

Restoration News

Paseo de las Iglesias



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Restoration Project Objective

Increase size, health, and diversity of native riparian habitat within the river corridor and historic floodplain by improving and restoring ecosystem functions, structures, and dynamic processes needed to support native plant and wildlife species.

Restoration Feasibility Study Progress

The Paseo de las Iglesias Environmental Restoration Feasibility Study, which began in 2001, is being conducted by the U.S. Army Corps of Engineers (USACE) and the Pima County Flood Control District (County), with input from the City of Tucson, local residents, local ecological experts, and other stakeholders.

The study was undertaken due to the extensive loss of local riparian habitat and reductions in native plant and animal diversity. The proposed area for restoration includes over one thousand acres of undeveloped land located along seven miles of the historic floodplain on the Santa Cruz River and the West Branch Santa Cruz River between the Tohono O'odham San Xavier District to downtown Tucson.

Preexisting plus new public and expert input was utilized to compile a list of restoration measures that could be utilized to attain the project goal. Measures included water harvesting features, irrigation options, riverbank and terrace treatments, and native tree, shrub, and wetland plant community combinations. The restoration measures were assigned to one or more of the three existing "hydrogeomorphic" settings (river channel, terrace, and/or historic floodplain). The three sets of restoration measures were combined with the possible native habitat community types to create 47 proposed restoration alternatives.

After initial screening, 14 of the alternatives were analyzed for biologic, hydrologic, and economic cost/benefit values. Results lead to the identification by the USACE of three restoration alternatives that provided the most ecological benefit for the investment. These alternatives can generally be described as a hydro-mesoriparian dominant, mesoriparian dominant, and xeroriparian dominant restoration approaches (listed in order of highest to lowest water need). The alternatives were presented for public review at a County sponsored Public Open House in January 2004.

Based on community input received during and after the meeting, the County has endorsed the alternative 3E (formerly "MMM") that uses a mesoriparian-dominant approach to habitat restoration, re-establishing vegetation and habitat that is similar to what existed here prior to the turn of the century.



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continued from front page

The recommended alternative includes restored and irrigated mesquite-hackberry bosques on river terraces and floodplain that will provide shade to the channel. Watercourse areas will be bordered by mesquite and palo verde woodland and Sonoran desertscrub species. Riverbanks will be laid-back and/or terraced and planted. Water harvesting features will be incorporated. An increase in flood retention and incidental recharge will result. Vegetation will provide improved habitat for native wildlife and a pleasant setting for passive recreation. Numerous viable water sources are under consideration. 1.7 MGD (1,900 acft/yr) of irrigation will be needed to accomplish design goals.

Based on community input and collaboration with numerous local and state agencies, recreation elements currently include a multi-use 'Divided Urban River Park Pathway' along the Juan Bautista De Anza National Historic Trail alignment on the west bank of the Santa Cruz, as well as unimproved maintenance roads along the east side of the Santa Cruz. Approximately five new parking areas and three new 'comfort stations' with waste facilities and drinking fountains are planned. Wildlife viewing areas are planned. Maintenance roads, multi-use paths, and the Santa

Cruz River bottom may be used for equestrian needs. Educational kiosks can be incorporated.

The Feasibility Study Report is currently being finalized by the USACE for public release, and is expected later this summer. During a 45-day review period there will be a Public Meeting. Public comments will be addressed and incorporated into the report, and the report will then be submitted to Congress for funding consideration. If funded, design of the project is expected to begin in 2005. The project construction could begin in 2006.



Mesoriparian habitat similar to what may be restored in the Santa Cruz River project area.

What Is Riparian Habitat?

Riparian habitats are ecosystems occurring in association with any watercourse, spring, cienega, lake, or other surface or subsurface water body. They provide food, water, shelter, and migratory corridors for a wide diversity of wildlife. Southwest riparian areas represent less than 1% of the regions area, yet 70-80% of vertebrate wildlife species depend on them for food, water, cover, and migration. Riparian habitats are classified into 3 subgroups, and each will have different native vegetation community characteristics.

Xeroriparian habitat is associated with ephemeral (temporary) water supply. Locally, these communities typi-



cally contain saltbush and wolfberry, as well as plant species found in upland habitats such as palo verde and cacti, but at larger sizes and/or higher densities.

Mesoriparian habitat is generally associated with intermittent surface water or shallow ground water. Plant species such as mesquite, netleaf hackberry, and various shrubs are often present, as well as plants from somewhat drier habitats.

Hydroriparian habitat is associated with abundant permanent water on or near the ground surface. Plant species such as cottonwood and willow can be present, as well as plants from somewhat drier habitats.

Recent Public Support for Paseo de las Iglesias Project

In January 2004, a Public Open House Meeting was sponsored by the Pima County Flood Control District to gather public opinion about restoration options for the Paseo de las Iglesias project. Attendees learned about the potential habitat restoration approaches currently under consideration, as well as future recreation element planning. After the presentation, a question & answer session addressed issues related to water harvesting opportunities, connectivity of trails, potential sources of irrigation water, erosion control, and bank protection. A comment form was provided, and a tally of the responses show strong public support for:

- Ecosystem restoration along the Santa Cruz River and its tributaries.
- A mesoriparian habitat restoration approach (mesquite-hackberry bosques similar to historic vegetation communities in the project area).
- Recreational trails for walking, bird watching, and wildlife viewing.
- Preservation and restoration of native riparian habitat within the West Branch of the Santa Cruz River.

People interested in viewing the presentation made in January may see it on the Paseo de las Iglesias website, address on back page.

Did You Know?

There were formerly dozens of colorful riparian bird species living along the Santa Cruz River near downtown Tucson and at San Xavier. Mesquite and cottonwood abounded with several kinds of warblers, tropical kingbirds, orioles, tanagers, blue grosbeaks, gray hawks, and many, many more species. The cactus ferruginous pygmy owl was found here as well. Bird-watchers and scientists were amazed by the abundance, diversity, and beauty of the birds breeding here. After the river dried up around 1940, the habitat dwindled. The remaining birds today include the desert birds and "city birds" like starlings and pigeons. For birds, a return of native vegetation communities would create niches for many of the lost native, migrating, and wintering bird species. Basically, dense thickets of native riparian vegetation with management to control exotic species are all that is needed.



Photo by P. Rosen



Photo by C. Schwalbe

American Kestrel

Before the Santa Cruz's mesquite and cottonwood forests dried out, there were as many kinds of lizards here as anywhere else in the United States – 15 species or more. Big tropical Giant Spotted Whiptails, small Southern Prairie Lizards, and forest-dwelling Madrean Alligator Lizards mingled with desert species like the Gila Monster and Tiger Whiptail. There were even Desert Box Turtles, along with 8 or more species of frogs and toads. Today, most of the lizard species are still hanging on in only a few places locally, but the most unusual ones seem to get scarcer every year as the remaining mesquite thins out. Unlike birds, lizards can't readily relocate in search of better habitat. Therefore it is critical to preserve and enhance the existing lizard habitat, and perhaps plan carefully to bring some of the species back once suitable habitat is restored. The Santa Cruz's birds and lizards would both benefit greatly by restoring native habitat along the river and in surrounding neighborhoods.

Giant Spotted Whiptail is a large, attractive lizard that was apparently widespread in the Santa Cruz River habitats but is now found only on the West Branch and near Nogales.

Lost Landscape?

The landscape around this part of the Santa Cruz River has changed dramatically during the last 100 years. Only a century ago, the Santa Cruz River flowed year-round through parts of this region. The high water table supported extensive forests of mesquite, cottonwood, and willow that provided habitat for diverse wildlife species.

The surface water that once brought life to the valley is now only a distant memory as a result of groundwater pumping, drought, and historic changes to the watershed. In some places the groundwater is now over 150' below the surface. Most of the plants and animals that once thrived along the river are gone from the area, and many that were once abundant are now rare or endangered. To see a photo documentary of how local and other Pima County's landscapes have changed since the 1800's, check out Raymond M. Turner's informative report at <http://www.pima.gov/cmo/sdcp/reports/WDweb.pdf>.



Santa Cruz River at Sentinel Peak 1904



Santa Cruz River at Sentinel Peak 1981

Existing Riparian Habitat in the West Branch of the Santa Cruz River

About 90 years ago, a water control and irrigation project diverted flow from the western portion of the floodplain to what is now the main stem of the Santa Cruz River, inadvertently protecting the West Branch from the erosional degradation process that created the down-cut main Santa Cruz River channel we know today. The West Branch was more or less forgotten as agriculture became less common in the area. But this neglect has turned out to be a gift for part of the West Branch north of Irvington Road that has been left alone.

With the help of interested neighbors, local experts have documented the flora and fauna in the area. The research effort was led by Dr. Phil Rosen and the results are summarized in "Biological Values of the West Branch of the Santa Cruz River," available at <http://www.pima.gov/cmo/sdcp/reports.html>. Rosen states, "The West Branch is the least degraded and highest-biodiversity portion of the Santa Cruz River floodplain near Tucson."

The small area of remaining mesquite bosque vegetation provides outstanding habitat for many rare, unusual species of birds. The bosque contains mesquite trees nearly three feet across at the base. Even more surprising was Rosen's discovery of an isolated but thriving population of Giant Spotted Whiptail Lizard, a large (up to 18" in length), attractive and very alert animal living in the dense thickets of the West Branch. This lizard is considered to be a Priority Vulnerable Species under the Sonoran Desert Conservation Plan. Another notable discovery is the Narrow-mouthed Toad. These are the only known remaining populations of these two species in the Tucson basin. It is possible that these and other remaining species will be lost unless the remaining riparian habitat is enlarged and protected. In order to reestablish functioning habit including the same species as were previously present, some irrigation combined with water harvesting features will be required.

Mosquito Update

There are over 40 different species of mosquitoes in Arizona. Some species can fly over 10 miles, but most reside close to breeding grounds. The primary pest mosquito in Tucson today is an introduced African species that seldom flies more than 100 feet from its breeding site. These "ankle biters" live where people have inadvertently provided habitat around their houses.

Although some local species can transmit pathogens to humans, most are only nuisance pests that do not transmit disease, while other species exist without any impact on humans. Some species prefer birds, others prefer horses, and some will even bite frogs, turtles and reptiles. For more information in mosquitoes in Arizona, see the following website: <http://ag.arizona.edu/urbanipm/insects/mosquitos/mosquitos.html>

Historically, several species of mosquitoes bred along the Santa Cruz River, and malaria was an unfortunate disease affecting the early Anglo settlers in our area. Mosquito species capable of transmitting malaria to humans are now gone. But potential for mosquitoes is always a concern in any wetland or riparian restoration project.

Of particular concern right now is the West Nile Virus. This virus is a bird disease carried by mosquitoes, and it occasionally affects people, horses, chickens, and other domestic animals. The planners of Paseo de las Iglesias are well aware of this concern, and the final plan will include every possible means to reduce or manage potential mosquito breeding sites. A baseline mosquito survey is currently underway. For more information on West Nile virus, see: <http://www.pimahealth.org/disease/wnv/wnv2.htm>

Sinaloan narrow-mouthed toad is an unusual species that may remain in the Tucson region only at the West Branch, where it is abundant.



Photo by K. Matuz



Photo by K. Matuz

Ruellia is an abundant and colorful component of the West Branch bosque understory.



Photo by P. Rosen

Crucifixion thorn persists in the least disturbed portion of the West Branch floodplain.



Southwestern black-headed snake.

Contact Information:

Please send your written comments to our central collection point:

Paseo de las Iglesias Restoration Study
c/o Rillito Consulting Group
316 South Convent Avenue
Tucson AZ 85701

or

e-mail to rcg@theriver.com, call (520) 622-1933,
or send a fax to (520) 205-8360

You may also contact:

Kim Gavigan, U.S. Army Corps of Engineers
(602) 640-2033 ext. 251

or

Thomas Helfrich or Jennifer Becker,
Pima County Flood Control District
(520) 740-6350

Public Meeting

Next Public Meeting will be held later this summer. Time and date to be announced. Watch the mail for the announcement.

For more information, including a draft map of the area proposed for the project, please visit our website: <http://www.dot.pima.gov/flood/envrest/paseo.htm>

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