

WILDLIFE CONSERVATION & RESTORATION PROGRAM**State of Illinois****PROJECT T-16-P-1: Evaluation of Non-game Bird Conservation in Illinois****Annual Performance Report****30 September 2005 – 30 September 2006****STUDY 1. A Comparative Study of Bird Populations in Illinois: 1906-1909, 1956-1958 and 2006-2008**

Job 1.1: Select sampling locations and test field protocols to accompany historical techniques

From the field notes of Richard & Jean Graber from the 1950s, we were able to approximate the starting points for their transect surveys. These starting points were typically described by the Graber's as a distance and direction from a nearby landmark (e.g., "3 ½ miles southwest of Elgin"), but the precise areas surveyed were not recorded. We elected to use the 96 starting points for the 1950s surveys as the starting points for the 2000s surveys, and entered them into a GIS system to facilitate comparing the locations with land cover maps, aerial photography, and plat maps. Some of the 1950s starting points were relatively close (<5 miles), and we are treating these as single locations.

To accommodate historical comparisons, we have adopted field protocols that duplicate as closely as possible the techniques used in the 1900s (Forbes 1908, Forbes & Gross 1922) and the 1950s (Graber and Graber 1963, J. Graber, pers. comm.). We have deviated from the previous surveys in the length of transects, and where transects are located within a pre-determined (1950s) area. For example, Graber & Graber described a "typical" transect as a 1.5 to 2.0 mile-per-side square, where they surveyed each habitat type "randomly" as it was encountered (though they subjectively selected starting locations). However, by this method common habitats (e.g., corn) were over-sampled and scarce habitats (e.g., marsh) were under-sampled, and the Graber's conducted "supplemental" transects in scarce habitats, also in subjectively selected areas. Field notes indicate more than one-half of the Graber's sampling locations was directed at a scarce habitat, and several transects were <1 mile in total length.

To reduce subjectivity in habitat patches surveyed, and to more evenly balance sampling effort among habitat types and minimize the need for "supplemental" surveys, we gave field observers a standard procedure that accommodates efficient sampling at any location, and is used immediately prior to sampling: (1) observers begin at locations as near as we can determine to the locations surveyed by Graber & Graber, and (2) sample the nearest-available examples of each habitat type present. Our experience in 2006 was that landowner contact and permission

for access were much easier to obtain immediately before (preceding evening) surveys, and that land cover and aerial photography were not reliable ways to select uncommon habitat types that can be quickly established or converted (e.g., grassland, alfalfa, oats). This approach minimizes subjectivity in sampling habitat patches based on size or perceived quality, and maximizes data collection with respect to time afield and observer effort.

The visually-based belt-transect sampling of Forbes & Gross and Graber & Graber is being supplemented with modern techniques (paired-observer, 5-minute point-counts, with distance estimating to all birds recorded, with points at least 300 m apart). A comparison of the methods will help place the historical results within the context of contemporary monitoring efforts, such as North American Breeding Bird Survey trends.

Prior to beginning data collection, we tested and refined our protocols with our primary observers (10 May 2006) and most of our assistants (18 May 2006), to ensure practicality, repeatability and consistency. Within the first week of data collection, teams of all combinations of the 3 primary observers (S. Bailey, M. Ward, J. Walk) conducted surveys together to finalize protocol. Throughout the study, at least one of these three primary observers is intended to be one of the observers at all times, to ensure the field protocol is followed uniformly.

Job 1.2: Conduct habitat-specific, state-wide surveys

A combination of belt-transect and point-count surveys were conducted in northern, central, and southern Illinois from 24 May 2006 through 15 July 2006. For the season, 350 transects were surveyed at 25 locations. Each survey included one or more of three “lead” observers (S. Bailey, M. Ward, J. Walk) to minimize differences in technique and observer variability.

Job 1.3: Analyze, compare and report state-wide bird survey results

Data from the 1900s and 1950s transect surveys have been entered into a spreadsheet to facilitate statistical comparisons of the three survey periods. Preliminary analysis of 2006 data suggests important changes in the avifauna of Illinois over the past 100 years. The expanding dominance of abundant generalists (red-winged blackbird, common grackle, European starling, American robin) is noteworthy. Several grassland birds have become scarcer, while forest communities have changed less. Interestingly, a comparison across habitats shows relative stability in ranking by bird abundance: urban areas host the most birds/acre, while corn and soybean fields remain the most. The double-observer point-count data are being analyzed using the program DOUBLESERV, developed by Patuxent National Wildlife Research Center.

An abstract on the results of our 2006 surveys, and comparison to 1900s and 1950s results, was submitted in August 2006 for the Midwest Fish & Wildlife conference, to be held in Omaha, Nebraska, in December 2006.

Threatened/endangered species were encountered during travel or field work at 7 locations, and appropriate reports were delivered to the Illinois Department of Natural Resources' Biotics 4 Database on Loggerhead Shrikes (Carroll County), Henslow's Sparrows (Wayne, Perry, Vermilion, and Piatt counties), Upland Sandpipers (Henry and Ogle counties), and Yellow-headed Blackbirds (Carroll County).

STUDY 2. Assessing Grassland Bird Populations on Reclaimed Mine Lands

Job 2.1: Select sampling locations on reclaimed mine lands

Coordination with IDNR – Office of Resource Conservation. The divisions of Wildlife Resources and Natural Heritage were asked to submit IDNR properties with a history of surface mining, where field staff had a need for information on non-game birds. Field staff requested information from Banner Marsh SFWA (Peoria County), Double T SFWA (Fulton County), Mautino SFWA (Bureau County), Snakeden Hollow SFWA and Victoria PHA (Knox County), Mazonia SFWA (Grundy County), Kickapoo SFWA (Vermilion County), Peabody River King SFWA (St. Clair County), World Shooting Complex (Randolph County), Ten Mile Creek SFWA (Jefferson County), and Sahara Woods SFWA (Saline County). As many of these sites will be sampled, as time and logistics allow.

Coordination with IDNR – Office of Mines & Minerals. The Office of Mines & Minerals has been a source of site reclamation plans, maps and corporate landowner contact information (D. Spindler, pers. comm.). The "Illinois Coal Mine Viewer" is a web-based tool useful for locating and approximating land cover on reclaimed surface mines.

Job 2.2: Sample bird diversity and abundance within grassland, shrubland and wetland habitats

From 20 May 2006 through 30 June 2006, a total of 38 point-counts and 25 hours of area-searches were conducted at 7 locations in Bureau, Knox, Fulton, and Perry counties. These data are being entered, verified and analyzed. Two sites were visited in the course of other field work, outside of acceptable times for point-count surveys, and will be revisited.

Breeding season avian surveys consisted of 5-minute point-counts, with distance estimation to each bird detected, conducted under acceptable conditions (from dawn to no later than 4.5 hours after sunrise, wind ≤ 3 Beaufort scale, and no precipitation to derive detection probabilities and density estimates. Vegetation structure and composition is being recorded at sampling points as well. Time-measured area searches are conducted on sampling areas to

determine the presence/absence of rare and other species unlikely to be detected on standard surveys. Area searches are the preferred method during the non-breeding season.

Job 2.3: Analyze and report results

Results of surveys at the Municipal Sanitation District site in Fulton County were reported back to the City of Chicago at their Canton project office. This site hosted tremendous abundances of Bobolinks and Henslow's Sparrows.

Henslow's Sparrows were recorded at all areas visited. Evidence of breeding (large numbers, paired birds, nest building, and nestling feeding behavior) at 5 sites was sufficient to establish Element Occurrence Reports. Appropriate reports were sent to the Biotics 4 database manager at the Illinois Department of Natural Resources for locations in Bureau (Mautino SFWA), Knox (Snakeden Hollow SFWA, Victoria PHA, and private lands), and Fulton (Municipal Sanitation District) counties.

STUDY 3. Coordinating Wildlife Conservation with Wind Farm Development

Sensitive habitats for breeding, wintering and migratory birds in Illinois are being compiled from the National Audubon Society's Important Bird Areas project, the Illinois Natural Areas Inventory (category 2 sites) and IDNR Biotics 4 database (threatened/endangered species). The US Fish & Wildlife Service's interim siting guidelines for wind turbines (USFWS 2003) are being applied to Illinois to provide concrete guidance for wind energy development. The IDNR's wind energy coordinator in the Office of Realty and Environmental Planning is providing contact information for wind energy developers, locations of planned developments, and results from environmental consultants when threatened/endangered species are found in and near project areas.

STUDY 4. Evaluation of Pheasant Habitat Areas

Sampling points have been systematically distributed at PHAs, at least 200 m apart and at least 50 m from property boundaries, in open areas to estimate the abundance of grassland birds. Points are being surveyed from dawn to no later than 4.5 hours after sunrise, when winds are <3 Beaufort scale, and no precipitation. Timed-effort area searches are also being conducted to determine the presence/absence of rare and other species unlikely to be detected on standard surveys.

A quick assessment tool was developed, with input from grassland biologists with the Illinois Natural History Survey, Illinois Department of Natural Resources, and The Nature Conservancy, to rank sites on 5 parameters that could influence the feasibility and likelihood of biological response from expended grassland conservation effort within 5 km of each PHA. It is important to note that this tool is not an evaluation of the PHA itself, but rather the surrounding landscape.

From 20 May 2006 through 7 July 2006, eleven sites were sampled. When measured by grassland bird richness and abundance on point counts, some PHAs are clearly superior to others, likely due to size, location relative to other landscape features (e.g., riparian corridors), and on-site habitat conditions. The PHAs also vary in their suitability as anchors for larger-scale grassland conservation efforts.

Henslow's sparrows were the only threatened/endangered species encountered on PHAs. Element Occurrence Reports were submitted to the Illinois Department of Natural Resources Biotics 4 database for Henslow's Sparrows at Perdueville PHA (Ford County), Sand Prairie PHA (Lee County), and Victoria PHA (Knox County).

STUDY 5. Developing Recovery Plans for Illinois Birds

A draft plan for the osprey, with recovery objectives similar to those established for the bald eagle, another fish-eating raptor, was delivered in April 2006 to the IDNR Divisions of Wildlife Resources and Natural Heritage, and the Illinois Endangered Species Protection Board. By 30 September 2006, comments had been received only from the Division of Wildlife Resources. Natural history and status in Illinois information have been compiled for colonial-nesting terns (Least, Common, Forster's) and for grassland songbirds (Henslow's sparrow, Bobolink) to complete additional recovery outlines.

REFERENCES

Forbes, S. A. 1913. The mid-summer bird life of Illinois: a statistical study. Illinois Laboratory of Natural History Bulletin 9:373-385.

Forbes, S. A., and A. O. Gross. 1922. The numbers and local distribution in summer of Illinois land birds of the open country. Illinois Natural History Survey Bulletin 14:187-218 + pls. XXXV-LXX.

Graber, R. R., and J. W. Graber. 1963. A comparative study of bird populations in Illinois, 1906-1909 and 1956-1958. Illinois Natural History Survey Bulletin 28:383-528.

Land Cover of Illinois, 1999-2000. <http://www.agr.state.il.us/gis/landcover99-00.html#class>

USFWS. 2003. Interim guidelines to avoid and minimize wildlife impacts from wind turbines. U.S. Fish & Wildlife Service. Washington, DC. 55 pp.