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Native Birds Are In Trouble In Tucson. Is There Hope?

by Will Turner

It's just after sunrise one morning in early February, and I'm on a trip looking for birds. As I peer around a low branch, eyes and ears straining for a sign of my quarry, I think of a friend who often taunts me (or tries to) with stories of the cool birds he studies in the tropics. My current trip brings me to no such exotic locale: it's not Andean Cock-Of-The-Rock I'm after; it's Gambel's Quail. And when I hear the fast pounding of wings as several fly in front of me, I'm not surprised. They're actually fairly common at this particular site, which is what brought me to the Arroyo Chico this morning. It happens to be smack in the middle of Tucson.

Why am I counting quail on the Arroyo Chico? Quite simply, because I can't count them in my neighborhood. I haven't seen or heard Gambel's Quail within a mile of our house, which is a little over a mile east of where I am now. Our neighborhood seems to have the standard allotment of Tucson urban birds: five or so species that are common in many North American cities, sprinkled with some of the native birds, which fare anywhere from so-so to extraordinarily well. The swath around the Arroyo Chico just east of Country Club Road, by contrast, feels in late spring or summer like something from a Disney movie: coveys of quail scurry across the path; juvenile Ash-throated Flycatchers perch in velvet mesquites; large, colorful spiny lizards bask on the roadside; and round-tailed ground squirrels peer from their holes.

Now, I'm certainly not the first person to notice that bird communities vary in and around cities. Not the first in Tucson, either. In fact, much of the work on the ecology of birds in urban areas has been done here in Tucson. In 1974, John Emlen compared the bird community east of the University of Arizona campus with that of a relatively undisturbed plot of creosote desert south of town (Emlen 1974). Several others since have also studied the relationship between Tucson's urbanization and its bird communities (for example, Mills et al. 1989, Tweit and Tweit 1986, Germaine et al. 1998). Several patterns have emerged:

- Native bird species diversity (that is, the number of species) decreases, and non-native diversity increases, with increasing urbanization.
- The number of individuals of all species together increases dramatically with urbanization (a factor of 26 in Emlen's study).
- Most individuals in urban Tucson are of a very few species. Among the most common are one non-native species that has recently expanded its range from Mexico (Inca dove), and three outright foreigners (House sparrow, Rock Dove, and European Starling). Other range-expanders, including Great-tailed Grackle and Anna's Hummingbird, are also fairly common.
- A few native species (including Curve-billed Thrasher and Northern Mockingbird) are common in town. Two native species – White-winged Dove (in summer) and House Finch – do extraordinarily well in urban Tucson.
- Many native species uncommon to common in undeveloped areas are rarely, if ever, found in urbanized areas, even where they were recorded prior to urbanization. These include, among others, Black-throated Sparrow, Black-tailed Gnatcatcher, Pyrrhuloxia, Canyon Towhee, Lucy's Warbler, Bell's Vireo, and Rufous-winged Sparrow. However, some of these do occur at low densities in a few suburban areas.

Why have native birds decreased in urban areas?

Studies to date show the severity of what any birder might notice on a trip across town: most native birds fare poorly in Tucson. These studies also reveal a number of subtleties, in addition to those outlined above. But does it matter that urbanization depresses native bird diversity, and negatively affects many native bird populations? Should we care if native bird populations survive in urban areas? Should we bother to spend any of our conservation efforts on places near people? I talked to a few folks who've thought about these questions.

Dick Barber knows a lot about the Arroyo Chico. He lived near it for almost 30 years. As a teacher, he uses the wash as a classroom. As he puts it, the area gives students a chance to learn about biology and about Tucson's history. "It also gives them an opportunity to relate to nature," he observes. What about the people that live there? On the stretch from Country Club to the Randolph Golf Course, the Arroyo "brings a sense of nature into the community," he says. "Talking to people in that neighborhood, they really identified with the native vegetation, and use the Arroyo for relaxation and recreation." In contrast with people along sections of wash that haven't been managed to maintain native vegetation, people in this stretch "are aware of the wildlife – many list the birds and animals – and believe it contributes to higher property values."

Conservation of the bird species themselves may require that we help them in urban areas. Steve Russell, ornithologist and coauthor of *The Birds of Sonora*, has studied Rufous-winged Sparrows around Tucson and at the Santa Rita Experimental Range. This local and uncommon species is limited to certain areas having thornbush and mixed bunchgrass, a habitat type less common now than it once was. The sparrows are also sensitive to periods of low precipitation. Says Russell, "Suburban areas in Tucson with Rufous-winged Sparrows are extremely important to the species. They are probably more independent of precipitation fluctuation, and could be important sources of birds for other areas."

Michael Rosenzweig, Professor of Ecology and Evolutionary Biology at the University of Arizona and author of the upcoming book, *The Careful Foot*, offers another reason, from a global perspective. "Study of the ability of the Earth's area to support diversity tells us that every hectare is important," he says. "Each additional patch we can make support wild things will add to the diversity that the Earth can ultimately maintain." Because humans now occupy so much of the Earth's surface, he explains, "the places we live, work, and play are vital to the preservation of diversity."

After thinking about these reasons, I've got one of my own to add. Like many birders, I like to expand my life list. But I'll take a new bird on the yard list over a lifer somewhere else any day. Why? Because it's there for me to see as I look out the window from the breakfast table. And because it's a sign that I'm doing something right; it tells me that my actions are contributing to the life of a bird, the survival of a population, the enjoyment of others and of future generations, the diversity of life...things bigger than myself.

Is there hope?

So Tucson's birds are in trouble, and there are some pretty good reasons why we should try to do something about it. But is there hope? Probably more than you think. Here's why.

Avian biologists do more than lump and split species. The few Tucson bird studies discussed above are only part of the growing field of research on wildlife in urban areas. Academics, graduate students, wildlife professionals, and birders are all contributing to our understanding of the relationships between people and the living things with which we share (or could share) our cities.

This understanding is leading us somewhere. There was another message that emerged from those Tucson bird studies: *urban areas are not inherently incompatible with native birds*. Though several studies suggest this, Scott Mills and coworkers (Mills, *et al.* 1989) sought to test the prediction that native vegetation, rather than housing density per se, is the most important factor for native bird diversity and abundances. They measured native bird abundances and vegetation properties at 34 sites around Tucson. The sites spanned low to high housing density and a range of native vegetation amounts, and all combinations thereof (for example, high density housing with little vegetation, and so on). The data supported their prediction. Abundances and diversity of native bird species at sites with the most native vegetation were most like those of sites in natural habitat. Thus, diverse native bird communities might be maintained in urban areas if emphasis is placed on retaining native vegetation in urban landscapes at levels similar to natural habitats. One must be careful in interpreting these results, however. There will be an upper limit to the density of development at which native bird communities can be maintained. Also, some species still do not fare well, nor may they ever, at urban sites even with large amounts of native vegetation. There is much work left to be done in the study of the various effects of urbanization on bird communities. Nevertheless, scientific results to date are encouraging.

Hope, and what we can do about it

There's other encouraging evidence, just looking around town. Let's return to that swath of the Arroyo Chico just east of Country Club. It's interesting because it appears to support many native bird species. It's extraordinary because it does this in the middle of town, where, for some species at least (e.g., Gambel's Quail), it seems that populations are maintained without depending too much on immigration from outside of town. But more exciting still, says Mr. Barber, "is that people decided what this area was going to be." In the 1920s, he explains, the area was planned as a focal point for the surrounding community (then on the edge of town). And it has been protected, more or less, from major disturbance by humans ever since. Now, the Arroyo Chico has its problems, for example the exotic African sumac that has spread along the wash. But if something like this area could result from a little planting and 70 years of leaving it alone, what might we be able to accomplish with the knowledge we have today?

It's not just the birds that have to buy into the idea of birds being in urban areas; the people that live here do, too. But there's good news on that front as well. Native plants are cheap: they generally require little, if any, watering, and little maintenance if they are to be bird habitat. Many species can be propagated from seeds or from cuttings (check regulations before moving native plants or plant parts), or will readily propagate themselves. The Tucson area is blessed with a diverse and beautiful native flora.

Furthermore, the pill ain't that bitter. We aren't talking about Tucsonans living in tents in the midst of cactus patches. Folks by the Arroyo Chico have houses, driveways, and exotic vegetation. They also have a lot of birds in their yards. It may be less of a hard sell than we thought.

What about finding swaths of land on which to plant? That's a little tougher, but many solutions are possible. Start by making habitat in your own yard. Not just ornamentals and rocks, but habitat. Patches of plants that offer food or shelter. Go to the Desert Museum, Tohono Chul Park, or the Tucson Botanical Gardens for ideas (and plant sales!). The birds will let you know when you're getting it. Let folks know how easy it is, and show them how good it can look. Give them examples of trees (low palo verdes and hackberry provide nest sites and shelter for many birds) that aren't manicured and agaves that aren't maimed, but still look good. The low-to-the-ground layer is often the first to go when land is developed, but may be the most important for our native birds. If you must trim low branches, fill in the space with shrubs (like wolfberry or thornbush). Let people know that you can have big, dense patches of cholla (Cactus Wrens, Curve-billed Thrashers, and others will thank you) and prickly pear (Gambel's Quail) that won't hurt anyone because you've placed them away from walkways and surrounded them with flowers and low shrubs (like brittlebush, on which Verdins and goldfinches feed). Let people know that the

common exotic plants we use, because they harbor few insects and produce little leaf litter, merely take space that could be used for equally attractive bird habitat (or worse, they sometimes help non-native species). Help your neighbors and friends get started. If the less-used parts of half the yards on an urban block became good habitat, it would be a huge step.

Getting involved with your neighborhood association is another solution. If you're in town, educate and plant. If you're in suburban Tucson, educate and protect. Find ways to turn a wash or other unused space into a focal point of your neighborhood for recreation, education, and sustaining native animals and plants.

Finally, here's another way you can help. We need to know more about Tucson and its birds. What land-use practices work? How does a wash or park affect birds in surrounding areas? How do the birds in a yard depend on surrounding areas? Which species can be helped? How can we monitor changes over time as urbanization continues or as solutions are implemented? The **Tucson Bird Count** is a cooperative effort between many groups and individuals that seeks answers to these questions. It relies on volunteers spending a morning (less than 4 hours) to count birds along a route or in a park, near their home or wherever they choose. This annual project, the largest of its kind, will provide information on the relationship between Tucson and its birds that can't be obtained by any other means. Participants will sign up for routes, submit their data, and be able to view results (including distribution maps) on the web. For more information, visit the Tucson Bird Count web site at www.tucsonbirds.org or see the Tucson Bird Count ad in the March issue of the *Vermilion Flycatcher*, on page 25.

The above discussion of problems and solutions could (and should) go on. At this point the possibilities are more numerous than the obstacles. I return to the original question: is there hope for native birds in Tucson? You bet your Ash-throated Flycatcher there's hope. And you can be a big part of it.

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Editor's note:

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