

Currents

Santa Fe Watershed Association

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From the Executive Director: Climate Change At Home – What We Do, What We Can Do

I, with support from my wife, Christine, have been with the Santa Fe Watershed Association since 2014. In our five and a half years of “Thinking like a Watershed,” actually thinking of a watershed, we have come up against many challenges. Frankly many of them involve funding, but those are “administrative problems.” The biggest, hairiest, most frustrating issues, however, involve how to allocate a scarce resource in an increasingly demanding world. We call this creating a Balanced Water Budget.

Supply and Demand

Our job has not been to deal with the demand side of the equation, although many tell us we should. A vibrant city like Santa Fe, striving to create a balanced water budget, has many demand-side options, but most of them are politically and culturally driven. Instead, we have chosen to weigh in and work on the supply side of the equation. Our supply-side focus could have included finding new water sources – but we have not pursued that. Rather, we have focused on conserving the water we use and conserving the water that falls all around us, on our watershed. Within this conservation focus, there are two concerns: quantity and quality.

Advocating for Water to be Available

For water quantity, a balanced water plan considers the inflow and outflow of surface water and groundwater. By definition, “balance” means that the outflow must equal the inflow; otherwise we run out of water or have flooding.

To balance our water budget, if the inflow – precipitation – is low in a given year, we need to reduce the outflow – demand – by the same amount.

These two reservoirs – water in and water out – are directly connected, at least historically. We as a community have done a great deal of work to figure out how much water we have coming in – can you say NOAA? But then where does it go?

For water on the surface, we have all kinds of gauges measuring CFS (cubic feet per second), AFY (acre-feet per year), and GPM (gallons per minute).

For groundwater, we have estimates at best. Besides depth to groundwater, we don’t know how much water is down there. Accurate mapping of the size and nature of the underground aquifers is key; we cannot create a balanced water budget unless we can monitor our groundwater.



*Andy Otto, SFWA
Executive Director*

Advocating for Water Quality

For water quality, a balanced water plan removes, or isolates, contaminants from all bodies of water. The saying, “The solution to pollution is dilution,” is no longer valid. For instance, no amount of chromium can be tolerated in any water system. So many pollutants are present in our

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From the President: New Mexico Drought – The Big Picture

Drought— *Merriam-Webster's* defines it as “a period of dryness especially when prolonged; specifically one that causes extensive damage to crops or prevents successful growth.” This definition reflects the fact that drought has been associated historically with agricultural impacts. Today, we also regularly use the word in the context of societal and environmental impacts. In New Mexico and around the world, we are learning that weather, and climate (weather on a long-term, large scale), and their repercussions are complex and often poorly understood. We are called to get better informed and to act on that information as soon as possible.

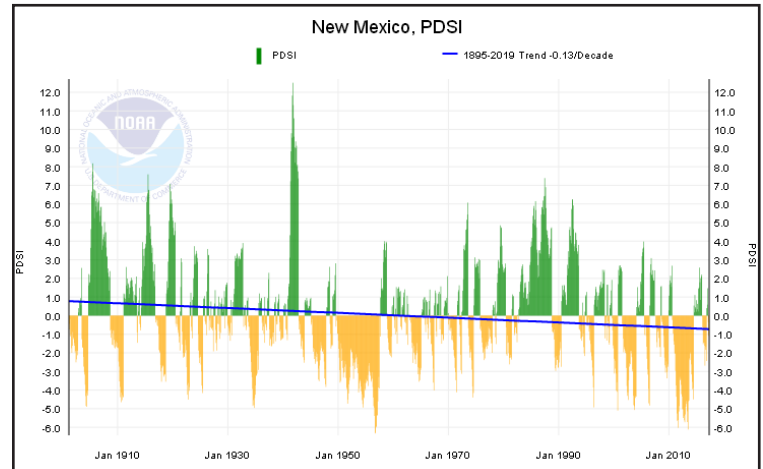
Weather is a common topic of discussion in the aisles of Trader Joe's as well as in agricultural fields along the Rio Grande. Concerns about drought are forefront in our minds, but we are mainly reacting to immediate weather events and short-term trends. This relatively close focus can lead to inaccurate assumptions about whole seasons and years – and poorly informed decisions. Let's look at 2018-2019, for example.

2018 was very dry overall, with the exception of occasional localized storms, such as the one on July 23 that overflowed the banks of Arroyo Chamiso and the Santa Fe River. By all accounts we were in a drought despite these occasional extreme events.

2019, on the other hand, had exceptional winter snowpack and a rainy spring followed by a weak summer monsoon and record-breaking heat in August and early September. So, is 2019 a drought year? Conventional wisdom might suggest that it is not a drought year because of earlier above-average precipitation. This notion then leads to relaxed water-conservation practices and potentially poor crop planning.

Observing variation at an annual scale can result in short-term decisions when long-term planning is preferable. The Palmer Drought Severity Index (PDSI) uses temperature and precipitation data to document intervals of extreme dryness or drought over an extended period of time. See <<https://climatedataguide.ucar.edu/climate-data/palmer-drought-severity-index-pdsi>>.

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.



This chart of drought severity is for New Mexico between 1895 and the present – 124 years. The green years are above average values of moisture; yellow years are below average. The blue line shows the steady decline in available moisture.

The PDSI chart above is for New Mexico between 1895 and the present – 124 years. The green years are above average values of moisture; yellow years are below average. Annual variability makes it difficult to see larger patterns, so I added a blue trend line to reduce the annual “noise”, “smoothing” data extremes.

This PDSI for New Mexico shows a steady decline of available moisture despite periodic intervals of increased moisture, leading into more extreme drought conditions overall.

In addition to understanding such trends, for successful long-term planning, we must also understand extremes. One source of such information is the National Integrated Drought Information System (NIDIS). See <www.drought.gov/drought/states/new-mexico>. This site provides statewide maps of drought intensity, updated weekly.

In New Mexico, as of October 22, 2019, roughly 26% of the state is Abnormally Dry, 26% is in Moderate Drought, and nearly 9% is in Severe Drought (crop loss likely, water shortages common, restrictions imposed).

We are not in dire straits at this time, but the overall trend in our state is one of gradually increasing drought severity. Armed with such knowledge, New Mexico can and should be working on short- and long-term strategies to prepare a water budget and an emergency plan for greater statewide resilience.

— Janet McVickar, *SFWA President*



*Janet McVickar,
SFWA President*

Will the Clean Water Act Continue to Protect the Santa Fe River?

In September 2019, the Trump administration adopted a new rule that would dramatically shrink the number of rivers, lakes and wetlands protected by the Clean Water Act.

Under the new rule, the Clean Water Act would no longer apply to streams and rivers that are ephemeral (flowing for only part of the year), or to lakes and wetlands that do not connect to large bodies of water. According to the U.S. Geological Survey, of the 227,552 miles of streams in New Mexico, 215,824 miles – about 95% – are intermittent or ephemeral.

One of them is our own Santa Fe River.

Although the Santa Fe River may once have flowed year-round, in the 1880s dams were constructed in the upper watershed to capture its water for the growing city. In addition, household wells lowered the groundwater under the city, pulling even more water away from the river. Today, the 10 miles of the river that flow through Santa Fe run dry for many weeks (or even months) each year.

The riverbed is often dry, but that doesn't mean that polluting it doesn't matter. Anything dumped in the riverbed when it is dry will be picked up and carried downstream during the next rainstorm, contaminating the water where so many families, children and pets play. These pollutants would then flow with the river down onto the farms of communities like La Cienega and La Cieneguilla.

It isn't just the Santa Fe River that would lose Clean Water Act protections under the proposed rule: so would all of the river's ephemeral tributaries and arroyos, as well as Nichols and McClure reservoirs, which supply 40% of Santa Fe's drinking water. Our groundwater aquifer and our city's wastewater treatment facility would be opened to unlimited, unregulated pollution.

New Mexico's waters are particularly threatened by this proposed rule because we (and a handful of other states) have not developed our own equivalent to the Clean Water Act that would allow our state government to regulate discharges of pollution into our waters. Instead, we depend entirely on the federal Environmental Protection Agency (EPA). If the Santa Fe River is no longer covered by the Clean Water Act, we will be powerless to protect it.

In recent years, the Clean Water Act has helped us identify and begin to address contamination in the Santa Fe River from *E. coli* bacteria to PCBs and other pollutants. It has also provided funding to support ongoing work to restore the river ecosystem, reduce erosion, and clean and filter stormwater. All of the progress we have made could be rolled back if the proposed rule is implemented.

The Santa Fe Watershed Association has joined the City of Santa Fe and many other nonprofits, local governments, and individuals in opposing this proposal to strip Clean Water Act protections from the Santa Fe River and most of New Mexico's other rivers and wetlands. While we are urging the



This lovely waterfall is one of many that pool water and increase infiltration, as the Santa Fe River runs beside East Alameda, in the heart of Santa Fe.

federal government to reverse course, we are also encouraging the state of New Mexico to enact its own water protections to keep our rivers safe and clean even if the federal government fails to act.

— Kristina G. Fisher
SFWA Board Member

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

watershed that we are not currently monitoring all of them, but we need to try. This may seem like an over-simplification, but if a body of water is polluted, it cannot be included in the balanced water plan.

So it's time:

- to accurately determine the water that we need and use;
- to monitor the quality of that water and its location in the watershed;
- to use that information to create a sustainable, long-term, balanced water plan.

By the way, a recent Chama River ruling affirms that environmental flows are officially a "beneficial use" as defined by the State of New Mexico. This could be a game-changer, incentivizing many of us to conserve water that we can now allocate to the *living* Santa Fe River.

Please Welcome Morika Hensley, SFWA Program Coordinator

In late August, Morika Hensley came on board as SFWA's new Program Coordinator. Mori is a third-generation New



Morika Hensley

Mexican who grew up with horses, dogs, cats, soccer balls, and lots of art in the dirt of Santa Fe and Taos. She is a lifelong lover of wild beings, sacred landscapes, and terrible puns, devoted to discovering and embodying a path of place-based ecocultural stewardship.

Mori earned her B.S. and M.S. degrees

in Environmental Sciences with a concentration in Ecology and Conservation from Emory University, where she focused primarily on human-wildlife conflict in Ladakh, India. She also has a background in Tibetan Studies, community conservation, and religion and ecology. She is the recipient of a Fulbright-Nehru Student Research Grant, Santa Fe Community Foundation Michael Currier Scholarship, and Los Alamos National Laboratory Foundation Senator Pete Dominici Scholarship.

When not volunteering in the Santa Fe County Trails and Open Spaces, she loves any other excuse to be outside. Mori is overjoyed to be back in Santa Fe again, to learn from and contribute to this community in an intentional way.

Mori's responsibilities as Program Coordinator include but are not limited to development of our Adopt-the-River; Adopt-an-Arroyo; My Water, My Watershed; and Rain Garden programs.

Volunteer Testimonial



Helping the Santa Fe Watershed leaves us with personal satisfaction, a sense of accomplishment, and happiness knowing we are helping our environment. This opportunity allows us to demonstrate leadership by protecting wildlife and water sources, in addition to keeping the City clean. We hope to inspire others to take action and help make our world a better place.

—Maaite Girdner
Capital High School

More than 50 students of the class 2020 at Capitol High School NHS are River Stewards of the reach near La Montanita Co-op along West Alameda Street.

Santa Fe's Municipal Tree Board Is Thinking Ahead

Santa Fe has a Tree Board. Formed in 2008 in response to the City's quest for the Tree City USA designation (www.arborday.org/programs/treecityusa), the Municipal Tree Board is composed of certified arborists, master gardeners and tree enthusiasts. It is an advisory committee to the Parks and Recreation Commission (PARC). The Board's stated mission is "to advocate for health and proper care of the urban forest and to educate the public regarding the impor-

tance and benefits of the urban forest." Since the Municipal Tree Board is a City-sponsored subcommittee, its main focus is on trees located in public areas. This includes City parks, playing fields, golf courses, medians, trails and open space.

The Tree Board is currently developing an urban forest management plan for Santa Fe. Such a plan would define where the City's resources need to be directed in order to

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Chris Ishee and Melia Lewis — Steward Leaders Are Moving On

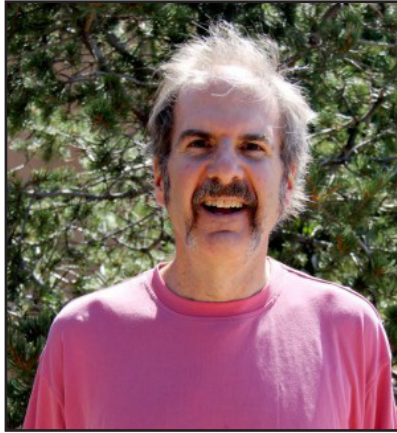
This year we have to say goodbye to two outstanding Steward and Team Leaders who have been involved in our Adopt programs for several years.

We would like to extend our greatest appreciation to Melia Lewis and Chris Ishee for investing their time and knowledge into so many young volunteers. They have shaped a new generation of environmentally sensitive citizens. We at the Santa Fe Watershed Association are forever grateful.

Chris Ishee

Performing Arts faculty at Santa Fe Prep and local musician Chris Ishee has led Santa Fe Prep's high-school students in the arroyos since 2016. Students, he affectionately calls Arroyo Ratz, are part of a year-long service project. The same team visits the Arroyo Mascaras approximately 18 times each school year, cleaning and thinning invasive elms. The Arroyo Ratz become very familiar with the life of this arroyo. This year we have to say goodbye to him since he has been asked to help out with another Santa Fe Prep community-service project that will tap his connections in the music/arts community.

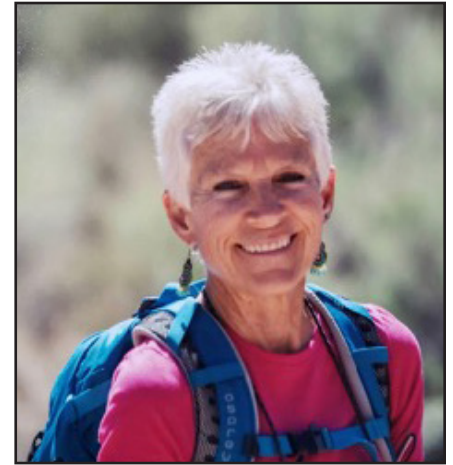
Santa Fe Prep's foreign language teacher Olga Herrera will be Chris Ishee's successor.



Chris Ishee, Santa Fe Prep Steward Team Leader (2016-2019)

Melia Lewis

Beginning in 2013, Melia Lewis introduced the Desert Montessori community of students and their parents to the Santa Fe Watershed Association's Adopt-the-River and Adopt-an-Arroyo programs. As a long-time teacher at Desert Montessori and now an Early Childhood Assistant at the May Center, Melia has taken more than 600 students and their families into the Santa Fe River and Arroyo Cabra. We will miss her work as a team leader, but we will still see her around, as she would like to continue her connection with SFWA.



Melia Lewis, Desert Montessori Steward Team leader (2013-2019)

"Cleaning the Santa Fe River helps children ask and understand important questions:
How does what we do here in Santa Fe affect the ocean?
Why is it important to know where our drinking water comes from?
How can we best care for the multitude of plants and animals?"

Who Is This?



This little guy (about 10" long) was spotted below the Camino Alire bridge in the Santa Fe River bed in August of this year. Who is s/he?

The first to tell us wins a Santa Fe Watershed Association cap.

Send your answer to info@santafewatershed.org.

Melia writes, "Supporting children in becoming conscious and dedicated Earth stewards is the most important work I've done. Cleaning the Santa Fe River helps children ask and understand important questions: How does what we do here in Santa Fe affect the ocean? Why is it important to know where our drinking water comes from? How can we best care for the multitude of plants and animals we share the planet with? Performing this service empowers children to know they can make a positive difference in the world and instills lifelong respect for the Earth."

Desert Montessori Director Phoebe Walendziak will be taking on the role of Steward Leader.

Thank you Melia and Chris for supporting Santa Fe's watershed. How can we say goodbye to volunteers with whom we have worked for so many years?

SFWA Programs Continue to Educate, Mobilize, Plant and Grow

Adopt-the-River

In this past year we have witnessed the rebirth of a mostly-flowing river. Our River Stewards have gone out and kept the riverbed clear of debris, and the flows continue. More than 987 volunteers in 28 Steward Teams have collected more than 1,131 bags of trash in the first nine months of 2019.

Both the City and County have been underwriters of this program, along with 30 Sponsors.

In addition to Stewards who tend their reaches of the river six times per year, SFWA organizes three community river-cleanup events each year. Please join us in 2020:

- **Love Your River Day:** Saturday, February 15;
- **Great American River Cleanup Day:** Saturday, June 27; and
- **Hunt for Red Rocktober:** Saturday, October 17.



Before and After: The Sicamoro and W. Alameda rain garden on September 1, 2016 when we had just completed it, and on September 6, 2019. For our watershed, these simple features may hold the key to future water-infiltration techniques.

Adopt-an-Arroyo

While Adopt-the River engages residents in clearing trash out of 30 reaches of the Santa Fe River and reporting changes in the river corridor, Adopt-an-Arroyo organizes residents to go several steps further by taking a proactive role in actually restoring reaches of arroyos.

In the first nine months of 2019, 405 Adopt-an-Arroyo Stewards made 50 visits to arroyos and collected 475 bags of trash. In addition, Stewards are working with Aaron Kaufman to assess, plan, and implement restoration measures along the approximately 80 miles of arroyos in our watershed – all of which flow into the river after rain and snowstorms.

The goals are simple:

- reduce soil erosion,
- reduce infrastructure damage, and
- increase aquifer recharge.

We now have 12 Steward Teams and 20 Sponsors committed to adopting our intermittent waterways. We also have a Sponsor Match program to cultivate future Sponsors.

My Water, My Watershed

This program has been a cornerstone of educational outreach for the *2010 Municipal Watershed Plan*. Since its inception in 2010, we have taken more than 8,200 fifth-grade students up into the Municipal Watershed. When City funding faltered, private foundations – the Los Alamos National Lab Foundation, Lineberry Foundation, Clothes Helping Kids Foundation, and the Rotary Club of Santa Fe Foundation – shouldered the financial responsibilities. The City has reinstated this program as part of its Water Conservation Department, so that, in the 2018-2019 school year, we were able to present this program, for free, to 45 fifth-grade classes. So far, for the 2019-2020 school year, we have received commitments to fund 35 classes.

Climate Masters

Our New Mexico Climate Masters program graduated another class this past year. Designed for all ages, this ten-week course brings in notable speakers and provides reading materials to prepare us all for the years ahead. Field trips have become a major part of this program as well as the community-service project after the coursework is complete.

Rain Gardens

Our Rain Garden program, headed by Aaron Kaufman, is putting the finishing touches on seven new rain gardens at Santa Fe High's student parking lot. These were funded by the Delle Foundation as a pilot program to ascertain the value of converting parking spaces into rain gardens. This past spring, we created three more Rain Gardens at Herb Martinez Park.

— Andy Otto, SFWA Executive Director

The Traditional Communities Collaborative Is Advocating for Agricultural Traditions Along the Santa Fe River

Last fall's United Nations report was a wake-up call to cities and communities throughout the world about climate change. The argument about whether we have 10 or 12 years until major environmental destruction is almost immaterial unless we get our local house in order. Water is the Santa Fe Watershed's climate-change concern. Ensuring a sustainable water supply is an obvious and critical need for our future. Many groups have been working to prevent flooding and erosion, improve water retention and quality, and restore native habitats in the Santa Fe River Watershed. We're fortunate that we have impressive expertise from which to draw, as we work together to manage this precious resource.

Six years ago, the Santa Fe River Traditional Communities Collaborative formed to provide stakeholder input to the U.S. Forest Service on a proposed lower Santa Fe River restoration project. Collaborative co-chairs are Felicity Broennan, the former director of the Santa Fe Watershed Association, and Carl Dickens, who also serves as the president of the La Cienega Valley Association.

The Collaborative includes representatives of federal, state, city and county government agencies; artists, members of non-profits, county commissioners; presidents of the village associations for Agua Fria, La Cienega-La Cieneguilla and La Bajada; established area farmers and ranchers; and representatives from the Pueblo de Cochiti, Senator Udall's Office, Representative Lujan's Office; the Santa Fe Watershed Association, and the Santa Fe-Pojoaque Soil and Water Conservation District.

Soon after the Collaborative formed, we recognized that we couldn't plan the proposed 10-mile restoration unless there was a consistent flow of water in the river. The Collaborative is committed to working to ensure that there is a steady, certain and clean flow in the Santa Fe River – a flow that will maintain the river's riparian health and sustain the communities' agricultural traditions that go back to the time when Pueblo people raised crops along the river. This isn't as easy as it sounds, because in this part of the watershed, other than unpredictable rainfall, the Santa Fe River is primarily dependent for its flow on the output from the City of Santa Fe's Wastewater Treatment Plant. The demand for steady flows in the lower river competes with existing City-water commitments to parks, to the public Marty Sanchez Golf Course, and to the privately-owned Santa Fe Golf Course.

There is a lot of wisdom and passion in our group. To read our series on different aspects of our watershed, please see the *Santa Fe New Mexican*. There you will find:

- a brief history of travel and use along the river;
- an edited analysis of pharmaceuticals present in the river water;
- a proposal for a water ethic;

- a guide to the basic geography of our Santa Fe River Watershed, and how it is currently managed; and
- the watershed's agricultural traditions.

The Collaborative believes that this is a moment to help citizens of Santa Fe understand the effects of their water use and help us all prepare for our water challenges.

We all know by now that we cannot overstate the need for wise water use. Thus, we are asking the Santa Fe County Commission, Mayor Weber and the City Council:

- to create a joint City and County working group that includes members of the community, and
- to give them the authority to address the long-term health of the entire Santa Fe River Watershed.

To address statewide water concerns, the Collaborative is asking our government representatives, our elected officials and our communities to dedicate a "Decade of Water" to focus attention, educational initiatives and resources on our water issues.

We also look forward to working with a State Engineer who is committed to addressing the complex issues. These are essential steps in the most important effort to sustain our State's waters and our cultural traditions.

— by Carl Dickens and Felicity Broennan, *Co-Chairs of the Santa Fe River Traditional Communities Collaborative*

Municipal Tree Board *(cont. from page 4)*

cultivate a quality urban forest. The first step in creating a tree management plan is to gather baseline data on the number and condition of existing tree species. The Tree Board has begun inventorying trees in the areas that the Parks Division maintains. This inventory is managed by Santa Fe's Master Gardener Association. To date, 20% of the City's parks have been inventoried as well as City Hall and the Plaza.

Members of the Tree Board are also examining the City's Land Use Code, which is under revision, to ensure that information regarding tree selection and maintenance is correct and timely.

Tracy Neal, an arborist who is a founding member of the Tree Board, has created listings of trees and other woody plants that are recommended for Santa Fe. These lists are available through the Land Use Department and on the website of the City's Parks Division. (Please watch for the Tree Board's own web page.)

The Municipal Tree Board meets monthly at the Siler Road offices of the City's Parks and Recreation Department. Meetings are open to the public.

— Katherine O'Brien
Chairperson, Santa Fe Tree Board



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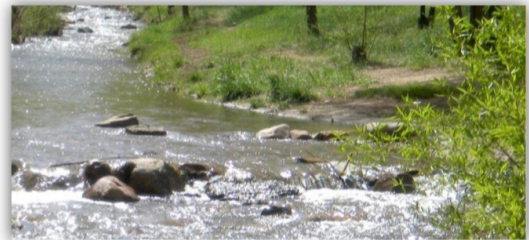
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A CELEBRATION OF OUR ENVIRONMENT!



May 2-3, 2020  Watch for details!

Please Join Us!

SFWA's Annual Winter Watershed Benefit

Thursday, December 12, 2019; 6:30 pm

Hotel Santa Fe

Silent Auction

Speaker: Andrew Erdman on the City of Santa Fe's Water Bank
Mix, mingle, and munch on appetizers. Beer and wine available, too!