One biologist's journey through the world of bird conservation; perspectives on the origins of Partners in Flight and its species vulnerability assessment

By Chuck Hunter

Nongame bird conservation begins to go mainstream, a southerner's perspective

I have been a southerner almost my entire life, if you include 10 years in the American Southwest as part of being a southerner. I've been birding since I was six, seriously since the age of ten, and when I was twenty I moved in 1978 from Jacksonville, Florida, to find my fortune in birds from Arizona, finishing my Bachelors' degree at Northern Arizona University. During 1979, I spent my first summer surveying desert riparian birds and other wildlife along the Lower Colorado River. Later, after working a year conducting similar surveys along the Pecos River of eastern New Mexico and western Texas, I returned to the Lower Colorado River from 1981 to 1983.

With these years of surveys from along both edges of the desert Southwest U.S., and birding many of the desert rivers in-between, my colleagues and I were noticing something interesting among the species forming a group of riparian breeding species we referred to at the time as "summer residents." While there were exceptions (there are always exceptions), these summer resident species were declining as a group of species along the Lower Colorado River, and along many other river systems in Arizona and southern California. In fact, a number of these species had received a designation of State endangered or threatened in California. In contrast, and to our collective surprise, many of these same riparian species along the Pecos River were seemingly stable or possibly even expanding their ranges northward. Both the Pecos and the Lower Colorado Rivers had been subjected for decades to major hydrological and land use changes resulting in the extensive spread of exotic saltcedar (Tamarisk) at the expense of native riparian plant communities.

Along the westernmost edges of the hotter Lower Sonoran Desert zone, many neotropical migrants were declining to the point of becoming extirpated. These birds did not widely use saltcedar as a breeding habitat as a replacement for mostly cottonwood-willow and mesquite bosques (forests). In contrast, along the northeastern edge of the more "mild" Chihuahuan Desert these same species were breeding successfully in the same saltcedar habitats as they apparently expanded north along the Pecos from population centers nearthe Pecos confluence with the Rio Grande in Texas. However, we were missing data from riparian systems in-between to see if there was indeed a predictable transition in saltcedar use by these species, and from this to better understand why most species we referred to collectively as "permanent residents" did not show the same pattern as "summer residents." Those questions would constitute my graduate work while at Arizona State University under the direction of Bob Ohmart, spanning most of the Gila River, running through the Upper and Lower Sonoran Desert zones from east to west, from near Safford to near Yuma.

As a result of this work and that from colleagues, we had a better understanding that even when given the same range of riparian habitat types available in each desert river system, there would

be variation in how the same species (or species groups) may respond in the use of the exotic saltcedar, resulting in different population trends in different river systems across each species' range as saltcedar became the dominant riparian habitat during the Twentieth Century.

In December 1988, I moved to Atlanta and in early 1989 started work for the U.S. Fish and Wildlife Service (FWS) southeast regional office in March 1989. I worked on a number of initiatives for Ecological Services but one of the main interests for Assistant Regional Director Tom Olds was doing more to provide information to our rank and file biologists on nongame birds and conservation issues they faced. He had a long interest in birds and thought the FWS could do more than we were, especially for the non-hunted species. For example, thanks to an informal survey of our field stations, we learned that at many field stations (mostly National Wildlife Refuges, Ecological Services Field Offices) that an effort to address nongame bird conservation was considered "good enough" through benefits provided for waterfowl and other game species, especially if bluebird boxes and hummingbird feeders were up and routinely maintained.

While these survey results were a start, a need existed for better information to be provided to the field on the increasing challenges various nongame bird groups were facing. The National Audubon Society's "Blue List" and later, a publication from the FWS' Migratory Bird Management Office was used to compile a list of birds of conservation concern. One charge I had been given was to pull together a handbook on nongame birds of the Southeast and another charge was organizing a bird conservation workshop, in association with the Regional Migratory Bird Coordinator Frank Bowers, to be held in the fall of 1989.

The workshop gathered Federal and State agencies, as well as with university researchers and non-governmental organizations; it provided my first introduction to many of the folks I would work closely with for the last three decades. During this period, we have seen a strong convergence between game and nongame specialists, especially with respect to forest bird management. For wetland management, incorporating requirements of all wetland birds, in addition to waterfowl, was established. Nongame, upland gamebird, and waterfowl biologists, along with foresters have learned tremendously from each other and I am particularly thankful to former Georgia Wildlife Division Director David Waller, former Tennessee Wildlife Resources Agency Gary Myers, and former FWS Director Sam Hamilton for their support and strong leadership in promoting this convergence.

Research and Management come together, and Partners in Flight would be the result

The year 1989 would be most pivotal, not only for my career, but more broadly on providing the foundations for Partners in Flight. The paper in my opinion that really received broad public notice to the potential plight of neotropical migrants specifically and potential for importance of the non-breeding portion of the annual cycle came out in 1989 with Robbins et al. (*Proc. Natl. Acad. Sci.* 86:7658-7662). At about the same time, John Terborgh had published his influential book (1989, *Where have all the birds gone?*, Princeton) that provided a series of essays including the need to move from fundamental research to management and conservation action.

In December 1989, I attended the Woods Hole symposium, sponsored by Manomet Bird Observatory (now Manomet Center for Conservation Sciences), entitled *Ecology and Conservation of Neotropical Migrant Landbirds* (John Hagan and David Johnston, eds., 1992, Smithsonian). The planning for this symposium actually had been underway since 1987, and was in essence a follow-up to a previous symposium held at Front Royal in 1977 entitled *Migrant Birds in the Neotropics: Ecology, Behavior, Distribution, and Conservation* (Allen Keast and Eugene Morton, eds., 1980, Smithsonian), which in itself was a follow-up to a similar symposium in 1966 that was published in 1970, featuring research conducted by ecologists such as Robert McArthur (see Terry Rich's news post on the Partners in Flight web site). While the 1977 version mostly reported on advances in the fundamental research described in 1966, the first presentation from John Terborgh raised a level of alarm over changes occurring in the neotropics that could be impacting the future of many species breeding in the temperate (Nearctic) zones of North America and spending their non-breeding months in the tropics. I had access to a copy of the 1977 proceedings from Bert Anderson, who I worked for while along the Lower Colorado River in the early 1980s, and many of the papers were influential in how I would later approach questions involving ecology of declining species in the desert southwest, but notably there was only one paper focused on the non-breeding habitat use by western Nearctic breeding neotropical migrants (by Richard Hutto).

Terborgh also provided the keynote address at the 1989 symposium, and his concern as expressed in 1977 was amplified. In contrast to the previous two symposiums, many of the papers presented at Woods Hole were attempting to disentangle what appeared to be contradictory findings among more localized surveys or from differing sampling techniques when compared to the Robbins et al. findings published earlier that year. Also, while there was not a specific paper presentation on whether too much of a focus on migrant species could be at the expense of other bird groups, there were informal discussions held on the topic.

Specifically, concerns were raised about inappropriately shifting conservation attention in the Southeast U.S. away from species known to be in trouble such as resident species like Red-cockaded Woodpecker and short-distance migrants like Bachman's Sparrows, while most forest dependent neotropical migrants seemed to be doing reasonably well in the southeastern lowlands. The paper presented by Fran James underlined the differences for instance among lowland and highland physiographic areas in the Southeast to underscore that whatever the continental trends were for neotropical migrants, there was substantial variation among and within species, within a geographic region. This pattern was similar to what I had investigated while still in Arizona, but there did not seem to be a contradiction on what was needed with other species groups in riparian systems. However, in the Southeast the potential for directing attention away from species known to be in trouble was in fact a debate when management agencies started to be more aggressive in clearing the woody understory of open pine woods, to promote more grassy-herbaceous conditions. The counter concern from some was this change would harm other species including Wild Turkey, Northern Bobwhite and possibly neotropical migrants. Interestingly, as Partners in Flight started reaching out to our neotropical conservation partners, we would hear that we needed to be careful not to distract from resident species clearly in conservation trouble across the Neotropics (then and even more so now).

Regardless, many other papers asked whether it was appropriate to place most attention during the non-breeding period. The work I had completed in Arizona indicated the declines of neotropical migrants in the desert riparian habitats could be explained almost exclusively to have occurred with ongoing changes in breeding habitat, though variably based on elevation. Much of the data presented at Woods Hole included local data from Breeding Bird Census and mist-netting at bird observatories, suggested at best a more complex situation existed than what was being shown continentally from what Robbins et al. were showing with Breeding Bird Survey (BBS) data. This complexity was especially demonstrated in regions with extensive forest fragmentation as with agriculturally dominated landscapes of the Midwest and in areas undergoing suburban expansion like in the Mid-Atlantic.

The paper that made the most impression on participants regarding whether a focus on neotropical migrants was justified was presented by Sidney Gauthreaux using weather radar comparing number of nocturnal flights along the Gulf Coast in the 1960s and the mid-1980s. He was able to show that the number of flight events was essentially cut in half lending support to what the BBS was showing continentally during the same time span. Gauthreaux's paper did not answer whether this was a breeding or non-breeding issue, or a combination of both for many species, nor whether focus on neotropical migrants should be higher than resident and short-distance migrants, nor was this only an eastern North America issue (again Richard Hutto was the only paper covering western species). However, Gauthreaux's paper set the stage that some higher level attention should be given to neotropical migrants. The experiences gained from Arizona, working in the Southeast, and attending the Woods Hole symposium would lead me to pull together the first attempt at a PIF species vulnerability assessment.

Following patterns and digging deep, bringing together the main components of a species vulnerability assessment

While by 1988 I was working as a biologist for the U.S. Fish and Wildlife Service in the Arizona Ecological Services Field Office, taking on a variety of tasks as entering biologists are usually assigned assisting the more senior staff, I was allowed to still investigate further some aspects of work I had been involved with the previous decade with desert riparian bird conservation. As part of this, I started looking into how Breeding Bird Survey (BBS) data could be used to consider conservation needs for landbirds (mostly) among differing areas, not only in the Southwest but continentally. Danny Bystrak and Sam Droege (who were overseeing BBS data at the time) provided data on every species by physiographic strata. They sent me a hard copy printout that allowed me to have all of this information in front of me as I looked for patterns (I wasn't much for computers yet, would rather eyeball it all first; still do, a bad habit I still have).

My initial interest again was on the desert riparian species, but more broadly, I was seeing enough information from BBS for species across the country not just on trends but also in comparing "local" relative density (BBS refers to this value as RA=relative abundance) that I thought it would be interesting to see what patterns existed comparing relative abundance vs. trend for species across what BBS had identified at the time as physiographic areas. That is, where species were decreasing the most, what was their relative density compared to areas where they were stable or increasing. The thinking was that species that had high relative density and were stable or increasing were obviously more secure than in areas where they had low relative

density and were decreasing. In between would be areas where a species had high relative density but were declining or low relative abundance but were stable or increasing.

While at the Woods Hole symposium, the most relevant presentation related to a species vulnerability assessment was provided by Michael Reed. Reed's presentation, adapting the Rabinowitz's 1981 approach to identifying "seven forms of rarity," introduced to me three additional factors to consider in any assessment. These were comparing overall distribution and rangewide population size (e.g., relative abundance among species or actual global population size) as well as a measure of relative threat. In addition, for migrants Reed recommended considering differences during breeding and non-breeding periods for distribution and threat for each species. It would not be until the following year that the last fundamental pieces of the initial attempt at conducting a species vulnerability assessment as we basically know it today. While Reed was not satisfied with the overall approach taken by Brian Millsap et al. (1990, Setting priorities for the conservation of fish and wildlife species in Florida. *Wildl. Monogr.* No. 111), I found they had a way of quantifiably evaluating threats that could be adapted to a species vulnerability assessment among migrant species.

During 1990 and early into 1991, I started formulating a system based upon the factors I had originally considered in Arizona with those recommended by both Reed and Millsap et al. From these, I developed scoring criteria for each factor (on a scale of 1 to 5) and assigned preliminary scores for each species in each physiographic area to the best of my ability in providing an initial assessment of which neotropical migrant species scored higher than others suggesting differing levels of conservation priority. This process took into account seven factors, thus total scores for each species in each physiographic area ranged from low to high conservation priority on a scale of 7 to 35.

"Local" (i.e., physiographic areas) factors were (1) population trend, (2) threats breeding season, and (3) relative density (this last factor relative for the species among physiographic areas). "Global" (i.e., rangewide and all compared against all other species being treated) factors were (4) distribution breeding season, (5) distribution non-breeding season, (6) relative abundance (later to become actual population size), and (7) threats non-breeding. These scores with initial scoring efforts were focused on breeding season status of neotropical migrants, but the process could be applied for local non-breeding assessments as well by only changing threats non-breeding becoming a local factor, while threats breeding then would be assessed globally. While it would be years in the future, the process followed also could be applied to other bird species when the time came to involve resident and all short-distance temperate migrant landbirds, and all waterbirds, and all of these across the Western Hemisphere and there would be a compromise on how better handle any bias associated with having two threat and distribution scores.

I presented this prioritization process with some preliminary results at the first Southeast PIF organization meeting, co-led by myself and Steve Rickerson with USDA Forest Service, held at Mableton, GA in 1991 (and following the first "national" PIF organization meeting that was held at Atlanta, making it fortuitous for me to attend, in December 1990). With agreement reached at Mableton that the process as presented was a good start, I led physiographic area workshops during the next several years to provide overview prioritization scores and receive needed feedback (and buy-in) across the Southeast.

David Pashley, selected at the Mableton meeting to serve as Southeast PIF co-chair (and later would become chair), recognized the value of the process we had developed and started reaching out to other PIF Regional Working Groups on the need for a standard national and potentially continental species vulnerability assessment process.

Through these discussions, Mike Carter, then Director at was then Colorado Bird Observatory, was brought in and by the 1992 1st Partners in Flight Conference held at Estes Park, Colorado, entitled Status and Management of Neotropical Migratory Birds (Deborah Finch and Peter Stangel, eds. 1993, U.S.D.A. Forest Service, Gen. Tech. Rep. RM-229), Carter would co-author with David Pashley, Keith Barker, and myself (serving as senior author) on the Partners in Flight prioritization process. Carter would also with Barker develop the first prioritization database starting with the Western U.S. This process has undergone many updates since, including better ways to standardize scoring to now include all birds across the Western Hemisphere, and is now led by Arvind Panjabi, at what is now the Bird Observatory of the Rockies. The last 30 years behind the development of the PIF species vulnerability assessment continues forth with new insights and managed with very capable overseers as bird conservation is confronted with persistent and new challenges into the third decade of the Twenty-first Century.