Efforts to resuscitate rivers having limited success

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The Santa Cruz River flows underground along parts of its 225-mile U-shaped path, so people have always settled where the water surfaced.

Tucson grew up along the river, fanning out from lush riparian landscapes that drew throngs of people looking for some green in the desert. Cottonwood trees grew along the river's meandering path. A cienega spread out near the San Xavier del Bac mission, and 60-foot mesquite trees grew nearby.

As more settlers moved to Tucson in the 19th century, they demanded more water. They diverted it in ditches, they pumped it from the ground. Ranchers overgrazed the watershed, and builders forced the river into unnatural channels.

Finally, when the Santa Cruz could give no more, it slid from view, and people stopped thinking of Tucson as a river city.

The story of the Santa Cruz shows how Arizona rivers create communities, define towns, influence culture; and how, when the rivers fade, those communities and Arizona lose an irreplaceable part of themselves.

Rivers breathe life into places and people, pulling them toward the sound of water kissing rocks, the sight of a bird or a butterfly, the cool touch of a breeze or a tree. Rivers create homes, whether people live by them or not. Writer Edward Abbey said once that a river is the soul of the desert. When it dies, it takes with it not just water and habitat but a spirit.

Arizona faces losses as devastating as the Santa Cruz in Tucson if the state's other rivers lose their battles to survive. Already, the Salt and Gila have become oddities in Phoenix, empty riverbeds where at best restoration work creates artificial likenesses of the old rivers, where at worst mounds of old tires and other debris are dumped. On the upper Gila, stretches of the river once popular for weekend outings are now clogged with trash. Damage to habitat along the San Pedro has forced caretakers to fence it off to public access.

Aldo Leopold, another writer who spent long hours exploring rivers, said we abuse the land when we see it as a commodity that belongs to us, but "when we see (it) as a community to which we belong, we may begin to use it with love and respect."

Tied to 'el rio'

Joaquin Murrieta doesn't want to see the rest of the Santa Cruz lose its soul. As culture and conservation director for the Sonoran Institute's Sonoran Desert Program, Murrieta has helped residents of San Lázaro, Sonora, reclaim some of their ties to a river that, as it loops through Mexico, barely clings to life.

The threat to the Santa Cruz there was clear: poor ranching practices on the watershed and groundwater pumping by Nogales, Sonora, which is reaching farther afield every year to quench its thirst. The challenge was murkier: Teach river conversation to people whose lives depended on the land and the water.

"For us, it is very easy to say, 'Why not take the cattle out of the river?' " Murrieta said. "But it might take three years to convince the farmers to move. It's very difficult politically and culturally, especially when you don't have the law behind you."

So Murrieta enlisted conservation leaders from the Mexican side, and they began meeting with the ranchers one by one. Along the way, they hatched the idea of involving the young people. At first, the kids took water samples, but they asked the institute to find them something more to do.

So were born Los Halcones, or the Hawks. The institute rehabbed an old clinic and created the Centro Comunitario para la Conservacion del Rio Santa Cruz, a place where the teens could study birds and visiting scientists could work.

Most of the 13- and 14-year-old Halcones grew up in San Lázaro, a community of 900 more than an hour's ride from Nogales. Until they joined the bird-watching club, the river was just *el río*, a close escape from the town's dusty heat, a dwindling source of water for the local *ejido*, the ranching cooperative.

Now, it's a place where the teens gather to learn about birds, about migration patterns. They take water samples and help chart the river's health. On weekends, they plan outings with older club members who attend high school 40 miles away in Cananea.

They have become experts. For most people, a pair of vermilion flycatchers would steal the show, splashy shots of candy-apple red popping in and out of the willows along the river.

For Los Halcones, the feathered show-offs are old news, long checked off the list, pretty to see but, "*¡Mira!* Look!" Downstream a few yards, a couple of the kids peer through binoculars; others quickly consult a birding guidebook. They confirm a new sighting and enter it in notebooks.

In another place, forming a local bird-watching group wouldn't rank high as an accomplishment, but it does in San Lázaro, where the young people have helped reclaim a tie to their culture.

"Now, the kids are talking to the ranchers and telling their parents, 'There is a way we can do this a little better,' " said Amy McCoy, the institute's Sonoran Desert project manager. "They're noticing the functions of the landscape. They're figuring out how the river figures into their being."

Rebirth of sorts

The Santa Cruz looks dead as it nears Nogales. As recently as seven years ago, enough water flowed in the outskirts of the city that rural townspeople could conduct baptisms each spring. Now, only a few hardy mesquite trees survive. The sun has bleached the empty husks of cottonwood trees, leaving them to look like white fire had scoured the riverbed.

Then, across the border, in Santa Cruz County, the river's character switches abruptly. It traces the telltale green

ribbon as it heads north, flowing with water year-round, effluent from the giant Nogales International Wastewater Treatment Plant.

The plant empties about 15 million gallons of effluent a day into the Santa Cruz, which floats a raft of water-quality questions, not to mention a noticeable odor at river's edge. But the flow has fostered a sense of community in the county, where leaders have staked out the river's preservation as a priority.

"What would this valley be without the river?" said Mary Dahl, director of the county's Community Development Department. "It is something we want to conserve and preserve. We want to get property owners thinking about the value of the river."

Private property owners hold the key to the future of the Santa Cruz in its namesake county. They own virtually all the land along the waterway, which is unusual in Arizona. Dahl said she asks developers to look for open-space opportunities or even conservation easements, steps she said enhance the land's value.

"I think some of our home-grown developers understand and see that this is a special place," she said.

One of the few areas that has been preserved permanently is the Tumacácori National Historic Park, site of one of the missions built in the 1700s. The park recently expanded its reach with the purchase of 320 acres along the river. Some of the land had been tagged for riverside condominiums but now will help connect the scenic Juan Bautista de Anza trail.

The mission itself is a reminder of how the Santa Cruz shaped culture and community along its banks. Wherever the river surfaced on its up-and-down trek, Spanish fathers built missions. Tumacácori and San Xavier del Bac, which still stand along Interstate 19, both once sat next to a lush Santa Cruz.

Cottonwood and willow trees grow thick again along the river near Tumacácori, creating ideal habitat for birds and bird-watchers. (A University of Arizona study found one of the largest concentrations of nesting yellow-billed cuckoos on this stretch.) Park Superintendent Ann Rasor said she has noticed a sharp uptick in birding visitors in recent years as people begin to discover the area.

"We may be someday a city park," she said. "We're going to be the only publicly accessible green space."

Indeed, homes sprout all along I-19, and signs promise more near the Santa Cruz.

Re-creating a river?

Still, Rasor said, what people see at the mission is a false ecosystem. The river never flowed year-round before the treatment plant opened, and the riparian areas were sparser. If the plant ever shut down or reduced its output, a real threat as Mexico re-evaluates its water treatment options, the river would shrink.

Downstream, near the Pima County line, Laurinda Oswald has watched the Santa Cruz ebb and flow. Her parents bought a ranch along the river in the 1950s, and Oswald continues to run it, growing feed for her cattle. The river has dried up this far north, flowing mostly after storms.

"After a storm, we can see a big flash, then be bone-dry in a day," Oswald said. "Or it can run for weeks. It depends on how much rain falls."

Oswald's ranch spreads out against a stunning backdrop of the Santa Rita Mountains, a compact but rugged range that spits out the landmark Elephant Head on its northern flank. She loves working alongside a river, but she has

become an amateur river restorer to protect her land.

Erosion was eating away at grazing areas and pastures, so Oswald started planting cottonwood trees and willows to curb the damage. She has to string sprinkler pipe to keep the plants alive, but she said it's a better solution than burying old cars as ranchers once did.

Restoration is all that is left for the Santa Cruz once it crosses into Pima County. Its cultural ties have been rendered historical for the most part, and where parents in San Lázaro encourage kids to bird-watch and hike along the river, parents in Tucson warn kids to steer clear of dangerous concrete channels - if they think about the river at all.

Pima County, Tucson and other agencies plan to spend hundreds of millions of dollars to create parks and other attractions along the river. Projects like Rio Nuevo (the New River) and Paseo de las Iglesias (Path of the Churches) are under study, and the river is a key piece of the county's desert conservation plan.

But the Santa Cruz has been pumped, rechanneled, diverted, covered up and paved over until it likely will stand only as a reminder of what was, even if the restoration work succeeds.

"It's very hard to re-create what nature has done," said Pat Graham, state director for the Nature Conservancy. "You never quite get it right."

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