

17th Annual RiversEdge West  
**RIPARIAN RESTORATION CONFERENCE**

Draft Agenda

**TUESDAY, FEBRUARY 5, 2019**

7:00-8:00 am **REGISTRATION AND LIGHT BREAKFAST**

8:00-8:40 am **Welcome**, RiversEdge West Staff



**ADAPTING TO CHANGE**

8:40-9:00 am **Creating Restoration Planting Palettes to Support Pollinators in a Changing Climate**

Carianne Campbell, Sky Island Alliance

9:00-9:20 am **Restoration in Response to Invasive Species, Climate Change, & Altered Stream Flows that can Support T&E Species & Higher Biodiversity in a New Environment**

Thomas Whitham, Northern Arizona University

9:20-9:40 am **Extensive Die Back & Mortality of Riparian Salicaceae along the Bill Williams River, Arizona**

Patrick B. Shafroth, U.S. Geological Survey

9:40-10:00 am **Riparian Cottonwoods: Hydrology, Hydraulics & Health**

Stewart Rood, University of Lethbridge, Alberta, Canada

10:00-10:30 am **BREAK**

*Click on presentation titles to view available abstracts*

**CONCURRENT SESSIONS**

**IMPACTS OF HEAT WAVES, DROUGHT & OTHER GLOBAL CHANGE PROCESSES ON RIPARIAN COTTONWOODS AND THEIR COMMUNITIES IN THE WESTERN US**

10:30-10:50 am **Cottonwood Lessons: Can Best Management Practices Increase Restoration Effectiveness?**

Lisa Markovchick, Northern Arizona University

10:50-11:10 am **Root-Associated Fungi of Fremont Cottonwood Mitigate the Negative Effects of Tamarisk Legacy by Promoting Investment in Root Systems**

Julia Hull, Northern Arizona University

11:10-11:30 am **Mechanistic Strategies of Fremont Cottonwood to Thermo-Regulate Leaf Temperature**

Davis Blasini, Arizona State University

11:30-11:50 am **Effects of Summer & Winter Drought on Cottonwood Growth, Wind River Wyoming**

Jonathan Friedman, U.S. Geological Survey

11:50-12:10 pm **The Role of Genetics & Genomics in Riparian Restoration & Management: Insights from Research in Foundation Cottonwood Species**

Gerald Allan, Northern Arizona University

**RESTORATION ON TRIBAL LANDS**

10:30-10:50 am **Riparian Restoration: Outcomes, Challenges, & Partnerships on the San Carlos Apache Reservation**

Paul Buck, San Carlos Apache Tribe

10:50-11:10 am **Vegetation Restoration in the Grand Canyon on the Hualapai Indian Reservation**

Carrie Cannon, Hualapai Tribe

11:10-11:30 am **TBD**

Regina Leverrete-Mason, Salt River Pima-Maricopa Indian Community

11:30-11:50 am **TBD**

Mike Wight & Michellsey Benally, Southwest Conservation Corps

11:50-12:10 pm **TBD**

TBD

## CONCURRENT SESSIONS

### IMPACTS OF HEAT WAVES, DROUGHT AND OTHER GLOBAL CHANGE PROCESSES ON RIPARIAN COTTONWOODS AND THEIR COMMUNITIES IN THE WESTERN US

- 1:10-1:30 pm Replicated Common Gardens Reveal High Variation in Traits and Phenotypic Plasticity among Fremont Cottonwood Populations with Consequences for Adaptation to Future Climates  
Hillary Cooper, Northern Arizona University
- 1:30-1:50 pm Using Hyperspectral Remote Sensing to Scale from Genes to Ecosystems  
Chris Doughty, Northern Arizona University
- 1:50-2:10 pm **TBD**  
John Stella, SUNY College of Environmental Science and Forestry
- 2:10-2:30 pm Differing Drivers of Plant Communities in Flooding vs. Non-flooding Sites  
Kelly Steinberg, University of New Mexico and Bosque Ecosystem Monitoring Program
- 2:30-2:50 pm The Impact of Genotypic vs. Environmental Variation on Leaf Litter Decomposition in Fremont Cottonwood  
Joann Jeplawy, Northern Arizona University

2:50-3:20 pm **BREAK**

## CONCURRENT SESSIONS

### RESTORATION STRATEGIES AND LESSONS LEARNED

- 3:20-3:40 pm Conservation & Management Strategies for Eight Miles of the San Pedro River, Arizona  
Joseph Platt, Platt Environmental, LLC
- 3:40-4:00 pm Restoration on the Upper Gila River: Lessons Learned in a Critical Riparian Zone  
Bethany Drahota, Gila Watershed Partnership of Arizona
- 4:00-4:20 pm Habitat Restoration After a Wildfire in the Middle Rio Grande Bosque  
Amy Erickson, Save Our Bosque Task Force
- 4:20-4:40 pm Restoring Watersheds Using Ancient Techniques  
Anna Valer Clark, Cuenca los Ojos, Pearce, Arizona
- 4:40-5:00 pm Site Assessments to Inform Restoration Design & Planning - A Case Study at Arlington Wildlife Area In-Lieu Fee Mitigation Site in Arizona  
Monisha Banerjee, GeoSystems Analysis, Inc

5:00-7:00 pm **POSTER SESSION**

### NAVIGATING THE WORLD OF CORPORATE FUNDRAISING—A PANEL DISCUSSION

Moderated by Stacy Beaugh, Strategic By Nature

Join us for a panel discussion on navigating the world of corporate fundraising. Panelists include:

- Nancy Steele with Friends of the Verde River and the Verde River Exchange
- Ann George with Freeport McMoRan
- Ruth Valencia with the Salt River Project
- Tim Carlson with Many Rivers Brewing Company
- Cary Baird with Chevron

Representatives will overview their respective businesses' roles in the community and in environmental initiatives before opening it up for an audience-wide discussion.

Topics to be covered may include ideas for

- how organizations/communities can better attract private businesses to their cause
- additional opportunities for businesses to be engaged in river restoration efforts that would benefit both the business and the restoration effort
- how organizations can better communicate how the work that they do will benefit the private industry, etc.

### REMOTE SENSING

- 3:20-3:40 pm Use of Remote Sensing to Assess Vegetation Structure & Model Riparian Wildlife Habitat Suitability: Examples from the Santa Clara River, California  
Bruce Orr, Stillwater Science
- 3:40-4:00 pm Plant-Water-Hydrology Relationships in Native Trees & Invasive Giant Reed (*Arundo donax*) in a Southern California Floodplain  
Alex Pivovarov, Whittier College
- 4:00-4:20 pm Effects of Changes in Remote Sensing Estimates of Evapotranspiration on Groundwater at a Southwestern Uranium Mill Tailings Site  
Christopher Jarchow, Navarro Research and Engineering
- 4:20-4:40 pm Remote Sensing Time-Series Analysis of Plant Cover Change & Ecosystem Recovery in Restoration Areas in the Southwestern USA  
Pam Nagler, U. S. Geological Survey
- 4:40-5:00 pm Remote Sensing of Tamarisk Beetle (*Diorhabda carinulata*) Impacts along the Colorado River in Grand Canyon National Park & Glen Canyon National Recreation Area  
Temuulen T. Sankey, Northern Arizona University

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WEDNESDAY, FEBRUARY 6, 2019

7:00-8:00 am

## REGISTRATION AND LIGHT BREAKFAST

8:00-8:10 am

Welcome, RiversEdge West Staff



### CONCURRENT SESSIONS

8:10-8:30 am

TBD

Greg Beatty, US Fish and Wildlife Service

8:10-8:30 am

**The Genetics of Survival: Will Local Adaptation Save or Peril Groundwater Dependent Tree Species from the Effects of Global Environmental Change?**

Kevin Hultine, Desert Botanic Garden

8:30-8:50 am

**An Ecohydrological Framework for Riparian Restoration & Southwestern Willow Flycatcher Recovery Planning and Prioritization**

Bruce Orr, Stillwater Sciences

8:30-8:50 am

**Genetic Structure & Gene Flow in Woody Riparian Plants: Implications for Restoration in the Grand Canyon**

Emily Palmquist, Northern Arizona University

8:50-9:10 am

**Status of Biological Control for Managing Invasive *Arundo Donax* in Coastal Floodplains**

Tom Dudley and Adam Lambert, UC Santa Barbara

8:50-9:10 am

**Plant Rhizosphere Contributions to Soil Aggregation in a Riparian Buffer**

Grant Falvo, Arizona State University

9:10-9:30 am

**Identification of the Origins of *Coniatus Spp.*, a Non-Native Weevil in Western North America**

Zeynep Ozsoy, Colorado Mesa University

9:10-9:30 am

**Quantifying the Effects of Weather and Grazing Management on Riparian & Upland Condition Using Remote Sensing & Large-Scale Case Studies**

Rick Danvir, Western Landowners Alliance

9:30-9:50 am

**Long-Term Ecosystem Fluxes Of Carbon & Water in a Tamarisk Invaded Riparian System: A 10 Year Perspective on Biological Control by the Northern Tamarisk Beetle**

Kierith Snyder, USDA-ARS

9:30-9:50 am

**Low-tech Riparian Restoration Increases Vegetation Productivity & Resilience Across Semi-arid Rangelands**

Nick Silverman, University of Montana

9:50-10:20 am

**BREAK**

### CONCURRENT SESSIONS

#### RESTORATION TOOLS AND TECHNOLOGY

10:20-10:40 am

**Online Tools to Guide Seed Conservation & Restoration Efforts**

Kyle Doherty, Northern Arizona University

10:40-11:00 am

**A Management Strategy Toolbox to Facilitate Collaborative Conservation, Adaptation, & Sharing of Lessons Learned**

Amanda Webb, University of Arizona

11:00-11:20 am

**The Development & Application of Uniform Hydroseres in Riparian & Wetland Restoration: A Means of Increasing Resolution in the Design Phase & Enhancing Success in the Construction Phase**

John Giordanengo, AloTerra Restoration Services

#### URBAN RESTORATION

10:20-10:40 am

**Lower Gila River Collaborative**

Kelly Wolff, Arizona Game & Fish Department

10:40-11:00 am

**El Rio Pilot Project**

Theresa Pinto, Flood Control District of Maricopa County

11:00-11:20 am

**Houston Parks Riparian Restoration Project**

Kelli Ondracek, Houston Parks & Recreation Department

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# RIPARIAN RESTORATION CONFERENCE

Draft Agenda

WEDNESDAY, FEBRUARY 6, 2019

CONCURRENT SESSIONS, CONTINUED

## RESTORATION TOOLS AND TECHNOLOGY

- 11:20-11:40 am **Remote Environmental Monitoring Through Open Source Technology**  
Sean Keane and Hans Huth, Arizona Department of Environmental Quality
- 11:40-12:00 pm **Riparian Vegetation Monitoring Effectiveness: UAVs (drones) vs. Field Crews**  
Ben Bloodworth, RiversEdge West & Luke Javernick, River Science

12:00-1:00 pm **LUNCH**

## URBAN RESTORATION

- 11:20-11:40 am **Granite Creek Revitalization**  
Kristy Everson, Mandalay Homes & Chuck Budinger, ADOT
- 11:40-12:00 pm **What are we Accomplishing or Not? Private Lands Restoration Supers & Bloopers**  
John Rizza, Colorado State University Extension/USDA-NRCS

CONCURRENT SESSIONS

## BIOCONTROL: POPULATION DISTRIBUTION, RESTORATION AND ECOLOGICAL RESPONSES

- 1:00-1:20 pm **Spenders versus Savers: Carbon Allocation Strategies in Relation to Frost Exposure in Tamarix**  
Randy Long, University of California
- 1:20-1:40 pm **Stream Restoration & Re-Establishment of Bankfull Floodplain Connection toward Restoration of Tamarisk Beetle Impacted Riparian Corridors**  
Lee Forbes, SWCA Environmental Consultants
- 1:40-2:00 pm **Diorhabda Impact on Tamarix Growth & Dieback**  
Kim Fike, Bosque Ecosystem Monitoring Program
- 2:00-2:20 pm **Effects of Tamarisk Beetle Herbivory on Tamarix Mortality & Flower Production along the Rio Grande in New Mexico**  
Levi Jamison, EcoPlateau Research
- 2:20-2:40 pm **Historically Isolated Tamarisk Beetle Species Meet Again on the Rio Grande & Pecos River**  
Amanda Stahlke, University of Idaho

2:40-3:10 pm **BREAK**

## COLLABORATIVE PLANNING

- 1:00-1:20 pm **Best Practices in Integrated Water Management Planning**  
Nicole Seltzer, River Network
- 1:20-1:40 pm **Rio Grande Basin Stream Management Planning Process**  
Daniel Boyes, Rio Grande Headwaters Restoration Project
- 1:40-2:00 pm **Local Collaboration to Develop an Integrated Watershed Plan for the Lower Virgin River**  
Tanya Anderson, The Nature Conservancy
- 2:00-2:20 pm **Verde Watershed Restoration Plan**  
Matt Wilson, Friends of the Verde River
- 2:20-2:40 pm **Lessons Learned from Minute 319 Implementation in the Colorado River Delta**  
Karen Schlatter, Sonoran Institute

## CONCURRENT SESSIONS

### BIOCONTROL: POPULATION DISTRIBUTION, RESTORATION AND ECOLOGICAL RESPONSES

- 3:10-3:30 pm Responses of Southwestern Willow Flycatchers to Tamarisk Defoliation  
Mary Anne McLeod, SWCA Environmental Consultants
- 3:30-3:50 pm The Influence on Birds of Tamarisk Beetle Defoliation along the Dolores River in Southwestern Colorado  
Charles van Riper, University of Arizona
- 3:50-4:10 pm Native Bird Responses to Tamarisk (*Tamarix* Spp.) Biological Control: Implications for Southwestern Riparian Habitat & Management  
Sean Mahoney, Northern Arizona University
- 4:10-4:30 pm Virgin River, UT Southwestern Willow Flycatchers, Tamarisk Leaf Beetle & Restoration  
TBD
- 4:30-4:50 pm Planning Site Restoration of Southwestern Willow Flycatcher Habitat with High Resolution (1m) Flycatcher Niche Models Incorporating Classification of Tamarisk, Willow, & Cottonwood from Aerial Imagery  
James L. Tracy and Robert N. Coulson

4:50-5:00 pm **CLOSING REMARKS**

### RUSSIAN OLIVE

- 3:10-3:30 pm Ecology of Russian-olive (*Elaeagnus angustifolia*) in Western U.S.A.  
Pat Shafroth, U.S. Geological Survey
- 3:30-3:50 pm Russian Olive Management  
Curt Deuser, Lake Mead Inter-Regional Exotic Plant Management Team
- 3:50-4:10 pm Comparison of Mechanical Removal & Basal Bark Herbicide Treatments on Russian Olive Regrowth  
Ron Patterson, University of Idaho Extension
- 4:10-4:30 pm Arthropod Associations Shift in Response to Russian Olive Management  
Natalie West, USDA Agricultural Research Service
- 4:30-4:50 pm TBD

## NOTES:

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# RIPARIAN RESTORATION CONFERENCE

## FIELD TRIP OPTIONS

**THURSDAY, FEBRUARY 7, 2019**



Choose one of the following field trip or workshop options when registering for the conference. Field trips must meet a minimum number of attendees and will depend on weather conditions. Refunds will be offered if a field trip is cancelled.

### **DESERT BOTANIC GARDEN TOUR** 9:00 AM—10:30 AM, FREE

A tour of the Research and Conservation programs at the Desert Botanical Garden: This 90-minute tour will give you a behind-the-scenes look at the Desert Botanical Garden's Research and Conservation facilities. The guided tour will pass through the Schilling Library, the herbarium that houses 83,000 accessioned specimens, the state-of-the-art 1200 square foot molecular lab, and the 85,000 square foot Hazel Hare Center for Plant Science greenhouse and plant propagation area used to study and maintain nearly 400 threatened and endangered desert plant species.

### **ROCKHOUSE SITE TOUR** WITH SALT RIVER PROJECT 8:00 AM—2:00 PM, \$20

Salt River Project (SRP) staff will lead a tour of their Rockhouse Site along the Salt River. The site visit will leave from Phoenix at 8am and will return around 2pm. The site is about a 2-hour drive from Phoenix. Prior to arriving at the site, we will stop at the Tonto National Forest Roosevelt Lake Diversion Dam, this will provide the only restroom facilities for the site visit. The Rockhouse site is a 20-acre riparian area that was created as part of SRP's Roosevelt Habitat Conservation Plan mitigation. The site was created to offset impacts to two federally protected bird species: the endangered Southwestern Willow Flycatcher (Flycatcher) and the threatened Western Yellow-Billed Cuckoo (Cuckoo).

SRP's objective for this project was to develop and maintain a dense stand of suitable breeding habitat for these bird species using native riparian tree and shrub plantings. Both potted plants and cuttings of Fremont cottonwood, Goodding's willow, seep willow, and coyote willow were planted over a four year period beginning in 2004. A flood irrigation system was installed to sustain the plantings and to provide the appropriate breeding conditions for these birds. SRP first found Cuckoos using the site during the 2009 breeding season and they have been found at the site regularly ever since. Flycatchers were first detected in 2010, when five territories were documented, including two nesting pairs. Numbers continued to increase with 2015 yielding 49 individual Flycatchers at 25 territories and 2017 41 individuals at 21 territories. Since the initial plantings we have seen good recruitment of native vegetation across the site and have seen regular utilization of the site by both Flycatchers and Cuckoos as well as many other riparian bird species throughout the years.

### **RUSSIAN OLIVE PANEL AND WORKSHOP** 9:00 AM—12:00 PM, FREE

An expert panel forum will be held in the Dorrance Center at the Desert Botanical Garden to discuss the state of the science pertaining to Russian olive control along western riparian systems. Topics, which will be addressed by a cadre of scientists and policy specialists, include management implications, treatment prioritization, policy, and research advancements. In order to set the stage for a more engaged discussion, presentations by leading experts will be provided during Day 2, February 6th, of the conference. Results from this panel and ensuing discussions will be used to inform a Scientific and Technical Report, to be published by Colorado Mesa University. The intent of this report is to provide synthesized recommendations to help guide land management decisions.

### **VERDE VALLEY TOUR** WITH FRIENDS OF THE VERDE RIVER 8:00 AM—2:00 PM, \$20

Friends of the Verde are hosting a field trip to the Verde Valley. The field trip will leave from Phoenix at 8am and return around 2pm. During the field trip, we will visit a restoration site where the Verde Watershed Restoration Coalition has removed invasive plant species from along the river and see how the native plant species have flourished following treatments. This site had Southwestern Willow Flycatchers last summer, and we will discuss the invasive plant treatment and restoration plans. We will also visit a restoration site on the Yavapai-Apache Nation where they removed tamarisk and planted willows for erosion control. At the final stop, we will visit Shield Ranch and see some of the innovative activities that Sinagua Malt Co. have employed.

### **TRES RIOS TOUR** WITH THE CITY OF PHOENIX 9:00 AM—12:00 PM, \$20

More information coming soon.

17th Annual RiversEdge West

# RIPARIAN RESTORATION CONFERENCE

## POSTER PRESENTATIONS



**FEBRUARY 5-6, 2019**

Posters will be displayed throughout the first two days of the conference.

Attend the poster session and happy hour on February 5th from 5 pm—7 pm to discuss with poster presenters and exhibitors.

**Proposed Research: Endangered Species Habitat and Ecosystem Services in Novel Systems**

Alexander Goetz, University of Denver

**What Effects Do Beneficial Fungi and Tamarisk Legacy Have on the Rooting Structure of Fremont Cottonwood in the Southwestern US Riparian Systems?**

Alexandra Cole, Northern Arizona University

**Arizona Game and Fish Department In-Lieu Fee Compensatory Mitigation Program: Arlington Wildlife Area In-Lieu Fee Mitigation Project**

Angela Stingelin, Arizona Game and Fish Department

**Impact of *Tamarix* Biocontrol on Understory Plant Community Traits**

Annie L. Henry, University of Denver

**Hydraulic Trait Variation of an Invasive Tree Species in the Southwestern US**

Dan F. Koepke, Desert Botanical Garden

**A Decision Tree to Inform Restoration of Salicaceae Riparian Forests in the Northern Hemisphere**

Eduardo Gonzalez, Colorado State University, University of Denver

**Metrics for Measuring the Social Impact of Colorado River Delta Restoration**

Fátima Luna, Sonoran Institute

**Plant Rhizosphere Contributions to Soil Aggregation in a Riparian Buffer**

Grant Falvo, Arizona State University

**Assessment of Bank Erosion Associated with Riparian Vegetation Removal along the Colorado River in Western Colorado**

Gigi Richard, Fort Lewis College

**Planning Site Restoration of Southwestern Willow Flycatcher Habitat with High Resolution (1m) Flycatcher Niche Models Incorporating Classification of Tamarisk, Willow, and Cottonwood from Aerial Imagery**

James Tracy, Texas A&M University

**New Ecological Data Informing Conservation of Endangered Wetland Obligate Huachuca Water Umbel (*Lilaeopsis schaffneriana* subsp. *recurva*)**

Jean-Philippe Solves, Arizona State University

**The Human Component of Restoring *Tamarix* Invaded Land**

Lisa Clark, University of Denver

**Rio Reimagined Landscape Scale Collaboration: 1) Arizona Game and Fish: Arlington Wildlife Area, 2) Lower Gila River Collaborative, and 3) Flood Control District of Maricopa County: Pilot Projects**

Melissa McCann and Kelly Wolff, Lower Gila River Collaborative

**Where Are the Tall Cottonwoods?**

Melissa Stamp, Utah Reclamation Mitigation and Conservation Commission

**Identifying Restoration Priorities for the Southwestern Willow Flycatcher Based upon Impacts of Tamarisk Leaf Beetle (*Diorhabda* spp.) in the Middle Rio Grande**

Ondrea Hummel and Danielle Galloway, Tetra Tech

**El Rio Pilot Project**

Theresa Pinto, Flood Control District of Maricopa County