



California Society for Ecological Restoration Quarterly Newsletter *Spring Volume 25, Issue 1*

## Teaming with an Urban Community to Take Back a Watershed



*by Mike Klitzing, Ocean Discovery Institute*

If you had ventured into Swan Canyon circa 2007, you probably would not have found yourself enjoying a serene nature experience. A few other things, however, you probably would have found.

A tire, for instance. Or maybe a discarded sofa. And that wouldn't have been the worst of it.

For decades, Swan Canyon — one of four major canyons that carve across the urban neighborhood of City Heights in central San Diego — was a place of both environmental and human degradation. Invasive plants like *Arundo donax* choked the canyon habitats, which became a haven for illegal dumping and a catch-all for the contents of polluted stormwater runoff from the streets above.

The canyons were also home to transiency, drug dealing, and other criminal activity. Local officials say it wasn't

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Watershed Avengers have inspired over 15,000 people to take action and improve the environment in their community. Join us at SERCAL 2015 in San Diego this May and be inspired yourself — Shara Fisler, Executive Director of the Ocean Discovery Institute, and ODI alumni will be presenting their work in the plenary and technical sessions.

*This issue was compiled by SERCAL Board President, Peter Tomsovic*

*Ecesis* is published quarterly by the California Society for Ecological Restoration, a nonprofit corporation, as a service to its members. Newsletter contributions of all types are welcome and may be submitted to any of the regional directors (see page 3). Articles should be sent as a word processing document and accompanying images sent as jpg or tif files.

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Swan Canyon at Olive and Highland Entrance — 2007 (left) and 2014 (right) — and as seen from above (inset).

## Taking Back a Watershed *continued from page 1*

uncommon for homeless encampments to thrive under the cover provided by invasives, making human-caused brush fires an all-too-common occurrence.

Venture into Swan Canyon today, and you'll find something else entirely. You might follow a well-maintained trail, and observe wildlife thriving in chaparral and riparian plant communities. And you can feel safe doing it.

So what happened in between?

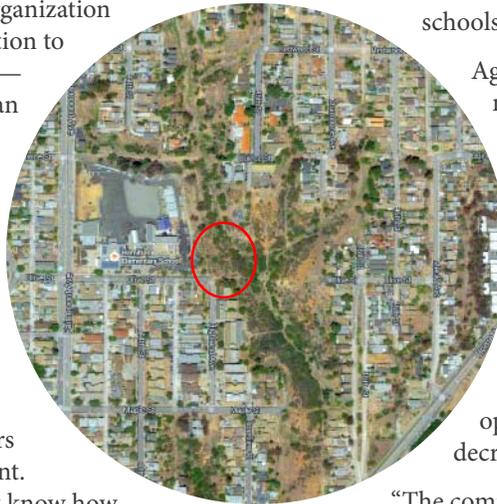
In 2007, Ocean Discovery Institute — an organization that brings science and conservation education to thousands of young people in City Heights — set its sights on a massive restoration of Swan Canyon. The effort, called Watershed Avengers, would require the participation and full buy-in from the City Heights community. And City Heights stepped up in a big way.

“I remember feeling overwhelmed by how poor the conditions in the canyon were from years of degradation,” said City Heights native Sonya Vargas, who helped plan the first large-scale Watershed Avengers event in Swan as an Ocean Discovery student. “There was so much to be done and I didn’t know how we’d be able to do it all. Thanks to the community’s dedication and constant participation in restoration events, Swan Canyon looks fantastic.”

Watershed Avengers has restored five acres of Manzanita Canyon, planting over 5,000 native plants, wiping out *Arundo*, and removing 3,000 pounds of trash that might have otherwise wound up in San Diego Bay or the Pacific Ocean.

But an even more important number is this: The events have inspired 15,000 people — many of them young people from low-income and minority groups — to take action and improve the environment in their community. That, in a nutshell, gets to the heart of the mission of Ocean Discovery, which uses the ocean as a framework for preparing the next generation of scientific leaders.

Part of the organization’s approach to engage young people in science and conservation are community-based, hands-on programs that generate curiosity. Watershed Avengers is the centerpiece of the community-based initiative, engaging young people and their families in conservation activities relevant to their daily lives. Like all of Ocean Discovery’s initiatives, Watershed Avengers targets youth in the undeserved urban community of City Heights — a place where opportunities to connect with nature are scarce and the scientific and environmental education opportunities in local public schools are virtually nonexistent.



Against this backdrop, Ocean Discovery has made incredible strides in imparting the importance of urban canyons to City Heights’ young people and their families, enabling them to see how seemingly small actions in their community — both positive and negative — affect the environmental health of the entire region. The community has also coalesced around the unmistakable benefits clean, safer canyons provide, including recreational open space, increased property values, and decreased crime.

“The community’s attitude has dramatically changed over the past ten years,” said Carla Pisbe, a City Heights native who now leads Watershed Avengers as Ocean Discovery’s Environmental Stewardship Coordinator. “There is a sense of pride and awareness of our canyons.”

As the state of California becomes increasingly urbanized and ever more diverse, the future health of the environment we share is dependent on successful outreach to young people from communities typically underrepresented in the environmental field. Ocean Discovery provides a model for how that can happen, as Executive Director Shara Fisler will discuss in her keynote address at SERCAL’s May 2015 conference, “Restoration for the Next Generation.”

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The ocean and coastlines are an extraordinary educational resource intrinsic to San Diego. Ocean Discovery Institute initiatives — incorporating education, scientific research, and environmental stewardship — currently reach 5,000+ low-income students and City Heights community members each year. All of Ocean Discovery Institute's programming is provided tuition-free.

## Taking Back a Watershed *continued*

For a firsthand glimpse of what's possible, all you have to do is walk through Swan Canyon.

"It is so inspiring to see Swan Canyon restored back to its natural beauty, but the best part about it is that through restoring these natural areas, we are able to simultaneously restore our communities," said Vargas, a UC Santa Barbara graduate who adds she caught the "ecology bug" from her time in Watershed Avengers.

"These restoration events don't just improve the quality of our canyons and wildlife, they improve the quality of our lives by bringing us closer to nature, they teach us to respect and protect our canyons — and they motivate us to be stewards of the environment in our everyday lives."

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*Thank you !*

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# Dry Creek



Before bank stabilization



After bank stabilization

Sonoma County Water Agency and the US Army Corps of Engineers are enhancing six miles of habitat in Dry Creek to provide refuge for the endangered Coho and threatened



Chinook salmon and Steelhead. The first mile of enhancement—the Dry Creek Demonstration Project – began in summer 2013.



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# Coastal Cactus Wren Habitat Restoration and Enhancement in Chula Vista, California

by Mark Dodero, Senior Restoration Biologist, RECON Environmental

Populations of the coastal cactus wren (*Campylorhynchus brunneicapillus*, see inset) are in decline throughout much of southern California, including San Diego County. Over the last decade or so, large intense fires have damaged coastal cactus wren habitat in San Diego County including lands on the San Diego National Wildlife Refuge. Populations of coastal cactus wrens have also declined in Preserve areas not yet affected by wildfires. This recent trend of cactus wren population decline has been observed in other regions of southern California as well. Genetic researchers have found low population densities and lack of gene flow between some populations of wrens in southern San Diego County and this could lead to genetic bottlenecks. Regional recovery efforts for coastal populations of cactus wrens are intended to stabilize and eventually increase population sizes.

This five-year, grant-funded project was initiated in the fall of 2009 and ended in the fall of 2014. The funding for the project was provided by SANDAG (San Diego Association of Governments) to the City of Chula Vista as part of the TransNet Environmental Mitigation Program (EMP) grant cycle. Successful habitat restoration is a challenge under any circumstances, but restoring cholla-dominated habitat for cactus wrens can be even more challenging than most.

In the Central City Preserve of Chula Vista, which encompasses about 1,300 acres, coast cholla (*Cylindropuntia prolifera*) patches have declined in the last 10–15 years due to competition with weeds and large shrubs, such as lemonadeberry (*Rhus integrifolia*). In addition, the below-average rainfall during most of the last decade has caused many patches of coast cholla to die due to the drought conditions. This cholla die-off has likely caused a decrease in suitable habitat for coastal cactus wren. In addition to the drought conditions, it is possible that nest predation by scrub jays, other corvids, and roadrunners have contributed to the observed declines as well.

## Project Goals and Habitat Restoration Methods

The project goals and methods used to restore coastal cactus wren habitat were:

- \* Increase coast cholla patch sizes and density within portions of the Central City Preserve to benefit populations of coastal cactus wrens.
- \* Restore and enhance patches of coast cholla in a distribution pattern that facilitates dispersal of cactus wrens between areas of suitable habitat.
- \* Proactive reduction of native and non-native fuels in the immediate vicinity of nesting sized coast cholla patches to

decrease the risk of catastrophic fires that could eliminate wren habitat.

- \* Restore habitat for coastal cactus wrens and other covered species, including coastal California gnatcatcher (*Poliophtila californica californica*) and Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), in areas dominated by weeds.
- \* Restore and enhance coastal cactus wren habitat through the selective thinning and removal of lemonadeberry, other native shrubs, and exotic annuals that are directly competing with coast cholla to the detriment of cactus wren populations.

## Site Preparation Shrub Removal and Dethatching

Field crews began the vegetation-thinning program in the fall of 2009 under the supervision of the project biologists. Chainsaws, loppers, and machetes were used to cut branches of shrubs selected for removal. Shrubs were removed to reduce direct competition with coast cholla for light and water, and also to reduce the risk of catastrophic fire. The openings created by the thinning program were also intended to increase potential open ground foraging areas for the coastal cactus wren.

The shrubs selected for thinning were primarily lemonadeberry and jojoba (*Simmondsia chinensis*). California sagebrush (*Artemisia californica*) were occasionally removed as well when they were deemed to present a potential fire risk to the cholla patches, as determined by the project biologist. Vegetation (i.e. cut

branches) generated by the thinning program were carried downslope in large burlap bundles from the open space to an access road in Rice Canyon. The cut vegetation was then placed into green waste dumpsters for removal from the site. Cut shrubs were immediately treated with a triclopyr-based herbicide to prevent the plants from re-sprouting.

The vegetation thinning and removal program continued through the fall and shrubs were removed around approximately 45 nesting-sized cholla patches in Rice Canyon and adjacent canyons. The total acreage of vegetation removed was approximately 5.75 acres. Dethatching of weed-dominated areas was also performed during October 2009. Approximately 2.5 acres of weeds at 20 different sites were cut using weed whips. The cut material was raked into piles and removed from the site. Cholla cuttings were planted in all of the dethatch areas, around existing cholla patches to increase cholla density, and within existing openings in coastal sage scrub (approximately 0.81 acre) for a total of approximately 9.04 acres of treated area.



continued next page



Figure 1. Near-normal rainfall in 2009–2010 was conducive for the cactus cuttings — cholla habitat before (2009) and after (2014) restoration.

## Coastal Cactus Wren Habitat Restoration and Enhancement *continued*

### Cactus Planting

Cactus planting began in early December 2009. Cholla cuttings were taken from existing cholla patches and were distributed into weeded areas or adjacent to existing cholla stands to enlarge the patch size. Cholla segments were either placed horizontally in contact with the soil surface or a small hole was excavated and the base of the cutting was placed in the soil. In areas where weeds were cut and no nesting sized cholla were present, larger cholla stems were planted. These larger stems, approximately two to three feet tall, were planted to encourage wrens to nest in those areas.

### Weed Control

Each season after winter rains had germinated weed seeds, glyphosate was used to control non-native annuals in dethatch and shrub thinning areas and in locations that were immediately adjacent to these sites. Non-native species that were controlled included primarily annual grasses such as wild oat (*Avena* spp), black mustard (*Brassica nigra*), crown daisy (*Chrysanthemum coronarium*), and filaree (*Erodium* spp.). Herbicide was applied by licensed applicators

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Figure 2. The cover of coast cholla patches at the shrub-thinning sites has increased more than 8 percent since 2010 — cholla habitat before (2010) and after (2014) restoration.

## Coastal Cactus Wren Habitat Restoration and Enhancement *continued*

### Cactus and other Native Plant Growth

Near normal rainfall in 2009–2010 was conducive for the cactus cuttings planted in the fall and winter to root and begin growth. Existing cholla patches in shrub treatment areas also exhibited new growth as well. In some dethatch areas, cholla plants that had appeared to be dead prior to the implementation of weed control efforts began to show new growth. With continuing weed control efforts, these plants showed amazing recovery (Figure 1). Over time, these areas have exhibited dense cholla growth that will benefit the coastal cactus wren by providing additional nesting areas.

Shrub clearing areas supported populations of annual natives such as cryptantha (*Cryptantha* sp.), Indian tobacco (*Nicotiana* sp.) and Nuttall's snapdragon (*Antirrhinum nuttallianum*). These species acted much like fire-following annuals that germinate and grow for the first few years after a fire moves through. Perennial subshrubs such as wishbone plant (*Mirabilis laevis* var. *crassifolia*) grew well in recently opened areas. Sensitive plant species that benefited from the shrub thinning includes coast barrel cactus (*Ferocactus viridescens*) and snake cholla (*Cylindropuntia californica*) both listed as rare by the California Native Plant Society; both are also Multiple Species Conservation Plan covered species.

### DISCUSSION

#### Weed Control and Cactus Growth Results

Due to the continued maintenance efforts over the five-year project, weed cover at the shrub thinning and dethatching sites remained low in spring 2014. The average absolute non-native cover at the shrub thinning sites was 0.0 percent in 2014. The relative cover of non-natives at the shrub thinning sites also remained very low at 0.4 percent in 2014. At the dethatching sites, average absolute non-native cover was 0.0 percent in 2014. The relative cover of non-natives at the dethatching sites also remained very low at 0.2 percent in 2014. These numbers indicate that weed control efforts have been successful and are maintaining low levels of non-native cover.

During Year 5, even though rainfall was well below normal during the 2013–14 season, cactus cuttings and existing coast cholla

patches continued to expand — in part, because weed cover and competition were reduced and more water became available for native plant growth. The positive effects of this additional water are reflected in the large number of new coast cholla and prickly pear stems that have appeared each year on the cuttings originally planted in 2009. This new growth is particularly evident at the weed dethatching areas. Coast cholla, prickly pear, and cuttings planted in 2009 flowered each year and have been observed being visited by pollinators such as native bees and honey bees. Pollinated cactus flowers are producing numerous fruits that provide potential food for coastal cactus wrens and other wildlife. Over time, the dethatching areas have filled in with dense coast cholla and prickly pear that will benefit the coastal cactus wren by providing additional nesting areas.

Quantitative data show that the cover of coast cholla at the shrub thinning sites increased about 8 percent since 2010, while the average cover of coast cholla at the dethatching sites increased about 14 percent. The most noticeable change in the coast cholla at the dethatching areas was the increase in height of the plants which is important for successful cactus wren nesting. The percentage of coast cholla that were one to three feet tall increased from just 4 percent in 2010 to nearly 57 percent in 2014. The percentage of coast cholla over three feet tall increased from 5 percent in 2010 to over 21 percent in 2014. Also, the average cover of coast cholla relative to the total plant cover at the dethatching sites increased from 50 percent in 2010 to over 92.9 percent in 2014. Figure 2 depicts the changes in health, size, and cover of a coast cholla patches that were formerly dominated by non-native mustards. The dethatch and subsequent weed control program have dramatically improved the growing conditions for the coast cholla.

#### Cactus Wren Use for Future Restoration Efforts

Based on survey results from 2003, several cactus wrens pairs were historically present in the project area, but by 2009, at the start of this restoration and enhancement project, only one pair of wrens remained. In 2011 an additional pair of cactus wrens moved into and started using the one of the shrub thinning areas in the southwest portion of the restoration area. Those birds occupied the

*continued page 10*



## Join us May 13–14 for SERCAL 2015 Restoration for the Next Generation

This year's SERCAL conference will focus on how to reach out to the next generation so there is a greater sense of environmental ownership and community. Our keynote speaker will share how one southern California organization has spent the past decade empowering today's youth, engaging an entire community to heal their landscape, and shape the next generation of ecologists. Session topics will introduce participants to projects in southern California that provide insight into our restoration future.

In the words of Baba Dioum *"In the end, we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught."* It is our challenge to teach. — *Pete Tomsovic, SERCAL 2015 Conference Chair*

## PREVIEW SERCAL 2015 Fieldtrips: Join us May 12

**Sunrise Powerlink with SDG&E** MAXIMUM # OF PARTICIPANTS: 25 people / 10 vehicles

The Sunrise Powerlink is a 117-mile, \$1.883 billion 500-kilovolt electric "superhighway" that transmits renewable energy from Imperial County to San Diego with 1,000 megawatt capacity (enough energy for 650,000 homes). The project was approved by the California Public Utilities Commission in December 2008, U.S. Bureau of Land Management in January 2009 and U.S. Forest Service in July 2010. Construction of the project began in fall 2010 and was in-service in 2012.

As part of construction activities, 22 native vegetation communities were temporarily disturbed within San Diego and Imperial counties. All temporary impacts are currently being restored to pre-impact conditions. This tour will make stops at various restoration sites in the desert, mountains, foothills, and coastal regions for a look at San Diego's diverse habitat types.



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**Lonestar and Dennery Vernal Pools with CalTrans** MAXIMUM # OF PARTICIPANTS: Unlimited

This tour will focus on two CalTrans vernal pool mitigation projects on the Otay Mesa of San Diego County:

**Lonestar** is 160 acres of formerly knee-high, non-native grassland. Mitigation requirements were to create habitat for endangered San Diego Fairy Shrimp and Quino Checkerspot Butterfly as well as species of concern Burrowing Owl. Implementation included the construction and restoration of 130 vernal pools, over 100 acres of native grassland, and 75 artificial burrowing owl burrows. Implementation was completed in 2012 and the site is already occupied by burrowing owls, San Diego and Riverside fairy shrimp, and several sensitive plant species.

**Dennery** is 9 acres of vernal pool habitat created for the endangered San Diego Fairy Shrimp and grassland habitat was created for the endangered Quino Checkerspot Butterfly. Construction was completed in 2009.



**San Diego National Wildlife Refuge with USFWS** MAXIMUM # OF PARTICIPANTS: 25 people / 10 vehicles

The refuge actively restores habitats degraded by prior agricultural uses and wildfire. This fieldtrip will include stops at:

**Otay River Delta Project** — a 55-acre restoration project planted by River Partners with over 19,000 native riparian trees, shrubs, and understory plants with the goal of creating habitat for the least Bell's vireo and other neotropical migratory birds, while also providing flood protection and recreational opportunities for the local community.

**Shinohara Parcel** — 30-acre vernal pool restoration project begun in 2007 to support San Diego fairy shrimp, Otay tarplant, and 4 listed vernal pool obligate plants.

**Post fire restoration projects** for the federally endangered Quino Checkerspot Butterfly and federally threatened California gnatcatcher.



**Low Pressure Equipment Test Drive with HRS** MAXIMUM # OF PARTICIPANTS: 16

CAT equipment — backhoes, loaders, skid steers, dozers, and excavators — is often needed during the initial site preparation phase of a restoration project for vegetation removal, grading, ripping, tilling, and any other earthwork. The downside of using this traditional equipment is it leaves the soil compacted and in no way prepared for the next phases of the project — planting and seeding. In habitat restoration, we have adapted the equipment to fit our needs!

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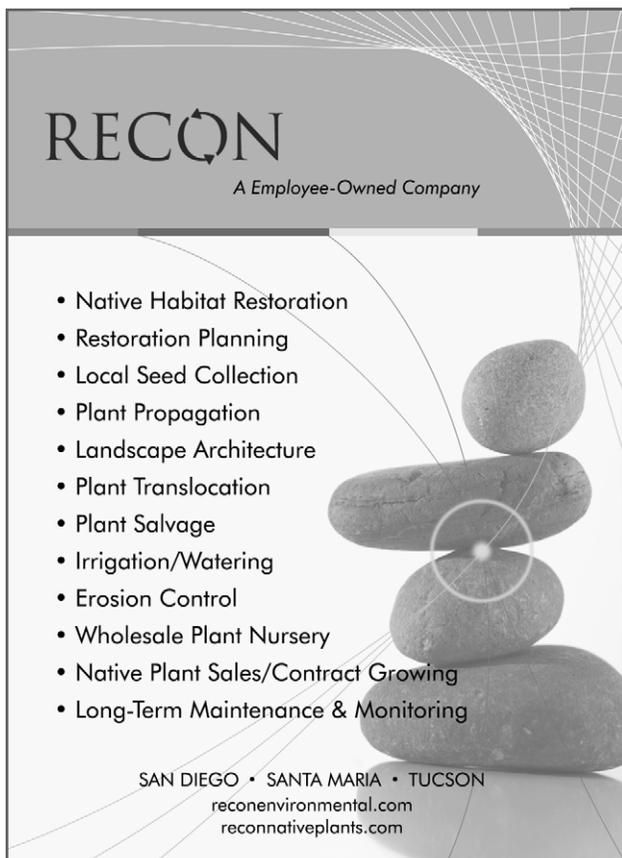


## Coastal Cactus Wren Habitat Restoration and Enhancement *continued*

area for about one year, but moved on in 2012. This illustrates the challenge of performing restoration for cactus wrens as the birds have multiple threats to overcome.

Additional cactus wren restoration projects are underway in other areas of San Diego County including in the Otay Valley area in southern San Diego County. In addition, a restoration planning effort is underway for these wren populations, headed up by The Nature Conservancy in collaboration with the San Diego Management and Monitoring Program and with funding by SANDAG. The goals of this planning effort are to protect and enhance suitable cactus scrub and coastal sage scrub habitat within the Otay River and adjacent areas and to increase connectivity between these south San Diego County populations. We hope these focused restoration efforts will stabilize and increase the wren populations so that this important member of our native fauna is preserved in perpetuity.

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\$45 REGULAR	<b>\$250 CONTRIBUTING*</b>	Contributing Business	3	3
\$80 JOINT SERCAL+CNGA ( <i>discounted</i> )	<b>\$500 SUSTAINING*</b>	Sustaining Business	4	4
<b>\$100 SUSTAINING*</b>	<b>\$1,000 SUMMIT CIRCLE*</b>	Summit Circle	6	6

\* Receive quarterly recognition in *Ecesis*

\*\*Please list the additional names to be included on the *Ecesis* mailing list in the space below this form.

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_  
**DUES**                      **ADDITIONAL SUPPORT**                      **TOTAL AMOUNT PAID**

NAME \_\_\_\_\_ DATE \_\_\_\_\_

COMPANY/AFFILIATION \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY / ZIP / COUNTY \_\_\_\_\_

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EMAIL \_\_\_\_\_

### PAYMENT OPTIONS:

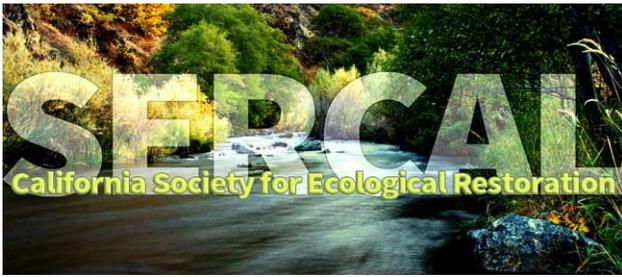
Check enclosed (Made payable to SERCAL)

Please charge my:  Visa  MasterCard Card No.: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ EXP: \_\_\_\_ / \_\_\_\_

*Card Billing Address if different than mailing address listed above:*

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**SCAN & EMAIL TO: smclark@lightspeed.net**                      **SECURE FAX: 661.634.9540**

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## SERCAL 2015 TECHNICAL SESSIONS

**Wetlands/Waters Restoration** CHAIR David Shaw *Balance Hydrologics*

**Expanding Restoration** CHAIR Mark Tucker *AECOM*

**Urban Restoration** CHAIRS Will Spangler *HT Harvey & Associates* and Jeannine Ross *RECON*

**Mitigation Banks** CHAIR Mark Young *Westervelt*

**Restoration for Special-Status Plant Species** CHAIR Cecilia Meyer-Lovell *AECOM*

**Grasslands** CHAIR Andrew Rayburn *River Partners; California Native Grasslands Association Board Member*