

# Currents

Santa Fe Watershed Association

Vol. 20 No. 1

Fall 2016

## From the Executive Director

One of my brothers works for the Musselshell Watershed Coalition in Montana. He recently asked me, “What are the things that could happen in the Santa Fe River Watershed by which you would measure success?”

What would you say?

Here’s what I said:

- The return of the historical flows in the Santa Fe River. It used to be a living river.
- The recharge of the aquifers from which our wells draw and from which our much-needed soil moisture comes.



SFWA Executive Director Andy Otto

These are not unrealistic objectives.

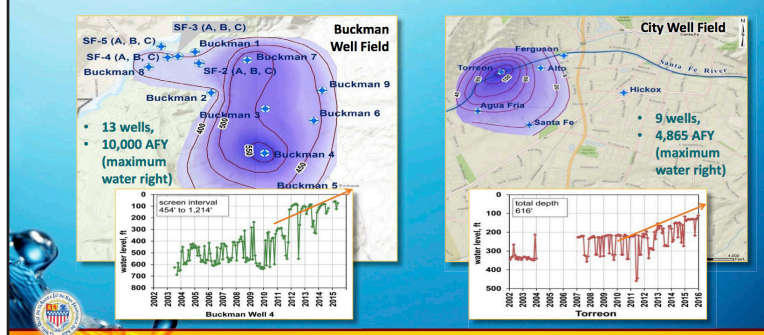
Regarding the Living River objective, our watershed is approximately 182,400 acres in size. If we receive, on average, twelve inches of precipitation per year, then we receive

182,400 acre-feet of water per year. Our water use in the City of Santa Fe is about 10,000 acre-feet per year, so we should have a fair amount remaining for agricultural use and for use outside-of-City-limits. The majority of our water (precipitation) flows out of our watershed.

Regarding aquifer recharge, the City of Santa Fe Water Division was painfully aware that the water level in our main aquifers had been dropping roughly a foot per year for the past 40 years. Since the San Juan-Chama diversion began delivering water to Santa Fe in 2010, the City has been able to “rest” its wells and allow the aquifer to

recharge. In fact, annual high and low water levels in the wells have rebounded. It isn’t clear whether this rebound has occurred only in the “cone of depression” around the wells, or in the aquifer level as a whole. It would be very helpful to have dedicated monitoring wells. In either case, recharge of the aquifer – our water insurance policy for future fluctuations in precipitation (read “drought”) – is occurring.

### Groundwater Supply: Drought Reserve Sources



These graphs of depth-to-water in the City of Santa Fe’s well fields show both the annual highs and lows rebounding since 2010.

In order to achieve these objectives, we need to make a couple of assumptions.

First, we are assuming that there will not be exponential population growth. Should water be the limiting factor in determining an area’s population? It certainly can be, if the opportunity and the means don’t exist for water importing water. Some have suggested to us that SFWA should be a stronger and more vocal proponent for population stabilization. What do you think?

*(continued on page 4)*



**THE MISSION** of the Santa Fe Watershed Association is to protect and restore the health and vibrancy of the Santa Fe River and its watershed for the benefit of people and the environment. We achieve this through education, restoration, stewardship and advocacy. From the river’s headwaters to the Rio Grande, we honor the connection of people and the watershed.



Santa Fe Watershed Association  
Best Environmental Group

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# From the President

Dear Friends of the Santa Fe Watershed,  
It was a scary moment this past June when lightning sparked the McClure Fire in the wilderness portion of the upper watershed. Fortunately, thanks to the quick work of a dedicated fire fighting crew and cooperative weather, the blaze was contained at 7.6 acres.

Fire in the watershed is worrisome, because over the past century, natural fires have been suppressed and the forest has grown much thicker than it normally would have. This means that when a fire does start, there is so much available fuel that it burns at an extreme intensity, leaving behind little to no vegetation to hold the soil in place. In other communities across the West, massive fires have been followed by floods that fill reservoirs with silt and ash. If that were to happen in the Santa Fe Watershed, 60% of our community's water storage would be lost, and fully restoring it could take up to 10 years and \$240 million.

This helps explain why the Santa Fe Watershed Association's very first project focused on reducing the risk of catastrophic wildfire. During the late 1990s, we began working with key stakeholders including the City's Sangre de Cristo Water Division, the Santa Fe Fire Department, and the Santa Fe National Forest, to develop and implement a watershed management plan.

Thanks to that plan, nearly 6,000 acres of forest around Santa Fe's reservoirs have been carefully thinned and treated with controlled burns. Along with reducing the risk of

a major fire, these treatments have also enhanced wildlife habitat and improved the health of the forest. (Visit our website to read more about the science behind these forest treatments.)

Santa Fe's proactive, collaborative approach to watershed management has become a model for the rest of the state, and several groups have recently teamed up to develop a plan for reducing wildfire risk throughout the forests of the Rio Grande watershed. More remains to be done, however—the McClure fire was sparked in a section of the Santa Fe Watershed that has not yet been treated. And with the warming climate, the risk of severe fires is only increasing.

We all have a stake in making sure that our watershed is healthy and resilient enough to recover from fire without catastrophic damage to the ecosystem or our water supply. By joining or renewing your membership in the Santa Fe Watershed Association, you help us continue our work toward this goal, so that one day it won't be quite so scary when we see smoke coming from the upper watershed.



*Kristina G. Fisher*

## Green Lodging Initiative Moves Into Phase II with 28 Santa Fe Businesses

After the successful first phase of the Santa Fe Green Lodging Initiative in 2014, the program is back for Phase II.

In Phase I, six Santa Fe hospitality businesses achieved Hospitality Green's prestigious Santa Fe Green Concierge Certification. In November 2015, SFWA received funding from the City of Santa Fe to include 24 more properties in the Initiative. SFWA is now in Phase II with 28 businesses.

SFWA supports Santa Fe's hospitality industry by helping businesses save money through energy, gas and water conservation; reducing waste; supporting composting practices; and most importantly for our purposes, by decreasing the chemical pollution going into the watershed.

For more information about the Green Lodging program, both in Santa Fe and nationally, contact Julia Abbiss ([julia@santafewatershed.org](mailto:julia@santafewatershed.org), 820-1696).

—Julia Abbiss

### Businesses Working Toward Santa Fe's Green Concierge Certification

|                         |                               |
|-------------------------|-------------------------------|
| Casa Cuma B&B           | Rooftop Pizza                 |
| La Fonda                | Old Santa Fe Inn              |
| Hyatt Place Santa Fe    | Draft Station                 |
| Eldorado Hotel          | Sweetwater Café               |
| La Posada               | Tune Up Café                  |
| Inn and Spa at Loretto  | Del Charro Saloon             |
| Hotel Santa Fe          | Tecolote Café                 |
| Santa Fe Sage Inn       | La Casa Sena                  |
| Joe's Dining            | Derailed at Santa Fe Sage Inn |
| Inn on the Alameda      | Blue Corn Café                |
| Silver Saddle Motel     | Blue Corn Brewery             |
| La Plazuela at La Fonda | Maria's                       |
| Inn of the Governors    | Rio Chama                     |
| Ten Thousand Waves      | 35 North Coffee               |



### Adopt-an-Arroyo Is In Full Swing!

For more than 13 years, SFWA has been caring for 18 miles of the Santa Fe River through its Adopt-the-River program. Now, we are expanding this stewardship by launching an Adopt-an-Arroyo program to tend the arroyos that are tributaries to the river.

There are more than 80 miles of arroyos in the watershed. They're in everyone's backyards. They are pathways for children walking home from school, people walking their dogs, and wildlife traversing the urban landscape; and they are crisscrossed with bridges, trails, cables and pipes. Yet for many years our arroyos have been neglected, used as dumps, and allowed to deepen and erode in ways that threaten to damage critical infrastructure.

Previous work, commissioned by the City and carried out by SFWA staff, identified the arroyo reaches most in need of clean-up and restoration (*Arroyo Threat Assessment Surveys of 15 Major Arroyos in the Santa Fe River Watershed*. City of Santa Fe, June 2016).

As we were completing that work, the Delle Foundation and the Sierra Club Foundation awarded us grants to launch the Adopt-an-Arroyo program. These grants supplemented the funding that you helped us raise through our 2015 crowd-funding campaign.

SFWA is now organizing and assisting volunteer "Steward teams" whose mission it is to monitor the health of a specific arroyo reach, remove trash on a regular basis, and alert our River Coordinator to potentially dangerous situations in the arroyo. Over time, we will also be working with our arroyo Stewards to plan and implement "green infrastructure" restoration projects in the arroyos, such as one-rock dams and Zuni bowls that reduce erosion, protect utility infrastructure, and enhance water infiltration.

We know, from our experience with the Adopt-the-River program, that the regular presence of the volunteer Stewards enhances the sense of relationship and responsibility that residents experience. Day-by-day, we are forging



stronger connections with each other and with the natural environment in which we live. We are raising awareness. And we are learning together how to care for the waterways and the watershed as a whole.

To date, SFWA has recruited Steward teams for five reaches in five different arroyos. Four of these teams are students from Santa Fe Prep, Desert Montessori, the MASTERS Program, and Santa Fe High School. The fifth Steward is the Historic St. Catherine Neighborhood Association.

Their participation complements SFWA's other environmental-education outreach in the schools, encouraging students to get outside, learn where their water comes from, and engage with each other and the natural world.

We have also contracted with two private business Sponsors — Santa Fe Natural Tobacco Company and Sam's Club — to provide financial support and help ensure the sustainability of the program for years to come.

If you would like to join the Adopt-an-Arroyo program as a volunteer Steward or fiscal Sponsor, please contact Raquel ([raquel@santafewatershed.org](mailto:raquel@santafewatershed.org), 505/820-1696).

— Andy Otto and Raquel Tompson

### Thank You, Adopt-the-River & Adopt-an-Arroyo Stewards!

Upper Canyon Road Neighborhood Association ★ Santa Fe Prep ★ Amma Center of NM Green Friends ★ Rio Grande School ★ Women Who Walk on Water ★ Santa Fe Garden Club ★ St. Michael's High School ★ New Mexico State Land Office ★ New Mexico State Supreme Court Building Commission ★ Upcycle Santa Fe ★ Santa Fe Waldorf School ★ Rotary Club ★ St. Elizabeth's Emergency Shelter ★ The Sierra Club ★ Desert Montessori ★ Dragonfly School ★ O(G)D ★ Grace Community Church ★ Heather Karlson & Bill Leeson ★ Easy Way ★ Capitol High School National Honor Society ★ Friends of Frenchy's Field ★ Santa Fe High School Navy JROTC ★ Aldea & Friends ★ Dharma Group ★ The Aspen Class of Desert Montessori School ★ The MASTERS Program ★ Santa Fe High School Key Club and National Honor Society ★ Historic St. Catherine Neighborhood Association

# Adopt the River & Arroyos

## Community Clean-Up Days Remind Us What Community Means — and They're Fun!

Since 2001, SFWA has administered the Adopt-the-River program in collaboration with the City of Santa Fe and, since 2009, with Santa Fe County. Volunteer Stewards now tend 14 miles of the Santa Fe river and many

### From the Executive Director (cont. from page 1)

Second, all the water in the watershed comes from precipitation. There's good reason to think that the Southwest as a whole will have to adapt to decreasing precipitation, so depending upon water from elsewhere in the region is not a good policy. Using our aquifers sustainably today is good practice for managing water wisely in the future.

We can move water around — and we can move water around on paper, for what that's worth. But, at the end of the day, all of our water comes from above — and the best we can do is adapt to the vagaries of that as responsibly as we can.

July 20, 2016



### Potential Sources of Water In Cases of Shortfall

The 2015 Bureau of Reclamation Santa Fe Basin Study concluded that, by 2055, there will be a potential shortfall of approximately 5,000-9,000 acre-feet of water per year in the basin. The study identified three potential sources of water to make up this shortfall:

- 1) Water conservation
- 2) Purchasing or leasing new sources of water
- 3) Aquifer Storage Recharge

reaches of our arroyos. In the first eight months of 2016, volunteers gave more than 1,700 hours to this effort. The value of their in-kind contribution matches the financial investment from the City and County. Donations from fiscal Sponsors that adopt the 30+ reaches constitute the third arm of our Adopt community.

From the beginning, the Adopt-the-River stewardship effort has included at least one community-wide river clean-up day each year, and today, there are three community events each year:

- Love Your River Day in February, before spring flows begin again in the river corridor;
- Great American River Clean-Up Day in June, before the monsoons kick in; and
- Hunt for Red Rocktober in October, before the riverbed freezes up again for the winter months.

These events give our year-round Stewards a chance to show off what a substantial team they are part of and to see what their individual, incremental efforts amount to. (In 2015 for instance, 1,922 volunteers spent 1,800 hours removing 1,276 bags of trash — some of this with community-day support.)

The community clean-ups also attract residents who care and are grateful and are willing to help, but who haven't enlisted as regular volunteers. And the community clean-ups give us a chance to celebrate our volunteers and the fiscal Sponsors of our 30+ river and arroyo reaches!

Thank you, also, to these businesses that donated prizes for our 2016 Love Your River Day and Great American Rivers Clean-Up events: Back Road Pizza, Critters & Me, Dunkin' Donuts, La Montanita Coop, *Outside Magazine*, Revolution Bakery, and Verde Food Company.

— Keely Kennemore-Jackson and Marty Peale

### 2016 Clean-Up Totals (January-August)

| Community River Cleanups                | Volunteers   | Hours        | Bags         |
|---|--------------|--------------|--------------|
| Love Your River Day (February)          | 217          | 439          | 333          |
| American Rivers (June)                  | 40           | 80           | 90           |
| Hunt for Red Rocktober:                 |              |              |              |
| <i>Join us on Saturday, October 22!</i> |              |              |              |
| <i>subtotal</i>                         | 257          | 51           | 423          |
| Year-Round Stewardship                  | 771          | 1,652        | 605          |
| <b>Totals</b>                           | <b>1,028</b> | <b>1,703</b> | <b>1,028</b> |



On Earth Day 2016, the Santa Fe Community Yoga Center showed up as Angel volunteers in Arroyo Pinos by their center.



## From Elementary School to Adults, Residents Have Exceptional Opportunities

### My Water, My Watershed

This spring, SFWA Education Coordinators Janie Miller and Esha Chiocchio brought 24 classes of elementary- and middle-school students into the Upper Watershed to learn about the ecology of the Santa Fe area and its water sources.

During this three-day program, we introduce students to the geography and history of the watershed, learn how to identify local tree species and the ecosystem that supports them, search for and identified benthic macro-invertebrates, gain an understanding of current forest management techniques, explore ways to conserve water, and more – all while having fun in the great outdoors.

Since 2010, when we launched this program, only public-schools have been invited to participate. In 2016, however, SFWA has been able to include private schools as well.

This program was funded by the City of Santa Fe and the Los Alamos National Lab Foundation.

### Climate Masters

This year's Climate Masters class was our largest yet, with 25 participants who met weekly for 10 sessions to learn about a wide range of climate-related subjects from guest lecturers.

To kick off the course in March, we invited the public to join us at the Santa Fe Convention Center for UNM Climate Science professor Dr. David Gutzler's talk about climate change in the Southwest – and he spoke to a full house. The class went on to learn from Mariel Nanasi and Jamey Stillings on energy; Adam Schlachter on recycling and waste; Amanda Hatherly on green building; Don Bustos on sustainable agriculture; Courtney White on carbon ranching; Senator Peter Wirth on water in the West; Craig Allen on dendrochronology; Tim Rogers, Dan Baker and Lois Amador on transportation; and Reese Baker on backyard permaculture.

In addition, the class hiked into the Upper Watershed with City and Forest Service staff and participated in a Climate Choices Forum as part of a national survey.

This solutions-oriented course requires participants to volunteer for 30 hours in a climate-related field. Keep your eye out for the latest cohort of Climate Masters working to make the world a better place with various initiatives, including the promotion of the Blue Bus to rural New Mexico and development of a local carbon-offset market.



*For years, SFWA has taken fourth- and fifth-grade public school students on field trips into the Upper Watershed. This year, we were able to offer this opportunity to middle-school and private-school students as well.*



*The June van tour visits the new outtake tunnel at Nichols Reservoir.*

### Van Tour

In mid-June, SFWA led a van tour, designed for those who are physically challenged, into the Upper Watershed. Alex Puglisi of the City of Santa Fe Water Utility Department and Bill Armstrong of the U.S. Forest Service regaled fifteen participants with a treasure trove of history, climate projections and current water-management strategies.

As an unexpected bonus, the group was able to tour the water treatment plant on Canyon Road, walk down into the new water outtake tunnel at Nichols Reservoir, and visit the McClure Reservoir higher in the watershed.

— Esha Chiocchio



### Please Help Us Welcome Our Four New Board Members

#### Charlie Gonzales

Born and raised in Santa Fe, Charlie is Vice President of the Traditional Village of Agua Fria and Secretary of the village Acequia Association.

He has worked at the City of Santa Fe Public Works and Land Use Departments as a subdivision-infrastructure inspector, senior engineering technician, and technical-review coordinator. He has also served as director of the County's Building and Hydrology Division and its Permits and Enforcement Division. Charlie was also a member of the New Mexico Floodplain Manager Association and a certified Floodplain Manager for over 20 years. These roles gave Charlie a great deal of experience in issues relevant to SFWA's work, including for instance, that he was responsible for permits pertaining to arroyos and was involved in writing the Rain Water Harvesting Ordinance at the City and County.

Since 2010, Charlie has been self-employed as an infrastructure inspector. He conducts Storm Water Pollution Prevention Plan (SWPPP) inspections and occasionally prepares grading, drainage, landscape and irrigation plans.

Charlie was a bartender at the Bull Ring for about twelve years and managed a rock band called "ROZY" during his career with the City and County. His current hobbies include serving as is an ambassador for Gatos De Santa Fe – a trap neuter and return program for feral cats, water skiing, snow skiing, hiking, fishing, gardening, motorcycles, and riding his two horses, Diva and Lily. He also hangs out with his many cats and his deaf dog named Goshe.



a desire to bring together water and land managers with environmental professionals to produce sustainable results. Professionally, Lorrie is a communications and public-involvement professional, mediator, and facilitator working for the Environment, Safety and Health Directorate at Los Alamos National Laboratory. She leads the Laboratory's Long-Term Strategy for Environmental Stewardship and Sustainability. Lorrie has an M.A in Psychology and a B.A. in Environmental Education.

#### Elisabeth Loya

Elisabeth is a native New Mexican from Las Cruces, who now lives in Bernalillo with her husband and two dogs, minutes from the beautiful Rio Grande.

Elisabeth has a B.A. in Classics with minors in Spanish and Music (U. of Arizona – Tucson, 2009) and an M.A. in Art History and Museum Studies (U. of Denver, 2012). She has a lifetime love of museums and their valuable role in culture and society, and now works at the Georgia O'Keeffe Museum in Santa Fe.

Whether living in the deserts of southern New Mexico and Arizona, the high desert of Santa Fe, or the Rocky Mountains in Denver, Elisabeth has always been keenly aware of water as a precious resource, and of bodies of water as iconic points of pride and identity for every community that need to be protected for generations to come.



#### Lorrie Bonds Lopez

Lorrie is an avid river runner, hiker and sometime canyoneer, embracing the natural world as her home. She moved to Santa Fe in 1976. Since then, including her work as a course director with Outward Bound, Lorrie has been committed conserving to the natural environment of northern New Mexico.

Lorrie brings three principle skills to the board: a passion for collaboration, facilitation of complex projects, and



#### Loretta Valencia

Loretta joins the Santa Fe Watershed Board as Treasurer after 10 years as SFWA's accountant. She has a Masters in Accounting from NMSU and a CPA license, and she has worked in the private, public and non-profit sectors for many years.

Loretta believes that Santa Fe is a special place because this community is committed to preservation on various levels, with water being on the top of this list. Loretta has lived in Santa Fe since childhood and is married to Harold R. Valencia. They have two sons, Phillip and Marcus.



# The Rain Garden on West Alameda Is One of Six New Demonstration Sites

There has been growing national recognition that shrubs and trees in urban landscapes have both environmental and commercial value. Research has shown that vegetation along streets and parking lots can lower temperatures and energy consumption, filter stormwater contaminants, and positively influence consumer behavior by enhancing aesthetics to building exteriors. Despite these benefits, municipalities and commercial developers in the arid Southwest have been slow to adopt urban forestry because of the high cost of irrigation and public concern over the use of potable water during times of drought.

Rain gardens are one way to support vegetation by using water that we currently treat as a problem. These modest basins capture stormwater from impervious surfaces such as paved streets and use it to irrigate plants. Rain gardens can also filter, break down, and accumulate common stormwater pollutants before they enter arroyos and rivers.

This summer, SFWA partnered with the National Fish and Wildlife Foundation, Wells Fargo, the City of Santa Fe, the RainCatcher, and Southwest Urban Hydrology to install a rain garden along West Alameda near the pedestrian bridge crossing from Alto Park.

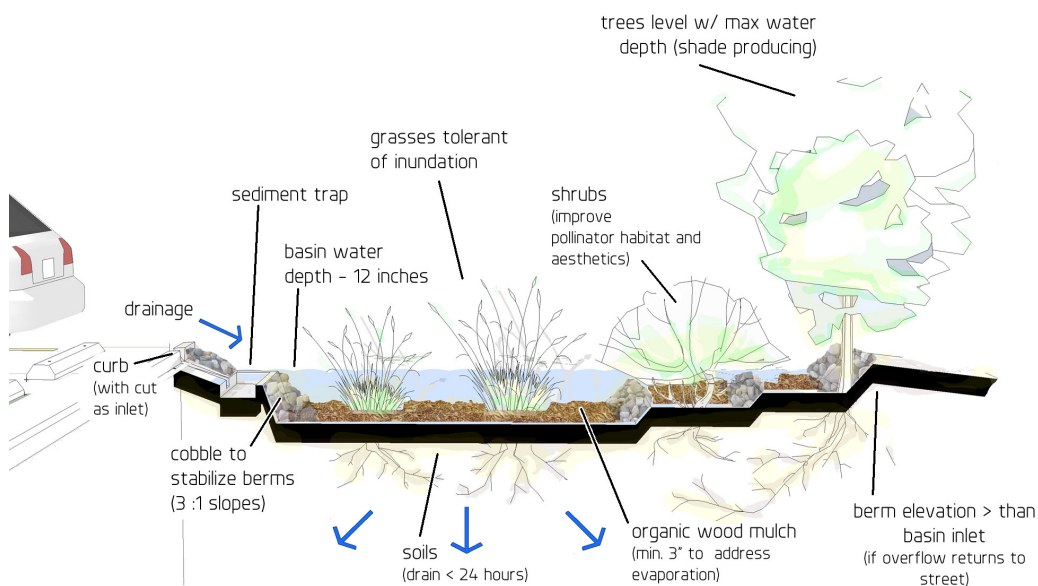
Before June, more than 130,000 gallons/year of stormwater flowed past this site in a gutter. Today, a curb cut lets up to 4,000 gallons of water at a time collect in the basin, infiltrate the rain-garden soils, and support new plants at the site. Indigo bushes have been planted to help accumulate lead, Big and little bluestem grasses will help degrade petroleum products. Other plants will improve pollinator habitat, provide shade, cool the river corridor, and enhance aesthetics.

To learn more, please visit <[www.SouthwestUrbanHydrology.com](http://www.SouthwestUrbanHydrology.com)>.

— Aaron Kaufmann



*This new rain garden is on West Alameda near Sicomoro Street, across from Alto Park. It is the third (and largest) of six rain gardens that will be built by the end of 2016. Two rain gardens were completed at LAIA in April 2015 and 2016. This one was constructed by the RainCatcher in June and planted with vegetation in early July. One objective of the project is to capture more than 200,000 gallons of water annually in all six basins.*



Basic Basin Design Considerations

diagram by  
Paul Navrot  
for SUH





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### Newsletter

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Division • p. 2: courtesy of K.

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Fe Community Yoga Center •

p. 5: E. Chiochio • p. 6: cour-

tesy of board members • p. 7:

Southwest Urban Hydrology •

p. 8: S. Waldrip



## Staff News

### Carry On, Eileen, and Thank You

Eileen Everett, who joined SFWA as our education director in June 2011, widened her horizons at the end of 2015, when she became executive director of the Environmental Education Association of NM.

Under Eileen's leadership, "My Water My Watershed" (see page 5) grew to reach 75% of all 4th and 5th-grade public school students, providing them with a place-based, hands-on, outdoor learning experience. Eileen was also instrumental in pioneering the Santa Fe Outdoor Education Collaborative, in which SFWA, Audubon, and the Santa Fe Botanical Gardens have been coordinating complementary environmental education offerings to 3rd, 4th and 5th for three years and monitoring outcomes (see *Currents* Winter 2014-15).

Thank you, Eileen, for your vision, leadership, dedication, playfulness, and your attention to detail in everything you did with and for us at SFWA.



*Eileen Everett, SFWA Education Director (2011-15).*

### Welcome Julia Abbiss

In April 2016, Julia joined SFWA as our new development assistant. Her responsibilities include establishing a millennial membership base, developing a legacy giving program, and assisting with the Green Lodging Initiative (see page 2).

Julia packed up and road-tripped to the Southwest after earning her B.S. in Travel-Tourism & Hospitality Management from Johnson & Wales University in Providence, RI. When she's not at SFWA, Julia's guiding hiking and cultural tours through northern New Mexico and working on her M.S. in Nonprofit Management.

