



## Santa Cruz River Research Days VIII

March 31 – April 1, 2016

Pima Community College – Desert Vista Campus  
Community Room - 5901 S. Calle Santa Cruz  
Tucson, Arizona 85709



**PimaCommunityCollege**

### Purpose

Santa Cruz River Research Days is designed as a venue for learning. We aim to: 1) trigger new research questions; 2) promote networking; 3) catalyze new collaborative projects; and 4) foster awareness of each others' research and conservation efforts. The original vision for Research Days was to allow sharing of experiences and results across institutional barriers and disciplines.

### Background

Santa Cruz River Research Days grew out of a Tumacácori Information and Exchange Day held at the Tumacácori National Historical Park in 2005. There was a break between approximately 2006 and 2008. In 2009, the meeting expanded to include research exchange for the Upper Santa Cruz River as a whole. Each change in meeting scope has resulted from growing interest in the event by a myriad of stakeholders. For now, the geographic scope of Research Days is focused on the U.S. Santa Cruz River mainstem. Increasing the geographic focus to include the Mexican portion of the Santa Cruz River and major tributaries is a goal for the future.

Over the years, this event has been possible through the direct and in-kind funding support from numerous organizations and community members. Thus to date, attendance has been free to all interested. As the event has grown, there have been greater logistical challenges. In particular, finding a free venue has become increasingly difficult. Thank you Pima Community College – Desert Vista Campus for providing the 2016 venue!

### 2016 Funding Provided by:

Research Days Conference Attendees  
Pima Community College, Desert Vista  
Campus  
Pima County Regional Flood Control District  
Pima County Regional Wastewater Reclamation  
Department  
Tohono O'odham Nation, San Xavier District  
U.S. Environmental Protection Agency

### Special Thanks to:

Pima Community College, Desert Vista  
Campus  
Tohono O'odham Nation, San Xavier District  
2016 Research Days Presenters, Symposium  
speakers, and Attendees

### 2016 Steering Committee

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## CONFERENCE SCHEDULE

Thursday, March 31, 2016

8:30 - 9:00 am	Sign-in and Refreshments
9:00 - 9:10 am	Welcome
9:10 - 9:30 am	Keith Willett – Oklahoma State University <i>Economic Allocation of Water Use and Benefits in the Santa Cruz Border Region</i>
9:30 - 9:50 am	Claire Zugmeyer – Sonoran Institute <i>Living River – Changes along the Upper Santa Cruz River between 2008 and 2014</i>
9:50 - 10:10 am	Evan Canfield – Pima County Regional Flood Control District <i>The Living River Project – Community engagement and tracking changes on the Lower Santa Cruz</i>
10:10 - 10:30 am	POSTER INTRODUCTIONS (2-minute “rapid fire” presentations)
10:30 - 10:50 am	<b>BREAK</b>
10:50 - 11:10 am	Nick Paretto – U.S. Geological Survey <i>Spatial and Temporal Distribution of Bacteria Indicators and Microbial Source Tracking Markers within Tumacácori National Historical Park and the Santa Cruz River Watershed</i>
11:10 - 11:30 am	Natalie Brassill – University of Arizona <i>Engaging Citizen Scientists in the Santa Cruz River: Monitoring Biological Pollutants</i>
11:30 - 11:50 pm	Jennifer Duan – University of Arizona <i>Sediment Transport Analysis for the Santa Cruz River using HEC-RAS Model</i>
11:50 - 12:10 pm	Shane Snyder – University of Arizona <i>Fate and Transport of Glucocorticoid Steroids in the Lower Santa Cruz River</i>
12:10 - 1:20 pm	<b>BREAK FOR LUNCH (on your own, cafeteria is great option – see map on back page)</b>
1:20 - 1:40 pm	Janelle Gaun – National Park Service <i>Springing into Action: Assessing Springs and Tinajas in the Santa Cruz River Watershed</i>
1:40 - 2:00 pm	Matt Chadsey – Earth Economics <i>Including Ecosystem Services in Benefit Cost Analysis for Lower Sabino Creek</i>
2:00 - 2:20 pm	Catlow Shipek – Watershed Management Group <i>Establishing a dynamic water budget to support flow in Lower Sabino Creek</i>
2:20 - 2:40 pm	Forrest Sherman – Southwestern Arid Grassland Ecology, Inc. <i>Small scale restoration of a riparian area after major flood event</i>
2:40 - 3:20 pm	<b>POSTER SESSION</b>
3:20 - 3:40 pm	Eylon Shamir – Hydrologic Research Center, San Diego <i>Water Resources &amp; Climate Assessment Tool [WARCAT] for the Santa Cruz AMA</i>
3:40 - 4:00 pm	David Walker – Walker Ecological Services <i>Assessment of Aquatic Ecosystem Integrity in the Santa Cruz River: Macroinvertebrates as Biological Indicators</i>
4:00 - 4:20 pm	Daniel Bunting – Harris Environmental Group, Inc. <i>Assessment of Streamside Herbaceous and Riparian Woody Vegetation along the Lower Santa Cruz River, Year 3</i>
4:20 - 4:40 pm	Elizabeth Makings – University of Arizona <i>A Perspective on the Flora and Vegetation of the Lower Santa Cruz River Flats</i>

## CONFERENCE SCHEDULE

**Friday, April 01, 2016**

8:30 - 9:00 am	Sign-in and Refreshments
9:00 - 9:10am	<b>Welcome</b>
<b>SYMPOSIUM: RESTORATION AND MANAGEMENT OF THE LIVING RIVER (SEE BACK PAGE)</b>	
9:10 - 9:35 am	John Hays – Santa Cruz County <i>Potrero Creek Wetland – Possibility of Flood Mitigation through Habitat Restoration</i>
9:35 - 10:00 am	Jennifer Becker – Pima County Regional Flood Control District <i>Kino Environmental Restoration Project (KERP): Harvesting Stormwater for Environmental and Community Benefit</i>
10:00 - 10:25 am	Deirdre Brosnihan – Pima County Regional Flood Control District <i>Paseo de las Iglesias: Integrating Habitat Restoration into River Park Design</i>
10:25 - 10:45 am	<b>BREAK</b>
10:45 - 11:10 am	Jonathan Horst – Tucson Audubon Society <i>Restoration through changing circumstances along the lower Santa Cruz River</i>
11:10 - 11:35 pm	David McKee – City of Flagstaff <i>Frances Short Pond – A community’s vision</i>
11:35 - 12:20 pm	Panel discussion with all symposium speakers
12:20 - 2:00 pm	<b>BREAK FOR LUNCH (on your own, cafeteria is great option – see map on back page)</b>
2:00 - 4:30 pm	<b>Field Trip – Tour of Wa:k Hik dan Riparian Restoration Project (see back page)</b>

### Poster Presentations (both days)

Kremena Boyanova Franck Poupeau (2 posters)	Kiel University, Victoria University of Wellington University of Arizona 1 - <i>Water Bankruptcy in the Land Of Plenty. Steps towards a transatlantic and transdisciplinary assessment on the nature and causes of water scarcity in Southern Arizona</i>  2 - <i>Quantification of Water-related Ecosystem Services in the Upper Santa Cruz Watershed</i>
Hans Huth	Arizona Department of Environmental Quality <i>Exploring Open Source Alternatives for Nonpoint Source Pollution Monitoring</i>
Holli LaBrie	University of Arizona <i>Influence of the Nogales International Wastewater Treatment Plant on Santa Cruz River</i>
Mary Reynolds	University of Arizona <i>How the 1887 Sonoran Earthquake Changed the Santa Cruz River</i>
Forrest Sherman	Southwestern Arid Grassland Ecology, Inc. <i>Using a Geographic Information System (GIS) to Establish Likely Water Table Elevations</i>
Amanda Smith	Pima Association of Governments <i>Using Watershed Health Indicators to Improve Management Strategies and Community Engagement</i>
Alexander Wassimi	University of Arizona <i>Evaluation of Coliphage as an Indicator for Human Enteric Viruses in Wastewater Treatment Plants</i>

# Management and Restoration of the Living River

## Symposium and Field Trip

Full abstracts will be available in the 2016 Proceedings  
(only the primary speaker is listed)

**Symposium** - Presentations and panel discussion featuring a variety of restoration and management projects that are at different stages of implementation, employ different techniques, and have different goals. Most of the examples are from the Santa Cruz River Watershed, but we have a one from outside of the watershed in order to gain some lessons learned from other another Arizona project. **Moderated by Sara Hammond – Science Producer, Arizona Public Media**



**Field Trip** – The Tohono O'odham Nation, San Xavier District will host a tour of their *Wa:k Hik dan Riparian Restoration Project*. Transportation provided with advanced registration, see map for pick-up location. Sun hat and water recommended.

## Symposium Speakers

### **Potrero Creek Wetland – Possibility of Flood Mitigation through Habitat Restoration**

*John Hays* – Santa Cruz County

A project in early idea phase, looking into the possibilities for doing a project to mitigate flooding along the Potrero Creek, by turning a golf course back to a natural wetland.

### **Kino Environmental Restoration Project (KERP): Harvesting Stormwater for Environmental and Community Benefit**

*Jennifer Becker* – Pima County Regional Flood Control District

A project that transformed a 1960s-era conventional flat-bottomed detention basin surrounded by chain link and barbed wire into an environmental and water resource asset that is a prototype for water harvesting.

### **Paseo de las Iglesias: Integrating Habitat Restoration into River Park Design**

*Deirdre Brosnihan* – Pima County Regional Flood Control District

A recently completed project to create a river park where erosion protection was needed that integrates three focus areas: ecosystem restoration, erosion protection, and recreation.

### **Restoration through changing circumstances along the lower Santa Cruz River**

*Jonathan Horst* – Tucson Audubon Society

An ongoing effort to restore and create riparian habitat along the Santa Cruz River that has faced a variety of constraints such as massive flooding and changes in water availability.

### **Frances Short Pond – A community's vision**

*David McKee* – City of Flagstaff

This is story of how a little pond along the Rio de Flag has become a driving force behind developing a watershed management plan, maintenance program, and restoration plan along with an educational curriculum and classroom.

