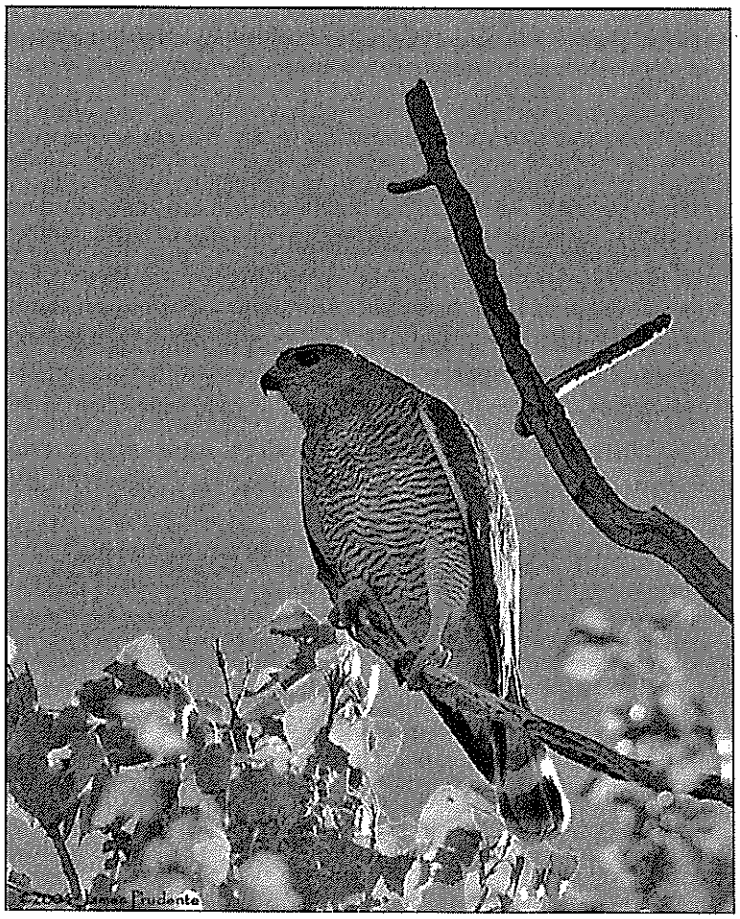
Audubon's Important Bird Areas Program's

Avian Habitat Conservation Plan
U.S. Upper Santa Cruz River Riparian Corridor
Santa Cruz County, Arizona

Prepared by
Tucson Audubon Society
November 2005



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EXECUTIVE SUMMARY

The Upper Santa Cruz River Riparian Corridor in Santa Cruz County, Arizona contains unique, rare, and threatened vegetative types and ecological processes important to birds and other wildlife of the Southwestern United States. The Gray Hawk, Southwestern Yellow-billed Cuckoo, Tropical Kingbird, and Varied Bunting, all present along the Santa Cruz River, represent some of the rarest regularly breeding bird populations in the U.S. The Santa Cruz River supports riparian vegetation components important to these and other riparian associated birds.

Studies have shown that in Arizona and New Mexico, at least 80% of all animals use riparian habitats at some stage of their lives (Chaney et al. 1990). More than 50% of the breeding bird species in the Southwest nest primarily in riparian habitat (Johnson et al. 1977). Yet, many of our Southwestern rivers have been severely degraded by riparian vegetation clearing due to development and agriculture, groundwater pumping, dams, channelization, surface water diversion, sand and gravel extraction, wood cutting, erosion, pollution, cattle grazing, non-native invasive plants, and inappropriate recreation (ATV use) (Kreuper 1993).

The Santa Cruz River in Santa Cruz County is no exception. The river has been subject to substantial loss of its historical riparian vegetation, grasslands, and wetlands. Agriculture has cleared great stretches of mesquite bosque and cottonwood/willow gallery riparian forest. The oldest and largest mesquite trees have been cut. Remnant sacaton grassland patches have been impacted by cattle grazing, or leveled for agriculture pastures. Wetlands, "cienegas" have dried up, been greatly altered and lost, or severely impacted by cattle grazing. Presently, the river faces increasing impacts of development, declining groundwater levels, poor water quality, cattle grazing in riparian vegetation, invasive plant and animal species, off-road vehicle use, illegal dumping, and widespread trash deposition.

Even though the upper Santa Cruz River ecosystem has been degraded and diminished, it retains substantial wildlife habitat value, and few species have been extirpated. The need for restoration, conservation, and protection is critical, and Santa Cruz County residents are increasingly approaching this with a sense of community purpose. Opportunities for significant conservation actions by a range of stakeholders are expanding. Audubon's Important Bird Areas (IBA) Program, has designed this Avian Habitat Conservation Plan in response to this interest and to provide relevant scientific and ecological information to the general public, ranchers, developers, resort managers, government and non-government agencies, and to the scientific community. The Plan is intended to help guide conservation decisions regarding the future of the Santa Cruz River Riparian Corridor.

Methodology

The plan was developed by using a combination of methodologies, from field visits, consultations, and literature reviews to extensive conversations with landowners. Data were gathered from spring 2003 through summer 2005. Biologists, hydrologists, park personnel, landowners, ranchers, resort managers, conservation specialists, and local environmental leaders were contacted. An extensive literature review was conducted on riparian habitat ecology, hydrology, and avian ecology.

Key findings
Ten major stresses to the Santa Cruz River Riparian Corridor were identified: 1) Habitat loss due to vegetation clearing; 2) Habitat loss due to tree die-off; 3) Habitat loss and erosion due to wash channelization; 4) Habitat degradation due to cattle grazing in riparian habitat; 5) Aquatic habitat impacts due to pollutants in surface water and sediment; 6) Species predation and competition caused by invasive fauna; 7) Habitat quality alteration caused by invasive non-native vegetation; 8) Habitat degradation of understory, mid-story, and bunchgrass; 9) Habitat degradation due to accumulation of trash; and 10) Habitat loss due to localized clearing of understory and mid-story vegetation.

Management Recommendations
The following management recommendations were outlined for public agencies and private landowners and strategies were included with each management recommendation.

- Allow natural flood flows
- Promote base flows
- Maintain or improve groundwater levels within the shallow aquifer
- Maintain or improve cottonwood/willow vegetation
- Maintain or improve mesquite bosques
- Restore and conserve near riparian bunch grasslands
- Restore and conserve cienegas
- Eliminate ATV and OHV use within the floodplain
- Eradicate non-native invasive plants and animals
- Maintain and expand riparian vegetation width to greater than 100 yards to minimize cowbird intrusion into riparian habitat used by nesting native birds
- Prohibit dogs and cats from roaming unattended

Recommendations appropriate at the County and Federal level were also presented. Special management recommendations were provided regarding the conservation of habitat and protection from nesting disturbance, for Gray Hawk, Zone-tailed Hawk, Common Black-Hawk, Yellow-billed Cuckoo, Southwestern Willow Flycatcher, Cactus Ferruginous Pygmy-Owl, and Great Blue Heron. Conservation Strategies for non-governmental and public agencies are presented in terms of stress abatement, and ecological management and restoration.

Priority Conservation Sub-Areas
Top sub-areas for conservation were ranked and their conservation values detailed, they are:

1. Tubac to Tumacacori-*long/high quality stand of cottonwood/willow, also bordered by mesquite bosque (both sides of river, particularly east side in north section, most numerous nesting Gray Hawk & Yellow-billed Cuckoo area, high riparian bird diversity, and high groundwater.*

2. Rio Rico/Avatar Properties-*long/high quality mesquite bosque on east side -largest on the river, remnant cienega and sacaton grassland, known waterbird migration stop-over site, and wide undeveloped floodplain.*

3. Guevavi/Santa Fe Area-*Stringer of mature cottonwoods, narrow mesquite bosque on east side, historical cienega, nesting Gray Hawks, and relatively high groundwater.*

4. Buena Vista to Border-*Stringer of mature cottonwoods, narrow mesquite bosque on west side, irrigated fields attract birds.*

5. Tucson Audubon Conservation Easement-*Stringer of cottonwood/willow forest, high restoration potential of cottonwood/willow gallery forest and bunch grasslands. Also, remnant "borrow pits" are attractive to birds.*

6. Cumero Canyon to Kino Springs-*Stringer of mature cottonwoods, restoration potential, Kino Springs ponds an oasis for waterbirds, and nesting Gray Hawks.*

7. Esperanza to Tubac-*narrow cottonwood/willow vegetation (degraded), high restoration potential, east side mesquite bosque -second largest on river, important wildlife corridor connection through Cottonwood Canyon to Santa Rita Mountains.*

8. State Trust Lands-*holds key upland semiarid grassland, desert wash habitat, function as important connecting corridor lands to river for wildlife passage, and conserve groundwater necessary for mountain front recharge to the lower valley.*

Appendix A
A conservation implementation plan is provided in Appendix A. The plan lists potential actions by partners in delineated river reaches in order to achieve regionally significant riparian habitat conservation and restoration.

Appendix B
A summary table detailing natural history for groups of birds associated with different riparian vegetation components is provided in Appendix B. These tables provide landowners and managers easy access to information regarding species habitat needs, timing of breeding, stressors, and species sensitivities, which should help in guiding land management decisions to benefit the conservation of these bird species.

Conclusion
The potential for ecosystem recovery of the Upper Santa Cruz River Riparian Corridor is high. Much of the valley retains its rural character and development is not yet widespread. Significant open-space exists. Key riparian vegetation components are present and provide important wildlife habitat. Santa Cruz County residents have recognized the unique and important values of the region, and addressed their importance in the *Santa Cruz County Comprehensive Plan* (2004). This Plan will help guide the process of implementing the County's Plan and benefit landowners interested in riparian habitat conservation along the Santa Cruz River. It provides needed scientific information for riparian habitat conservation; identifies the most important sub-areas for conservation; and provides an implementation plan detailing the highest priority conservation actions for stakeholders to pursue within the Upper Santa Cruz River. This Plan is a "voluntary plan," and has no regulatory authority.

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Now Available:
Upper Santa Cruz River Avian Habitat Plan

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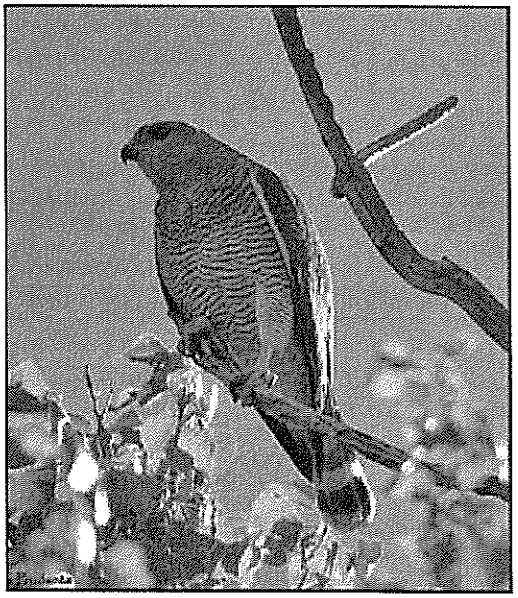
Contact Information: (520) 628-1730

Read about the plan below, or download the full plan here:

Upper Santa Cruz River Avian Habitat Plan, PDF file, 1,351 KB; requires Acrobat Reader

Upper Santa Cruz River Avian Habitat Plan, Microsoft Word file, 5,115 KB

(This article was first published in the *Vermilion Flycatcher*, newsletter of the Tucson Audubon Society. To receive the newsletter in the mail, become a Friend of Tucson Audubon.)



Gray Hawk
Photo © 2005 by Jim Prudente

Gray Hawks, Yellow-billed Cuckoos, Varied Buntings, Tropical and Cassin's Kingbirds, Vermilion and Brown-crested Flycatchers, White-faced Ibises, Great Blue and Green Herons, Black-bellied Whistling Ducks, Black Vultures, Swainson's and Zone-tailed Hawks, Summer Tanagers, Yellow and Lucy's Warblers, and Rufous-winged Sparrows—all occurring along an approximately 42-mile reach of river in Arizona? Perennial water for half of this distance? Only 40 miles from Tucson? Yes, we are talking about the extremely biologically rich Upper Santa Cruz River that wends north through Santa Cruz County from the U.S./Mexico border to Amado. No wonder the Upper Santa Cruz has been a focus of Tucson Audubon's conservation programs, such as the new Esperanza conservation easement north of Tubac.

Tucson Audubon also leads Arizona's Important Bird Areas (IBA) Program

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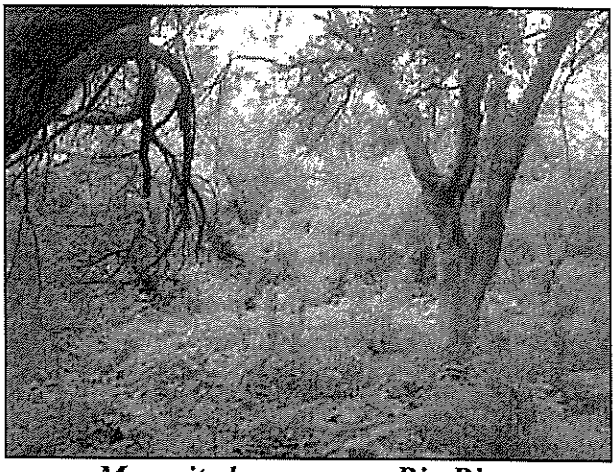
conservation efforts in southern Arizona. Since 2003 we have been developing an Avian Habitat Conservation Plan for the Upper Santa Cruz River Riparian Corridor in Santa Cruz County. In November we began releasing this Conservation Plan to key stakeholders along the river corridor, including officials and planners with Santa Cruz County, City of Nogales, Tubac, government and non-government agencies, resort managers, ranchers and developers.

The plan was developed by using a combination of methods, including field visits, consultations, and literature reviews as well as conversations with landowners. Biologists, hydrologists, park personnel, landowners, ranchers, resort managers, conservation specialists, and local environmental leaders were consulted.



Mesquite bosque near Rio Rico
Photo by Scott Wilbor

Our plan evaluated the historical and current conditions of the corridor, the stresses to avian species and key physical and vegetative components, sources of these stresses, and their consequences. Bird species are addressed throughout the plan in terms of "avian guilds" (groups of birds) associated with specific vegetation components. The plan puts forth management recommendations to both public agencies and private landowners, including recommendations for the protection of nesting-sensitive avian species. Additionally, the plan outlines a number of conservation strategies, and ranks priority sub-areas for their conservation value. A detailed conservation implementation plan is also provided. Lastly, a natural history information table for avian species is presented at the end of the report.

Ten major stresses were identified. As we reported in the October 2004 issue of the *Vermilion Flycatcher*, habitat loss due to vegetation clearing (primarily mesquite bosque) was identified as the primary stress the river and its birds are facing. Great expanses of mesquite bosque (mesquite, hackberry, ash, palo verde, elderberry, acacia), one of the rarest habitat types in Arizona, are being lost to expanding development from Tubac all along the river south to Rio Rico. The threat of additional old growth mesquite-bosque-clearing exists east of the river, particularly south and north of Tubac and Rio Rico respectively, where residential and commercial developments are expanding rapidly.

Large-scale tree die-off (and tree die-back) was ranked second in severity.

This stress was first noticed in a small area in 2003, but has intensified dramatically over the last two years, primarily in the Rio Rico area and extending northward to Rancho Santa Cruz (a 9-mile stretch of river). The cause of this die-off involving many riparian tree species, but most notably cottonwood/willow, is still under investigation; an article appeared in the Arizona Daily Star (Sept. 15, 2005) detailing the magnitude of the issue. A committee of stakeholders and conservationists is attempting to further elucidate and reverse this stress. Tucson Audubon is a part of this group. Key factors being investigated include drought combined with increases in groundwater pumping; an algal mat causing prevention of groundwater recharge; insect outbreak; and disease/fungus infection.

Other identified stresses to the Santa Cruz River riparian corridor included: habitat loss along washes; habitat degradation due to cattle grazing in riparian habitat; water pollutants; invasive non-native animal and plant species; habitat degradation of understory, mid-story, and bunchgrass vegetation; trash; and clearing of understory/mid-story vegetation.

The reach of river from Tubac to Tumacacori was ranked highest in terms of conservation value, followed by the Rio Rico/Avatar properties, and the Guevavi to Santa Fe Ranch area northeast of Nogales.

An implementation plan emphasizes cooperation between the county and non-governmental groups; conservation purchases and easements of high-value conservation lands from interested landowners, and secure funding for their management; protection of riparian habitat from cattle grazing; habitat restoration; invasive species control; and cooperative projects among adjoining landowners.

Great challenges lay ahead of us to abate the stresses we have identified. We will work to facilitate the adoption of our management recommendations, promote our proposed conservation actions, and provide for the long-term conservation of our identified highest value lands. The health of the river, as well as the health and vitality of human communities, depends on a unified dedicated effort of many stakeholders along the river. Tucson Audubon and the Arizona IBA Program will work to make sure the unique assemblage of birds found along the Santa Cruz River and their endangered habitats are conserved, *and* that the communities of the region benefit as well! We will update you on our progress!

Upper Santa Cruz River Avian Habitat Plan, PDF file, 1,351 KB; requires Acrobat Reader

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