



The Flow

November 2019

Friends of the Santa Cruz River Newsletter

President's Report And Plea

By Ben Lomeli

It's been busy times for the Friends of the Santa Cruz River (FOSCR). The River, Sonoita Creek and Nogales Wash face many challenges; and FOSCR needs a lot of help meeting all of them.

Keeping clean water flowing in the river, conserving a vibrant riparian habitat, protecting our drinking water supplies and public health and safety in our watershed will help us maintain a "business friendly" local economy, which greatly depends on the environmental health of our communities.

None of these goals come easy. Our watershed faces several new

challenges. FOSCR needs your help. FOSCR's Board of Directors (BOD) has been working hard to address the threats and challenges, but we are a small "working board" in desperate need of new helpers; especially younger and bilingual.

FOSCR's main concerns generally include but are not limited to:

1. Nogales Wash sewer, flooding and sediment problems. (See IOI Exhibit on pages 4 and 5.)
2. Threats to the river's base-flows and to the long-term quantity and quality of our groundwater drinking supplies

3. Heavy metals and other pollutants (including fugitive sewer flows in Nogales' West "Arroyo")

Other related concerns include: trash (in our community and waterways), climate change, dismantling of environmental protection laws (especially WOTUS, Clean

Water and Air, and Endangered Species Acts), the new Border Patrol Bridge, the border wall, and proposed mining on both sides of the border.

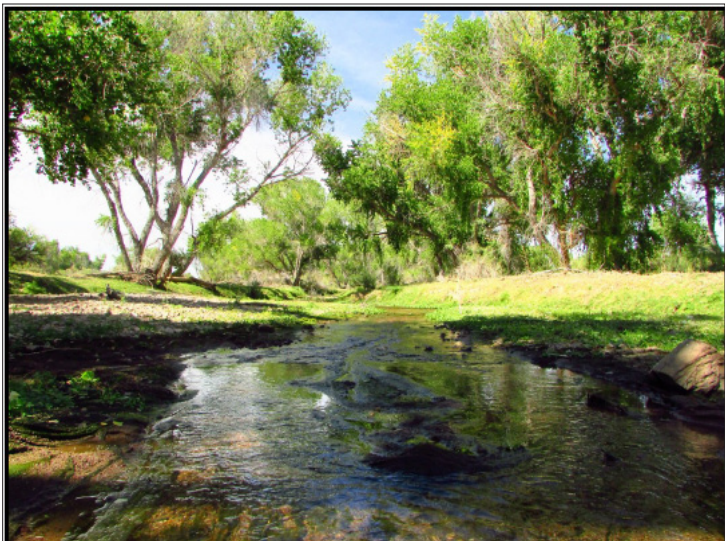
A holistic integrated engineering approach and sufficient funding to comprehensively address all comingled stormwater infrastructural, water resource and environmental issues facing Ambos Nogales and Southeastern Arizona communities along Nogales Wash and the Santa Cruz River are desperately needed.

Our lives and the long-term sustainability of our local economy depend on the decisions made today regarding these critical public resources.

FOSCR coordinates with and attends local, state and federal government meetings, always advocating for public interest and public trust on science-based issues. FOSCR also engages in public outreach, including schools, public events and exhibits, and was interviewed by several radio and TV stations.

FOSCR's RiverWatch team also monitors the flow and water quality of the Nogales Wash and the river every month. Our community conservation group also organizes scientific studies and an annual multi-agency and public volunteer river clean-up.

FOSCR can't do it alone. We create and work with many partnerships, including the Community Water Coalition of Southern Arizona, Anza Trail Coalition, Corridor



Santa Cruz River. Photo by MeinTeRae Baldeschi, Global Community Communications Schools



President's Plea, con't.

Keepers, Waterkeeper Alliance, Patagonia Area Resources Alliance, Tubac Nature Center, Sonoran Institute, University of Arizona, and Friends of Sonoita Creek. We all face similar issues. We "flow into one another".

In summary, we need help from all responsible parties to diligently seek and advocate for sufficient funding levels to implement appropriate and permanent solutions to all these flood and water resource related issues and potential sources of contamination that threaten life, health and property.

FOSCR desperately needs help on the BOD, as well as "in the field". A

Volunteer Coordinator is especially needed at this time, but we welcome and appreciate whatever other help YOU can provide; at any level of commitment.

Thanks and **please support the Nogales Wastewater Fairness Act.**

It is our best bet for a truly long-term fix to our border water pollution problems. The act is the **fair and permanently sustainable comprehensive solution** needed for this INTERNATIONAL stormwater and



Mia Bolanos, Untitled Watercolor, Desert Shadows Middle School, 1st place Ages 12+, 2019 Celebrate the River Student Art Contest

sewage issue that **does not place the perpetual responsibility and financial burden on local residents.**

FRIENDS OF THE SANTA CRUZ RIVER

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The Flow is published by Friends of the Santa Cruz River (FOSCR), a nonprofit, volunteer organization dedicated to ensuring the continued flow of the Santa Cruz River, the life-sustaining quality of its waters, and the protection of the riparian biological community that it supports.

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Opinions expressed in guest articles are those of the author's and not necessarily those of FOSCR.

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FOSCR Help Wanted—and Needed

Friends of the Santa Cruz River, like many grass roots environmental watchdogs, is kept alive by a working board. A very small group of people basically do everything, and we frankly need help.

Thanks to all the people who are assisting in specific areas such as River-Watch, FOSCR Facebook posts, FOSCR website, river clean-ups — your help is invaluable!

Here are the areas where we (kind of desperately) need help:

- A volunteer coordinator
- A media outreach coordinator
- More people committed to participate in monthly Riverwatch trip—which has been faithfully done since it started in 1990!
- Also need help with cataloging back data and keeping data current
- Someone to coordinate and collect Letters of Support for fixing the IOI
- Someone to catalogue all the IOI ruptures that have occurred so far
- People to commit to participating in the annual fish survey (November)
- People to assist in giving powerpoint presentations in local schools for Celebrate the River Student Art Contest
- People to set up and manage FOSCR booth at events, such as the Tumacacori Fiesta in December
- People to give riverwalks on the Santa Cruz River
- Help with social networking

Volunteers can email foscriver@gmail.com or call Blue Evening Star at 520-403-2823.

Our Nectar Feeding Bats

By Marty Jakle

The door is closing on this year's monsoon season. The migratory birds are leaving for warmer regions and some, like the white-crowned sparrows, are arriving from the north to winter with us. But also leaving now are our two species of nectar feeding bats, the Mexican long-tongued bat and the lesser long-nosed bat.

These are the bats that commonly clean out our hummingbird feeders during monsoon nights. We have both of these species and they are difficult, if not impossible to tell apart by us non-bat experts, on the wing. However, they can be identified if you are able to get a real good look at their backend. The Mexican long-tongue bat has a membrane between its hind legs and the lesser long-nosed bat lacks it.

The lesser long-nosed was placed on the endangered species by the U.S.



Fish and Wildlife Service in 1988. In 2018 it was the first bat to be removed from the list. This removal was a combination of recovery efforts to improve its habitat and improved censusing techniques. Both these factors caused a re-evaluation of the population numbers which proved sufficient to recommend the delisting which happened in 2018.

Both these nocturnal feeders are unique because, unlike other bats which are insectivorous, they feed on pollen and nectar. We are on the edge of their range here in southeast Arizona with the population centered in Mexico. They feed on agaves and columnar cactus with their main favorites being saguaros in this area and cordon (very similar to our saguaros) further south.

While flowers are their major food source, they've discovered that hummingbird feeders also are a good source. If you find your hummer feeders empty in the mornings and you knew perfectly well that they had some

fluid in them when you went to bed, then you are lucky enough to be feeding both bats and hummers.

Lots of folks take their feeders down at night or cover them so bats don't raid them. I have four hummingbird feeders up and three I leave up at night uncovered to feed bats and 1 I leave up with a bat excluder to keep the bats out. [Bat excluders are easy to make, mine is made in the shape of a hatbox of four-inch square wire mesh. The feeder is inside the "hatbox" and the mesh is big enough to let the hummers in and exclude the bats.] This feeder survives the night with sugar-water still in it to feed the hungry hummers who come at first light.

I've recently noticed that some of my open feeders still have sugar-water in them in the morning signaling that the bat numbers are dropping. I expect they will all have migrated south by mid-October.

The bats will soon be gone and I'll expect them back around mid-August of next year. One morning I'll go out to fill my hummer feeders and find most of them dry—then I'll know the bats have returned.



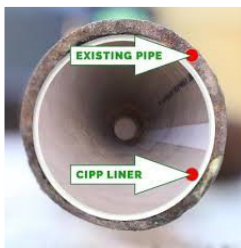
Absolyten Raymond, "Santa Cruz River Bugs", 2nd Place, Ages 9-11, Global Community Communications Starseed Schools for Teens and Children

The International Outfall Interceptor (IOI) is a 9 mile long pipe that transports sewage from Nogales, Sonora, Mexico and Nogales, AZ to the Nogales International Wastewater Treatment Plant (NIWTP) in Rio Rico, Arizona. Friends of the Santa Cruz River (FOSCR) has been advocating for permanent repair of the IOI for years.

- This sewage pipe is in danger of catastrophic failure. The federal agency tasked with “monitoring for and seeking corrective action for renegade and fugitive flows” along our border environment, the International Boundary and Water Commission (IBWC), is resisting taking responsibility for this critical piece of border infrastructure.
- Most of the IOI runs underneath the binational Nogales Wash which is seriously undersized, un-

Leaks: The IOI is leaking raw sewage into our drinking water. Groundwater is also leaking into the IOI.

Cause of problem: Leakage is happening because the pipe is old and the bottom is eroded and connections are failing.



Solution: Cure In Place pipe lining (CIPP) This is a “sock” in the pipe that is sealed to the inside of the IOI with steam. Estimated cost for Phases 1 and 2 (for only upper and lower ends of the IOI) is 40 million dollars, and well over 80 million dollars for the whole 9 miles.

- It would be better to put the CIPP only in the sections of the IOI that are well protected under streets, and are not vulnerable to floods in the Nogales Wash. This will avoid the unnecessary expense of installing CIPP the entire 9 miles of the IOI and the cost of future ruptures.

Spills: Most of the IOI spills happen close to the border.

Cause of problem: Spills are happening because manholes in Nogales, Sonora are opened to alleviate street flooding. The extra water puts pressure on the gravity flow IOI pipe, which causes manholes in Nogales Arizona to spew raw sewage like geysers.

Solution: Retrofit better drainage in the streets of Nogales, Sonora so folks there don't have to open sewer manholes to relieve street flooding. See Laura Norman USGS study on Modeling Storm Water at Ambos Nogales for science based solutions: www.ibwc.gov/Files/Nogales_USGS_Presentation_042816.pdf

Ruptures: Much of the IOI is under the Nogales Wash. Close to the border, the Nogales Wash is concrete lined, but downstream the Wash is not lined with concrete, it is natural. The floods in the natural part of the Wash can still erode the banks, erode the bottom, and expose the pipe. Eventually causing it to break because it's not just water in this Wash when it's flooded. There's also boulders, trees, even trucks and appliances rolling down the Wash that can crash into the pipe, if it's exposed, and rupture it.



Cause of problem: The IOI is located in a Wash that has been incised, and is eroding by floods that carry heavy debris. The IOI pipe and manholes are ancient, in disrepair condition, exposed, and vulnerable.

Permanent Solution: Get the IOI out of the Nogales Wash (but keep it at the same elevation so lateral connections are not a problem).

- A permanent solution will require looking at the Nogales Wash as a whole system. Washes naturally meander, erode, change banks, and flood. The Union Pacific Railroad is a very significant player. One possibility could be to move the IOI underneath or next to the better protected adjacent railroad.

More Solutions: There is a need to install sensors so we know immediately when the IOI breaks. Put sensors in some of these manholes so that we can detect when we have a problem, whether it's a rupture, a spill, or a blockage. Sensors are relatively inexpensive and very important, because all this is under water during a flood

- A comprehensive GIS study is also needed to assess the feasibility and the cost of taking the IOI out of the Wash; at least in the downstream natural portion, as opposed to facing repeated ruptures in the Wash.
- There are many ways to slow runoff in the watershed and to allow for infiltration of flood water to recharge the water table and reduce erosion and sedimentation problems. Plant native species to slow water runoff.



stable, and subject to increasingly destructive flooding.

- The IOI has a history of rupturing. Infiltration of groundwater into the IOI and exfiltration of raw sewage into the aquifer occurring at several locations threatens long-term groundwater contamination potentially affecting public health & safety.
- Currently proposed cure in place pipe CIPP) lining of the IOI would mitigate leakage, but would not provide structural protection to prevent flood/erosion induced ruptures in the Nogales Wash. The proposed CIPP does nothing to remove the danger of the pipe breaking again during flood events.

The entire community living in the Santa Cruz River watershed has a lot to lose and very little resources to deal with the problem. We are a community at risk.

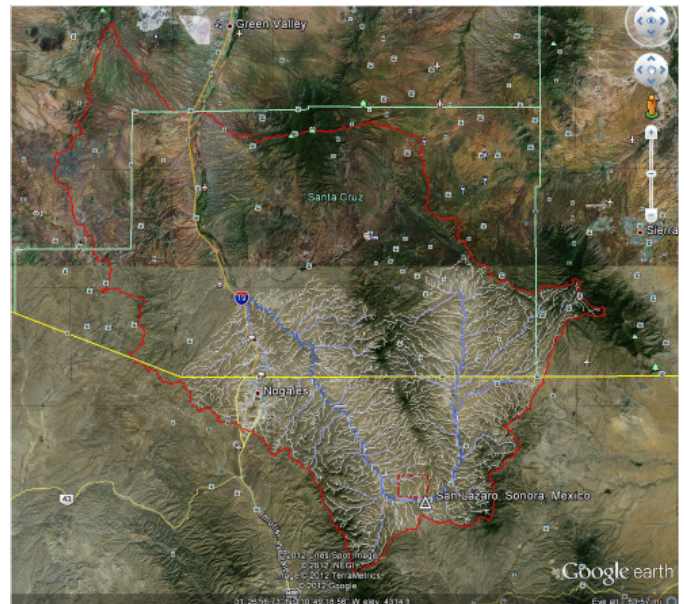
FOSCR IOI GOALS

Establish that a federal entity is legally responsible for internal stormwater and sewage issues affecting Nogales, Arizona and downstream residents.

A fair and permanently sustainable comprehensive solution is needed for this INTERNATIONAL stormwater and sewage issue that does not place the perpetual responsibility and financial burden on local residents.

Action Plan: 1) Support the Nogales Wastewater Fairness Act: Work with our Congressional delegation to establish federal responsibility for the IOI. 2) Build coalition of support with organizations.

- Expanding our support base downstream and networking with other groups facing similar issues along the border
- Community Outreach



STEP 1: Find scientific solutions to the environmental concerns.

STEP 2: For all stakeholders to get behind a scientifically sound plan for a permanent solution.

STEP 3: For all united stakeholders (including private landowners, the railroad, County and City) to put political pressure on Congress to get the job done. It will take Congressional action. The Arizona delegation is already behind it.

Ruben Reyes, District Director for Rep. Raul Grijalva, Nogales Wastewater Fairness Act

"I have faith and I have hope. It's going to take quite a bit more than 24 million dollars to solve the whole thing because we also have to solve the flooding problem, and the contamination problem down the Wash, not just in the pipe. We are vulnerable. We are a community at risk. And I'm not talking just about Nogales, I'm talking about everyone downstream from here, because obviously the contamination affects a lot of people along the river. During the July, 2017 partial rupture, we had super elevated E. coli counts all the way down to San Xavier, in Tucson; and that was just a partial rupture. Imagine if all the vul-

nerable spots failed at once. We all have to work together and get our political leaders to put the money into this international infrastructure to protect a large community at risk

Ben Lomeli, hydrologist, FOSCR board



The Tubac Nature Center

By Jim Karp

Tubac Nature Center continues its progress. Starting October 2, the Nature Center open hours per week - Wednesday, Thursday, Friday and Saturday 10 - 2 PM and Sunday 12 to 4 PM. We are still looking for docents to make staffing these additional hours easier on everyone.

The new edition of Bob Maurer's book, "On the Trail Again" featuring 95 hikes in Santa Cruz County has just arrived from the printer. The book will be sold at the Nature Center beginning October 2

for \$20. Bob has generously agreed to donate all proceeds from the sale



of the book to the Nature Center. Also, Susan Lindsay has created 9

prints for our collection of "Hawks Over Tubac" that will be available at the Nature Center. Print size 8" x 10" are on display and can be ordered in that size for \$15; larger prints are also available. Susan has done all

the art work in the Nature Center, and has agreed to donate the proceeds from the sale of these prints to us. Nature Center caps should be available soon.

We will continue to offer our educational nature walks and talks this season, and each month you can find our flyers promoting them at the Tubac and Tumacacori Post Offices, numerous places in Green Valley, and in 25 businesses in Tubac. The walks and talks are aimed primarily at adults, but we have a new Education Chair who will focus mainly on children and their families.

Connie Williams has brought her "Corridor Keepers" program into the Nature Center orbit with the expectation that the program will be expanded. Stay tuned.

Finally, as long as you are tuning in, be alert for our fund raising campaign that will be unveiled in November. The proceeds of the campaign will provide our operational support for 2020.



HeWhoWai Lohman, "Dragonfly on a Desert Rose", 1st Place, Ages 9-11, Global Community Communications Starseed Schools for Teens and Children



Cesar Erickson, Untitled Acrylic, 3rd Place, Ages 12+, Desert Shadows Middle School

Beautiful Bugs - About the Student Art

Friends of the Santa Cruz River has been offering an educational program to local schools that provides presentations on the river to student groups and then sponsoring an art contest.

This year's theme was "Bugmania on the Santa Cruz River." The PowerPoint presentation that was created contained information on our beautiful watershed, aquatic invertebrates and how their presence indicates a healthy river, and the plant and animal life that depend on the river. It

was created and presented by students of Global Community Com-

munications Schools (GCCS).

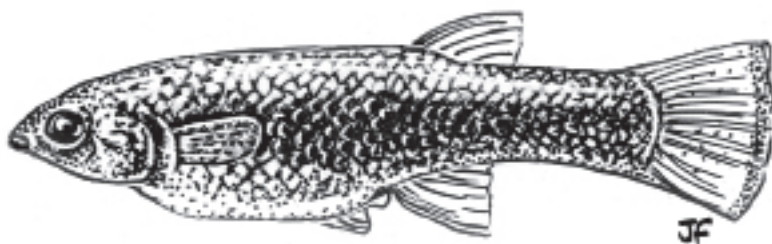
The student art from this year's contest were once again recognized and displayed at the Americana Hotel in Nogales, Arizona on Friday November 1.

The art from Celebrate the River 2018 and 2019 is also being displayed — in conjunction with the Smithsonian Waterways Exhibit — at the Tubac Presidio and The Lowe House in Tubac, from October 31 through November 30th.



Jyzelle Suarez, "Alebrije", Honorable Mention, Ages 9-11, San Cayetano Elementary

MONITORING ADVOCACY EDUCATION PARTNERSHIPS



FRIENDS OF THE SANTA CRUZ RIVER

Membership/Donation Form

Date _____ New ___ Renewal ___ Donation _____

Name _____

Address _____

City _____ State _____ Zip _____

Telephone # _____ E-mail _____

Memberships: ___\$5 Student ___\$15 Single ___\$25 Family
___\$50 Supporting ___\$100 Sustaining ___\$500 Life Member ___\$ Other: _____ (Amount)

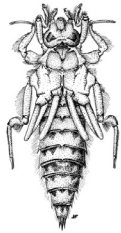
Mail form and check to: FOSCR ☐ P.O. Box 4275 ☐ Tubac, AZ 85646

Or join through PayPal: foscraz.org/join-us/

Have you received "A Rambler's Guide to the Santa Cruz River?" (Free with membership!) Yes ___ No ___



P.O. Box 4275, Tubac, AZ 85646



Dragonfly Nymph

