Litvak PhD is a Professor in the Biology Department of University of New Mexico. She received her B.A. with honors in 1989 from Colorado College, and her Ph.D. in Plant Physiological Ecology in 1998 from the University of Colorado, Boulder.

for semi-arid regions such as the Southwestern US. To reduce these uncertainties, her research focus is on understanding how ecosystem processes vary across ecological gradients in semi-arid biomes. She is particularly interested in quantifying how climate and disturbance alter carbon, water and energy dynamics in the Southwestern U.S.

Semi-arid biomes occupy approximately 40% of the global terrestrial surface and contain almost twice the carbon stored in temperate forest ecosystems, yet a lack of research has led to large uncertainties in estimates

and occurrence. Stacy has worked on project tasks



Stacy Timmons, Hydrologist, Interstream Commission **Panelist**

Stacy Timmons manages a productive team of 7 staff and 2-3 students, the Aguifer Mapping Program, where she has been involved with several large-scale, long-term hydrogeologic studies focused on geologic

including proposal funding, field data collection, data interpretation, data management, and reporting. She's worked in diverse locations over New Mexico, including San Agustin Plains, Magdalena, Tularosa Basin, Truth or Consequences hot springs district, La Cienega wetlands, and southern Sacramento Mountains. Stacy has worked in hydrogeology for the Bureau of Geology since 2004 and in 2019 was appointed to a 6 year term as Interstate Stream Commissioner.



Thursday, February 27

The Rio Grande Basin Study



Dagmar Llewellyn Hydrologist and Civil Engineer, Bureau of Reclamation

Dagmar Llewellyn has served as a hydrologist and civil engineer at the Bureau of Reclamation office in Albuquerque since 2010. At Reclamation, she coordinates projects related to the projection of the impacts of climate change, and to building

of resilience to resulting changes in our watersheds and water supply. She provides her expertise to water operations, endangered species and other environmental compliance in the Rio Grande Basin, as well as to research and outreach efforts related to water supply and demand challenges in the Rio Grande Basin. Prior to employment at Reclamation, she worked for 22 years at S. S. Papadopulos & Associates, a firm that specializes in quantitative analysis of groundwater and surface water, in its Washington DC office, and as the manager of the firm's Albuquerque office. She is an adjunct faculty at the University of New Mexico, where she has taught hydrogeology in the Civil Engineering Department, and New Mexico Water Management at the Law School, and served on Master's Thesis committees.

Abstract

Basin Studies are collaborative, watershed-based studies that seek to build resilience to a growing gap between water supply and demand in river basins of the Western US. These studies are led by Reclamation, in partnership with a broad consortium of non-Federal partners who work together to evaluate changing hydrology and to brainstorm, model, and assess potential adaptation actions that could help human societies continue to thrive in these basins. Each study includes four key elements:

- Development of state-of-the-art projections of future supply and demand in the river basin of interest.
- Modeling analyses of how the basin's existing water and power operations and infrastructure will perform in the face of changing water realities.
- Development and modeling of strategies to meet current and future water demands.
- A trade-off analysis of strategies identified.

Bureau of Reclamation has been working for several years to initiate a Basin Study for the Rio Grande Basin in northern and central New Mexico, and this study, a partnership with a consortium of non-Federal entities in the basin led by the Middle Rio Grande Conservancy District, is becoming a reality. Dagmar Llewellyn's talk will introduce the Basin Study Program and its goals, and describe the latest scientific projections of future conditions in our basin.

Reclamation and the MRGCD hope to bring all interested partners in the basin together to address our future challenges. We also hope to take advantage of gatherings such as the Land and Water Summit, as well as classes in our schools, to get a vision of the future conditions that the community would like to build, and the ways that the community feels that we can build that vision. Therefore, in break-out sessions that follow Dagmar's talk, we will be seeking your ideas for actions we can take now to help us assure such a future, in which we can continue to thrive in the Rio Grande Basin for years to come.

Breakout Session: Rio Grande Basin Study Adaptation Strategies

In the break-out session that follows Dagmar's talk, we will be seeking attendees' ideas for actions we can take now to help us assure a future in which we can continue to thrive in the Rio Grande Basin for years to come. The purpose of the breakout session is to encourage Summit participants to provide relevant adaptation strategies to consider regarding the Basin Study. This could include strategies that may only have qualitative results or ones that the Basin Study may be able to quantitatively model.

Building on the consensus circles introduced in recent Land and Water Summits, participants will have an opportunity to brainstorm strategies to adapt our water management to the changing climate. Participants will be assigned to a table to discuss a specific topic, e.g. flood risk, urban heat, forest health, maintaining groundwater levels, etc. Coaches at each table (professionals with experience on the topic) will give a 5-minute overview of their table topic, posing specific questions to provide feedback for the Basin Study, followed by 40 to 45 minutes for discussion and note-taking by students. Attendees at the Summit will be mixed at assigned tables/topics so that people of different skill sets/from different businesses/agencies will interact/discuss/ propose adaptation strategies deepening the discussion.

Each person at the table will have a minute or two to respond to an element of the topic of particular importance to them/their community. Group members will listen respectfully to the views of their tablemates and build strategies for balancing concerns as the discussion proceeds around the table. Students from the Water Resources, Landscape Architecture, and Community Planning Departments at UNM will use their laptops to record the discussion in each group and the resulting notes will be downloaded and posted at breaks so everyone can learn what the breakout groups contributed before the notes are given to Dagmar's team to inform the Basin Study.



Thursday, February 27

Re-connecting Urban to Rural Through Soil, Water and Food



Puja Batra

Ecologist at Batra Ecological Strategies

Puja Batra is an ecologist who uses integrated approaches to solve problems of sustainable development, bringing together science, markets, policy, and innovation to stem the loss of healthy ecosystems. She has worked in several countries

across three continents with a work portfolio that cuts across some of the planet's most urgent and interrelated issues: biodiversity loss, natural resource degradation, local economies, food security, and climate change. She is currently working in San Diego County on mechanisms for scaling up climate smart agriculture.

Abstract

Restoration of healthy, carbon-rich agricultural soils is receiving global attention as a major climate solution that can draw down greenhouse gases while also building food security and other aspects of climate resilience. In San Diego County, a multi-stakeholder effort has recently begun an effort to scale up carbon farming. This talk will examine the potential that carbon farming in San Diego County has to link together the rural and urban parts of the county, address multiple water-related resilience challenges, potential pathways to scale up, and also the multi-faceted challenges of implementation.

Climate-Ready Trees



Sarah Hurteau

Urban Conservation Director, TNC Albuquerque

Born and raised in Sacramento, California, Sarah grew up exploring the Sierra Nevada Mountains. She earned a bachelor's degree in Wildlife, Fish and Conservation Biology

from UC Davis, and a Master's degree in Environmental Science and Policy from Northern Arizona University. Before coming to TNC, she worked as a biologist for the Arizona Game and Fish Department monitoring endangered fish on the Colorado River and as an environmental consultant completed regulatory compliance documents for land management and infrastructure projects throughout the Southwest. Sarah is currently working to redefine how natural systems and urban communities interact here in New Mexico.



Report-out on Fall 2019 Arid LID Workshop on GSI/LID



Vince Steiner, PE CFM at BHI

Vince is a consulting civil engineer (PE) and certified floodplain manager (CFM) with a passion for water harvesting and green stormwater infrastructure (GSI). He is experienced in drainage infrastructure design, GSI BMP

design, and floodplain analysis/design. After starting his professional career in Tucson, Arizona he returned home to the Middle Rio Grande Valley a few years ago to be close to family and focus more on drainage and flood control work. He believes his duty as an engineer is to do what is best for his clients AND community and advocating GSI is part of that. He is excited to be helping increase the use of GSI in the region and improve its implementation through the AridLID Coalition.

Vince is also a panelist for the **Incentivizing Green Stormwater Infrastructure and Arid Low Impact Development** discussion.



Thursday, February 27

PANEL DISCUSSION

Incentivizing Green Stormwater Infrastructure and Arid Low Impact Development



Tess Houle Moderator

Tess Houle is a landscape designer at MRWM Landscape Architects in Albuquerque. She completed her Master of Landscape Architecture degree at UNM, including a thesis project on Green Stormwater Infrastructure. She is a Certified

Water Harvesting Practitioner through the Watershed Management Group. GSI plays a key role in all of Tess's projects at MRWM, including the recent Railyards Event Space (Albuquerque) and Great Blocks on Mainstreet (Truth or Consequences). She also advocates for stormwater infrastructure change by serving on the Arid LID Coalition steering committee.



Dave Gatterman Panelist

Dave Gatterman manages the inspection and maintenance of SSCAFCA's flood control facilities, compliance with the USEPA NPDES MS4 permit for the agency, and several capital outlay projects for the construction of new

facilities within the agency's jurisdiction. He has also managed capital project development, procurement, and construction management for projects sponsored by SSCAFCA where he ensures compliance with funding requirements. Projects are funded by a blend of local, state, and federal funding sources and include channels, water quality facilities, dams, and recreational trails along arroyo alignments. He enjoys the challenge of solving problems, whether those problems be engineering related, administration, management, finance, or political.



Jarrod Likar Panelist

Jarrod Likar, PE is the Vice President of Land Development for AMREP Southwest, Inc. with over 19 years of experience in planning, design, entitlement and construction of commercial and residential property

throughout the state of New Mexico. Jarrod has his Bachelor of Science Degree in Civil Engineering for the University of Texas at El Paso. Jarrod has had a hand in the development of multiple master planned communities in and around Albuquerque and Rio Rancho. The communities included development of master drainage plans, FEMA LOMRs and US Army Corp 404 applications as well as included the integration of several natural waterways and designated dam facilities.



NMED's Role in Climate-Ready Water Management



Jim Kenney

Secretary, New Mexico Environment Department

The mission of the New Mexico Environment Department (NMED) is to protect and restore the environment and to foster a healthy and prosperous New Mexico for present and future generations, using the best available science to inform

decision-making; using innovation by employing creative engineering and technological solutions to address environmental challenges; engaging communities and stakeholders through collaboration; and ensuring meaningful compliance with state regulations and permits. In November 2019, the New Mexico Interagency Climate Change Task Force released the New Mexico Climate Strategy. Among the water issues NMED will address are:

 improve data collection in order to provide a more complete picture of oil and gas sector methane emissions, in collaboration with the Energy, Minerals, and Natural Resources Department (EMNRD) work on initiatives to prepare NM drinking water systems for periods of drought and shortages, such as establishing baseline information about ground- and surface water supplies; data collection to assess climate change impacts to surface waters; developing Source Water Plans to include climate change impacts; increase wildfire control/ remediation and watershed health action plans; and identify more Outstanding National Resource Waters (ONRWs) for protection.

Additionally, NMED, in collaboration with New Mexico State University (NMSU), will create a research consortium to advance scientific and technological solutions related to treatment and reuse of produced water generated by the oil and gas industry.



Climate Readiness Requires the Forest **and** the Trees



Laura McCarthy

Forestry Division Director, NMDOE Minerals and Natural Resources

Laura McCarthy has been a forester since 1987 and New Mexico State Forester since March 2019. She has served New Mexico with The Nature Conservancy for 17 years as Associate State Director,

Director of Conservation Programs and Senior Policy Advisor for Fire and Forest Restoration. She has had a pivotal role in the Rio Grande Water Fund. a collaborative watershed restoration effort. She loves backpacking as a way to see remote forested areas and be immersed 24/7 in the outdoors.

Abstract

The New Mexico Forest Action Plan is being revised in 2020, overhauling the strategies used to improve the health, resiliency, and productivity of New Mexico's forests. This overhaul is prioritizing climate change mitigation and adaptation practices, with the solemn understanding that uncharacteristically extreme forest fires in New Mexico pose as much of a threat to climate change mitigation as the forests themselves provide a hope. Laura will present the methods used to assess our forest resources and the threats they face and invite the audience to contribute to the discussion on actions and partnerships that can more rapidly advance our management response to a changing climate and forest.



Rocky Mountain Youth Corps Projects



Jordan Stone, Rocky Mountain Youth Corps Middle Rio Grande Program Manager and Corps member

Jordan Stone is the Program Manager for Rocky Mountain Youth Corps (RMYC) in Albuquerque. He has been leading and managing conservation and education youth programs for over 10

years. Before joining RMYC in 2016, Jordan was the Assistant Director at Cottonwood Gulch, a New Mexicobased wilderness education organization, and before that he led programs at an urban farm in Wisconsin. Jordan holds a master's degree in Geography and Environmental Studies from the University of New Mexico, where his research focused on the community impacts of restoration projects in New Mexico.

Abstract

Land managers and conservationists frequently face limited resources to complete high-priority projects; they also frequently encounter a workforce that is dwindling, aging, poorly trained, or simply too small. Rocky Mountain Youth Corps aims to address these challenges by engaging and inspiring the next generation of conservationists. RMYC's program employs local youth, ages 17-25, who work in crews to complete high-priority conservation projects on public lands. By partnering with local government and non-governmental agencies and organizations, RMYC can leverage expertise and funding sources that increases the capacity of land managers, while simultaneously training youth in technical and life skills. Jordan will provide an overview of Rocky Mountain Youth Corps' program and mission. Youth Crew members, Rachel Hendrix. Dakota Dominguez and Charisa Bell will then describe three current projects–McEwen Pond Restoration, Cedro Creek Hydrological Restoration, and Urban Tree Canopy Improvements-and the impact of this work on their lives and potential career paths.

Jordan also advocates for stormwater infrastructure change by serving on the Arid LID Coalition steering committee.



Tijeras Creek Watershed Collaborative



Colleen McRoberts

CABQ Open Space Superintendent

Colleen McRoberts has served communities in conservation education and natural resource management with a passion for community development, connecting people of all ages and backgrounds to nature. She received a Bachelor of Science

from the Department of Education at the University of New Mexico in 1999 and a Master's degree in Environmental Education through UNM's Master's International Program, served as a U.S. Peace Corps Volunteer for three years in the Republic of Philippines.

Following the Peace Corps, Colleen worked as a research assistant for the World Wildlife Fund and then as the Growing Native Program Director at Potomac Conservancy in the Washington, D.C. area.

As the Open Space Coordinator for Bernalillo County, she launched the first Master Naturalist program in New Mexico, developed annual public events and programs, managed outreach opportunities for youth, oversaw natural resource projects, and created interpretive materials. She also served as a spokeswoman for Open Space, helping to secure a 15-year mill levy.

Abstract

The Tijeras Creek Watershed Collaborative (TCWC) is an interagency initiative focused on preserving and improving the Tijeras Creek Watershed ecological and cultural landscapes through public education and onthe-ground restoration. The TCWC was formed in 2016 and its members include government agencies, nonprofit organizations, and east mountain communities. The work of the collaborative is focused on three main priority areas: natural resources, cultural landscape, and community education. Numerous restoration projects and environmental education projects are ongoing within the watershed, and further coordination, documentation and collaboration amongst various stakeholders will result in improved conditions and management of the entire watershed. Some of these projects include the Tijeras Creek Remediation Project, the UNM Community and Regional Planning (CRP) Student Capstone Studio Project, the Talking Talons Youth Leadership Ecological Monitoring Project, and the Cedro Creek Hydrological Improvement Project.



Genetics Solutions to Global Change in Wildlands and Urban Environments



Tom Whitham

Plant Genetics and Conservation, NAU

Tom Whitham is Regents' Professor in the Department of Biological Sciences at Northern Arizona University, a Fellow of the American Association for the Advancement of Science, and Co-Director of the Merriam-Powell Center for

Environmental Research. In 2011, Whitham received the prestigious Eminent Ecologist Award by the Ecological Society of America — the group's highest honor — for his outstanding body of work and his training of a new generation of scientists. Whitham served as the primary scientific advisor of an award-winning PBS documentary, "A Thousand Invisible Cords: Connecting Genes to Ecosystems," which has aired more than 1000 times in the U.S. and abroad. Whitham has authored or co-authored more than 260 papers in scientific journals, including *Science* and *Nature*.

Abstract

With the simultaneous challenges of invasive species, climate change, and altered stream flows, restoration for current and future conditions has become a daunting proposition. In a relatively stable environment, planting with local stock is scientifically sound, but with a rapidly changing environment, the use of local stock will become an increasingly bad practice. Because of high genetic variation in most plants, using field trials of the National Science Foundation funded Southwest Experimental Garden Array (SEGA), we can identify the plant species, genotypes and source populations that are best suited to survive future conditions. This approach needs to be applied at the landscape level in wildlands and in cities experiencing "heat island" effects that make them even more susceptible to global changes. With the success of restoration projects costing millions of dollars at stake, we need the most advanced science available to minimize project risk and obtain effective long-term restoration.



Friday, February 28

PANEL DISCUSSION

Designing for Maintenance in Urban Landscapes



Hunter Ten Broeck, WaterWise Landscapes

Moderator

Hunter started WaterWise Landscapes with his wife Barb in 1993 to create landscapes that reflect the natural environment in the Albuquerque area. He uses maintenance as a feedback loop to see if his designs and the company's installations Careful plant selection creates landscapes that have edible plants and wildlife habitat areas. Hunter is an avid hiker and photographer. His frequent hikes and bikes in natural areas serve as inspiration for his designs. His photographs have been featured in several garden books.

are sustainable over time. Waterwise uses rainwater harvesting and other efficient irrigation techniques.



Chris Melo, Yellowstone Landscape Panelist

Chris has been involved with the landscape industry in New Mexico for over 30 years. As a maintenance design/ build contractor, he owned and operated MBC Lawn & Landscape in the Albuquerque

area for 25 years. During this time, he was actively involved with the New Mexico Landscape Association and other local and national groups. Since selling the company he has worked in Texas and Arizona in both the irrigation and veg-management sides of the industry. He is now employed as the Maintenance Director of Account Management & Enhancements for Yellowstone Landscape, formerly Heads Up Landscapes. He can be reached at cmelo@yellowstonelandscape.com



Richard Perce, ABCWUA

Panelist

Richard has approximately 20 years of experience with design, installation and maintenance in the Albuquerque area in both large scale commercial and residential realms. For seven years he oversaw maintenance

and renovations at the Intel, Rio Rancho Campus, as well as installing and maintaining Mariposa and Loma

Colorado. Now as the Irrigation Efficiency Specialist for ABCWUA his focus is on public outreach with residential and commercial customers about properly maintaining and improving their irrigation systems for overall landscape health (whether that's hose watering or adding the newest technology in Smart Controllers).



Joran Viers, City of Albuquerque

Panelist

Joran Viers is the City Forester with City of Albuquerque Parks and Recreation Department. He is broadly responsible for tree care issues within the City, as described by City ordinances, and works to make the city a

more livable place for trees and people, discouraging the overuse of gravel mulches in order to mitigate the urban heat island effect. Prior to taking this position, he worked for the New Mexico State University Cooperative Extension Service, as Horticulture Agent and Director in Bernalillo County, and then as State Urban Small Farm Horticulture Agent. Viers was born in Albuquerque, but grew up in California, Costa Rica and Arkansas. He has a life-long love of plants and the natural sciences. He has a Bachelor's degree in Biology from the University of New Mexico, and a Master's degree in Botany from the University of Florida. Joran has been a member of Think Trees NM since 2003, an ISA-Certified Arborist since 2008, and became a Board-Certified Master Arborist in 2016.



Aaron Zahm, MRWM Panelist

Aaron is a principal landscape architect at MRWM Landscape Architects in Albuquerque and has over 15 years of experience, primarily in the design of highperformance public landscapes throughout the southwest.

He has extensive knowledge of native plants and water conservation principles in landscape architecture and he

manages some of the firm's most complex projects. His recent U.S. Land Port of Entry project in Columbus, New Mexico tells the story of water's transformational power as it moves through the landscape. The project is seeking Gold Certification from the Sustainable SITES Initiative as well as LEED Platinum.

Friday, February 28

Yes! In My Backyard



Van Clothier Stream Dynamics

Van Clothier has a degree in physics. His firm, Stream Dynamics, Inc., turns runoff and erosion problems into water harvesting opportunities. He has completed the River Restoration and Natural Channel Design courses taught by Dr.

Dave Rosgen. Van is the co-author with Bill Zeedyk of a book called *Let the Water Do the Work: Induced Meandering, an Evolving Method for Restoring Incised Channels*, published November, 2009. He received his Water Harvesting Certification from Watershed Management Group in 2011. Stream Dynamics, Inc. has built many wildland and urban projects, including building water harvesting features at 84 sites in Silver City, NM.

Abstract

Urban stormwater runoff comes from hardscape, poorly drained properties, and natural areas upslope from the city. Typical drainage design accepts stormwater from private property, then keeps this growing flood of water on the public right-of-way until discharging it erosively into the nearest arroyo, blowing it out with polluted stormwater and sediment. Traditional street design with curb and gutter has dried out the neighborhood blocks, and kept the streets flooded. A satellite photo of your city will show that most of the greenspaces available for water harvesting are on private land blocked by curbs. Stream Dynamics, Inc. has been turning nuisance stormwater into a water resource in our town. We have legally diverted urban stormwater onto private property at 20 locations in Silver City, NM. More and more people want us to cut their curbs and redirect this water to flow into their orchards, gardens and landscaping, irrigating for free!



How Do We Live Now, When It Feels Like the Earth is on Hospice?



Amy Irvine

Environmental Activist and Author

Amy Irvine is a longtime public lands activist. Her memoir, *Trespass: Living at the Edge of the Promised Land*, received the Orion Book Award, the Ellen Meloy Desert Writers Award and the Colorado Book Award—while the *Los Angeles*

Times wrote that it "might very well be *Desert Solitaire*'s literary heir." Her third book, *Desert Cabal: A New Season in the Wilderness*, both challenges and pays tribute to Edward Abbey—fifty years after *Desert Solitaire: A Season in the Wilderness* was published. She lives and writes on a remote mesa in southwest Colorado, just spitting distance from her Utah homeland.

Abstract

People's anxiety and distress about the social and ecological implications of climate change are undermining mental health and well-being, according to multiple studies. We cannot afford to distract, delude, or disengage—nor can we work to build communal models of sustainability when our own lives are beyond resuscitation. Drawing from her experience as a western public lands advocate and the mother of a severely epileptic child, Amy Irvine will speak about the act of wonder: as radical antidote to apathy, as strong medicine for what ails humanity—and, in turn, the natural world.



Who We Are



In 1986, green-industry professionals interested in water conservation formed the

Xeriscape Council of New Mexico, a non-profit 501(c) (3), to offer educational programs, training sessions and conferences on resource efficient landscaping and related subjects.

Mission & Goals:

Because water is life, the Xeriscape Council of New Mexico strives to bring together landscape professionals involved in design, construction and management companies, homeowners, farmers, artists, business people, teachers, hydrologists, ranchers, climatologists, wildlife advocates, and policy makers to find equitable ways to share our state's water.

Council members are experts on water conservation, promoting the use of native and arid-adapted plants, rainwater harvesting, utilizing low impact/recycled building materials and landscaping/irrigation methods. The organization's primary goal is to educate the public about resource conservation and best practices for improving local landscapes.

Council Projects

The Xeriscape Council of New Mexico is project and education oriented. Its primary project is an annual conference focusing on water, people, and landscape. Every spring, the Council brings globally recognized experts and local speakers together for a two-day conference.





Launched in its first iteration in 2010 to aid compliance with the MS4 permit regulations. The group was rekindled in 2016, to refresh the idea of increasing the adoption of arid adapted green stormwater infrastructure in the region.

Now we are a coalition of more than 25 organizations that come together on education, training, and projects that make our community more resilient to climate change and meet our shared goals.

Our MISSION is to **Connect** professionals from a broad range of industries, serving as a hub to build a strong network, share **knowledge** among our membership to explore and advance techniques that exemplify arid adapted GSI/LID, and build our collective **Competencies** through workshops and trainings that improve the effectiveness of our projects.

WHO are we? A multi-disciplinary coalition representing an array of perspectives, skills, and organizations who share a common vision.

WHY are we here? (vision) To foster a public awareness of stormwater as an asset instead of a liability and to increase literacy around effective and arid-adapted Green Stormwater Infrastructure (GSI) and Low Impact development (LID) strategies. The many benefits of these strategies include improving water quality, watershed stewardship, and well-being for all inhabitants in the Rio Grande Watershed.

HOW do we do this? By networking, sharing resources, and collaborating in a fun, flexible, and action-oriented manner.

WHAT do we do? Provide technical resources and education specific to designing GSI and LID interventions in our high desert environment, facilitate communication and collaboration, and support high-quality demonstration and research projects.

Please visit https://sites.google.com/site/ aridlidcoalition/ for more details on upcoming meetings and events.





"Rainwater harvesting barrels at Mountain View Community Center" Photo courtesy of The Nature Conservancy

"Rainwater harvesting project at Westside Community Center" Photo courtesy of The Nature Conservancy

Bernalillo County supports resource conservation and green stormwater infrastructure/low impact development **(GSI/LID)** by:

Providing education and resources for water conservation and stormwater quality

Promoting and assisting in responsible development in the County

Incorporating water efficiency and GSI/LID into county projects



Bernalillo County Water Conservation & Stormwater Quality Programs

ARE PROUD TO SPONSOR The 2020 Land & Water Summit



"GSI/LID installation along Second Street" Photo courtesy of Bernalillo County Natural Resource Services

For more information, please visit: www.bernco.gov/water



LEAD BY EXAMPLE

Innovative Water Conservation Leadership

The City of Santa Fe Water Conservation Office has been a national leader in water conservation for over two decades. It continually works to improve its leadership role through innovation, community collaboration, and partnerships.



Make a Reservation to to Save Water is a pilot project



partnership with the Santa Fe Green Chamber of Commerce. Thirty restaurants were recruited and audited, resulting in an annual savings of 450,000 gallons of commercial water use just by replacing aerators at each restaurant. We identified over 1.5 million gallons of water that could be saved if

recommended actions were taken. One hundred additional restaurants will be recruited in 2019-20.

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between pre- and post-test

Our Education Initiative ("Passport Program") is a collaborative effort among several city entities to educate 4th grade students on all things water - where our water comes from, how it is treated, where wastewater goes, how water is recycled, and how energy and recycling play a role. Attendence was increased from 650 students to 850.

City of Santa Fe currently has 4.772 water customers signed up for EyeOnWater water use monitoring app.





The City of Santa Fe Water Conservation Office is a proud sponsor of the 2020 Land & Water Summit.



WATER **SUMMIT**

adults and businesses on how they can reduce stormwater pollution to keep our river clean.

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