Bird Conservation Activities in Kentucky: Implementation through Innovative Partnerships

Brian W. Smith, *Kentucky Department of Fish and Wildlife Resources, #1 Sportsman's Lane, Frankfort, KY 40601*

Elizabeth A. Ciuzio,[1] *Kentucky Department of Fish and Wildlife Resources, #1 Sportsman's Lane, Frankfort, KY 40601*

Shawchyi Vorisek, *Kentucky Department of Fish and Wildlife Resources, #1 Sportsman's Lane, Frankfort, KY 40601*

John J. Morgan, *Kentucky Department of Fish and Wildlife Resources, #1 Sportsman's Lane, Frankfort, KY 40601*

Dan E. Figert, *Kentucky Department of Fish and Wildlife Resources, #1 Sportsman's Lane, Frankfort, KY 40601*

Abstract: All-bird conservation, although relatively simple in concept, is extremely challenging at nearly every level when trying to implement. State wildlife agencies are often faced with budget constraints, staffing limitations, or logistical challenges (e.g., access to private lands). The Kentucky Department of Fish and Wildlife Resources has been successful in overcoming many of these challenges through innovative partnerships that have co-funded positions with the Department, provided matching funds for grants, and facilitated large-scale research and habitat management projects for priority species. In addition, the Department's Comprehensive Wildlife Conservation Strategy planning effort is helping to prioritize conservation efforts to ensure complete coverage of various bird conservation plans. Successful implementation of the Department's comprehensive plan, and therefore its all-bird conservation activities, will rely on strong partnerships and continued funding of federal conservation programs.

Key words: all-bird conservation, Kentucky, partnerships, cost-share programs, private lands, Comprehensive Wildlife Conservation Strategy

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Kentucky offers a diversity of habitat types across the state, along with numerous topographies, soils, and water sources (i.e., streams, rivers, ponds, sloughs, lakes, and reservoirs). For example, elevations range from 1,262 m in the rugged mountains of southeastern Kentucky to 78 m in the Mississippi River floodplains of western Kentucky, with extremely variable types of topography and thousands of kilometers of streams in between (Jones 2005). General ecological similarities lie within three major ecoregions across Kentucky: Appalachian Plateaus (30% of land

1. Present address: New Jersey Audubon Society, 600 Route 47 North, Cape May Court House, Cape May, NJ 08210

area), Interior Low Plateaus (65%), and the Mississippi Embayment (5%; Woods et al. 2002, Jones 2005). However, highly diverse plant communities occur within each ecoregion because of changes in soil properties, soil moisture, and slope characteristics (Jones 2005). The variability in habitat types throughout Kentucky offers a wide array of opportunities and challenges to resource managers attempting to manage avian communities.

Land ownership patterns in Kentucky also provide unique challenges to successfully implementing all-bird conservation activities. Approximately 95% of Kentucky is in private ownership. Farms are very small on average (64 ha), which is evident by the fact that Kentucky ranks fourth among states in total number of farms (87,000; Brown 2004). In fact, only 54% of Kentucky is now classified as farmland (Brown 2004). Public lands and areas protected by private conservation organizations are scattered throughout the state, totaling approximately 650,000 ha. Additionally, these protected lands mostly occur in non-contiguous tracts <2,500 ha. For example, the average size of 65 Wildlife Management Areas (WMAs) that Kentucky Department of Fish and Wildlife Resources (KDFWR) owns outright or leases under a long-term agreement is approximately 2,675 ha, but perhaps more telling is a median size of 1,421 ha for all WMAs, with 42 of 65 (65%) of the areas <2,500 ha. A few notable exceptions of public lands >2,500 ha in Kentucky include Daniel Boone National Forest (~262,200 ha but highly fragmented in many areas), Land Between the Lakes National Recreation Area (~43,200 ha), Fort Knox (~44,400 ha) and Fort Campbell (~14,620 ha) military reserves, Mammoth Cave National Park (~20,800 ha), Big South Fork National Recreation Area (~12,620 ha), five U.S. Army Corp of Engineers' (USACOE) properties (range: 4,015–21,661 ha, mostly surface water), and 20 state-owned properties (e.g., WMAs, state forests, state parks; range: 2,556–16,663 ha). Non-profit organizations and land trusts currently play a small role in land protection activities in Kentucky. The Nature Conservancy is by far the largest landowner of any conservation organization or land trust; they currently own approximately 4,900 ha over 29 dedicated preserves. Given the abundance of private land, expanding urbanization, and overall paucity and discontinuous nature of public lands, managing landscapes for avian communities presents significant challenges.

Agency Background

KDFWR is the agency responsible for management of Kentucky's fish and wildlife populations throughout the state. Specifically, its mission statement reads: "We are stewards of Kentucky's fish and wildlife resources and their habitats. We manage for the perpetuation of these resources and their use by present and future generations. Through partnerships, we will enhance wildlife diversity and promote sustainable use, including hunting, fishing, boating and other nature-related recreation." The entire agency is comprised of approximately 500 full-time, permanent employees, with roughly 110 of those employees working for the Wildlife Division. During the spring and summer seasons, employee numbers rise to nearly 600 and 150, respectively, with the addition of interim employees. Currently, our agency

is funded solely by revenues generated from license and permit sales, and federal funds associated with those sales (e.g., Pittman-Robertson, Dingle-Johnson). Each division (i.e., Engineering, Fisheries, Information and Education, Law Enforcement, Public Affairs and Policy, and Wildlife) also receives numerous grants annually, but typically each division is limited by a lack of matching funds.

In recent years, KDFWR's Wildlife Division has been successful in garnering funds from various sources for a wide variety of projects (e.g., research, general and species-specific habitat restoration/management, land acquisition, etc.). Many of these funds have been used to expand upon (both in numbers and in scope) the Division's Private Lands program, which officially started in 1987. Initially, three private lands biologists (PLBs) were co-funded with the Kentucky Division of Forestry (KDF) using Forest Stewardship Program funds. Since then, the Wildlife Division has created 34 additional full-time positions (some permanent, some term-limited) that are dedicated to various aspects of private lands work by seeking various grants and partnerships (see below for examples). New funding sources (federal, state, and private), as well as new partnerships, have developed as capacity grew. Two especially important opportunities for KDFWR came through the conservation provisions of the "Farm Bill" (the Federal Agriculture Improvement and Reform Act of 1996 and the Farm Security and Rural Investment Act of 2002) and the Landowner Incentive Program (LIP). These programs bring approximately U.S. $30 million and $1 million per year, respectively, to agencies and organizations within Kentucky for cost-share, incentive payments, staff, habitat management, conservation easements, and various other conservation efforts.

Traditionally, the majority of KDFWR staff focused their efforts on managing habitats on public lands and for game species, with very few wildlife surveys conducted outside WMA boundaries. With PLBs now distributed statewide and more grants available for nongame projects, the agency expanded its level and scope of wildlife monitoring. Efforts to increase its ability to establish statewide, long-term surveys for various nongame species with only six terrestrial biologists in the Wildlife Diversity program required the Department to begin extensive cross-training of existing staff, and to develop new ways to increase its capacity. For example, the Department now annually conducts multiple "avian training sessions" to either train new employees on bird identification (songs, behaviors, habitats, and appearances) and survey methods, or to serve as a refresher course on identification of bird songs for skilled staff. In order to teach these classes, the Department typically contracts with highly skilled ornithologists knowledgeable of eastern birds or schedules days afield with ornithological staff from KDFWR or Kentucky Nature Preserves Commission (KNPC). These courses have been so successful among the staff that the Department is now training some staff in operation of Monitoring Avian Productivity and Survivorship (MAPS) stations and intensive shorebird migration monitoring. The Department also invites many partner agencies and organizations to attend these sessions as well. To a lesser degree, the Department offers limited training for other nongame taxa to staff and partners, and future plans include design of intensive courses for other taxa.

Partnerships In Conservation

Since KDFWR and the Wildlife Division are relatively small compared to many state agencies, the Department relies heavily on partnerships to accomplish resource management goals. Through partnerships with state and federal agencies, private organizations, and universities, the Department has created, improved, or restored thousands of acres of habitat, completed land acquisitions, delivered cost-share and incentive programs, completed extensive research and survey efforts, been awarded millions of dollars in grants, and much more. The complete partner list for the agency is too extensive to list, but we would like to briefly identify some of the major partners of the Wildlife Division and their roles, and then highlight four recent examples that have greatly improved the agency's ability to achieve habitat goals identified for Kentucky through the various bird conservation plans.

State Agency Partnerships

KDF has been a major partner of KDFWR and the Wildlife Division for years. The agencies work together to deliver cost-share programs, technical guidance, and protection of forest resources. In addition to the Forest Stewardship Program funds mentioned above, KDFWR and KDF staff provides guidance to private landowners working with various Farm Bill programs (e.g., Conservation Reserve Enhancement Program [CREP], Forest Land Enhancement Program [FLEP]). The two agencies also partner on Forest Legacy planning, on Forest Stewardship Awards to private landowners, and to provide public access to several state forests for outdoor recreational activities. The Department's partnership with KNPC, the agency that oversees Kentucky's Natural Heritage program, has grown in recent years. In 2002, the two agencies signed an agreement to develop and facilitate an efficient mechanism for data sharing. This has been a tremendous asset while drafting our Comprehensive Wildlife Conservation Strategy (CWCS) over the last couple of years. The two agencies also entered into a separate agreement in 2003 to co-fund a rare plant ecologist to focus on projects through LIP. KNPC also serves on the LIP committee that reviews project applications for approval. Kentucky Division of Conservation (KDOC) has been integral to the success of two of Kentucky's largest cost-share/incentive programs. The agencies co-fund a CREP coordinator to help oversee various aspects of CREP monitoring and implementation. CREP (established August 2001) has restored or enhanced >3,500 ha of riparian habitat along the Green River in Kentucky, which will not only improve water quality for the freshwater mussel community for which the program was designed, but it has already improved habitat for numerous avian species. The Department also has an agreement with KDOC to assist with implementation of LIP; KDOC has the authority and infrastructure in place to efficiently reimburse private landowners after completion of projects. Kentucky State Parks (KSP), in cooperation with KNPC, has established a MAPS station at one of KSPs' parks. KSP also organizes and promotes the very popular "eagles weekends" that occur during January in western Kentucky; KDFWR and various others are co-sponsors. Additionally, KSP provides KDFWR staff a very valuable service by facili-

tating overnight travel for field work and offering discounted rates to the KDFWR staff at any of their facilities statewide.

University Partnerships

Universities, both in-state and out-of-state, have provided the Department valuable avian research information in recent years. Active participation with Partners in Flight (PIF), Bird Conservation Regions (BCRs), and Joint Ventures (JVs) represented in Kentucky and the various bird conservation plans has greatly assisted in the prioritization of the Department's avian research needs and efforts. First and foremost though, the Department needed a thorough analysis of avian point count data to examine longer-term trends of numerous species and to determine how adequately routes the Department established sampled avian communities throughout the state. The Department contracted with University of Tennessee (UT) to conduct the analyses, and the report (Buehler et al. 2004) has been very useful in establishing new points to cover deficiencies (e.g., in grassland/early successional and wetland habitats), designing "targeted" surveys, and in CWCS planning. Priorities identified by Central Hardwood JV, Appalachian Mountain BCR, and regional or national priorities outlined in bird conservation plans (e.g., Brown et al. 2001, Dimmick et al. 2002, Rich et al. 2004) drove most of the other avian research completed recently. For example, the Department is currently in the final field season of the following projects: intensive surveying and habitat modeling of cerulean warblers (*Dendroica cerulea*) and golden-winged warblers (*Vermivora chrysoptera*) by University of Kentucky; shorebird use of managed wetlands during migration (see below) by Eastern Kentucky University (EKU); habitat use, productivity, and survival of loggerhead shrikes (*Lanius ludovicianus*) by EKU; and habitat characteristics for grasshopper (*Ammodramus savannarum*) and Henslow's sparrows (*A. henslowii*) using managed grasslands by EKU. Each of these projects, as well as several others, was funded through State Wildlife Grant awards, and information gained from them has dramatically improved knowledge about avian communities in Kentucky.

Federal Agency Partnerships

Partnerships with the U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), and USACOE are well established and very broad in scope. KDFWR has lease agreements and management responsibilities for large tracts of land owned by USFS and USACOE, and public access for outdoor activities (e.g., hunting, fishing, bird-watching, etc.) on lands owned by all three is facilitated, regulated, and enforced in cooperation with KDFWR. USFS has been tremendously supportive and active in Kentucky's avian monitoring efforts—it recently has helped organize and fund joint avian point count training sessions for both staffs, established routes and gathered data, and assisted with various non-breeding season or rare species monitoring activities (e.g., bald eagle [*Haliaeetus leucocephalus*] nests, overwinter surveys for waterfowl and eagles). The USFWS established a field office in Kentucky in 2001, which immediately expanded the already active partnership. Almost immediately, the two agencies entered into an agreement that allowed

KDFWR to use Partners for Wildlife funds for private lands conservation projects. Although many of our on-the-ground projects have been designed to benefit rare or listed species, most of them will provide ancillary benefits to numerous bird species (e.g., one riparian project fenced cattle out of a stream for >4.8 km but also planted >60,000 trees into what had been degraded pasture). KDFWR and USFWS have also partnered to purchase equipment (e.g., warm season grass drills, tree planters) used extensively for private land and National Wildlife Refuge restoration projects. The most recent federal partnership established, however, is with the Natural Resources Conservation Service (NRCS). Because of its unique nature and tremendous success, we will discuss it in more detail below.

Private Organization Partnerships

Each state agency across the country partners with non-governmental organizations (NGOs) made up of their constituents (i.e., hunters, anglers) or with similar conservation missions. Similarly, partnerships that developed with NGOs have delivered millions of dollars in grants and thousands of hectares of habitat improvement in recent years. Quail Unlimited (QU), Ducks Unlimited (DU), and National Wild Turkey Federation have donated or cost-shared specialized equipment like grass drills, herbicide spray rigs, prescribed burning tools, and water control structures and pumps, as well as items like seed (native warm season grasses, forbs, and grains), volunteer time, and even matching funds for some projects. KDFWR and QU were recently awarded a National Fish and Wildlife Foundation grant to focus on mid-contract management of Conservation Reserve Program (CRP) fields to diversify grasslands and their structure, and to promote the new "CP-33 Upland Bird Habitat Buffers" practice. This will help achieve Kentucky's goals for the Northern Bobwhite Conservation Initiative (Dimmick et al. 2002), as well as improve thousands of grassland acres in CRP for other wildlife. The Kentucky Ornithological Society (KOS) also provides valuable bird sighting data, conducts formal survey routes for the Department, and some members assist with our "avian refresher courses."

Probably the most unique partnerships with NGOs occur with The Nature Conservancy (TNC) and Rocky Mountain Elk Foundation (RMEF). Over the last few years, the Department has partnered with both of these NGOs to co-fund staff for focus projects, but both NGOs have become intricately involved with LIP. TNC provided 100% of matching funds for our first LIP grant and will contribute significant matching funds if KDFWR's pending LIP proposal is funded. Additionally, information from TNC's previous planning efforts has been an integral part of each proposal. RMEF also contributed 100% of matching funds for Kentucky's second LIP award, which is helping to fund KDFWR's and RMEF's co-sponsored Appalachian Wildlife Initiative. TNC and RMEF have made it possible for KDFWR to accept or apply for >$3 million over the last three years, all of which is being used to benefit species at risk from multiple taxa.

Partnerships And Projects

The partnerships and projects highlighted are only a few examples KDFWR has undertaken recently to not only achieve our agency's overall mission but also to increase our conservation efforts for priority avian species. Although the Department has not officially created state-level population or habitat goals for most species or community types, it has relied heavily on the various bird conservation plans (and their associated population and habitat goals) created for landbirds, waterbirds, shorebirds, northern bobwhite, and the various JVs to guide our decision-making processes for new programs and partnerships. In fact, each of the projects listed below either incorporate, or are working towards incorporating, the three main tenets of integrated bird conservation as identified by the North American Bird Conservation Initiative (NABCI): working together to conserve birds across geopolitical boundaries, taxonomic groups, and landscapes. Under each example, we will briefly discuss how it is helping Kentucky achieve NABCI goals.

KDFWR and NRCS Partnership

The 1996 Farm Bill and its unprecedented consideration of wildlife resources intensified KDFWR's efforts to develop a relationship with NRCS. In 1998, NRCS agreed to provide 50% of support for three KDFWR biologists that would be stationed at NRCS offices in each of their three administrative areas. These "NRCS liaisons" had two major responsibilities: to train NRCS county-level staff how to integrate wildlife-friendly practices into conservation programs and to train KDFWR PLBs about Farm Bill opportunities and implementation. Trust and confidence between NRCS and KDFWR grew rapidly, and the NRCS liaisons became an important link between the agencies' administrative offices. NCRS was impressed with outcomes from the initial agreement, and upon approval of the 2002 Farm Bill, extended agreement terms and funding levels. The Department now has 16 co-funded positions with NRCS (located in NRCS offices throughout the state) and is in early discussions towards developing and funding several more. Most of these NRCS biologists are trained to assist with all Farm Bill conservation programs, but several of them focus their time on implementing specific programs like CREP or the Wetlands Reserve Program (WRP). The results of the relationship have been tremendous for both parties involved: NRCS' workloads have been reduced at a time when they were unable to hire employees, and the Department is accomplishing many of our habitat goals through use of federal conservation programs.

To illustrate how well this partnership is working, we briefly describe successes with programs targeting two high priority habitat types: wetlands and wildlife-friendly grasslands. During the first 10 years of the WRP, Kentucky had averaged <U.S.$1 million allocated per year and had only completed 50 contracts (<1,000 ha of wetlands restored). Many of these initial wetland easements were designed improperly and located on sites with poor potential, therefore making it difficult to manage water optimally. Additionally, it was taking up to three years to complete easements before restoration of wetlands could even begin. For these reasons,

KDFWR and NRCS initiated discussions in 2002 to overhaul Kentucky's WRP program. First, KDFWR initiated a request to NRCS to remove the maximum amount that could be bid for wetland acreage; KDFWR partners (USFWS, TNC, DU, etc.) submitted a similar letter. NRCS approved the request and can now offer up to the appraised agricultural value for an easement. The partners then brainstormed to create "regional" ranking criteria to provide equity statewide (e.g., applicants in eastern Kentucky would not compete against applicants in western Kentucky), to ensure that central and eastern Kentucky applicants had a fair chance to be funded. In 2003, NRCS then asked KDFWR to partner with them on a "WRP Team" that would be responsible for every step of WRP implementation—promotion, application, ranking, contract writing, easement closure, design, contracting for construction, boundary marking, and future management of restored wetlands. Making this move removed tremendous burden from county-level NRCS employees, freeing them to promote the program as much as possible; it also ensured that wetland vegetation and water levels would be managed properly over time. All of the steps taken to overhaul WRP in Kentucky have paid huge dividends; WRP went from a 10-year average of <$1 million ($0 in fiscal year 2002), to $2.5 million in fiscal year 2003, and approximately $4 million per year in both fiscal years 2004 and 2005. Kentucky has restored and protected >3,000 ha of high quality wetlands since the overhaul of WRP began. Additionally, site quality for the acreages being offered has improved dramatically over the last couple of years; removal of the per acre bid cap has really increased Kentucky's ability to restore some of the highest quality wetlands in the state. Although informal surveys of these sites are being conducted now, both KDFWR and NRCS hope to evaluate thoroughly the use of these wetlands by migratory waterbirds and other wildlife in the very near future.

KDFWR and NRCS also have been very successful in improving the quality and quantity of grassland habitat created under Farm Bill programs in Kentucky. The Wildlife Habitat Incentives Program (WHIP) emphasizes the creation of high quality early successional habitat, having planted several thousand hectares of native warm season grasses with diverse forbs inter-mixed, and promoted use of prescribed fire and herbicide applications to create bare ground and encourage forbs in grasslands. Probably the best example of successes in integrating wildlife-friendly grasslands into the Farm Bill is most evident with CRP. As of March 2005, Kentucky has a total of 136,000 ha of all types of grasses under contract in CRP (i.e., hectares for General, Continuous, and CREP are combined). Of those, 15,400 ha are in native warm season grasslands with a high diversity of forbs inter-mixed. In General CRP Signup 26 (in 2003) alone, >6,000 ha of warm season grasslands were enrolled. In addition to these recent habitat accomplishments, KDFWR has been very influential in modifying CRP practices through the NRCS State Technical Committee. These include, but are not limited to: no tall fescue (*Festuca arundinacea*) can be planted on CRP acreages (except grassed waterways), fescue fields re-enrolling to General CRP must be converted to a wildlife-friendly mixture, Conservation Priority Areas (influenced by JV focus areas) were created in areas important to grassland birds and provided extra points on applications, and extremely beneficial practices (e.g.,

strip discing, prescribed burning, inter-seeding forbs) were required on all new General CRP contracts through mid-contract management. Wildlife-friendly modifications to Farm Bill programs and the proliferation of staff dedicated to Farm Bill promotion have greatly improved KDFWR's ability to accomplish habitat objectives for numerous priority bird species in the various conservation plans.

Partnering with NRCS has allowed KDFWR to implement habitat improvement projects in every county in Kentucky, focus restoration efforts on priority species or groups of birds (e.g., northern bobwhite and other grassland birds with CRP; shorebirds, waterfowl, and waterbirds with WRP), and generate personnel and public interest in a variety of avian landscapes (i.e., wetlands, grasslands, agricultural lands, and even forests). The Department is currently working with NRCS to better track habitat improvement accomplishments and to establish monitoring strategies for several of the programs in order to evaluate Kentucky's performance as it relates to NABCI and the various conservation plans. As examples, the agencies are currently working to develop avian monitoring strategies for both WRP and CRP's CP-33 Upland Bird Habitat Buffers practice. The agencies plan to sample randomly selected contracts in order to evaluate avian population responses to habitats created under these programs; monitoring these contracts will not only provide us information about attaining goals, but it will also allow the adjustment or modification of practices to improve effectiveness (i.e., adaptive management).

Cerulean Warbler Research Project

In addition to the Cerulean Warbler project mentioned earlier, KDFWR is assisting with a multi-state project (Kentucky, Ohio, Tennessee, and West Virginia) to examine responses of cerulean warblers and several other priority species to four silvicultural treatments. The USFWS, U.S. Geological Survey at West Virginia University, UT, UK, The Ohio State University, MeadWestvaco, and each of the respective state wildlife agencies are involved in this project. The project spawned from discussions in December 2002, when the Cerulean Warbler Research Technical Group identified several breeding-season research priorities. Some priority items identified were to investigate demographic response to silvicultural activities, studying the effects of forest structure and composition on populations, and understanding landscape-level influences on population demography. A regional wildlife project of this magnitude is rarely undertaken; however, the recently completed Appalachian Cooperative Grouse Research Project (ACGRP; Norman et al. 2004), which spanned across political borders, recruited graduate students to conduct research with oversight from principle investigators, and used resources from multiple agencies, universities, and organizations, will serve as a model for this project. By pooling resources (especially matching funds) and attempting to tackle a high priority issue, the research group has been successful in receiving funds and identifying the best areas to conduct research on cerulean warblers in each state. Upon completion, collective results will provide valuable insights to limiting factors and management prescriptions that could benefit cerulean warblers and other forest songbirds throughout the core of their breeding range and help land managers and wildlife agencies to at-

tain population goals for several priority species. Because of projects like this and the ACGRP, it is very likely that multi-state collaborative projects will become standard when addressing high priority issues.

Implementing Shorebird Conservation on Public Lands

Because habitat availability during fall migration is a limiting factor for shorebirds (Brown et al. 2001), habitat objectives are aimed at providing habitat on public land sufficient to accommodate all shorebirds in the region during southward migration. Working towards fulfilling our wetland habitat goals for various plans, KDFWR partnered with DU to design, build, and manage moist soil units (MSUs) to be specifically managed for shorebird stop-over habitat. MSUs were built on three KDFWR WMAs located in western and west-central Kentucky: Ballard, Sloughs, and Peabody WMAs. The Sloughs MSU was completed in 2002 (6.5 ha), Ballard in the fall of 2003 (8 ha), and Peabody in 2004 (4 ha). The goal was, to the extent possible, to provide a reliable source of shallow water habitat for transient shorebirds, from which waterfowl and wading birds would also benefit.

In 2003, WMA managers conducted shorebird surveys following the guidelines issued by the International Shorebird Survey. At least 13 species of shorebirds were observed, with the most abundant species being the pectoral sandpiper (Ciuzio et al. 2005). Numerous species of waterfowl, five species of wading birds, and a few miscellaneous water-associated species also frequented the MSUs; in fact, waterfowl outnumbered the shorebird group by >600 birds (Ciuzio et al. 2005) in 2003. In 2004, we partnered with EKU to document shorebird use of and prey availability on all managed wetlands on the WMAs rather than just the MSUs. Boatwright WMA, which is <8 km from Ballard WMA by air, was included in these surveys and results were combined with those from Ballard WMA. While EKU's study is ongoing, we can report that 5,081 shorebirds were recorded on the WMAs combined (Table 1), with Ballard/Boatwright WMAs recording >4,000 individuals (Ciuzio et al. 2005).

Table 1. Species and total numbers observed on Ballard, Sloughs and Peabody WMAs combined, separated by spring (mid-March to mid-June) and fall (mid-July to 31 October) migration, 2004 (from Ritchison and Ranalli 2004).

Species	Scientific name	Fall migration	Spring migration	Total observed
Killdeer	*Charadrius vociferus*	2292	62	2354
Pectoral sandpiper	*Calidris melanotos*	1363	25	1388
Lesser yellowlegs	*Tringa flavipes*	51	354	405
Least sandpiper	*Calidris minutilla*	391	14	391
Greater yellowlegs	*T. melanoleuca*	29	161	190
Semipalmated sandpiper	*Calidris pusilla*	154	22	176
Solitary sandpiper	*T. solitaria*	64	15	79
Semipalmated plover	*Charadrius semipalmatus*	65	2	67
Stilt sandpiper	*Calidris himantopus*	22	9	31
Total:		4431	664	5081

Although these MSUs are all <3 yr old and research into their effectiveness is ongoing, KDFWR has learned much about the design, management, and use of the MSUs by numerous avian species (for detailed discussion and recommendations, see Ciuzio et al. 2005). The value of cooperation from DU, EKU, and KOS (additional monitoring) also cannot be overstated for these MSUs. The interest these MSUs have generated among WMA managers also provides us confidence that similar MSU projects will be implemented soon, which will only improve Kentucky's migratory habitat for various waterbirds while also achieving state, regional, and national habitat restoration goals.

Landowner Incentive Program

As previously mentioned, KDFWR has partnered with TNC, RMEF, KNPC, and KDOC to help deliver LIP projects to private landowners. Although the LIP ranking criteria is designed to fund projects in a prioritized order (e.g., federally listed and in a focus area funded first), each project addresses habitat requirements for multiple taxa in the area to the extent possible. Initial LIP proposals included several lists of plant and animal species that biologists could pursue funding for and that the committee used to rank projects. These lists included the federal list of threatened, endangered, and candidate plants and animals, KNPC's list of threatened and endangered plants and animals for Kentucky, PIF's prioritized list of species needing conservation actions, and the Central Hardwood JV's prioritized list of birds in the JV. The current LIP proposal includes the species list for Kentucky's CWCS, which essentially integrates all of the above lists for birds and includes other taxa (i.e., fish, mussels, lampreys, reptiles, amphibians, and mammals). Along with four biologists and numerous seasonal work crews, the KDFWR has allocated nearly $900,000 for habitat improvement projects over the last two years. The Department has received 235 project applications (185 within LIP Focus Areas) from Department biologists, KNPC, TNC, and RMEF. By July 2005, the agencies will have planted >2,500 ha of native grass and forb mixtures, burned >1,500 ha of grasslands, planted >125 ha of forest, constructed >15 ha of MSUs, and completed 2 cave gates to protect federally endangered bats and a beetle listed as a candidate species, along with several other projects. The Focus Area approach through LIP has allowed these agencies to address resources concerns on smaller scales while also targeting species most at risk. Although habitats restored on most of the LIP projects implemented are not fully developed yet, the Department is planning to incorporate many of these projects into our ongoing avian monitoring efforts. As mentioned above, the Department is currently tracking habitat accomplishments; linking habitat accomplishments to population responses will not only allow evaluation of implementation of LIP, but it will provide additional justification to continue this valuable program while helping meet goals for avian populations.

Conclusion

Despite the challenges that managing for various habitats poses in Kentucky—land ownership patterns, relatively small state resources agency, limited state match-

ing funds, etc.—KDFWR continues to make great strides towards restoring, managing, and protecting important habitat types for priority bird species. There are three main reasons why the Department has been so successful in recent years: (1) a commitment to private lands stewardship from administration and partners, (2) innovative partnerships tailored to cover all types of important habitat and designated focus areas, and (3) increased levels of funding for conservation projects that target priority species on private lands. In Kentucky at least, there is a tremendous level of momentum for managing and researching multiple taxa on public and private lands through numerous federal grants, mitigation funds, and various other sources. In addition, KDFWR's CWCS planning is generating an incredible amount of interest from existing partners, agencies, and NGOs with which the Department has little history and regional and national entities interested in addressing projects that cross geopolitical boundaries. Kentucky's CWCS includes aspects from all of the avian conservation plans that will allow KDFWR to implement all phases of the plans, and will ensure that goals of each BCR, JV, and focus area are met. Involvement in the various plans by the Department's Wildlife Diversity Program's ornithological staff, the Migratory Bird Program, and field staff will be essential in order to ensure that priority avian species are constantly updated and habitat specifics are covered when program implementation occurs. Continued support from partners and federal conservation programs, as well as innovative uses of programs like State and Tribal Wildlife Grants, LIP, and Farm Bill programs will dramatically improve knowledge of avian communities and ability to implement all-bird conservation in Kentucky.

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