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# The Passenger PIGEON

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Send all manuscripts and related correspondence to the Editors. Information for "Seasonal Field Notes" should be sent to the Bird Reports Coordinator (see inside back cover). Art work and questions about the art should be sent to the Assistant Editor for art (see left column). Manuscripts that deal with Wisconsin birds, ornithological topics of interest to WSO members, and WSO activities are considered for publication. For detailed submission guidelines, see pages 131–132 of the Summer 2007 issue (Vol. 69, No. 2) or contact the Editors. As a general guide to style, use issues after Vol. 60, No. 1, 1998.



*Front cover: This duo of a red phase and a gray phase Eastern Screech-Owl was wintering together in an oak tree at the YMCA in Oshkosh, Wisconsin, when photographed by Dennis Malueg.*

## Conserving Important Birds in Important Places

An exciting new book has hit the shelves. Titled *Important Bird Areas of Wisconsin: Critical Sites for the Conservation and Management of Wisconsin Birds,* it is edited by the energetic Yoyi Steele, Wisconsin's Important Bird Area (IBA) program coordinator, and published by the Wisconsin Department of Natural Resources.

The Wisconsin IBA program is a part of a global effort begun in 1981 by the Britain-based group Birdlife International to identify, inventory, and conserve the most critical sites and habitats for birds around the planet. It was brought to the U.S. by the National Audubon Society in the 1990s, and was started here in Wisconsin by the Wisconsin Bird Conservation Initiative in 2003. WSO members can be proud of this book, as significant funding for it was provided by our own Noel Cutright's herculean Quad 30 Campaign. Noel has been a tireless advocate for the IBA program since its inception. WSO also provided an employment home for Yoyi's IBA coordinator position for the first two years. Worthy of note is the fact that the book is dedicated to WSO's Past President and current Bird Reports Coordinator, Randy Hoffman, who personally wrote detailed nominations for 68 of the 86 IBAs included in the book.

What are Important Bird Areas? They are sites with the highest potential for the management and conservation of priority bird species and their habitats in Wisconsin. The first step in achieving this goal is to identify the sites that have the best opportunities for managing sustainable populations of priority bird species. This book presents, in Yoyi's words, "a successful and robust first round of IBA identifications." Among the information included for each area are a site description, a listing of the criteria on which the site nomination was based, a discussion of the area's importance to birds, and a section on conservation that includes current management status, threats, and recommended conservation actions.

One of the most exciting aspects of this book for me is that the IBAs in it represent not only places familiar to many WSO members, such as Horicon Marsh, Crex Meadows, Wisconsin Point, the Baraboo Hills, and Point Beach State Forest, but, almost more importantly (and intriguingly), it includes sites that few of us have ever heard of, much less visited: Athelstane Barrens, Lunch Creek Wetlands, Waupee Lake, the Deerskin River, and Moose Junction Peatlands. Some of these places are very large, encompassing entire landscapes; for example, the Moose Junction Peatlands includes 192,000 acres in Douglas County under both public and private ownership. The opportunity to learn more about these places and the bird communities they harbor is one worth taking advantage of. As Wisconsin birders become more aware of these important areas, they will become more educated about the variety of critical bird habitats in the state, and thus better advocates for bird conservation.

As Yoyi states in the book's introduction, "the truly significant part of the IBA process is still to come—the development of conservation and management strategies for these key sites." It is the implementation of the IBA program, through collaborations and partnerships that will develop conservation strategies that will "ensure that the rich and abundant Wisconsin birdlife that delights and amazes us today will exist for future generations to enjoy".

To obtain a copy of the book, contact Yoyi Steele at 608. 266. 8169. One good way to support the next, or implementation, phase of the IBA program in Wisconsin is to support the Natural Resources Foundation's (NRF) Wisconsin Important Bird Area fund (created this year via an agreement between the NRF and WSO) with a donation. For more information on this fund, go to www.nrfwis.org.

David W. Sample

President

This House Finch recovering from a window strike was photographed by David Kuecherer.

## To Everything There Is a Season

*Writing the Winter Season Report has come to an end for our extremely long-time editor, Ken Lange. We are happy to give Ken a bit of space to say his good-bye to you.*

**A Fond Farewell**—After 27 years as your Winter Field Note Compiler, I'm retiring. It's been an eventful journey, but it's time to hand over the reins to another intrepid soul. Well do I remember the evening when I accepted the position: Charlie Kemper, the Editor [of *The Passenger Pigeon*] at the time, was on the phone from Chippewa Falls, and the line was crackling from a lightning storm such that Esther, my wife, thought that I should hang up. A dramatic beginning! That was in 1980, and now, in 2007, what do I recall most vividly from all those forms and reports and notes and photos? As a Naturalist I've been interested in such phenomena as population trends and range changes, but more than anything else I remember the personal comments.

Let me illustrate with a few examples from this winter's contributions. On 10 January in Calumet County Bettie Harriman noted 26 species including Snow Bunting. One flock numbered some 3000 birds, and Bettie made this observation in her report: "A beautiful river of white flowing over a plowed field. They got very close and the brightly colored first winter birds were beautiful." Daryl Tessen on 3 January in Langlade County witnessed an even larger flock of Snow Buntings, an estimated 10, 000, with 100 Lapland Longspurs. It was an "unbelievable sight," Daryl noted, and one, I'm sure, that he will always treasure. Another perspective on the color white was afforded by Ron Hoffmann in Kenosha County, when he posed this question: "When is red osier **not** red?" His answer: "When it's all white! (with snow)," then added, "Sure was a winter wonderland!" I also appreciated another comment by Hoffmann, this one in regard to finding a Horned Grebe: "Where'd **it** come from?" he asked, with a hint of surprise and perhaps exasperation. May you always be open to such questions, and always be open to wonder.—Ken Lange

It is bittersweet to bid Ken farewell. He has produced excellent coverage of the winter season 27 times—not an easy task! We'll miss his thoughts on each winter season. He obviously still finds wonder and excitement in the words of others and from his own experiences with nature. Ken, we extend to you our very best wishes for a long and happy retirement, and may you enjoy every minute of it.

In February 2007, WSO co-sponsored a symposium on current ornithological work being done in Wisconsin. In this issue you will find five articles from presentations made at the symposium.

Bettie and Neil Harriman, Editors

Bald Eagle by Rich Phalin

# Songbird Survey on the Iron County Forest, 2006

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In 2005 a State Wildlife Grant was awarded to the Wisconsin Department of Natural Resources (DNR) Wildlife Management at Mercer and the Iron County Forestry Department (ICFD) to survey songbirds within the Iron County Forest (ICF). ICFD provided funding through the Dime per Acre Wildlife Grant. Previously some songbird survey work had occurred within the ICF using college interns. Other bird data were provided by DNR Bureau of Endangered Resources personnel. ICF and DNR staff had identified areas within the ICF where special protection of the wildlife resources was warranted. Several of these areas are identified in the current 10 year management plan. Additional sites had been proposed in the new 15 year ICF management plan. The Penokee Biological Reserve Area within the ICF recently received further recognition by being designated an Important Bird Area (IBA).

The County Forest Certification granted by the Sustainable Forestry Initiative and the Forest Stewartship Council identified the need for additional wildlife monitoring on county forests. This project fit nicely into that need.

The project monies were used to contract Ryan Brady to do the field surveys and initial write-up. Part of the DNR's responsibility was to write reports and provide outlets for the data. Information was added into the DNR's Natural Heritage Inventory (NHI).

## Methodology

Bruce Bacon, WDNR wildlife biologist at the Mercer Ranger Station, delineated 14 areas and three road transects in northern Wisconsin's Iron County to survey for forest songbirds

during late spring and early summer 2006. Sites had been identified in ICF's 10 Year Management Plan and proposed revisions to that plan. All sites were located on ICF lands and most were in northern and central portions of the county. Most sites represented unique habitats (e.g., Glacial Lake Duluth Sand Dunes and Lake Superior Clay Cliffs) or locations of special interest within the county forest (e.g., Potato River Falls and Penokee Range). The primary objective was to determine the relative abundance and diversity of birds utilizing each site and provide a more comprehensive picture of the songbirds of Iron County. Although surveys focused primarily on breeding species, migrant songbirds were also recorded. Survey methods focused on forest songbirds, and thus, detections of waterfowl, raptors, and other non-passerines were minimal.

Ryan Brady was responsible for all field data collected. He surveyed each of the 17 selected sites once between 18 May and 8 June 2006 and again a second time between 10 June and 29 June 2006 with each subsequent visit occurring approximately 21 days after the first in most cases. Overall, Brady spent 30 days and 161 hours in the field to complete the 34 required surveys. Because of the timing of these surveys, initial surveys likely included some migrants and potentially missed late-arriving birds, while subsequent surveys at each site sampled primarily breeding individuals. Brady took extensive digital photos of habitat at all sites.

**Survey Areas and Point Counts**

Brady surveyed each of the 14 areas (i.e., not road transects) through a combination of point count and breeding bird atlas techniques. The primary focus was to conduct enough appropriately-spaced point counts to adequately sample or census (depending on size) the target area or habitat. Site boundaries were defined by habitat type as suggested by the site name (e.g., Carpenter Creek Hemlocks and Swamp Creek Cedars) or, if the habitat was contiguous over a large area, by adequately sampling the target habitat (e.g., at least 0.3 miles north and south of waterfalls). The latter was especially true at the waterfalls sites, where the target habitat was typically distributed along the narrow river corridor. Breeding data was gathered at each site, often resulting from incidental observations at or between points.

Point count protocol followed standards given in Howe et al. (1997). At each point unlimited-radius, 10-minute point counts were conducted using data sheets modified from those used by the U.S. Forest Service and Natural Resources Research Institute for conducting similar forest songbird surveys in the western Great Lakes region. Brady mapped the location of each bird detected and estimated where (< 50 m, 50–100 m, or > 100 m) and when (during the first 3 minutes, next 2 minutes, or last 5 minutes of the count period) each bird was first encountered. Also recorded were the nature of each detection, i.e. singing, calling, visual observation, or flyover. Points from both surveys were marked on a map for each site along with the walking route taken between points.

Brady conducted 7–12 point counts per morning and 10–20 points (both visits combined) per site, with few exceptions. Each point was separated by

approximately 0.15–0.30 mi (~ 240–480 m), depending on the size of the area to be covered—larger sites tended to have points spaced farther apart. Starting points for each site were arbitrarily selected based on easiest access or location of the core habitat (e.g., waterfalls). Subsequent point locations were selected near-randomly by simply walking an appropriate distance from the previous point in a direction ensuring that the next survey point was within the target habitat/area until the area was adequately surveyed.

Most surveys began between 30 to 10 minutes before sunrise. All surveys were conducted only under good weather conditions (i.e. not raining, no heavy fog, and winds less than 12 mph).

In nearly all cases, points from survey #1 were different from survey #2. Exceptions occurred only at small sites (e.g., Lake Superior Clay Cliffs and Lake One/Obadash Lake) where entirely new points simply could not be established.

In addition to point counts, any species detected at the site between points was recorded and breeding data using criteria developed for the Wisconsin Breeding Bird Atlas project (www.uwgb.edu/birds/wbba) was recorded. The atlasing portion of this project was not very successful because this requires a more patient, sit-and-wait approach that substantially differs from point-count and area-sampling techniques. Conducting more point counts and covering more area to ensure detection of as many species as possible was considered more important. Moreover, late May and June are not the best times to confirm breeding of most northern Wisconsin songbirds, as most species do not feed and fledge young until late June.

### Road Transects and Breeding Bird Survey Techniques

Methodology was slightly different for the three road transect surveys. Here Brady primarily followed standard Breeding Bird Survey (BBS) protocol (http://www.pwrc.usgs.gov/BBS/ ). Unlike the 25-mile BBS routes, the three vehicle routes surveyed here were only 13 to 18 miles long. Therefore, Brady conducted 5-minute point counts at each stop instead of the standard 3-minute counts. However, to allow comparisons to BBS data, data was recorded separately for the first 3-minute period and the second 2-minute period.

Brady arbitrarily selected the starting point of each vehicle route and then conducted the first 5-minute unlimited-radius point count, recording only the numbers of each species (i.e. no locations/distances). Each additional point was 0.5 miles apart until the route was completed. Surveys began between 0440 and 0500 and were completed each between 0930 and 1000 each day. The same route with the same points was surveyed twice

## Results

Results are presented in Table 1. First, each site is described and birds found are summarized. NHI data is found under each site. Data was added to a county bird list (Appendix A) and this list will be distributed as part of the newest version of ICF's Recreation Map. The bird list will get additional distribution to the local

Table 1: Birds found on Iron County Forests in May-June 2006. Site names are at bottom of table. M = migrant.

| Sites | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | | | | | | | | | | | | | | | | | | Totals |
| Canada Goose | | | X | | X | | X | X | | | X | X | | | X | | X | 8 |
| Wood Duck | | | | | | | | | | | | | | | | | X | 1 |
| Mallard | | X | | | X | | | | | | | | | | X | | | 3 |
| Hooded Merganser | | | | | X | | | | | | | | | | X | X | X | 4 |
| Common Merganser | | X | X | | X | | | | | X | | X | | | | | | 5 |
| Ruffed Grouse | X | X | | | X | X | X | X | X | X | X | X | X | X | | X | X | 14 |
| Wild Turkey | | | | | | | | | | | | | | | | | X | 1 |
| Common Loon | X | X | | | X | X | | X | | | | | X | | X | X | X | 9 |
| American Bittern | X | X | | | | | | | | | | | X | | | | X | 4 |
| Great Blue Heron | | X | X | | | | | | | | | | X | | X | | X | 5 |
| Turkey Vulture | X | X | X | | X | | | | | | | | | | | | X | 5 |
| Bald Eagle | X | X | X | | | | | X | | | | | | | | | | 4 |
| Sharp-shinned Hawk | X | | | | | | | | | | | | | | | X | | 2 |
| Northern Goshawk | X | | | | | | | | | | | | | | | | | 1 |
| Broad-winged Hawk | X | | X | X | X | | X | | | | | | X | | X | X | X | 9 |
| American Kestrel | | | X | | | | | | | | | | | | | | | 1 |
| Merlin | | | | | X | | | | | | | | | | | | | 1 |
| Virginia Rail | X | | | | | | | | | | | | | | | | X | 2 |
| Sandhill Crane | | | | | | | | | | | | | | | | X | X | 2 |
| Killdeer | | | | | X | | | | | | | | | | | X | | 2 |
| Spotted Sandpiper | | X | | | X | | | | | X | | | | | | | | 3 |
| Wilson's Snipe | | | | | | | | | | | | | | | X | X | X | 2 |
| American Woodcock | X | | | | | | X | | | | | | | | X | | | 3 |
| Ring-billed Gull | | | | | X | | | | | | | | | | | | | 1 |
| Herring Gull | | | | | X | | | | | | | | | | | | | 1 |
| Mourning Dove | X | | | | X | | | X | | | | X | | | X | X | X | 7 |
| Black-billed Cuckoo | X | X | | | | | X | | | | | | | | | X | X | 5 |
| Barred Owl | X | | | X | | | X | | | | | | | | | | X | 4 |
| Whip-poor-will | X | | | | | | | | | | | | | | | | | 1 |
| Chimney Swift | X | | | | | | X | | | | | | X | X | X | | X | 6 |
| Ruby-thr. Hummingbird | X | X | | | X | X | | | X | X | | | | | X | X | | 8 |
| Belted Kingfisher | X | X | | | X | X | | | X | | | | X | | X | X | | 8 |
| Red-bellied Woodpecker | | | | | | | | | | | | | | | | | X | 1 |
| Yellow-bellied Sapsucker | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Downy Woodpecker | | | X | X | | | | | | | | | | | | | X | 3 |
| Hairy Woodpecker | X | | X | | X | X | X | X | | | X | X | X | X | X | X | X | 13 |
| Black-backed Woodpecker | | | | | | X | | | | | X | | X | X | | | | 4 |
| Northern Flicker | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | 15 |
| Pileated Woodpecker | X | | X | X | X | X | X | | | X | X | | X | | X | X | X | 13 |
| Olive-sided Flycatcher | | | | | | X | | | | | | | X | | X | X | | 4 |
| Eastern Wood-Pewee | X | | X | | | | X | X | X | | | | | | X | X | X | 8 |
| Yellow-bellied Flycatcher | X | | | X | | X | X | | | | | | X | X | X | X | X | 9 |
| Alder Flycatcher | X | X | | | X | | X | X | X | X | X | X | X | | X | X | X | 13 |
| Least Flycatcher | X | X | X | X | X | | | X | | | | | | | X | X | X | 9 |
| Eastern Phoebe | X | X | X | | X | | | | X | X | | | | | X | X | X | 9 |
| Great Crested Flycatcher | X | X | X | X | | | | | X | X | | | X | X | X | | X | 10 |
| Eastern Kingbird | X | X | | | | | | | X | | | | X | | | X | | 5 |
| Blue-headed Vireo | X | X | | X | | X | X | X | | | X | X | X | | X | X | X | 12 |
| Yellow-throated Vireo | X | | | | | | | | | | | | | | | | | 1 |
| Red-eyed Vireo | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Gray Jay | | | | | | X | X | | | | | | X | | | X | | 4 |
| Blue Jay | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| American Crow | X | X | X | X | X | X | X | X | X | | X | X | | | X | X | X | 14 |
| Common Raven | X | X | X | X | X | | X | X | X | | X | | X | X | X | X | X | 14 |
| Tree Swallow | X | X | | | X | | X | | | X | | | X | | X | X | X | 9 |
| No. Rough-winged Swallow | | | | | X | | | | | | | | | | | | | 1 |
| Bank Swallow | | | | | X | | | | | | | | | | | | | 1 |
| Cliff Swallow | | | | | X | | | | | | | | | | | | | 1 |
| Barn Swallow | | | | X | | | | X | | | | | | | | | | 2 |
| Black-capped Chickadee | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Boreal Chickadee | | | | | | X | | | | | | | | X | | | | 2 |
| Red-breasted Nuthatch | X | X | | X | X | X | X | X | | X | X | X | X | X | X | X | X | 15 |
| White-breasted Nuthatch | X | | | | | | X | X | | | | X | X | | | X | X | 7 |
| Brown Creeper | X | X | | X | | X | X | | | X | | | X | X | X | X | X | 11 |
| House Wren | | | | | X | | | | | | | | | | | | | 1 |
| Winter Wren | X | X | X | X | | X | X | | X | | X | X | X | X | X | X | X | 14 |
| Sedge Wren | X | | | | | | | | | | | | | | | | X | 2 |
| Golden-crowned Kinglet | X | X | | X | | X | X | | | X | X | X | X | X | X | X | X | 13 |
| Ruby-crowned Kinglet (M) | | | X | X | | X | | X | | | | | | | | | X | 5 |
| Eastern Bluebird | | | | | X | | | X | | | | | X | | X | | | 4 |

*(Continued)*

Table 1: Birds found on Iron County Forests in May-June 2006. Site names are at bottom of table. M = migrant.

| Sites | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | | | | | | | | | | | | | | | | | | Totals |
| Veery | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Swainson's Thrush | X | | | | | | X | | | | X | | | | | X | | 4 |
| Hermit Thrush | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Wood Thrush | X | X | | | | | | | | X | | | | | | X | X | 5 |
| American Robin | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Gray Catbird | X | X | | | X | | | | | | | | | | | | X | 4 |
| Brown Thrasher | | | | | | | | X | | | | | | | | | | 1 |
| European Starling | | | | | X | | | | | | | | | | | | | 1 |
| Cedar Waxwing | X | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | 16 |
| Golden-winged Warbler | X | X | | | X | | | | X | | | | | | X | | X | 6 |
| Tennessee Warbler | | | X | | | | | | X | | | | | | | | | 2 |
| Nashville Warbler | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Northern Parula | X | X | X | X | X | X | X | | | X | X | X | X | X | X | X | X | 15 |
| Yellow Warbler | X | | | | X | | | | | | | | | | X | | X | 4 |
| Chestnut-sided Warbler | X | X | X | X | X | X | X | X | X | X | X | | | | X | X | X | 14 |
| Magnolia Warbler | X | X | X | X | X | X | X | X | | X | X | X | | X | X | X | X | 15 |
| Cape May Warbler | X | | | | | | | | | | X | X | | | | | X | 4 |
| Black-throated Blue Warbler | X | | | | | X | X | | | | | | | | | X | | 5 |
| Yellow-rumped Warbler | X | X | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | 16 |
| Black-throated Green Warbler | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | X | 16 |
| Blackburnian Warbler | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | X | X | 16 |
| Pine Warbler | | | | X | | | | X | | | | | | | X | | | 3 |
| Palm Warbler | | | | | | X | | X | | | | | | | | | | 2 |
| Bay-breasted Warbler (M) | | X | | | | | | | | X | | | | | | | | 2 |
| Black-and-white Warbler | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| American Redstart | X | X | | X | X | | X | X | X | X | X | | | | X | X | X | 12 |
| Ovenbird | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | X | 16 |
| Northern Waterthrush | X | X | | | | | X | | | X | X | | X | X | X | | X | 9 |
| Mourning Warbler | X | X | X | X | X | X | X | X | X | X | X | | | | X | X | X | 14 |
| Common Yellowthroat | X | X | | | X | | | | X | X | X | X | X | | X | X | X | 11 |
| Wilson's Warbler (M) | | | | | X | X | X | | | | | | | | | | | 3 |
| Canada Warbler | X | X | X | X | X | X | | | X | X | X | X | X | X | X | | X | 14 |
| Scarlet Tanager | X | X | | | | | X | X | X | X | X | X | X | | X | | X | 12 |
| Eastern Towhee | | | | | | X | | X | | | | | | | | | | 2 |
| Chipping Sparrow | X | X | X | X | X | | | X | | | X | | | X | X | | X | 10 |
| Vesper Sparrow | | | | | | | | X | | | | | | | | | | 1 |
| Song Sparrow | X | X | X | | X | X | X | X | X | X | X | X | X | | X | X | X | 15 |
| Lincoln's Sparrow | | | | | | X | | | | | | | | | X | | X | 3 |
| Swamp Sparrow | X | X | | | | X | X | | | | X | X | X | | X | X | X | 10 |
| White-throated Sparrow | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 17 |
| Dark-eyed Junco | | | | | | X | X | X | | | | | | X | | | | 4 |
| Rose-breasted Grosbeak | X | X | X | | X | X | X | X | X | X | X | | X | X | X | | X | 14 |
| Indigo Bunting | X | | X | | X | | X | X | X | | | | | | X | | | 7 |
| Bobolink | | | | | X | | | | | | | | | | | | X | 2 |
| Red-winged Blackbird | X | X | | | X | | X | X | | | | | X | | X | X | X | 9 |
| Common Grackle | | X | | | X | | | X | | | X | | X | | X | X | X | 8 |
| Brown-headed Cowbird | X | | X | | X | | | X | | X | | | | | | X | X | 7 |
| Baltimore Oriole | | X | | | X | | | | | | | | | | | | | 2 |
| Purple Finch | X | X | | X | X | X | X | X | | | X | X | | X | X | X | X | 13 |
| Pine Siskin | | | | X | X | X | | | | | | | | | X | | | 4 |
| American Goldfinch | X | X | X | X | X | X | X | X | | | | X | X | | X | X | X | 13 |
| Evening Grosbeck | | X | X | | X | X | | | | X | | | X | X | | | X | 8 |

Sites: 1, Penokee Biological Reserve; 2, Potato River Water Gap; 3, Potato River Falls; 4, Carpeter Creek Hemlocks; 5, Lake Superior Clay Cliffs; 6, Tyler Forks Muskeg; 7, Swamp Creek Cedars; 8, Glacial Lake Duluth Sand Dunes; 9, Wren Falls; 10, Foster Falls; 11, Little Balsam Falls; 12, Spring Camp Falls; 13, Lake One/Obadash Lake; 14, Chippewa Fire Lane Cedar Bog; 15, Cramer Lake BBS (vehicle route); 16, Duck Lake BBS (vehicle route); 17, Pence BBS (vehicle route).

bird club and sports club. A CD was produced of all data summaries and photos and is at the Mercer DNR and ICFD.

**Ryan Brady Field Notes:**

**Site #1:** Penokee Biological Reserve (Penokee Range)—

**Approximate location:** Northern Iron County, north of Hwy 77 and the small town of Iron Belt; between Hoyt Fire Lane and Weber Lake and north of Alder Creek.

**Dates surveyed:** 31 May, 2 June, 20 June, 22 June.

**Habitat(s):** Upland areas and ridges dominated by hardwoods, predominately maple and yellow birch, with occasional hemlocks, esp. on north and west side of bluffs; also some ravines and drainages with some balsam and ash, etc. Lowland areas north of Alder Creek and south of ridgeline dominated by alder, ash, and cedar, with some tamarack and black spruce in some areas. Pine and oak near high rocky outcrops and more aspen along eastern third of site at southern edge of ridgeline.

**Common birds:**

*Uplands*—Yellow-bellied Sapsucker, Eastern Wood-Pewee, Least Flycatcher, Veery, Hermit Thrush, American Robin, Red-eyed Vireo, Black-throated Blue Warbler, Black-throated Green Warbler, Ovenbird, Scarlet Tanager, Rose-breasted Grosbeak.

*Lowlands*—Black-capped Chickadee, Winter Wren, Nashville Warbler, Northern Parula, Blackburnian Warbler, Black-and-white Warbler, Canada Warbler, White-throated Sparrow.

**Avian highlights:** Black-throated Blue Warblers (22–24 singing males in two days—perhaps one of the best places in the state for this species), Swainson's Thrushes (4+ singing), Wood Thrushes, Scarlet Tanagers, Eastern Wood-Pewees, Yellow-throated Vireo, Black-billed Cuckoos, Yellow-bellied Flycatchers (2+ in lowland cedars), Golden-winged Warblers (5+ in vicinity of Alder Creek, without much effort there).

**NHI Working List species:** American Bittern, Bald Eagle, Whip-poor-will, Swainson's Thrush, Black-throated Blue Warbler, Canada Warbler, Timber Wolf.

**NHI Watch List species:** American Woodcock, Black-billed Cuckoo, Least Flycatcher, Yellow-bellied Flycatcher, Sedge Wren, Veery, Wood Thrush, Golden-winged Warbler, Nashville Warbler.

**Area to be protected:** The upland hardwoods are phenomenal and very important for many locally uncommon species, such as Black-throated Blue Warbler, Swainson's Thrush, Wood Thrush, Scarlet Tanager, Eastern Wood-Pewee, etc. The lowlands are equally important for Yellow-bellied Flycatcher, Canada Warbler, Golden-winged Warbler, and others.

**Site #2:** Potato River Water Gap—

**Approximate location:** Along Potato River near Upson Lake, about 2 miles NW of Hwy 77 at the town of Upson.

**Dates surveyed:** 20 May, 12 June.

**Habitat(s):** Moist woodlands with excellent structure and good mix of deciduous and coniferous cover types. The river corridor is outstanding with ample balsam fir and black spruce, with some cedar and white pine as well. A few small red pine plantations scattered throughout site, aspens in central portion, and substantial up-

land hardwoods on the higher terrain surrounding Upson Lake to the south and west. These hardwood woodlands were fairly open, hence a rich understory. The lake itself and a wetland surrounding it to the east and north also provided additional diversity.

**Common birds:** Ruffed Grouse, Least Flycatcher, American Robin, Red-eyed Vireo, Black-throated Green Warbler, American Redstart, Ovenbird, Mourning Warbler, Canada Warbler, White-throated Sparrow.

**Avian highlights:** Many Ruffed Grouse, Wood Thrush, Golden-winged Warbler (4 singing males each day); more Chestnut-sided Warblers, American Redstarts, and Mourning Warblers than other sites; Bay-breasted Warbler on 20 May (likely migrant); excellent warbler diversity.

**NHI Working List species:** American Bittern, Canada Warbler.

**NHI Watch List species:** Common Loon, Black-billed Cuckoo, Least Flycatcher, Veery, Wood Thrush, Golden-winged Warbler, Nashville Warbler, Bobcat.

**Area to be protected:** The entire river corridor is outstanding and particularly good is the area surrounding the ATV bridge, where the woodland structure (aspen dominated) and avian community are very diverse. The upland maples around Upson Lake are also especially good habitat.

**Site #3:** Potato River Falls—

**Approximate location:** Northwestern Iron County, only about 1.5 miles southwest of the town of Gurney.

**Dates surveyed:** 23 May, 15 June.

**Habitat(s):** Campground area is surrounded by upland hardwoods, especially maple, while the falls area has steep slopes and ample conifers. Scattered red pine plantation and aspens to the southeast of the campground and north of the river. The river corridor is narrow but has hemlock, white pine, cedar, and black spruce. Hardwoods included maple, aspen, and yellow birch. Scattered and small pockets of swamp hardwoods (e.g. ash) and swamp conifers (e.g. cedar, spruce, fir). Most of the south side of the river is aspen except for immediately adjacent to river, where some conifers grow. As you work north and west, more typical northern mixed hardwood situation.

**Common birds:** American Robin, Red-eyed Vireo, Black-throated Green Warbler, Ovenbird in uplands, while lowlands hosted Winter Wren, Veery, Hermit Thrush, Northern Parula, Nashville Warbler, Blackburnian Warbler, and Canada Warbler.

**Avian highlights:** Tennessee Warbler and Ruby-crowned Kinglet (both on 23 May) very likely migrants; several pairs of Canada Warblers; otherwise, no specialties here.

**NHI Working List species:** Canada Warbler.

**NHI Watch List species:** Least Flycatcher, Veery, Nashville Warbler.

**Area to be protected:** Lowland areas were best at this site, e.g. near the lower falls and points 2 and 6. Additionally, the immediate river corridor, with its coniferous influence, was also good. Of all the sites I surveyed, this one was among the least productive for birds, both in terms of diversity and numbers.

**Site #4:** Carpenter Creek Hemlocks—

**Approximate location:** Far northwestern Iron County, just south of Lake Superior, about a mile southwest

of Oronto Bay and east of the Bad River Indian Reservation.

**Dates surveyed:** 18 May, 10 June.

**Habitat(s):** Corridor along Carpenter Creek with distinct ravine lined with strong conifer component, including white spruce, balsam fir, hemlock, white pine, and cedar. Hemlock and cedar dominate on north end and east side of creek, where some standing water during survey #1. Otherwise a good mix of aspen, maple, occasional yellow birch, some alder, and others. Lots of structure and much coarse woody debris, especially in the ravines that are prevalent in the northern half of the site.

**Common birds:** Hemlock-hardwood forests hosted good numbers of Winter Wren, Hermit Thrush, American Robin, Red-eyed Vireo, Northern Parula, Yellow-rumped Warbler, Black-throated Green Warbler, Blackburnian Warbler, and Ovenbird. Also sometimes Yellow-bellied Sapsucker, Brown Creeper, Blue-headed Vireo, Nashville Warbler (less common here than in areas with non-hemlock conifers), and Black-and-white Warbler.

**Avian highlights:** 5 singing Yellow-bellied Flycatchers on 10 June; Ruby-crowned Kinglet on 18 May very likely a migrant; numerous Canada Warblers in the cedar-hemlock ravines; some Pine Warblers where large white pines; and Dark-eyed Junco (adjacent) on 18 May in spruce plantation off Harbor Drive at southwest end of site.

**NHI Working List species:** Canada Warbler.

**NHI Watch List species:** Yellow-bellied Flycatcher, Least Flycatcher, Veery, Nashville Warbler.

**Area to be protected:** The hemlock-hardwood areas on the east side of creek extending to Harbor Drive and the cedar-hemlock ravines at the northern half of the site are key areas for various species listed above, including Yellow-bellied Flycatcher, Canada Warbler, and others.

**Site #5:** Lake Superior Clay Cliffs—

**Approximate location:** Far northern Iron County, along Lake Superior shoreline at Oronto Bay, (i.e. Saxon Harbor).

**Dates surveyed:** 23 May, 15 June.

**Habitat(s):** Lake Superior County Park is the primary feature, with a campground, marina, and several private residences. This rural and park-like open setting promotes more species diversity, as does wide open Lake Superior. Both sandy and rocky beaches dominate with high clay cliffs running steep slopes up to typical northern mixed forests above. Woodlands mainly upland and dominated by aspen, maple, spruce, some hemlock, occasional cedar and yellow birch. Several ravines border small creeks (not much water) that drain into the lake and these ravines hosted most of the conifers. East part of site has a logged area with early-succession aspen that I believe is still on county land. Overall, great diversity of habitats here, with beach, cliffs, lake, stream, alder/willows (through county park/marina area), creeks/ravines, hillsides, forests, and young aspen.

**Common birds:** Ring-billed Gull, Herring Gull, Bank Swallow, Cliff Swallow, American Crow, American Robin, Red-eyed Vireo, Chestnut-sided Warbler (aspen cut), American Redstart, Ovenbird, Song Sparrow.

**Avian highlights:** Common Loons

and Common Mergansers on the lake; saw a Merlin capture a Bank Swallow out of mid-air; several large colonies of Bank Swallows (totaling 200+ birds) nesting in the cliffs and smaller numbers of Northern Rough-winged and Cliff Swallows; House Wren; Gray Catbirds; 3 Golden-winged Warblers in aspen cut on 23 May (none on June 15); Yellow Warblers using willow/alder (with catbirds and Alder Flycatcher) in marina area; Wilson's Warbler on 23 May very likely a migrant (aspen cut); Canada Warblers strictly in the conifer-lined ravines emptying into lake.

**NHI Working List species:** Bald Eagle, Canada Warbler.

**NHI Watch List species:** Least Flycatcher, Veery, Golden-winged Warbler, Nashville Warbler.

**Area to be protected:** The campground and marina area is outstanding because of the open habitat it uniquely provides. The creek and ravine that runs along the west side of the main road and then over to the east side where it dumps into the lake deserves special attention, as do most of the ravines in the surrounding woodlands. The beach and cliffs offer obviously important resources. Strangely enough, the aspen cut on the east side hosted a great diversity and number of birds not found elsewhere in the area I surveyed.

**Comments:** This site would be spectacular during spring migration. I saw part of this during my first survey here but I imagine that thorough coverage during April and May would produce a great movement of passerines and raptors along the shoreline, along with potential for waterbirds on the lake and adjacent beach. Indeed, at this site on 5 May 2005 I counted 203 Sharp-shinned Hawks and dozens of individuals of 11 other raptor species in only 3 hours. I've also heard from other birders that this is a migrant trap for non-raptors during fall migration (only open area along the shoreline after birds make long water crossing southward over lake).

**Site #6:** Tyler Forks Muskeg—

**Approximate location:** West-central Iron County about 7 miles SSW of Upson and Hwy 77, off Shirley Lake Road, east of Caroline Lake.

**Dates surveyed:** 3 June, 26 June.

**Habitat(s):** Predominately open black spruce bog with sedges, Labrador tea, pitcher plants, cotton grass, bog laurel, and other related flora. Also some thicker spruce areas and several stands of tamarack forest. Small area of open water in center of site. A few upland islands as well, in center and southeastern part of site, with maple, yellow birch, cedar, balsam fir, and some white pine. Site is bordered on east by early-succession upland mixed forest. Farther northeast of site is a great forest stand dominated by tamarack and black spruce.

**Common birds:** This site hosts spectacular numbers of Yellow-bellied Flycatchers, Hermit Thrushes, Nashville Warblers, Yellow-rumped Warblers, and White-throated Sparrows (densest breeding numbers of White-throated Sparrows I've ever seen in Wisconsin). Other regular bog inhabitants include Gray Jay, Black-capped Chickadee, Boreal Chickadee, Golden-crowned Kinglet, Cedar Waxwing, Palm Warbler, Song Sparrow, and Lincoln's Sparrow.

**Avian highlights:** Black-backed Woodpecker (adjacent), Olive-sided Flycatcher, 15 singing Yellow-bellied

Flycatchers on 3 June, Gray Jays and fledglings, 3 Boreal Chickadees on 26 June, Ruby-crowned Kinglet on 3 June (plus another adjacent to stand on 3 June and 26 June), Black-throated Blue Warblers (adjacent), Palm Warblers, Lincoln's Sparrows (nest with eggs on 3 June), and Dark-eyed Junco. [Note the absence of Connecticut Warbler, for whatever reason.]

**NHI Working List species:** Black-backed Woodpecker (adjacent), Olive-sided Flycatcher, Boreal Chickadee, Black-throated Blue Warbler (adjacent), Canada Warbler, Freija Fritillary.

**NHI Watch List species:** Yellow-bellied Flycatcher, Gray Jay, Ruby-crowned Kinglet, Nashville Warbler, Bobcat (adjacent).

**Area to be protected:** This entire site should probably be an Important Bird Area, as the muskeg hosts some unusual species and great numbers of other more common species. The black spruce/tamarack forest northeast of this site and west of Shirley Lake Road also deserves special attention. *(This area has been added to the Moose Lake IBA.)*

**Site #7:** Swamp Creek Cedars—

**Approximate location:** Southwestern Iron County about 11 miles west of Mercer, off Swamp Creek Road and Chippewa Fire Lane.

**Dates surveyed:** 7 June, 27 June, 28 June.

**Habitat(s):** Points 1–6 and 13–18 fell within a good stand of lowland cedars west of Swamp Creek Road and north of Chippewa Fire Lane. Some upland hardwoods mixed in, along with ash, with considerable alder component. Northern section a bit less cedar-oriented, with more ash, yellow birch, some hemlock, tamarack, and black spruce. This site is bordered on the west by a great stand of upland hardwoods. Points 7–12 in another similar cedar stand, although the stand with points 10–12 more contiguous, though narrow in area. Some large cedars on this east side of Swamp Creek Road, some of which are on fairly dry ground. Areas near points 7–9 and 19–20 had lower cedar component and were less contiguous.

**Common birds:** Yellow-bellied Flycatcher, Black-capped Chickadee, Brown Creeper, Golden-crowned Kinglet, Winter Wren, American Robin, Blue-headed Vireo, Nashville Warbler, Northern Parula, Yellow-rumped Warbler, Blackburnian Warbler, Black-and-white Warbler, Canada Warbler, and White-throated Sparrow. If more alder and ash, then Veery and Northern Waterthrush will use. Yellow-bellied Sapsuckers, Hermit Thrushes, Red-eyed Vireos, Ovenbirds, and Rose-breasted Grosbeaks where upland hardwood infiltrate.

**Avian highlights:** A family of American Woodcocks, Yellow-bellied Flycatchers (13 singing on 7 June), several groups of Gray Jays and fledglings, Swainson's Thrushes (adjacent), Black-throated Blue Warblers (adjacent).

**NHI Working List species:** Swainson's Thrush (adjacent), Black-throated Blue Warbler (adjacent), Canada Warbler, Timber Wolf (tracks).

**NHI Watch List species:** American Woodcock, Black-billed Cuckoo (adjacent), Yellow-bellied Flycatcher, Gray Jay, Veery, Nashville Warbler.

**Area to be protected:** The cedar stand and adjacent upland hardwoods west of Swamp Creek and north of

Chippewa Fire Lane were the best locations, although the cedar stand near points 10–12 was also good for birds and also had some large cedars there.

**Site # 8:** Glacial Lake Duluth Sand Dunes—

**Approximate location:** Far northwestern Iron County between Highway 2 and the Bad River Indian Reservation, just east of the Ashland County line.

**Dates surveyed:** 19 May, 13 June.

**Habitat(s):** A unique area for Iron County with sandy soils, ample red pines, jack pines, early succession (former clearcuts) shrub woodlands, abundant oaks. Almost no spruce or fir and no water to be found. This site is hugely fragmented with a lot of pine plantations and cutovers of varying ages. There are roads and ATV trails all over the place and collectively there's nothing approaching a contiguous tract of land. The northeast and northwest corners of the site have descending slopes leading to more typical maple/hardwood stands.

**Common birds:** Eastern Wood-Pewee, Least Flycatcher, Veery, Hermit Thrush, American Robin, Brown Thrasher, Red-eyed Vireo, Nashville Warbler, Chestnut-sided Warbler, Yellow-rumped Warbler, Blackburnian Warbler, Pine Warbler, American Redstart, Ovenbird, Scarlet Tanager, Rose-breasted Grosbeak, Indigo Bunting, Eastern Towhee, Chipping Sparrow, Brown-headed Cowbird (more cowbirds here than at all other sites combined).

**Avian highlights:** "Wild" Turkey tracks, Eastern Wood-Pewee, Brown Thrasher, Pine Warbler, Scarlet Tanager, Eastern Towhee, Vesper Sparrow, Dark-eyed Junco; Ruby-crowned Kinglet, and Palm Warbler on 19 May very likely migrants. Note: I didn't start either survey early enough in the day to detect Whip-poor-wills, but I'd bet this species is present in small to decent numbers in this area. Very similar habitat in the Moquah Barrens of Bayfield County is loaded with them.

**NHI Working List species:** None.

**NHI Watch List species:** Least Flycatcher, Veery, Brown Thrasher, Nashville Warbler.

**Area to be protected:** This area seems to be beyond "protecting" at this point but continuous tracts of oaks would help Scarlet Tanager, Eastern Wood-Pewee, and others. Logging activity actually benefits many of the specialties here, like Brown Thrasher, Eastern Towhee, etc. The pine plantations hold few birds of note, aside from Pine Warblers and perhaps Dark-eyed Junco.

**Site #9:** Wren Falls—

**Approximate location:** Northwestern Iron County, along the Tyler Forks River, about 5.5 miles south of Gurney and 3.5 miles north of Hwy 77.

**Dates surveyed:** 25 May, 19 June.

**Habitat(s):** These falls are nicely secluded with small rocky ledges lined with cedar. A very narrow zone of conifers with cedar, balsam fir, white pine, black spruce, and hemlock. The pines, spruce, and cedars around the falls offer unique habitat. Maple, yellow birch, ash, and alder dominate elsewhere. West side of river dominated by aspens and other mostly deciduous cover. Some extensive upland hardwoods border site to east.

**Common birds:** American Robin, Red-eyed Vireo, Nashville Warbler, Black-throated Green Warbler, Black-

and-white Warbler, Ovenbird, Canada Warbler, White-throated Sparrow.

**Avian highlights:** Golden-winged Warbler (adjacent), Canada Warbler, Tennessee Warbler on 25 May very likely a migrant.

**NHI Working List species:** Canada Warbler.

**NHI Watch List species:** Veery, Golden-winged Warbler (adjacent), Nashville Warbler.

**Area to be protected:** This site is not very birdie, with low diversity and very few specialties. The narrow corridor of conifers around the falls and along the river corridor was best.

**Site #10:** Foster Falls—

**Approximate location:** About 3.5 miles northeast of Wren Falls and 5 miles NNW of Hwy 77 at Upson, along the Potato River near the Sullivan Fire Lane.

**Dates surveyed:** 25 May, 19 June.

**Habitat(s):** A lush waterfalls area surrounded by a backdrop of a narrow corridor of cedar, hemlock, and balsam fir, with ample yellow birch and a large area of maple east of the river near the picnic area. The west side of the river is more upland deciduous (maple and yellow birch) with very few conifers until point 8 and north, where some nice hemlock and balsam fir are mixed in. There's a good-sized plantation of large spruces on the west side just north of Sullivan Fire Lane. South of Sully Fire Lane was hilly deciduous later mixing with balsam fir and lowland alder/ash.

**Common birds:** American Robin, Hermit Thrush, Red-eyed Vireo, Black-throated Green Warbler, Ovenbird, Canada Warbler, White-throated Sparrow; the spruce plantation off Sully Fire Lane attracted Golden-crowned Kinglet, Yellow-rumped Warbler, Black-throated Blue Warbler, and others.

**Avian highlights:** Wood Thrush, Canada Warblers, Bay-breasted Warbler on 25 May very likely a migrant.

**NHI Working List species:** Canada Warbler.

**NHI Watch List species:** Veery, Wood Thrush, Nashville Warbler.

**Area to be protected:** The conifers and upland deciduous areas surrounding the falls, especially on the east side of the river, were good but not spectacular. The corridor of nice mixed forest habitat along the river was especially good at the north end of the area surveyed. I encountered the most diversity where this conifer zone mixed with more open alder and ash at the south end of the area surveyed (i.e. near points 5 and 10). However, like Wren Falls, this site is not very birdie, with very few specialties.

**Site #11:** Little Balsam Falls—

**Approximate location:** Northwestern Iron County, about 5 miles west of Upson and 1 mile north of Hwy 77, along the Tyler Forks River.

**Dates surveyed:** 27 May, 18 June.

**Habitat(s):** A nicely secluded, small waterfalls area surrounded by ample spruce-fir forest. Strong coniferous component comprised of ample black spruce and balsam fir with some cedar and occasional hemlock and white pine. Deciduous component dominated by yellow birch and maple. Alder spread throughout site but extensive area of alder southeast of falls, with occasional sedge meadow-like openings. Lots of structure in woodlands with much coarse woody debris.

**Common birds:** Ruffed Grouse,

Red-breasted Nuthatch, Winter Wren, Golden-crowned Kinglet, Hermit Thrush, American Robin, Red-eyed Vireo, Nashville Warbler, Blackburnian Warbler, Black-and-white Warbler, Ovenbird, Canada Warbler; alder area had Alder Flycatcher, Veery, Chestnut-sided Warbler, American Redstart, and Northern Waterthrush.

**Avian highlights:** Singing Swainson's Thrush on 27 May; Nashville Warbler nest with 5 eggs on 27 May and 5 nearly-fledged young on 18 June; Cape May Warbler (migrant?) on 27 May; Yellow-bellied Flycatcher, Black-throated Blue Warbler, and Bay-breasted Warbler all adjacent to stand (migrants?) on 27 May.

**NHI Working List species:** Swainson's Thrush, Cape May Warbler, Black-throated Blue Warbler (adjacent), Canada Warbler, *Wood Turtle*.

**NHI Watch List species:** Yellow-bellied Flycatcher (adjacent), Veery, Nashville Warbler.

**Area to be protected:** The spruce-fir forest near the falls is very good, as is the corridor of fir, hemlock, and cedar extending slightly north and more so south of the falls. However, the site does not host extraordinary numbers of birds or any outstanding specialties.

**Site #12:** Spring Camp Falls—

**Approximate location:** Northern Iron County about 4 miles west of Hwy 51 and 2 miles south of the Gile Flowage, along the Montreal River.

**Dates surveyed:** 29 May, 29 June.

**Habitat(s):** Another waterfalls site with cedar and balsam fir surrounding small but rocky cliff walls. Some hemlock and spruce mixed in. Surrounding forest is spruce-fir mix with maple, yellow birch, and alder. Drier on the north side of falls and then more lowland on south side around point 4. A fairly typical northern wet mesic forest.

**Common birds:** Ruffed Grouse, Black-capped Chickadee, Winter Wren, Hermit Thrush, American Robin, Red-eyed Vireo, Nashville Warbler, Black-and-white Warbler, Ovenbird, Canada Warbler, White-throated Sparrow.

**Avian highlights:** Hermit Thrush nest with 3 eggs on 29 May; Cape May Warbler on 29 May likely a migrant; Canada Warblers.

**NHI Working List species:** Cape May Warbler, Canada Warbler.

**NHI Watch List species:** Veery, Nashville Warbler.

**Area to be protected:** Like Wren and Foster Falls, this site was not exceptional for bird numbers or diversity, with very few specialties. The best habitat was the narrow corridor along the river with more conifers, especially south of the falls where lowlands dominate.

**Site #13:** Lake One/Obadash Lake—

**Approximate location:** East-central Iron County about 2.5 miles west of Hwy 51 and just north of Island Lake Road.

**Dates surveyed:** 29 May, 29 June.

**Habitat(s):** Lake One is dominated by cedar and some swamp hardwoods on west and north sides, with some cedar but more swamp hardwoods along the entire eastern edge. South end has more tamarack and black spruce, but still cedar and ash. Alder is everywhere in the understory. Obadash Lake has extensive cedar and alder bog on the southern edge of the lake, opening to a nice alder swamp along the eastern outlet of the

lake. Tamarack and black spruce forest dominates the north side of the lake.

**Common birds:** Yellow-bellied Flycatcher, Black-capped Chickadee, Winter Wren, Golden-crowned Kinglet, Veery, Nashville Warbler, Northern Parula, Yellow-rumped Warbler, Northern Waterthrush (Lake One), Common Yellowthroat (Obadash Lake), Song Sparrow, White-throated Sparrow.

**Avian highlights:** American Bittern flyover at Lake One on 29 June; Black-backed Woodpecker at Obadash Lake, Olive-sided Flycatcher at Obadash Lake, Yellow-bellied Flycatchers at both lakes, Gray Jays at both lakes; excellent number of Northern Waterthrushes at Lake One; Canada Warblers.

**NHI Working List species:** Black-backed Woodpecker, Olive-sided Flycatcher, Canada Warbler, Bog Copper, *Arethusa bulbosa* (orchid).

**NHI Watch List species:** Yellow-bellied Flycatcher, Gray Jay, Veery, Nashville Warbler.

**Area to be protected:** Both of these sites should be protected in their entirety. The swamp hardwoods and cedars at Lake One are great for Northern Waterthrush and Yellow-bellied Flycatcher. Cedar and alder lowlands at Obadash Lake also are valuable but the black spruce and tamarack stands there also are fantastic. Numerous bog specialties occur at both of these lakes.

**Site #14:** Chippewa Fire Lane Cedar Bog—

**Approximate location:** Southwestern Iron County about 11 miles west of Mercer, off Chippewa Fire Lane along Ashland/Iron County Line about a mile west of Site #7.

**Dates surveyed:** 6 June, 27 June.

**Habitat(s):** Lowland bog dominated by cedar, alder, and ash, with strong tamarack component on east end (esp. just south of road). Some black spruce and balsam fir intermingled, especially on northern side. Alder everywhere and more swamp hardwoods on west end of stand. Thick understory in most places, but not much standing water.

**Common birds:** Yellow-bellied Flycatcher, Blue Jay, Black-capped Chickadee, Red-breasted Nuthatch, Brown Creeper, Winter Wren, Golden-crowned Kinglet, Hermit Thrush, American Robin, Nashville Warbler, Yellow-rumped Warbler, Blackburnian Warbler, and White-throated Sparrow; where ashes more prominent, Red-eyed Vireo and Rose-breasted Grosbeak join in, while more open canopy and alder understory hosts Veery and Northern Waterthrush; Ovenbirds only on periphery.

**Avian highlights:** A male Black-backed Woodpecker and a family of 3 Boreal Chickadees very close to each other on 27 June; numerous Yellow-bellied Flycatchers (10 singing on 6 June and 9 on 27 June); Chipping Sparrow and Dark-eyed Junco on 6 June.

**NHI Working List species:** Black-backed Woodpecker, Boreal Chickadee, Canada Warbler, Timber Wolf (tracks).

**NHI Watch List species:** Yellow-bellied Flycatcher, Veery, Wood Thrush (adjacent), Nashville Warbler.

**Area to be protected:** The entire site is very good for species favoring forested lowlands, with several specialties occurring here.

**BBS Route #1:** Cramer Lake Breeding Bird Survey (vehicle route)—

**Approximate location:** A 17.7-mile vehicle route in eastern Iron County a few miles north of Mercer, covering primarily Cty G, Cty H, and Cramer Lake Rd.

**Dates surveyed:** 8 June, 24 June.

**Habitat(s):** North section along Cty G is mix of upland and lowland with maple, aspen, alder, cedar, pine, tamarack, spruce, and fir. The east side, including Cty H, has many summer homes, more open water, a red pine plantation, some jack pine, and a nice bog near point 16. The southwest portion has more young aspen and a fantastic bog near points 24, 25, and 26. The NW side has some more bog, though not really close to road, and some upland maple stands, sometimes with balsam fir.

**Common birds:** Yellow-bellied Sapsucker, Pileated Woodpecker, Blue Jay, American Crow (far more here than all other sites I visited), Black-capped Chickadee, Red-breasted Nuthatch, Winter Wren, Golden-crowned Kinglet, Hermit Thrush, American Robin, Red-eyed Vireo, Nashville Warbler, Northern Parula, Chestnut-sided Warbler, Yellow-rumped Warbler, Black-throated Green Warbler, Blackburnian Warbler, Black-and-white Warbler, Ovenbird, Chipping Sparrow, Song Sparrow, White-throated Sparrow [and note that Ruffed Grouse and Canada Warblers were notably absent and/or scarce on my two surveys].

**Avian highlights:** Wilson's Snipe, numerous Pileated Woodpeckers, Olive-sided Flycatcher, Yellow-bellied Flycatchers, Golden-winged Warbler (b/w points 25 and 26 on both surveys), Lincoln's Sparrow.

**NHI Working List species:** Olive-sided Flycatcher, Canada Warbler, Timber Wolf (adjacent).

**NHI Watch List species:** Common Loon, American Woodcock, Yellow-bellied Flycatcher, Least Flycatcher, Veery, Golden-winged Warbler, Nashville Warbler.

**Area to be protected:** The woodlands along this route host good diversity and numbers of birds and are potentially threatened by development. The scattered bogs hold the most promise for unique bird species, in particular, the bogs near point 16 and points 24–26. But no single roadside part of this route stands out as especially spectacular.

**BBS Route #2:** Duck Lake BBS (vehicle route)—

**Approximate location:** A 13.5 mile route in southwestern Iron County, east of both Augustine and Duck Lakes, covering primarily Chippewa Fire Lane and Game Road.

**Dates surveyed:** 30 May, 23 June.

**Habitat(s):** Maples dominate NW section along Chippewa Lane. A nice beaver pond in NE section along Game Rd. A great bog with Olive-sided Flycatcher, Sandhill Crane, and others also on Game Road's NE section (points 12–13). Aspens more prevalent on southern half of Game Road. Logging very prevalent throughout and various openings like clearings and beaver ponds/marshes also diversify the habitat and birdlife. Also a nice bog north of Chippewa River near point 27. More lowlands, with cedar, tamarack, and spruce, are evident but barely detectable from roadside.

**Common birds:** Ruffed Grouse, Yellow-bellied Sapsucker, Least Fly-

catcher, Black-capped Chickadee, White-breasted Nuthatch, Winter Wren, Veery, Hermit Thrush, American Robin, Red-eyed Vireo, Chestnut-sided Warbler, Black-throated Green Warbler, Ovenbird, Mourning Warbler, Rose-breasted Grosbeak, Song Sparrow, White-throated Sparrow [and note that many northwoods breeders, like Nashville Warbler, Northern Parula, Magnolia Warbler, Black-throated Blue Warbler, Black-and-white Warbler, and Canada Warbler were notably uncommon on my two surveys].

**Avian highlights:** 19 drumming Ruffed Grouse on 30 May, Sandhill Cranes, Wilson's Snipe, Black-billed Cuckoos, 3 Olive-sided Flycatchers, Yellow-bellied Flycatchers (lowland cedars as usual), Gray Jay, Swainson's Thrushes, Wood Thrush, and 5+ Black-throated Blue Warblers (in maples as usual).

**NHI Working List species:** Olive-sided Flycatcher, Swainson's Thrush, Black-throated Blue Warbler, Canada Warbler.

**NHI Watch List species:** Black-billed Cuckoo, Yellow-bellied Flycatcher, Least Flycatcher, Gray Jay, Veery, Wood Thrush, Nashville Warbler.

**Area to be protected:** Logging activity seems to help Ruffed Grouse and other species preferring early succession habitat. The few scattered bogs throughout the route should be kept intact, though, as should some of the larger maple stands hosting Black-throated Blue Warbler, Swainson's Thrush, and others.

**BBS Route #3:** BBS Pence (vehicle route)—

**Approximate location:** 16.5-mile route in northern Iron County, a few miles west of Hwy 51 and south of the Gile Flowage, covering primarily West Branch and Hogsback Roads.

**Dates surveyed:** 24 May, 14 June.

**Habitat(s):** North end of route is upland mixed forest with scattered cedar/alder lowlands. The northwest corner has an outstanding wetland, with sedge meadow, alder, willows, cedar, and some open water. The rest of W. Branch Road has a variety of habitats, including upland maple, lowland cedar with plenty of ash and alder, and upland/lowland mixed forest. Logging is factor here, especially in middle portion of W. Branch Road and in upland maple stands. Island Lake Road is a mix of similar lowland and upland forests, while Hogsback Road has more aspen than anywhere else on route, some of which is early succession, along with a nice tamarack swamp and more cedar lowlands. Also some upland maple here as well. The Montreal River also cuts through the route.

**Common birds:** Ruffed Grouse, Yellow-bellied Sapsucker, Yellow-bellied Flycatcher, Alder Flycatcher, Least Flycatcher, Blue Jay, Black-capped Chickadee, Winter Wren, Veery, Hermit Thrush, American Robin, Blue-headed Vireo, Red-eyed Vireo, Nashville Warbler, Northern Parula, Chestnut-sided Warbler, Yellow-rumped Warbler, Black-throated Green Warbler, Blackburnian Warbler, Black-and-white Warbler, Ovenbird, Common Yellowthroat, Canada Warbler, Rose-breasted Grosbeak, Song Sparrow, White-throated Sparrow.

**Avian highlights:** American Bittern, Wild Turkey, Virginia Rail, Sandhill Crane, Black-billed Cuckoo; a Red-bellied Woodpecker on 24 May; 7 singing

Yellow-bellied Flycatchers on 24 May; Sedge Wren, Wood Thrush, Gray Catbird; 17 warbler species on 24 May; 2 singing Golden-winged Warblers on 24 May and 3 on 14 June; Yellow Warbler; 7 singing Black-throated Blue Warblers on 24 May and 8 on 14 June; Lincoln's Sparrow; 3 Ruby-crowned Kinglets on 24 May.

**NHI Working List species:** American Bittern, Cape May Warbler, Black-throated Blue Warbler, Canada Warbler.

**NHI Watch List species:** Black-billed Cuckoo, Yellow-bellied Flycatcher, Least Flycatcher, Sedge Wren, Ruby-crowned Kinglet, Veery, Wood Thrush, Golden-winged Warbler, Nashville Warbler.

**Area to be protected:** The large wetland on the northwest section of route is outstanding and deserves much attention/protection. The various stands of upland maples hosting Black-throated Blue Warbler also should be preserved. Otherwise, all the lowland areas are good but not exceptional.

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## Literature cited

Howe, R. W., G. J. Niemi, S. J. Lewis, and D. A. Welsh. 1997. A standard method for monitoring songbird populations in the Great Lakes Region. Passenger Pigeon 59: 183–194.

## Appendix A

### Iron County Bird List

This bird list is the compilation of several bird lists generated in Iron County over a number of years. Additions to the list are welcome and encouraged.

We are blessed with an abundance of public lands open to bird watching and other outdoor activities in Iron County. These properties have a vast diversity of habitats that favor a wide variety of bird life. Encompassing over 174,000 acres, the Iron County Forest provides a rich diversity of forest wildlife habitats. This diversity provides important migratory and breeding habitat for many species of birds. The Turtle-Flambeau Scenic Water Area (TFSWA) provides abundant habitat for water birds. The different types of wetlands, surrounding forests, and forest openings all vary in vegetative composition, benefiting many species. A portion of the Northern Highlands State Forest is in Iron County. The Powell Marsh State Wildlife Area has vast wetlands providing habitat for marsh birds and also attracts grassland sparrows and other open country birds. And then there are the numerous lakes, many with public access. The lakes and their surrounding shorelines are great birding areas. Merlins are now numerous in Iron County along wooded shorelines.

Access to the public forests is available along numerous state, county, and town roads. Maps of the Iron County Forest and the TFSWA are available upon request.

**Key:** Abundance: A = Abundant; C = Common; U = Uncommon; R = Rare
Status: B = Breeding known to occur; MB = May breed?; M = Migration
Season: Sp = Spring; S = Summer; F = Fall; W = Winter
Location: T = Turtle-Flambeau Flowage; I = Iron County Forest; O = Other locations in Iron County

| Bird Checklist | Abundance | Status | Season | Location |
|---|---|---|---|---|
| Snow Goose | R | M | Sp, _, F, _ | T, _, _ |
| Canada Goose | C | B | Sp, S, F, _ | T, I, O |
| Trumpeter Swan | U | B | Sp, S, F, _ | T, I, O |
| Tundra Swan | U | M | Sp, _, F, _ | _, _, O |
| Wood Duck | U | B | Sp, S, F, _ | T, I, O |
| Gadwall | R | M | Sp, _, F, _ | T, _, _ |
| American Wigeon | U | M | Sp, _, F, _ | T, _, _ |
| American Black Duck | U | B | Sp, S, F, _ | T, _, O |
| Mallard | A | B | Sp, S, F, _ | T, I, O |
| Blue-winged Teal | U | B | Sp, S, F, _ | T, _, _ |
| Northern Shoveler | U | M | Sp, _, F, _ | T, _, _ |
| Northern Pintail | R | M | Sp, _, F, _ | T, _, O |
| Green-winged Teal | U | MB | Sp, S, F, _ | T, _, _ |
| Redhead | R | M | Sp, _, F, _ | T, _, _ |
| Ring-necked Duck | U | MB | Sp, S, F, _ | T, I, O |
| Greater Scaup | U | M | Sp, _, F, _ | T, _, O |
| Lesser Scaup | U | MB | Sp, _, F, _ | T, _, O |
| Bufflehead | U | M | Sp, _, F, _ | T, I, O |
| Common Goldeneye | U | M | Sp, _, F, _ | T, _, _ |
| Hooded Merganser | A | B | Sp, S, F, _ | T, I, O |
| Common Merganser | U | B | Sp, S, F, _ | T, I, O |
| Red-breasted Merganser | U | M | Sp, _, F, _ | T, _, _ |
| Ruffed Grouse | A | B | Sp, S, F, W | T, I, O |
| Wild Turkey | C | B | Sp, S, F, W | T, I, O |
| Common Loon | C | B | Sp, S, F, _ | T, I, O |
| Pied-billed Grebe | C | B | Sp, S, F, _ | T, I, O |
| Horned Grebe | R | M | Sp, _, F, _ | T, _, _ |
| Red-necked Grebe | R | M | Sp, _, F, _ | T, _, _ |
| Double-crested Cormorant | U | M | Sp, S, F, _ | T, _, O |
| American Bittern | U | B | Sp, S, F, _ | T, I, O |
| Least Bittern | R | MB | Sp, S, F, _ | T, _, _ |
| Great Blue Heron | U | MB | Sp, S, F, _ | T, I, O |
| Great Egret | R | M | Sp, _, F, _ | _, I, _ |
| Green Heron | U | MB | Sp, S, F, _ | T, _, _ |
| Turkey Vulture | U | B | Sp, S, F, _ | T, I, O |
| Osprey | C | B | Sp, S, F, _ | T, I, O |
| Bald Eagle | C | B | Sp, S, F, _ | T, I, O |
| Northern Harrier | U | B | Sp, S, F, _ | T, _, _ |
| Sharp-shinned Hawk | U | B | Sp, S, F, _ | T, I, O |
| Cooper's Hawk | U | B | Sp, S, F, _ | T, _, O |
| Northern Goshawk | R | B | Sp, S, F, W | T, I, O |
| Broad-winged Hawk | C | B | Sp, S, F, _ | T, I, O |
| Red-tailed Hawk | U | MB | Sp, S, F, _ | T, _, O |
| Rough-legged Hawk | U | M | _, _, _, W | T, _, O |
| American Kestrel | U | B | Sp, S, F, _ | T, I, O |
| Merlin | U | B | Sp, S, F, _ | T, I, O |
| Yellow Rail | R | MB | Sp, S, F, _ | T, _, _ |
| Virginia Rail | R | M | Sp, _, F, _ | T, I, _ |
| Sora | U | MB | Sp, S, _, _ | T, _, _ |
| American Coot | U | B | Sp, S, F, _ | T, _, _ |
| Sandhill Crane | R | B | Sp, S, F, _ | T, I, O |
| Killdeer | U | B | Sp, S, _, _ | T, I, O |
| Spotted Sandpiper | C | MB | Sp, S, F, _ | T, I, O |

| Bird Checklist | Abundance | Status | Season | Location |
|---|---|---|---|---|
| Solitary Sandpiper | U | M | S, _, _, _ | T, _, _ |
| Wilson's Snipe | C | B | Sp, S, F, _ | T, _, O |
| American Woodcock | C | B | Sp, S, F, _ | T, I, O |
| Ring-billed Gull | C | MB | Sp, S, F, _ | T, I, O |
| Herring Gull | U | M | Sp, S, F, _ | T, I, O |
| Caspian Tern | R | M | Sp, _, F, _ | T, _, _ |
| Black Tern | U | B | Sp, S, _, _ | T, _, _ |
| Common Tern | R | M | Sp, _, F, _ | T, _, _ |
| Mourning Dove | U | B | Sp, S, F, _ | T, I, O |
| Yellow-billed Cuckoo | R | MB | _, S, _, _ | T, _, _ |
| Black-billed Cuckoo | U | B | Sp, S, F, _ | _, I, _ |
| Great Horned Owl | C | B | Sp, S, F, W | T, I, O |
| Snowy Owl | R | M | _, _, _, W | T, _, _ |
| Barred Owl | C | B | Sp, S, F, W | T, I, O |
| Short-eared Owl | R | M | Sp, _, F, _ | T, _, _ |
| Common Nighthawk | U | M | Sp, _, F, _ | T, I, O |
| Whip-poor-will | R | B | Sp, S, F, _ | T, I, O |
| Chimney Swift | U | MB | Sp, S, F, _ | _, I, _ |
| Ruby-throated Hummingbird | U | B | Sp, S, _, _ | T, I, O |
| Belted Kingfisher | C | B | Sp, S, F, _ | T, I, O |
| Red-headed Woodpecker | R | M | Sp, _, F, _ | T, _, _ |
| Yellow-bellied Sapsucker | U | B | Sp, S, F, _ | T, I, O |
| Downy Woodpecker | C | B | Sp, S, F, W | T, I, O |
| Hairy Woodpecker | C | B | Sp, S, F, W | T, I, O |
| Am. Three-toed Woodpecker | R | MB | Sp, S, F, W | T, _, _ |
| Black-backed Woodpecker | R | MB | Sp, S, F, W | T, I, _ |
| Northern Flicker | C | B | Sp, S, F, _ | T, I, O |
| Pileated Woodpecker | U | B | Sp, S, F, W | T, I, O |
| Olive-sided Flycatcher | U | MB | Sp, S, F, _ | T, I, _ |
| Eastern Wood-Pewee | U | MB | Sp, S, _, _ | T, I, O |
| Yellow-bellied Flycatcher | U | B | Sp, S, _, _ | T, I, _ |
| Acadian Flycatcher | U | M | Sp, S _, _ | T, _, _ |
| Alder Flycatcher | U | B | Sp, S, F, _ | T, I, _ |
| Willow Flycatcher | R | ? | Sp, S, F, _ | T, _, _ |
| Least Flycatcher | C | B | Sp, S, F, _ | T, I, _ |
| Eastern Phoebe | U | B | Sp, S, F, _ | T, I, O |
| Great Crested Flycatcher | C | B | Sp, S, F, _ | T, I, _ |
| Eastern Kingbird | C | B | Sp, S, F, _ | T, I, _ |
| Northern Shrike | R | M | _, _, _, W | _, _, O |
| Yellow-throated Vireo | U | MB | Sp, S, F, _ | T, I, _ |
| Blue-headed Vireo | U | MB | Sp, S, F, _ | T, I, _ |
| Warbling Vireo | U | MB | Sp, S, F, _ | T, _, _ |
| Red-eyed Vireo | C | B | Sp, S, _, _ | T, I, O |
| Gray Jay | U | B | Sp, S, F, W | T, I, O |
| Blue Jay | A | B | Sp, S, F, W | T, I, O |
| American Crow | A | B | Sp, S, F, W | T, I, O |
| Common Raven | C | B | Sp, S, F, W | T, I, O |
| Purple Martin | R | MB | Sp, S, _, _ | T, _, _ |
| Tree Swallow | A | B | Sp, S, F, _ | T, I, O |
| N. Rough-winged Swallow | U | B | Sp, S, F, _ | T, I, _ |
| Bank Swallow | U | B | Sp, S, _, _ | T, I, _ |
| Cliff Swallow | U | B | Sp, S, F, _ | T, I, _ |
| Barn Swallow | U | MB | Sp, S, _, _ | T, I, O |
| Black-capped Chickadee | A | B | Sp, S, F, W | T, I, O |
| Boreal Chickadee | R | B | Sp, S, F, W | _, I, _ |
| Red-breasted Nuthatch | C | B | Sp, S, F, _ | T, I, O |
| White-breasted Nuthatch | C | B | Sp, S, F, W | T, I, O |
| Brown Creeper | U | B | Sp, S, F, _ | _, I, O |

*(Continued)*

| Bird Checklist | Abundance | Status | Season | Location |
|---|---|---|---|---|
| House Wren | U | B | Sp, S, _, _ | T, _, O |
| Winter Wren | U | MB | Sp, S, F, _ | T, I, O |
| Sedge Wren | U | B | Sp, S, _, _ | T, _, _ |
| Marsh Wren | U | MB | Sp, S, F, _ | T, _, _ |
| Golden-crowned Kinglet | U | MB | Sp, S, F, _ | T, I, _ |
| Ruby-crowned Kinglet | U | MB | Sp, S, F, _ | _, I, O |
| Eastern Bluebird | U | B | Sp, S, F, _ | T, I, O |
| Veery | U | B | Sp, S, _, _ | T, I, O |
| Swainson's Thrush | U | B | Sp, S, F, _ | _, I, _ |
| Hermit Thrush | C | B | Sp, S, F, _ | T, I, _ |
| Wood Thrush | U | MB | Sp, S, F, _ | T, I, _ |
| American Robin | A | B | Sp, S, F, _ | T, I, O |
| Gray Catbird | U | B | Sp, S, F, _ | T, I, O |
| Brown Thrasher | U | B | Sp, S, _, _ | T, I, O |
| European Starling | U | MB | Sp, S, F, _ | T, I, O |
| Cedar Waxwing | C | B | Sp, S, F, _ | T, I, O |
| Golden-winged Warbler | U | B | Sp, S, F, _ | _, I, _ |
| Tennessee Warbler | U | M | Sp, _, F, _ | _, I, _ |
| Nashville Warbler | C | B | Sp, S, F, _ | T, I, _ |
| Northern Parula | U | B | Sp, S, F, _ | T, I, _ |
| Yellow Warbler | U | MB | Sp, S, F, _ | T, I, _ |
| Chestnut-sided Warbler | U | MB | Sp, S, _, _ | T, I, _ |
| Magnolia Warbler | U | MB | Sp, S, F, _ | T, I, _ |
| Cape May Warbler | U | MB | Sp, S, _, _ | T, I, _ |
| Black-throated Blue Warbler | U | B | Sp, S, _, _ | T, I, _ |
| Yellow-rumped Warbler | C | B | Sp, S, F, _ | T, I, _ |
| Black-throated Green Warbler | C | MB | Sp, S, F, _ | T, I, _ |
| Blackburnian Warbler | U | MB | Sp, S, _, _ | T, I, _ |
| Pine Warbler | U | MB | Sp, S, F, _ | T, I, _ |
| Palm Warbler | U | B | Sp, S, F, _ | _, I, _ |
| Bay-breasted Warbler | U | M | Sp, _, F, _ | T, I, _ |
| Black-and-white Warbler | C | MB | Sp, S, F, _ | T, I, _ |
| American Redstart | C | B | Sp, S, _, _ | T, I, _ |
| Ovenbird | C | B | Sp, S, F, _ | T, I, O |
| Northern Waterthrush | U | MB | Sp, S, _, _ | T, I, _ |
| Connecticut Warbler | R | M | Sp, _, F, _ | T, _, _ |
| Mourning Warbler | U | B | Sp, S, F, _ | T, I, _ |
| Common Yellowthroat | C | B | Sp, S, _, _ | T, I, O |
| Wilson's Warbler | U | M | Sp, _, F, _ | _, I, _ |
| Canada Warbler | U | B | Sp, S, F, _ | _, I, _ |
| Scarlet Tanager | U | B | Sp, S, F, _ | T, I, _ |
| Eastern Towhee | R | B | Sp, S, F, _ | _, I, _ |
| American Tree Sparrow | U | M | Sp, _, F, _ | T, _, O |
| Chipping Sparrow | U | B | Sp, S, F, _ | T, I, O |
| Clay-colored Sparrow | R | MB | Sp, S, F, _ | T, _, _ |
| Field Sparrow | U | B | Sp, S, _, _ | T, _, _ |
| Vesper Sparrow | U | MB | Sp, S, F, _ | _, I, _ |
| Savannah Sparrow | U | MB | Sp, S, _, _ | T, _, _ |
| LeConte's Sparrow | R | MB | Sp, _, F, _ | T, _, _ |
| Song Sparrow | U | B | Sp, S, F, _ | T, I, O |
| Lincoln's Sparrow | U | B | Sp, S, F, _ | T, I, _ |
| Swamp Sparrow | U | MB | Sp, S, F, _ | T, I, _ |
| White-throated Sparrow | C | B | Sp, S, F, _ | T, I, O |
| White-crowned Sparrow | R | M | Sp, _, F, _ | _, _, O |
| Dark-eyed Junco | C | MB | Sp, S, F, W | T, I, O |
| Snow Bunting | U | M | _, _, _, W | T, _, O |
| Northern Cardinal | U | MB | Sp, S, F, _ | T, _, O |
| Rose-breasted Grosbeak | C | B | Sp, S, F, _ | T, I, O |
| Indigo Bunting | U | B | Sp, S, F, _ | T, I, O |

| Bird Checklist | Abundance | Status | Season | Location |
|---|---|---|---|---|
| Bobolink | R | M | Sp, _, F, _ | _, I, _ |
| Red-winged Blackbird | A | B | Sp, S, F, _ | T, I, O |
| Yellow-headed Blackbird | U | B | Sp, S, F, _ | T, _, _ |
| Rusty Blackbird | R | M | Sp, _, F, _ | T, _, _ |
| Brewer's Blackbird | C | B | Sp, S, F, _ | T, _, _ |
| Common Grackle | C | B | Sp, S, F, _ | T, I, O |
| Brown-headed Cowbird | U | MB | Sp, S, F, _ | T, I, O |
| Baltimore Oriole | U | MB | Sp, S, F, _ | T, I, _ |
| Pine Grosbeak | U | MB | Sp, _, F, W | T, I, O |
| Purple Finch | C | B | Sp, S, F, W | T, I, O |
| Red Crossbill | U | MB | Sp, S, F, W | T, _, O |
| Common Redpoll | U | M | _, _, _, W | _, _, O |
| Pine Siskin | U | MB | Sp, S, F, W | T, I, O |
| American Goldfinch | C | B | Sp, S, F, W | T, I, O |
| Evening Grosbeak | U | B | Sp, S, F, W | T, I, O |
| House Sparrow | U | B | Sp, S, F, _ | T, _, _ |

For more information, or to report new species sightings, please contact: Department of Natural Resources, 5291 N. Statehouse Circle, Mercer, Wisconsin 54547; 715. 476. 7843.

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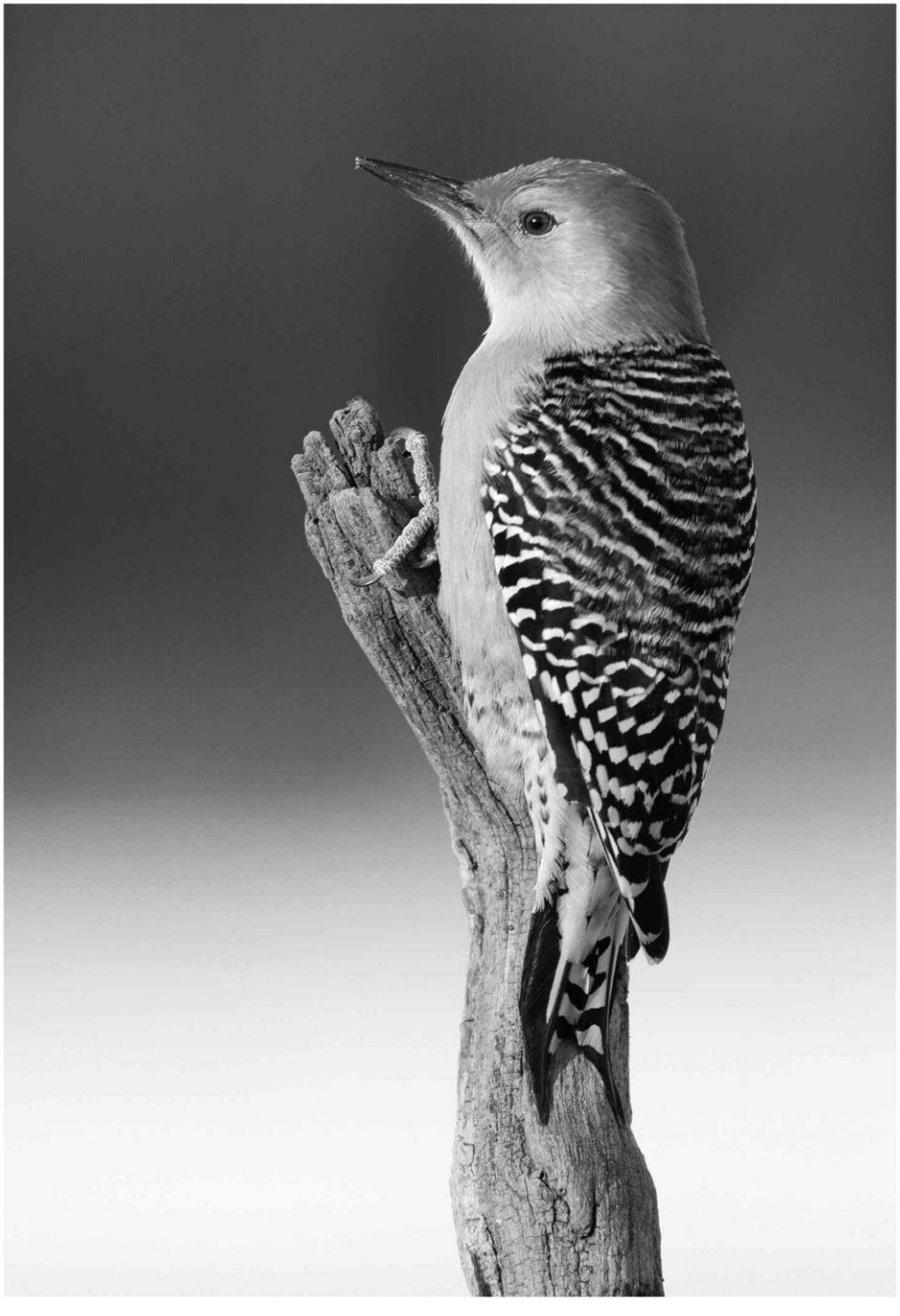
*Ryan Brady is a WDNR Research Scientist working on various bird-related projects in Wisconsin. He has a B.S. in Biology from Northland College in Ashland, Wisconsin, and a M.S. in Raptor Biology from Idaho's Boise State University.*

Eastern Bluebird by Dennis Kuecherer



Red-bellied Woodpecker by Rich Phalin

# How Small Birds Survive Wisconsin's Winters

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## INTRODUCTION

Anyone who has watched birds eating from bird feeders in winter has probably wondered how these small birds survive the cold winter conditions. Small, nonmigratory passerine birds or songbirds that overwinter in cold temperate regions such as Wisconsin require prolonged high rates of energy expenditure in winter. In other words, these birds spend a great deal of energy to maintain a high body temperature. Songbirds generally maintain their body temperature between 40–42°C (approximately 104–107°F) (Prinzinger et al. 1991). In winter, birds have shorter days in which to forage and may have lower food availability due to snow or ice cover. In addition, winter birds have a longer overnight fast compared to their summer counterparts. Concurrently with these seasonal changes in climate and photoperiod, cold temperate-wintering passerines undergo the process of seasonal acclimatization in which they undergo a suite of possible changes that enable them to withstand these difficult winter conditions. Seasonal acclimatization in birds may include behavioral, physical (insulatory), and physiological changes (Marsh and Dawson 1989).

Behavioral adjustments used by winter birds may include postural adjustments, microclimate selection, increased feeding intensity, and food caching. For example, the uninsulated legs and bills of birds can be tucked into feathers to decrease exposed surface area which would decrease heat loss from the body. Although summer birds may tuck uninsulated body parts into feathers, this behavior probably increases in winter because birds face colder temperatures compared to summer and must conserve heat. Winter-acclimatized Black-capped Chickadees (*Poecile atricapillus*) from Alaska actively forage at lower light levels in winter than in summer (Kessel 1976). Food caching or storing food in specific locations for later retrieval has been documented in nuthatches, corvids (jays and crows), and in chickadees and titmice (Vander Wall 1990). For

chickadees, food caching is highest in the fall and winter and the food may be retrieved up to several months later although most is retrieved within few days (Brodin 1992). How birds can remember where they stored individual food items has received a fair amount of attention in recent years. The hippocampus of the brain of food-storing birds such as chickadees is larger than the hippocampus of non-storing birds such as sparrows (Garamszegi and Eens 2004). The hippocampus is a region of the brain important for spatial behavior such as food retrieval. Data for Black-capped Chickadees show that the hippocampus has more volume in winter compared to summer due to a higher recruitment of brain cells (neurons) into the hippocampus (Barnea and Nottebohm 1994). In other words, the number of neurons or brain cells in the hippocampus increase in order for chickadees to remember where they stored their food.

Microclimate selection in winter birds has also received a fair amount of attention. Cavity nesting species such as woodpeckers, nuthatches, and chickadees use tree cavities for nesting and as winter roost sites (Mazgajski 2002). Cavities may be warmer compared to outside air temperature and cavities also provide protection against wind for birds (Mayer et al. 1982, Cooper 1999). Thus, a microclimate such as a cavity may significantly reduce overnight energy expenditure for winter birds compared to more open roosting sites. Microclimate data I collected in Utah for Mountain Chickadees (*Poecile gambeli*) and Juniper Titmice (*Baeolophus ridgwayi*) show that these species have nocturnal energy savings ranging from 25 to 38% roosting in cavities compared to open roosting sites (Cooper 1999). These energy savings in cavities compared to open sites are due to significant reductions in wind exposure and higher ambient temperatures within cavities. These energy savings translate into an additional 6 to 7 hours of fasting endurance which may be important for survival especially on cold snowy mornings where foraging is very difficult.

Insulatory changes may also play a role in seasonal acclimatization in birds. In mammals that face seasonally changing environment, increased insulation is a major compensatory adjustment to reduce heat loss (Irving et al. 1955, Marsh and Dawson 1989). Insulatory changes are commonly measured as changes in thermal conductance or the net rate of heat transfer from the animal to the environment (Schmidt-Nielsen 1997). Increased insulation results in decreased thermal conductance. Increased insulation reduces the cost of thermoregulation below the lower critical temperature and the lower critical temperature may also be reduced (Aschoff 1981, Feist and White 1989). The lower critical temperature is the temperature at which birds must increase heat production to offset heat loss to maintain body temperature. For birds, heat production occurs by shivering mostly with the flight apparatus muscles the pectoralis and supracoracoideus (Hohtola et al. 1980). Thus, increased insulation reduces the amount of shivering required by birds in the winter and results in energy savings. In most birds that live in cold climates such as Wisconsin, feathers are replaced in an annual basic molt that usually occurs after breeding in the late summer or

early fall (Palmer 1972). The degree of plumage insulation is primarily a function of the extent of feather replacement and time since the last molt (Marsh and Dawson 1989). Small passerines may be especially limited in insulatory adjustments since substantial increases in plumage mass can affect their ability to fly and elude predators (Witter and Cuthill 1993, Metcalfe and Ure 1995). In other words, if a small birds has too much insulation in the way of a heavy feather coat, they simply will not be able to fly very well and avoid predators.

Insulatory changes due to plumage variation have only been shown conclusively in Rufous-collared Sparrows (*Zonotrichia capensis*) from Chile (Novoa et al. 1994) and Mountain Chickadees from Utah (Cooper 2002, Cooper and Gessaman 2004). House Sparrows (*Passer domesticus*) tested from Oshkosh, Wisconsin, have lower thermal conductance in winter-acclimatized individuals than summer-acclimatized birds but only at temperatures below –11°C (Arens and Cooper 2005a). Thus, winter sparrows save on metabolic costs of thermoregulation compared to summer, but not at all ambient temperatures. In spite of insulatory improvements in both House Sparrows and Mountain Chickadees, insulation is not great enough in these birds to completely offset the increased heat production requirements under typical environmental conditions in winter. These birds must still spend a great deal of energy shivering to stay warm even with improved winter insulation. Since behavioral adjustments and insulation do not seem to be enough for small birds to survive cold winters, it appears that metabolic adjustments are critical for seasonal acclimatization. Unlike mammals, birds do not possess the ability to undergo hibernation (except the Common Poorwill, *Phalaenoptilus nuttallii*, Jaegar 1949) and therefore maintain high metabolic rates throughout most of the day in winter. The rest of the paper will focus on three case studies involving seasonal metabolic acclimatization in songbirds. This is not an exhaustive review, rather some cases illustrating what is known about seasonal metabolic acclimatization in passerines.

## Case I: Black-capped Chickadee

The Black-capped Chickadee shows behavioral adaptations such as food caching and cavity roosting (Odum 1942, Bent 1946) and can undergo regulated bouts of nocturnal hypothermia (Chaplin 1976) that reduce costs of thermoregulation during winter. Regulated nocturnal hypothermia is a reduction of body temperature of up to 10°C that is due to lowering of the body temperature setpoint in the brain rather than to thermoregulatory failure as occurs in humans (Schmidt-Nielsen 1997). Since energetic costs of overwintering can be reduced by nocturnal hypothermia and behavioral adaptations, metabolic acclimatization to winter conditions may not be as marked in chickadees compared to birds that do not have these adaptations. In order to determine if behavioral adaptations and regulated hypothermia reduce metabolic adjustments in chickadees relative to other temperate-wintering passerines, Dave Swanson and I studied seasonal varia-

tion in basal metabolism, cold hardiness, summit metabolism, and metabolic response to temperature in Black-capped Chickadees from southeastern South Dakota (Cooper and Swanson 1994). This was the basis for my master's degree work at the University of South Dakota. In order to determine metabolic rates, birds were placed in airtight chambers equipped with a perch and known flowrates of air were pumped through the chamber. Air exiting the chamber was reduced in oxygen concentration due to the bird consuming oxygen and this was recorded with an oxygen analyzer. This methodology is known as open-circuit respirometry. Oxygen consumption values can be used as a measure of heat production since birds primarily use aerobic metabolism (using oxygen) to catabolize or breakdown substrates such as lipids or fats to fuel their muscle shivering (Schmidt-Nielsen 1997). Basal metabolic rates are recorded on birds using normal atmospheric air at ambient temperatures that do not cause any heat or cold stress. Basal metabolism is an important measure since it is the metabolism needed for maintenance of an organism. Summit metabolism is the maximum metabolism under cold stress and is generally measured on birds in helox gas. Helox gas is a mixture of 79% helium and 21% oxygen that is more conductive than air and facilitates heat loss without impairing oxygen uptake and thereby allows summit metabolism to be measured at relatively moderate temperatures such as 0° to –20°C rather than the –70°C or colder air temperatures that would be required (Rosenmann and Morrison 1974). Another important feature of helox is that birds do not suffer frostbite or any other problems that might occur at air temperatures below –70°C. All birds were banded and released at the site of capture after metabolic experiments in the studies we performed on Black-capped Chickadees. Chickadees were recaptured at these study sites up to three or four years after the initial capture.

Chickadees from South Dakota showed no seasonal improvement in insulation but had an 18% increase in basal metabolic rate in winter relative to summer and a 36% higher summit metabolic rate in winter birds relative to summer. In addition, chickadees were capable of withstanding much colder temperatures in helox in winter compared to summer. These significant increases in basal and summit metabolic rate clearly show that winter acclimatization in Black-capped Chickadees from southeastern South Dakota appear to be primarily a metabolic process. This prominent metabolic acclimatization occurs in spite of behavioral adaptations and regulated hypothermia. The combined effects of these adjustments contribute to the overwintering success of Black-capped Chickadees in severe winter climates throughout much of their winter range (Cooper and Swanson 1994). Black-capped Chickadees from Wisconsin show the same patterns of metabolic acclimatization as South Dakota chickadees (Cooper and Same 2000, Cooper and Blewett 2001).

### Case II: Mountain Chickadees and Juniper Titmice

Although Mountain Chickadees and Juniper Titmice are not found in

Wisconsin, they are useful examples of the process of seasonal acclimatization in songbirds. Mountain Chickadees and Juniper Titmice are very ecologically similar to Black-capped Chickadees. They are in the same family (Paridae), they are hang-and-glean foragers, they store food (Bent 1946), they are cavity roosting birds, and they use regulated bouts of nocturnal hypothermia (Cooper and Gessaman 2005). However, they occur in the western United States and live at much higher altitudes (approximately 700–3,300 m; Bent 1946) than most Black-capped Chickadees. Seasonal acclimatization may be affected by high altitude. House Finches (*Carpodacus mexicanus*) from Colorado have a different pattern of seasonal acclimatization compared to Michigan House Finches. Both Michigan and Colorado House Finches have seasonal fattening, increased cold resistance, and increased catabolic capacity in winter. However, Colorado finches do not have seasonal changes in summit metabolism as do Michigan finches (Dawson et al. 1983, O'Connor 1996). O'Connor (1996) stated that these differences in seasonal acclimatization patterns may reflect either a direct or indirect response to the different altitudes of the study sites. One of the goals of my Ph.D. work in the mid 1990s (Cooper 1998) was to determine whether seasonal acclimatization patterns are different for higher altitude species. I chose Mountain Chickadees and Juniper Titmice because in addition to being higher altitude birds they are also closely related to Black-capped Chickadees and this also allowed me to look at patterns of seasonal acclimatization in species using behavioral adaptations and hypothermia.

I measured basal metabolism, summit metabolism, cold tolerance, metabolic response to temperature, and daily energy expenditure in Mountain Chickadees and Juniper Titmice. For these two species it became clear that altitude did not affect their patterns of seasonal acclimatization. Both species had significantly higher basal metabolic rates (17% in chickadees, 22% in titmice) in winter compared to summer. In addition, summit metabolic rate was also significantly higher in both species in winter relative to summer (26% in chickadees, 16% in titmice) (Cooper 2002). This winter increase in summit metabolic contrasts to data on House Finches tested in Colorado (O'Connor 1996). It is unclear why different high altitude species show different patterns of seasonal acclimatization but Mountain Chickadees and Juniper Titmice tested at high altitudes have seasonal variation in summit metabolism similar to other species tested from lower altitudes. In addition, this work clearly shows that chickadees and titmice have marked metabolic acclimatization in winter in spite of nocturnal hypothermia and behavioral adaptations.

## Case III: House Sparrow and Black-capped Chickadee Ventilation

While metabolic acclimatization has now received a fair amount of attention, Dave Swanson has recently written a very thorough technical review of the subject (Swanson in press), the possible mechanisms involved with

these winter increases in metabolism have not been as well studied. Winter fattening may be involved with metabolic acclimatization (Blem 1990). If birds have more fat in winter, this would represent more fuel reserves which could allow for increased shivering endurance. However, exhaustion of energy reserves may not be a factor limiting cold tolerance. In American Goldfinches (*Carduelis tristis*), House Finches, and Dark-eyed Juncos (*Junco hyemalis*), non-regulated hypothermia occurred in summer-acclimatized birds with significant fat reserves still remaining (Dawson and Carey 1976, Dawson et al. 1983, Swanson 1991). Enzymatic changes in winter birds may be involved with seasonal acclimatization. American Goldfinches have an increase in an enzyme involved with fat catabolism in winter relative to summer (Yacoe and Dawson 1983).

The elevated energy demands in winter should be accompanied by increases in systems involved with energy provisioning. Adenosine triphosphate, ATP, is the form of energy currency used by cells. Muscles require ATP to shiver (Schmidt-Nielsen 1997). Thus, any system that increases ATP production could enhance cold tolerance and summit metabolism. Since most ATP in vertebrates in produced aerobically or using oxygen ($O_2$) the metabolic adjustments to cold stress should require accommodations in $O_2$ transport.

The first step in the $O_2$ transport pathway is pulmonary ventilation. While much is known about the morphology of the avian respiratory system (Smith et al. 1986), very little is known about potential seasonal changes in respiratory function in birds. Studies of seasonal acclimatization in ventilatory function has only been carried out on House Sparrows (Arens and Cooper 2005a, Arens and Cooper 2005b) and Black-capped Chickadees (Cooper and Same 2000, Cooper and Blewett 2001). We studied seasonal variation in tidal volume or breath volume, breathing rate, minute volume (tidal volume × breathing rate), and oxygen extraction efficiency which is the percentage of oxygen that is breathed in which is actually absorbed into the bloodstream and can be used to produce ATP. In order to study ventilation on unrestrained birds we used whole-body plethysmography. Birds were placed into 1 liter glass metabolic chambers which had 3 ports. One port brought atmospheric air into the chamber, one port took gas from the chamber to an oxygen analyzer to measure how much oxygen was being consumed by the bird, and one port took a sample of gas to a pressure transducer. The pressure transducer recorded pressure differences in the chamber due to warming and wetting of inspired air. This pressure signal can be converted to tidal volume and the periodicity of ventilation deflections were used to calculate breathing rate.

House Sparrows under cold stress are able to increase tidal volume, breathing rate, and extraction efficiency in both summer and winter. During summit metabolic rate experiments only frequency was higher in winter sparrows relative to summer. Breathing rates under cold stress were 108 breaths per minute in summer compared to 132 breaths per minute in winter. When tested under ecologically relevant cold temperatures

(–12°C to 15°C) winter birds also had a significantly higher oxygen extraction efficiency. Oxygen extraction reached 45% in winter House Sparrows. This extraction efficiency is very good given that the typical $EO_2$% for resting mammals is 20–25% and 30–40% for birds (Schmidt-Nielsen 1997). Black-capped Chickadees appear to have a very different ventilatory acclimatization pattern than House Sparrows. Chickadees also have an increase in tidal volume under cold stress, but actually breath slower under cold stress rather than faster. Thus, their minute volume does not increase nearly as much as sparrows. However, their oxygen extraction efficiency reaches 71% under extreme cold stress in helox. This is the highest value of oxygen extraction efficiency yet recorded for birds.

## Conclusions

Small songbirds use a variety of adjustments in order to survive cold winter temperatures in temperate regions such as Wisconsin. These include behavioral adjustments such as food caching and selection of favorable roosting microclimates. In addition, some songbirds may have improved insulation in winter which reduces thermoregulatory requirements. However, the small size of songbirds limits the total amount of feathers they can have due to constraints on flight and possible increased predation risk. In order for songbirds to survive winters in Wisconsin they must undergo a process of seasonal acclimatization that is primarily characterized by changes in metabolic rates. These include increases in basal metabolism and summit metabolism. The large increases that can occur in these metabolic rates (15–60%) are impressive and contribute to the ability of these birds to tolerate cold winter temperatures. Mechanisms underlying these increases in metabolic rates are not yet completely understood. Stored fat levels may increase in winter along with enzymes needed to use these fats as fuel. In addition, pulmonary ventilation may change seasonally allowing winter songbirds to bring more oxygen into the body and absorb more oxygen in the body compared to their summer counterparts.

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Short-eared Owl in the snow by Gary Frogman

Juvenile Semipalmated Plover at Long Bridge in Ashland, 7 September 2006. Photo by Ryan Brady.

# Trapping Shorebirds in Wisconsin during Fall Migration of 2006

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**ABSTRACT**

*The Wisconsin Department of Natural Resources enhanced its avian influenza surveillance program in 2006. Among the birds screened for the virus were shorebirds. In this article, the authors share the results of their efforts to live-capture shorebirds in Wisconsin during fall migration and discuss some of the finer points of trapping that may help future researchers who choose to investigate this intriguing group of long-distance migrants.*

## INTRODUCTION

In response to growing concern that migratory birds may play an important role in carrying a highly pathogenic H5N1 avian influenza virus into North America from known areas of occurrence in Asia, Europe, and Africa, avian influenza surveillance efforts in the United States were greatly intensified in 2006. As part of this expanded nationwide effort, the Wisconsin Department of Natural Resources worked in cooperation with USDA-APHIS-Wildlife Services to screen more than 2,000 wild birds across the state primarily during fall migration (see http://www.dnr.state.wi.us/org/land/wildlife/whealth/issues/AI/background.htm for more details). Among the birds sampled were waterfowl, shorebirds, and passerines, with heavy emphasis on waterfowl and shorebirds, as both groups are well known as natural reservoirs for avian influenza viruses (Muzaffar et al. 2006).

Waterfowl samples were readily obtained by partnering with existing duck banding and waterfowl harvest efforts at select state wildlife areas. Shorebirds, on the other hand, posed a much larger challenge because most are non-game species that occupy dif-

ficult-to-access habitats and previous intensive attempts to live-capture migrating shorebirds in Wisconsin were non-existent. As a result, many questions surrounded this component of the enhanced avian influenza surveillance program. Will live-capturing be effective? What trapping techniques work best? What species can be captured and how many of each? How much time and effort will it take? In this article, we answer some of these questions by summarizing the trials and tribulations of live-trapping shorebirds in Wisconsin during the 2006 fall migration, with discussion of the knowledge we gained during this novel undertaking.

## METHODS

### Capture sites—

Prior to the project's start in late summer, we identified potential sites for trapping and sampling shorebirds based on previous knowledge of shorebird migration in Wisconsin and to maximize geographic coverage across the state. We also contacted property managers to ascertain information on habitat conditions at various state and federal wildlife areas and monitored the Wisconsin Birding Network (a computer discussion group) for reports of shorebirds at other statewide locations.

Sites used for trapping were characterized by excellent habitat, such as extensive mudflats, exposed sandbars, and/or very shallow water (Fig. 1), and thus hosted relatively high numbers of shorebirds. Water levels, as dictated by property management and/or natural rainfall, profoundly influenced this habitat availability. Several other factors, such as accessibility and level of human disturbance, also played into site selection and these are discussed later in more detail.

We ultimately attempted to trap shorebirds at six general locations: *Horicon National Wildlife Refuge* (pools along State Highway 49 and at the refuge headquarters building; Dodge County), *Rush Lake State Natural Area* (Winnebago County), *Crex Meadows Wildlife Area* (Dueholm Flowage, Dike 2, and South Refuge Extension Flowage; Burnett County), *Rainbow Flowage* (Oneida County), *Chequamegon Bay at Ashland* (head of the bay at Long Bridge; Bayfield County; Fig. 1), and the *Bad River Indian Reservation* (Chequamegon Point; Ashland County).

### Capture techniques—

Shorebird trapping began in late July and continued several days per week into early November, when shorebird numbers dwindled to just a few individuals scattered throughout the state.

We live-captured all shorebirds using mist nets that were 2.6-m high and 12-m long. Most had mesh size of 38-mm but we also used some 60-mm nets to increase our chance of capturing larger species such as Greater Yellowlegs (*Tringa melanoleuca*) and Black-bellied Plovers (*Pluvialis squatarola*). Three to seven mist nets were set in variously-shaped arrays (e.g., straight line, L-shape, U-shape, etc.) within appropriate habitat (Fig. 2). Later in the season, we also incorporated up to nine Mourning Dove (*Zenaida marcroura*) decoys (not shorebirds, but close enough in appear-

Figure 1. Least and Semipalmated Sandpipers, like those photographed here on August 15, were among the shorebirds that took advantage of excellent habitat at Long Bridge in Ashland during the 2006 fall migration. Photo by Ryan Brady.

ance) into the sets, with moderate success.

In some cases, we took a passive approach and simply waited for birds to fly into the nets during their normal foraging and flight activities. This worked well in smaller habitats where birds were more concentrated and in areas where the birds frequently took flight, perhaps due to nearby predators such as Merlins (*Falco columbarius*) or Peregrine Falcons (*Falco peregrinus*). On the other hand, a more active approach also worked well in many cases. Many shorebird species are rather tame and could be "herded" along by walking very slowly toward them. If the "driver" was patient, the birds could often be pushed right up to and then flushed into the nets. This technique often was highly effective, especially when three to five people were involved in the drive.

Once captured, birds were immediately extracted from mist nets and held in either cloth bags or a large wooden holding box containing screen sides for ventilation. The box was especially useful when five or more birds were captured simultaneously and for long-legged species (e.g., yellowlegs) that might need to stand to prevent degradation of muscle tissue or capture myopathy (Rogers et al. 2004). We first collected avian influenza samples from each bird via a cloacal swab and then banded each individual on the right

Figure 2. Mist nets—fine nets that passively capture birds as they fly from one point to another—were placed in areas frequented by shorebirds, like the shallow waters and exposed mud and sandflats at the Rainbow Flowage in Oneida County. Photo by Ryan Brady.

tibiotarsus (upper leg) above the "knee" joint using an official U.S. Geological Survey numbered aluminum band. Each bird was identified to species and aged and sexed when possible. Nearly all individuals could be aged based on feather wear and/or molt patterns (Fig. 3; Gratto-Trevor 2004, O'Brien et al. 2006) but determining sex was more difficult because most shorebirds do not exhibit pronounced sexual size or plumage dimorphism (Gratto-Trevor 2004). The exception was the Pectoral Sandpiper (*Calidris melanotos*), which in most cases could be sexed on the basis of wing length (males > females; Holmes and Pitelka 1998). For each captured bird, we also measured flattened wing chord, tail length, and mass and used a qualitative scale from 0–7 to visually categorize subcutaneous fat deposits (DeSante et al. 2007).

## Results and Discussion

We captured 460 shorebirds of 15 species between 31 July and 16 October 2006 (Tables 1 and 2). This required approximately 120 hours of trapping effort over 28 field days (Table 1). The majority (87%) of birds were captured in August (Table 1). Although shorebirds were present throughout much of July, trapping did not start until the last day of the month due to budgetary and logistical

Figure 3. Most shorebirds, and especially *Calidris* sandpipers like this Pectoral Sandpiper, can be readily aged as adults or juveniles during fall migration. Note the fresh plumage on this juvenile, with rounded, pale-tipped upperwing coverts and unworn flight feathers. Adult birds generally show worn (or mixed worn and fresh) plumage overall, including ragged, pointed upperwing coverts without pale edges and more worn flight feathers because the feathers are months older than in juveniles. Photo by Ryan Brady.

constraints. In September shorebird abundance decreased and other aspects of the surveillance program, i.e. passerine and waterfowl sampling, became focal points and thus reduced trapping effort. Shorebirds remained through October and early November, especially Dunlins (*Calidris alpina*) and Long-billed Dowitchers (*Limnodromus scolopaceus*) in southern Wisconsin, but our trapping efforts were hampered by reduced resources and inclement weather. Overall, as in a typical year of fall shorebird migration in Wisconsin, August was the month of greatest abundance and diversity in 2006.

We captured the highest total of birds at Long Bridge near Ashland at the southwestern tip of Lake Superior's Chequamegon Bay (Table 2, Fig. 1), primarily because: (1) Lake Superior water levels are less dependent on rainfall or management and thus habitat changed little over time; (2) 50–100+ shorebirds were consistently present; (3) the trapping area was relatively small with birds utilizing distinct sand bars; (4) excellent sand substrate allowed easy access; and (5) the most trapping effort was made there. Another excellent trapping site was the South Refuge Extension Flowage at Crex Meadows Wildlife Area, which

Table 1. Monthly and overall totals for shorebird captures and trapping effort. Least and Semipalmated Sandpipers dominated capture totals, especially during the peak month of August.

| Species | July | August | September | October | Total |
|---|---|---|---|---|---|
| American Golden-Plover | | | 2 | | **2** |
| Semipalmated Plover | | 9 | 4 | 4 | **17** |
| Killdeer | | 7 | | | **7** |
| Spotted Sandpiper | | 4 | | | **4** |
| Solitary Sandpiper | | 2 | | | **2** |
| Greater Yellowlegs | | 1 | | | **1** |
| Lesser Yellowlegs | | 18 | 3 | | **21** |
| Sanderling | | | | 4 | **4** |
| Semipalmated Sandpiper | | 84 | | | **84** |
| Least Sandpiper | 7 | 253 | 6 | 1 | **267** |
| Baird's Sandpiper | | 1 | | | **1** |
| Pectoral Sandpiper | | 8 | | 29 | **37** |
| Stilt Sandpiper | | 6 | | | **6** |
| Short-billed Dowitcher | | 2 | | | **2** |
| Wilson's Snipe | | 4 | | 1 | **5** |
| **Total** | **7** | **399** | **15** | **39** | **460** |
| # Field days | 1 | 17 | 3 | 7 | **28** |
| # Trapping hours | 4.0 | 78.5 | 12.0 | 25.5 | **120.0** |

worked well because birds were concentrated in a relatively small area that was easy to work in (i.e., hard-bottomed substrate). Unfortunately, water levels there fluctuated greatly and lack of rainfall caused this flowage to dry out completely by early August. Other areas, like Rush Lake and along State Highway 49 at Horicon NWR, hosted far more shorebirds but the extremely mucky substrate simply did not allow us to work safely there and thus we trapped only a very small proportion of the hundreds to thousands of shorebirds using each of these sites.

In general, the smaller the shorebird, the easier it was to capture. Our capture and sample totals (Tables 1 and 2) were dominated by two of the smallest species—Least Sandpiper (*Calidris minutilla*; Fig. 4) and Semipalmated Sandpiper (*Calidris pusilla*). Larger species, such as Black-bellied Plovers and Greater Yellowlegs, traveled in smaller groups, were more skittish, and appeared more aware of the nets. Capture success for individual species also was affected by other factors. For example, our mist netting technique may not have been the best approach for catching Lesser Yellowlegs (*Tringa flavipes*), which we captured in small numbers compared to their relatively high abundance at most sites. Pectoral Sandpipers were also far more common than our capture totals would indicate. This species seemingly preferred the "muckiest" habitat and thus we simply could not access the areas they inhabited. Lastly, although Horicon NWR hosted a nice flock of Dunlins in the last week of October, other aspects of the avian influenza surveillance program precluded any trapping effort there until the birds had mostly departed during an intense period of cold, snow, and ice.

Most of the shorebirds we captured (441 of 460, or 95%) were juveniles, i.e., hatched earlier in summer 2006.

Table 2. Shorebird capture totals by site. Long Bridge in Ashland stood far above all other sites for various reasons (see text).

| | Horicon NWR | | Crex Meadows WA | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Species | Hwy 49 | Headquarters Pond | Ducholm Flowage | Dike 2 | S. Refuge Extension Flowage | Rush Lake | Rainbow Flowage | Ashland-Long Bridge | Bad River Reservation | **Total** |
| American Golden-Plover | | | | | | | | 2 | | **2** |
| Semipalmated Plover | 1 | 1 | 2 | | | | | 13 | | **17** |
| Killdeer | 4 | 2 | | | 1 | | | | | **7** |
| Spotted Sandpiper | 1 | 1 | | | | 2 | | | | **4** |
| Solitary Sandpiper | | 2 | | | | | | | | **2** |
| Greater Yellowlegs | | 1 | | | | | | | | **1** |
| Lesser Yellowlegs | | 4 | | | 10 | 1 | 2 | 4 | | **21** |
| Sanderling | | | | | | | | 4 | | **4** |
| Semipalmated Sandpiper | 15 | | | | | | | 69 | | **84** |
| Least Sandpiper | 63 | 15 | 12 | 7 | 51 | 40 | 10 | 69 | | **267** |
| Baird's Sandpiper | | | | | | | | | 1 | **1** |
| Pectoral Sandpiper | 1 | 3 | 1 | | 2 | 1 | | 29 | | **37** |
| Stilt Sandpiper | | 1 | | | | | | 5 | | **6** |
| Short-billed Dowitcher | | 1 | | | | | | 1 | | **2** |
| Wilson's Snipe | | 2 | | 2 | | | | 1 | | **5** |
| **Total** | **87** | **33** | **15** | **7** | **64** | **44** | **12** | **197** | **1** | **460** |

Figure 4. By far, the most commonly captured species was Least Sandpiper. This juvenile was caught and photographed at Long Bridge in Ashland on 10 October 2006. Photo by Ryan Brady.

Capture totals for American Golden-Plover (*Pluvialis dominica*; Fig. 5), Spotted Sandpiper (*Actitis macularius*), Sanderling (*Calidris alba*), Baird's Sandpiper (*Calidris bairdii*), Stilt Sandpiper (*Calidris himantopus*), and Short-billed Dowitcher (*Limnodromus griseus*) were comprised entirely of juvenile birds. Only one of the 267 Least Sandpipers was an adult bird and, based on molt pattern, this was likely a second-calendar-year bird. Likewise, only one of the 84 Semipalmated Sandpipers captured was an adult, and this on the relatively early date of August 7. The only species with any significant representation from adults were Semipalmated Plover (*Charadrius semipalmatus*; 4 adults of 17 total captured), Greater Yellowlegs (1 of 1), and Pectoral Sandpiper (8 of 37). Five of 37 Pectoral Sandpipers could not be sexed because of wing lengths that fell into the inconclusive range of overlap. The remaining 32 individuals consisted of 21 females and 11 males based on wing length (Holmes and Pitelka 1998).

Why the strongly skewed age ratio in capture totals? Adult shorebirds typically migrate south before juveniles (Gratto-Trevor 2004, O'Brien et al. 2006). As a result, adult shorebirds of many species had already migrated south of Wisconsin when our trapping efforts commenced on 31 July. For example, all Least and Semipalmated Sandpipers we observed after 7 August

Figure 5. Among the most noteworthy captures were two juvenile American Golden-Plovers, including this one at Long Bridge in Ashland on 29 September 2006. Photo by Ryan Brady.

were juveniles. Moreover, juvenile birds are less experienced and thus tend to be more easily captured. During our trapping efforts, we noted that adult birds were more skittish and more readily saw and avoided our mist nets.

We entered this project with little knowledge of trapping shorebirds in Wisconsin. We finished with moderate success and some hard-earned experience. Following are some comments and suggestions to hopefully help anyone planning to undertake a similar task in future years.

**Selection of trapping sites—**

Habitat was the most critical component dictating presence and abundance of shorebirds. Water level, which was highly dependent on rainfall, seemed to be the primary factor affecting habitat suitability. Even if property managers performed drawdowns, weather still determined whether those properties remained useful for migrating shorebirds.

The best sites for trapping were not necessarily those with the most birds. Smaller sites where moderate numbers of birds were more concentrated (e.g., Long Bridge in Ashland and S. Refuge Extension Flowage at Crex Meadows WA) proved to be most efficient. Equally important was the extent and type of "muck" forming the surface substrate at each site because this greatly affected our ability to ef-

Figure 6. If you plan to trap shorebirds in Wisconsin, plan on getting very, very dirty. Ryan's binoculars were retired after this not-so-refreshing dip in Rush Lake. Photo by Tim Lizotte.

fectively move and work in each area. For example, Rush Lake hosted thousands of shorebirds in early August that we could not access because the mud was very "soupy" and more than 3 feet deep (Fig. 6). Similar unfavorable conditions prevailed along State Highway 49 in Horicon NWR and at Dueholm Flowage in Crex Meadows WA. In these areas and elsewhere, we tried bare feet, waders, snowshoes, marsh skis, four-legged crawling, and more with little to no success. If the muck is dense enough, large "board bridges" laid out into the problem area may be helpful. However, an impractical number of boards may be needed to get far enough into the habitat for trapping birds. On the other hand, sand-bottom sites like Chequamegon Bay at Long Bridge in Ashland and Rainbow Flowage in Oneida County provided easy access and high capture success.

Human disturbance is another factor to consider in site selection. A number of Lake Michigan shoreline sites typically host excellent numbers of migrating shorebirds, but these birds (and thus any trapping operations) are frequently disturbed by beachgoers. Even if people are not directly on the beach, all trapping activities would be highly visible to a large number of onlookers, which may be undesirable.

Any shorebird trapping effort will have varying success from year to year because of changes in habitat availability. Some sites are consistently good (e.g., Horicon NWR, Crex Meadows WA) while many are dynamic (e.g., Rainbow Flowage, where drier years result in more shorebird

Figure 7. If you can't see the three nets shown in this photo don't worry because that's the whole idea. The shoreline willow trees were an excellent backdrop for successful trapping at Long Bridge in Ashland. Also note the four dove decoys, which worked moderately well in getting birds close enough to get caught in nets. Photo by Ryan Brady.

habitat). Some sites not used in our project that future shorebird trappers might consider include: (1) *Long Island*, Lake Superior (Ashland County), (2) *Wisconsin Point*, Lake Superior (Douglas County), (3) *Big Eau Pleine Reservoir* (Marathon County), (4) *various Lake Michigan sites*, such as Manitowoc Impoundment, Sheboygan's North Point, Bradford Beach, Wind Point, and others, (5) *Nine Springs* near Madison (Dane County), (6) *Turtle Valley Wildlife Area* (Walworth County), and (7) *Zeloski Marsh Unit of Lake Mills Wildlife Area* (Jefferson County).

**Capturing shorebirds—**

The "catchability" of shorebirds varied considerably from species to species. With our capture techniques, some common species were readily caught, such as Least and Semipalmated Sandpipers. Some species were fairly common but very difficult to catch, such as Greater Yellowlegs and Black-bellied Plovers. Some species were simply not common enough to catch in any numbers, such as Ruddy Turnstone (*Arenaria interpres*), Red Knot (*Calidris canutus*), and Buff-breasted Sandpiper (*Tryngites subruficollis*).

In addition to bird abundance and habitat substrate, net visibility also was important to capture success. Net visibility increased greatly under windy conditions as the lightweight nets constantly moved and were easily seen by approaching shorebirds. Winds more than 10 mph generally made mist netting entirely unsuccessful while calm conditions resulted in high success. Nearly as important was the backdrop behind the mist nets. A background of trees or other vegetation significantly improved capture success (Fig. 7),

whereas shorebirds often avoided nets with sky or water as the background. Overcast skies camouflaged nets better than bright sunny days as did the darker skies of dawn and dusk. Trapping at night in darkness also may be successful if birds are active. We tried this on one occasion but no birds were active in habitat frequented the evening before and the following morning.

Shorebirds prefer to take off and land *into* the wind, so prepare mist net arrays and "herding" efforts accordingly. Also be sure to keep the lowest trammel of each mist net very low, nearly at ground level, to prevent birds from flying under it (which they will do). However, birds must be retrieved immediately to prevent birds from drowning and/or getting covered in mud. Lastly, birds utilizing shorelines such as sandbars or beaches usually flush over the water perpendicular to the shoreline, not parallel to it. Thus a good set for Sanderlings might be an L-shape with two or three nets 1–2 meters into the water paralleling the shoreline and then one net perpendicular to the shoreline. Drive or herd the birds deep into the L-shaped formation.

Although various sets are possible and can be successful, a U-shaped mist net array often worked well in our project because some birds saw the net that they were flying towards and then turned to go around it only to get caught in the side nets. However, many birds still flew up and over the nets, which was the primary way birds avoided getting caught. The U-shape also allowed for more effective drives as the side nets helped to herd and capture birds.

Targeting individual birds or specific groups of birds during trapping efforts often did not work. The best scenario was one in which multiple groups of birds were present and we passively tried to capture all of them. If flocks or even individuals were targeted, we had only a couple chances to capture them before they became wary of the nets and the entire trapping effort.

Be sure to have a team of banders during all trapping attempts. One person can run the entire trapping operation with moderate success, but only if NOT dealing with large numbers of birds (e.g., flocks of 20+ peeps). If 20 or more birds are captured at once, one person simply cannot deal with extracting and processing without threatening the welfare of the birds. A two-person crew works much better and three or more is ideal. For driving/herding, the more people the better in most cases (an exception being when dealing with skittish species). Three to five people would be ideal in most areas, although the nature of quick-response planning, such as that needed for shorebird trapping, can make coordinating helpers in advance a difficult task.

Use 32 to 38-mm mesh size for smaller shorebirds (e.g., Pectoral Sandpipers and smaller) and 60-mm for larger shorebirds (e.g., yellowlegs and the large plovers). Keep in mind that some of the larger shorebirds will get caught in the smaller-mesh nets but many of the small shorebirds (e.g., Least and Semipalmated Sandpipers) will escape through the larger nets.

Most shorebirds were tangled badly in the 38-mm mist nets (worse than many passerines) despite being extracted immediately upon capture. The head and legs were not problem-

atic, but their long, slender wings often were caught tightly. This depended on the mesh size of the nets and the size of the birds captured. Unfortunately we discovered no solution other than being careful and patient during extraction.

We used only mist nets to capture shorebirds during the 2006 fall migration. Other techniques used by other shorebird researchers that should be considered in future efforts include:

a) *Mist netting at night*—we tried it once with no luck but other trappers have apparently had success using this technique;

b) *Audio lures using shorebird calls*—place lure within net array;

c) *Shorebird decoys*—we had moderate success with store-bought, plastic dove decoys; future efforts could employ custom-designed shorebird decoys;

d) *Cannon/rocket net*—a larger time and financial investment but would be worth it if more efficient and for targeting certain species (e.g., dowitchers) not effectively trapped using mist nets; must consider substrate so birds don't drown or get too muddy;

e) *Bow nets*—remote triggered; probably can't catch many birds at once; substrate important as in cannon net;

f) *Noose carpets*—would need a lot of nooses to cover sufficient area but might be worth trying if birds are highly concentrated (though mist netting perhaps more effective then);

g) *Walk-in traps*—may have the most promise of all other techniques; many other trappers have used with good success; may not catch many birds at once but very passive; could be used in conjunction with mist netting; unclear which species would be captured most efficiently and how capture rates would compare to mist netting; may be difficult to haul around large traps to many different locations;

h) *Drop nets*—substrate again important but could be very effective;

i) *Nightlighting*—use dip nets to capture birds blinded by spotlight at night.

**A bird in the hand . . .**

Trapping shorebirds presents new opportunities for understanding this fascinating yet poorly understood group of birds. Given the substantial effort that goes into capturing them, it would be beneficial to gather as much data as reasonably possible with birds in hand (Fig. 8). Moreover, because little shorebird research has been conducted in Wisconsin, any data collected are likely to greatly enhance our knowledge of shorebird migration in the state. Below are just a few research needs that could be addressed in conjunction with any shorebird trapping efforts.

*Observations/surveys*—Systematic surveys are needed to quantify shorebird diversity and abundance across the state, which will help identify areas important to migratory shorebirds and provide baseline data for a much-needed long-term monitoring program. Such surveys should also document differences in migration phenology among species and age cohorts (adults vs. juveniles).

*Stopover ecology*—Most Semipalmated Sandpipers we captured at Chequamegon Bay in Ashland weighed 20–25 g, whereas most in Horicon NWR weighed ~10 g more, sometimes up to 41 g. Why? Is Horicon a more "valuable" habitat for refu-

Figure 8. Capturing shorebirds for avian influenza sampling provided excellent opportunity to study other aspects of shorebird biology, such as identification, aging, sexing, fat deposition, and more. This Wilson's Snipe was photographed by Wendy Woyczik at Horicon NWR on 10 August 2006.

eling energy reserves? How long do birds stay to refuel in Ashland, Horicon, and other stopover sites? What are these birds feeding on at their respective stopover sites? What habitat features do various species prefer (e.g., shallow water for dowitchers, muck for Pectorals, sand beach for Sanderlings, etc.)?

*Stable isotope analysis*—During the 2006 avian influenza surveillance program, we collaborated with biologists from the U.S. Fish and Wildlife Service in Alaska by providing feather samples from Pectoral Sandpipers. The isotopic signatures in these and other feathers from across the country will be analyzed to identify breeding and wintering sites of Pectoral Sandpipers throughout North America. Knowing the breeding and wintering areas of birds migrating through Wisconsin would greatly enhance conservation efforts. Similar work could be done with other shorebird species.

*Criteria for determining sex*—Many shorebirds cannot be reliably classified as male or female during migration, even in hand. Capturing and measuring shorebirds could allow development of metric criteria for separating the sexes, as has been done successfully in other birds lacking pronounced sexual size and plumage dimorphism.

*Migration patterns*—Migratory routes and breeding and wintering areas of Wisconsin's shorebirds are poorly known. An established color-marking scheme would allow birdwatchers to observe and report color-marked birds in Wisconsin and elsewhere. For

example, on 24 July 2006 the senior author observed a color-banded adult Semipalmated Sandpiper at the South Refuge Extension Flowage of Crex Meadows Wildlife Area in Burnett County. The bird had a yellow band over an orange band on the lower right leg and a green flag on the upper left leg. No aluminum band was noted but could have been present. We later learned that this bird was originally banded between 20–22 July 2005 at Salt Lake WPA in northeastern South Dakota.

*Wildlife health*—In addition to avian influenza, other wildlife health issues in shorebirds could be investigated, perhaps including contaminants at various stopover sites.

*Management effects*—Shorebird management remains poorly known in Wisconsin (but see Volkert and Matteson 2001). Can "good" shorebird habitat be artificially created? If so, how? Are simple drawdowns enough to meet the needs of migrating shorebirds? What are the most critical features (habitat, food, etc.) that we must recreate in our shorebird management efforts? Are waterfowl and shorebird management compatible?

## Conclusion

Shorebird sampling during the 2006 avian influenza surveillance project was more successful than expected. We entered the season not knowing if we could capture any shorebirds and ultimately caught 460 individuals of 15 species. To our knowledge, this was the highest live capture total and greatest species diversity of all states in the Mississippi Flyway. Given that the fall 2006 shorebird migration was near average for most species, future shorebird trapping efforts might expect results similar to those described here. However, if future researchers can effectively tackle the "muck" issue, capture totals would undoubtedly rise for many species. Furthermore, diversifying capture techniques beyond the use of mist nets also should improve capture success and increase species diversity. Much remains to be learned about shorebirds in Wisconsin, but we hope this account will both assist and inspire all those who strive to better understand this fascinating group of birds.

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Mourning Doves by David Kuecherer

# Population Dynamics of Black Terns Breeding in Southeastern Wisconsin, 1999–2007

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**ABSTRACT**

*The breeding population of Black Terns* (Chlidonias niger) *at Horicon Marsh (Dodge County, Wisconsin) has fluctuated widely since 1999, and research indicates that this population cannot be self-sustaining without constant immigration of breeders from outside the study region. Elsewhere in the state, declines of up to 60% have been documented over the past 20 years. A nine-year mark-recapture study of over 1200 Black Terns banded at Horicon Marsh estimated apparent annual survival at 62%, and prebreeding survival (fledging to first breeding) averaged < 2%. These values are far too low to account for the continued persistence of this breeding population and suggest very low breeding site fidelity among Black Terns and a high annual rate of movement among colony sites. However, band returns to date indicate virtually no movement by breeders among colony sites within the study region, suggesting that immigrants arriving at Horicon Marsh are coming from more distant areas. The results of this study suggest that Horicon Marsh represents an ecological trap to Black Terns, and in conjunction with survey data gathered by the Wisconsin Department of Natural Resources, supports the conclusion that this species is in serious trouble in Wisconsin.*

## INTRODUCTION

The dynamics of populations are controlled by four primary factors: births, deaths, immigration, and emigration. When population inputs (births, immigrants) exceed the outputs (deaths, emigrants) over time, the population increases. When the outputs exceed the inputs over time, the population declines. When inputs balance outputs, the population is in either a stable or dynamic equilibrium, and no net change in population size is observed. Although simple in theory, a thorough understanding of the dynamics of natural populations often requires many years of intensive study.

Long-term survey or census data often are used to assess the status and

trends of a particular population, and in some cases, can provide useful information for little cost or effort. For example, a population that shows positive growth over a period of years is usually considered to be healthy. Conversely, a population in decline may signal one or more problems and be cause for conservation concern. However, the absolute reliance on census data alone may supply false or misleading information. This may be particularly true for species that are secretive and difficult to detect, or ones that are highly nomadic.

The Black Tern (*Chlidonias niger*) is one such species that exhibits a high degree of nomadism with respect to breeding site fidelity. The most extensive data set on population status and trends in this species comes from the Breeding Bird Survey (BBS) data, which show a 2.3% annual decline of Black Terns in the Upper Midwest region over the 30-year period 1966–1996 (Peterjohn and Sauer 1997). However, trend analysis of a nomadic wetland species using BBS methods is of questionable reliability.

In Wisconsin, where the Black Tern is listed as a Species of Special Concern, extensive roadside surveys conducted from 1979 to 1982, and again from 1995 to 1997, have suggested a decline of over 60% of breeding individuals between survey periods (Matteson and Mossman 2000). Moreover, an alarming decrease in the number of breeding sites was detected from the early 1980s to the mid 1990s—from seven to one in St. Croix/Polk Counties, and from nine to two in Oneida/Vilas Counties. In Columbia County, six sites held breeding terns in 1997, but 70% of all terns were counted at one site. As a result of the continued decline in individual breeders and extirpation from historic breeding sites, Matteson and Mossman (2000) recommended that the Black Tern be considered for addition to Wisconsin's *Endangered and Threatened Species List* as threatened.

A nine-year (1999–2007) study of Black Terns nesting at Horicon Marsh, Dodge County, Wisconsin, has revealed that breeding performance has been chronically poor, with the larger nesting colonies (>50 pairs) experiencing the lowest productivity (Shealer 2002). Nest failure among Black Terns at Horicon Marsh has been attributed primarily to predation, but conclusive evidence is difficult to obtain in most cases. Productivity (mean number of fledglings produced per pair) has been between 0.5 and 0.8 (Fig. 1), indicating that two breeding attempts are required, on average, to produce a single fledgling. Despite this consistently high failure rate, however, the breeding population continued to increase between 1999 and 2003 (Fig. 1). Simple nest counts alone during this period would have suggested a healthy and growing population. However, concurrent reproductive success estimates predicted an inevitable crash in the population. Such a decline was first observed in 2004 and continued over the next two years, when the population bottomed out at just over 50 pairs in 2005 and 2006. Reproductive success in 2006 was unusually high, so it will be of interest to monitor population trends in 2007 and beyond.

The question remains, however, whether annual variation in population size is due to environmental factors or to inherent variation in population dynamics (e.g., natal re-

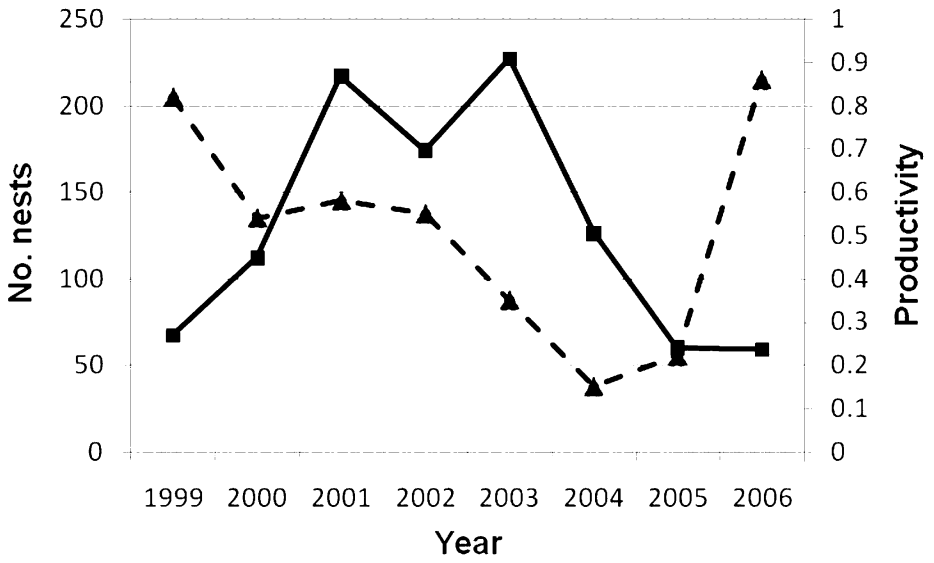


Figure 1. Estimated breeding population size, expressed as number of nests found, at Horicon Marsh (solid line, squares), 1999–2006, and concurrent productivity estimates (dashed line, triangles), expressed as the mean number of fledglings per breeding pair.

cruitment, migration). Reproductive success estimates would tend not to support the recruitment hypothesis, but the best way to address this question is through population models. Servello (2000) conducted a sensitivity analysis of demographic parameters of Black Terns and found that adult survival rates, chick survival, and nest success all had strong and similar influences on population growth rates. Prior work at Horicon (Shealer 2002) suggests that nest success and chick survival are insufficient to account for the increase in breeding birds unless adult annual survival and breeding site fidelity are unusually high.

The main objective of the study reported here was to calculate adult annual survival of Black Terns at Horicon Marsh. Secondary objectives were to (1) examine the degree of breeding-site fidelity among breeding adults, (2) determine movement patterns of birds both within the marsh complex and among other colonies in southeastern Wisconsin, and (3) estimate recruitment rates and origins of first-time breeders. These objectives were accomplished by a nine-year mark-recapture study of banded birds. Although a prior multi-year study in Oregon calculated adult annual survival for Black Terns at one site (Stern 1987), this study presents the first attempts to estimate adult survival and movement patterns at a regional scale and recruitment from fledging to first breeding.

## Study Areas

Field work was conducted each year from early May to late July primarily at several marsh impoundments at Hori-

con National Wildlife Refuge and the state-owned portion of Horicon Marsh, Dodge County, Wisconsin (N 43°30–37′, W 088°37–40′). Additional study sites included Theresa Marsh (N 43°32′, W 088°24′), Fox Lake (N 43°35′, W 088°57′), and Lake Emily (N 43°37′, W 088°58′) in Dodge County; Grassy Lake (N 43°25′, W 089°10′) and Mud Lake (N 43°24′, W 089°17′) in Columbia County; and Grand Lake (N 43°41′, W 089°07′) in Green Lake County.

## Methods

Beginning in mid-May of each year, nesting colonies of Black Terns were located from refuge roads and dikes and from a canoe or airboat in the larger impoundments. Nest searches then were conducted on foot, and nest locations were recorded with a GPS receiver. Information recorded at each nest included nest number, clutch size, egg dimensions, egg mass to nearest 0.1 g (with a portable electronic scale), and relative stage of incubation by flotation of eggs (Westerkov 1950). Eggs were numbered with a non-toxic permanent marker to determine hatch order. Laying dates were back-calculated from hatching dates, assuming a 21-d incubation period (Dunn and Agro 1995) or by the method described in Shealer et al. (2006).

During the incubation period, nests were checked every 2–5 days on a rotating basis. Adults nesting on suitable substrates were trapped after day 7 of incubation, as recommended by Shealer and Haverland (2000), although some adults were trapped earlier in 2002 for an ancillary study. A wire mesh treadle trap with a floor was placed over the eggs and adults were caught when they returned to the nest to resume incubation. Adults were removed from the trap quickly and transported >20 m from the nest site for banding and processing (under Master Permit #22827). Trapped adults were weighed to the nearest 0.5 g with a spring scale, and body measurements were recorded, including lengths of head and bill, exposed culmen, unflattened wing (wing chord), and tail. A blood sample (ca. 20 µl) was drawn from the tarsal vein of each bird (under letter of authorization from the Bird Banding Laboratory) for sex determination using molecular markers. Color bands were applied to adult terns in some years and at some locations for remote identification.

Each nest was visited at the projected time of hatching of the first egg to record hatching success. Chicks were banded on the day of hatching or at first encounter, and blood samples were taken from most chicks at this time. Chicks were then followed until fledging, death, or disappearance. Enclosures were placed around a sample of nests that hatched chicks for detailed studies of growth and survival to fledging. Enclosures were constructed of wire fencing (1 cm mesh), and each one was circular and measured ca. 25 cm high by 70–80 cm in diameter. An enclosed nest was considered successful if at least one chick was ≥ 30 g (ca. 6–8 days of age) on the last day it was encountered, it was growing normally (i.e., had not lost mass on the last day it was found), and it was not found dead later. Enclosures were generally removed at this point to reduce the risk of predation

and to allow the chicks to range freely throughout the marsh.

Determinations of fledging success for unenclosed chicks were more difficult, because free-ranging chicks were rarely found after day 5. When chicks were not found after a reasonable search time (usually 15–30 min), certain cues were used (e.g., fresh guano on the nest mat, presence of replacement nests nearby, or aggressive adults overhead) as an indication of the status of the nest. Productivity, expressed as the mean number of chicks fledged per pair, was determined each year using the Apparent Nest Success estimator and Kaplan-Meier survival analysis. More detail on these methods, and a discussion of their applicability to Black Terns can be found in Shealer et al. (2006).

To estimate adult survival, mark-recapture data for Black Terns were fitted to Cormack-Jolly-Seber (CJS) models using program MARK (White and Burnham 1999). Model parameters of interest in this study were apparent survival probability (phi) and recapture probability (p). We tested for time-dependent specificity in the two parameters by comparing models containing all four permutations of constant or time-dependent survival and recapture probabilities. For each test, the most parsimonious model was selected using Akaike's Information Criteria (AIC) and likelihood ratio tests between models.

## Results

### Adult survival estimates—

Between 1999 and 2006, 420 adult Black Terns were banded and released at Horicon Marsh and an additional 299 adults were banded and released at other colony sites in the region. At the completion of the 2007 breeding season, 77 adults (11%) had been recaptured at least once. Of the four CJS models fitted to the data for the Horicon Marsh population, the most parsimonious model was the one with a constant survival probability among years but a year-dependent capture probability (AICc weight = 0.947); however, likelihood-ratio tests indicated that none of the models was significantly different from another (all tests, $P > 0.20$). Under the constant-survival model, adult survival was estimated to be 0.619 (95% confidence limits = 0.425 to 0.781). Recapture probability (the probability that a bird was recaptured, given that it was alive and in the population in a particular year) ranged from nearly zero to 0.108 in a given year.

The 62% survival estimate is alarmingly low for a supposed long-lived species such as the Black Tern. For the population at Horicon Marsh, such a low adult survival rate, coupled with chronically poor reproductive success would lead to the prediction of colony extinction in about a decade. However, CJS models do not distinguish between mortality and permanent emigration; therefore, colony persistence could be explained by a high degree of movement by breeders among colony sites and thus a large fraction of immigrants to Horicon Marsh each year. Data on locations of recaptured adults relative to the colony site of first banding support the conclusion that adults exhibit a high degree of breeding-site fidelity, at least within the confines of the study region (Table 1). Of the 31 adults thus far banded at Horicon Marsh and subsequently recap-

Table 1. Breeding-site fidelity of adult Black Terns in southeastern Wisconsin, 1999-2007, based on recaptures of banded birds. (nd = no data)

| County | Colony site first banded | No. birds banded | Colony site recaptured | | Percent site fidelity |
|---|---|---|---|---|---|
| | | | Same colony site | Different colony site | |
| Dodge | Horicon Marsh | 428 | 31 | 1 | 97 |
| | Theresa Marsh | 16 | 0 | 0 | nd |
| | Fox Lake | 6 | 0 | 0 | nd |
| | Lake Emily | 1 | 0 | 0 | nd |
| Green Lake | Grand Lake | 81 | 1 | 0 | 100 |
| Columbia | Grassy Lake | 175 | 44 | 0 | 100 |
| | Mud Lake | 21 | 1 | 0 | 100 |
| **Regional totals** | | **728** | **77** | **1** | **99** |

tured, only one was recaptured outside of the marsh complex. No other adults banded elsewhere in the region were recaptured at a colony site different from the location at which they were first banded. Therefore, the loss of 38% of the adult breeding population each year can be explained by some combination of mortality and permanent emigration outside the study region.

**Natal-site recruitment—**

Between 1999 and 2005, 1,249 Black Tern chicks were banded in the study region, including 781 at Horicon Marsh. Although it is unknown how many of these chicks survived to fledging age, reproductive success estimates suggest that only a small fraction made it out of the marsh alive. Black Terns normally do not breed until their third calendar year (Dunn and Agro 1995), and additional mortality is likely to be high during the prebreeding period. Consequently, very few birds (n = 18) banded as chicks have been recaptured as breeding adults at Horicon Marsh and other colony sites within the region. Model-based estimates with band return data indicate that survival from fledging to first breeding age (2 yr) is < 2% (Shealer 2003), although this estimate may be confounded with permanent emigration outside the study region. Regardless, it is clear that the breeding population at Horicon Marsh is not being maintained by internal productivity.

Band-return data among the few recruits that have been captured as breeders suggest that natal-site fidelity in Black Terns is somewhat lower than site fidelity among established breeders (Table 2). Although 67% of the birds banded as chicks and subsequently recaptured as breeding adults were caught at their natal site, this number is somewhat misleading because all seven recruits captured at Horicon Marsh were caught in different impoundments from which they were reared. This high degree of dispersal suggests that chicks do not imprint on the particular vegetation structure of the habitat in which they

Table 2. Philopatry and dispersal of Black Terns banded as chicks in southeastern Wisconsin, 1999-2005, and recaptured subsequently as breeders. (nd = no data)

| County | Colony site first banded | No. birds banded | Colony site recaptured | | Percent site fidelity |
|---|---|---|---|---|---|
| | | | Same colony site | Different colony site | |
| Dodge | Horicon Marsh | 781 | 7 | 2 | 78 |
| | Theresa Marsh | 7 | 0 | 0 | nd |
| | Fox Lake | 11 | 0 | 1 | 0 |
| | Lake Emily | 2 | 0 | 1 | 0 |
| Green Lake | Grand Lake | 94 | 2 | 1 | 67 |
| Columbia | Grassy Lake | 345 | 2 | 1 | 67 |
| | Mud Lake | 9 | 1 | 0 | 100 |
| **Regional totals** | | **1249** | **12** | **6** | **67** |

were raised, which might be expected of a bird that nests in early-successional habitats that change rapidly from one year to the next.

## Discussion

The Black Tern breeding population at Horicon Marsh has fluctuated considerably since 1999. This fluctuation can be attributed, in part, to water management practices by the U.S. Fish and Wildlife Service which controls the northern two-thirds of the marsh, and to habitat improvement on the state-controlled southern third of the marsh. However, the precipitous decline in the breeding population between 2003 and 2006 was not commensurate with the amount of nesting habitat available to terns in those years, and may have been more strongly influenced by the chronically-poor reproductive success experienced by the birds in the preceding three years (Fig. 1). Low recruitment into the breeding population of young produced at Horicon Marsh, coupled with a low apparent adult survival rate are hypothesized to be contributing factors to the population decline. The unusually high productivity among the few terns that did nest in the marsh in 2006 is encouraging, but the impact of this cohort on the breeding population will not be apparent until at least 2008, when these birds reach breeding age.

Servello (2000) conducted a sensitivity analysis to determine which factors were important in maintaining population stability in Black Terns. The results of his population models indicate that at an average nest success rate of 0.5, the chick survival rate required for a stable population is 0.59, and ranges from 0.47 to 0.73 for adult survival rates ranging from 0.83 to 0.91. Chick survival rates at Horicon Marsh generally are well below 0.5 (Shealer 2003). If the adult survival estimate for Horicon terns (0.62) is real, chick survival would need to be near 1.0 for a stable, self-sustaining population. If the population rebounds in 2007 and thereafter, it will almost certainly be due to immigration by breeders from outside

the study region, since practically no movement occurs among breeding birds within the region. If so, Horicon Marsh may be categorized as an ecological trap, a situation whereby habitat attractiveness provides misleading cues about habitat quality (Kristan 2003). In this instance, prospective breeders may be lured to Horicon Marsh because of abundant nesting habitat and food availability but then suffer a high degree of nest failure because of the guild of predators that target eggs, chicks or adults.

Statewide, roadside survey data over the past 20 years indicate a drastic decline, in some areas >60%, of breeding Black Terns (Matteson and Mossman 2000). Also noted is a reduction in the number of historical breeding sites. The only survey transect that showed a population increase is in eastern Columbia County, the area that includes Grassy Lake. Although this area has experienced an apparent population increase, the number of breeding sites has been reduced from 11 to 7 over the past 20 years, with 68% of the breeding population concentrated at Grassy Lake (Matteson & Mossman 2000). However, birds breeding at Grassy Lake experienced chronic nesting failure until 2003, when nest platforms (Shealer et al. 2006) and other factors helped to reverse the trend.

The results of this study highlight the need to examine Black Tern life history at a much broader scale. The consistent influx of immigrants to southeastern Wisconsin each year suggests that surplus productivity must be occurring somewhere. Unfortunately, little work has been done outside of single marshes or marsh complexes, and most of this has been conducted along the southern fringe of the species' breeding range, where reproductive success is typically poor (Dunn & Agro 1995). Breeding Bird Survey data indicate that the stronghold of the species in North America extends from the northern prairie states of the U.S. through the prairie provinces of Canada (Peterjohn & Sauer 1997). The few studies that have been conducted in this region suggest that breeding success is fairly high (Chapman-Mosher 1986, Laurent 1993). Whether recruits are coming to Wisconsin from this distance will be difficult to establish, since Black Terns are not heavy enough to carry satellite transmitters. Regardless of the source of these recruits, however, available evidence supports the conclusion that Black Terns presently are in serious trouble in Wisconsin.

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Yellow-bellied Sapsucker by Rich Phalin

# Nest Abandonment as a Potential Anti-parasite Adaptation in the Red-winged Blackbird

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Obligate brood parasites and their hosts have become a model system for the study of co-evolution (Rothstein 1990). Parasites show some remarkable adaptations to appropriate incubation and nestling care from hosts, whereas hosts show counter-adaptations to reduce the incidence or impact of parasitism (Johnsgard 1997, Davies 2000).

One host-parasite system that has been frequently studied is the Red-winged Blackbird (*Agelaius phoeniceus*)-Brown-headed Cowbird (*Molothrus ater*) system (Lowther 1993, Johnsgard 1997, Ortega 1998, Davies 2000). The generalist Brown-headed Cowbird, which uses well over 200 host species (Friedmann 1963), is thought to have evolved from a specialist ancestor (Lanyon 1992), so does not appear to have host-specific adaptations, although it has adaptations that make it very successful with some of its host species, including the Red-winged Blackbird. For example, female cowbirds may use the nest-associated calls of female redwings to locate their nests (Clotfelter 1998), and they lay eggs with thick shells (Blankespoor et al. 1982, Spaw and Rohwer 1987) relatively quickly (Johnsgard 1997) in the early morning hours (Scott 1991, Neudorf and Sealy 1994). Female cowbirds often eject or ingest host eggs (Sealy 1992, Wood and Bollinger 1997), may prefer high quality redwing females as hosts (Grant and Sealy 2002), and may even use "mafia tactics" (Soler et al. 1995), destroying clutches to induce renesting by hosts (Arcese et al. 1996, Peer 2006). Cowbird eggs have a relatively short incubation period (Briskie and

Sealy 1990, but see Mermoz and Ornelas 2004), and their nestlings beg intensely (Lichtenstein and Dearborn 2004).

In response, the Red-winged Blackbird has evolved some anti-parasite adaptations. One set of adaptations functions to reduce the likelihood that a cowbird will successfully lay an egg in a redwing nest. For example, both male and female redwings are vigilant on their territories (Folkers and Lowther 1985, Yasukawa et al. 1992) and will attack female cowbirds near their nests (Friedmann 1963, Folkers and Lowther 1985, Prather et al. 1999). Perhaps as a result, when redwings nest at high enough densities, and especially in marsh habitats, rates of parasitism are low (Clotfelter and Yasukawa 1999a, Strausberger 2001). Female redwings can initiate over-night incubation early in the laying period, thereby denying female cowbirds access to their nests during the early morning hours when parasitism is most likely to occur (Neudorf and Sealy 1994, Clotfelter and Yasukawa 1999b). Once a cowbird egg has been successfully placed in a redwing nest, however, it is usually accepted by the host (Rothstein 1975, Ortega and Cruz 1988, Røskaft et al. 1990; but see Kren 1996).

We studied another potential mechanism by which female Red-winged Blackbirds might avoid parasitism even though their nests have been parasitized. In other species of cowbird hosts, parasitized clutches can be buried by building a new nest floor, or the parasitized nest can be abandoned completely (e.g. Strausberger and Burhans 2001). We know of no cases in which female redwings have buried clutches, but nest abandonment is well documented, especially early in the nesting cycle (e.g. Yasukawa and Searcy 1995, Beletsky 1996). We therefore attempted to induce nest abandonment by female redwings by artificially "parasitizing" their nests prior to egg laying. We used both fresh cowbird eggs (experimental) and fresh redwing eggs (control) collected on our study area to "parasitize" nests. We also compared responses of females in their first breeding season (SY = second-year) to responses of older (ASY = after second-year) females to investigate the effect of age or experience on responses to parasitism (see Hoover et al. 2006). Finally, to place our experimental results in context, we examined nest records from our study area (1984–2005) to determine whether female redwing age/experience or the timing of natural parasitism events affected the likelihood of abandonment.

## Study Area and Methods

### Newark Road Prairie—

We conducted our study at Newark Road Prairie, a 13-ha wet-mesic prairie habitat in south-central Rock County, Wisconsin (42°32′N, 89°08′W; see Yasukawa 1989; Yasukawa et al. 1990, 1992 for a description of the study area), during the breeding season of 2006.

### General Methods—

All of the male and some of the female Red-winged Blackbirds in our study population were marked with USFWS numbered aluminum bands and a unique color combination of

plastic wrap-around bands (K. Yasukawa master permit #20438). Birds were captured in Potter traps baited with nonviable sunflower seeds (to prevent germination on the study area). Females whose nests were used in our experiment were classified as SY (second-year) or ASY (after second-year) on the basis of their plumage (Crawford 1977, Johnsen et al. 1996). SY females have epaulets with little or no red-orange and a pale buffy chin and face. ASY females have a more red-orange epaulet and brighter buffy-pink chin and face.

We located Red-winged blackbird nests by observing females and carefully noting presumed nest locations for several nest-building visits. Females with completed nests were also observed and their nest locations identified by noting where they gave nest-associated calls (Beletsky and Orians 1985, Yasukawa 1989). When the female left the territory (e.g. to forage), we quickly searched for the nest, marked its location with vinyl flagging tied to nearby vegetation, and departed as quickly as possible. Marked locations were also plotted on study area maps. We then continued to observe the female to ensure that she had not abandoned the nest as a result of our activity at the nest site. Marked nests were subsequently checked daily until the young departed the nest or the nest failed.

**Experimental Methods—**

Every nest that we discovered during construction was monitored until it was completed or abandoned. Each completed (fully lined) nest was used in our "artificial parasitism" experiment. For each artificially parasitized nest we randomly chose either a fresh Brown-headed Cowbird egg (collected from another nest on our study area) or a fresh Red-winged Blackbird egg (collected form an abandoned nest on our study area). We attempted to "parasitize" nests when the female was off territory; unfortunately, in a few cases the female was on territory but not visible when we approached her nest. Artificially parasitized nests were then monitored each day; we noted whether the female abandoned the nest in response to our manipulation, or accepted the foreign egg by laying an egg of her own. Once the female's response was known, we collected the foreign egg for reuse, except in cases in which it disappeared from the nest.

**Nest Records—**

Previous fieldwork at Newark Road Prairie provided a data set of nest records covering 1984–2005. We used these records to compare responses of female Red-winged Blackbirds to our manipulations (2006) with their responses to natural Brown-headed Cowbird parasitism (1984–2005). Only nests first located prior to the onset of egg laying were used in this analysis.

**Statistical Analysis—**

We used $\chi^2$ tests of independence; statistical significance was accepted at $\alpha = 0.05$.

## RESULTS

**Artificial Parasitism—**

We were able to perform artificial parasitism on 32 Red-winged Blackbird nests discovered during construc-

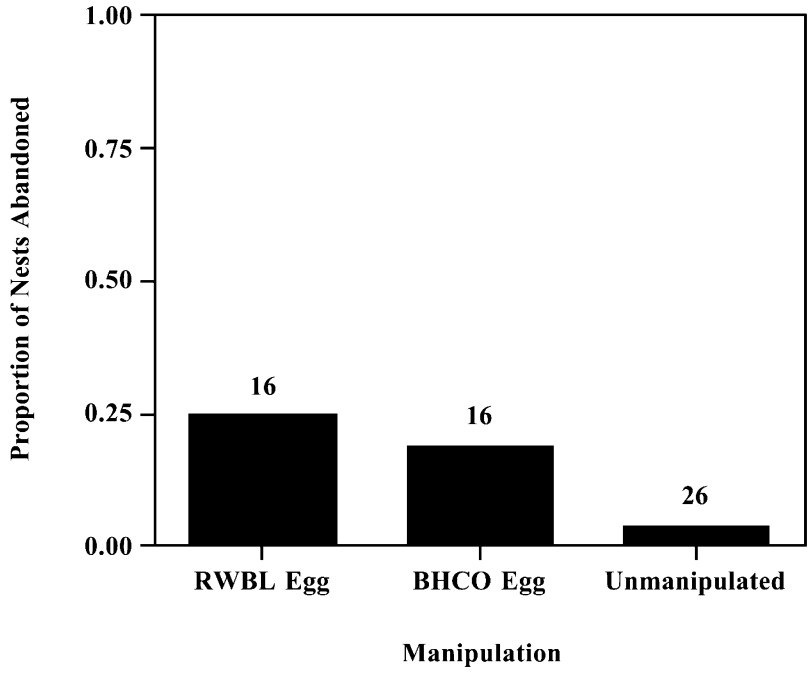


Figure 1. Nest abandonment by female Red-winged Blackbirds in response to (1) artificial parasitism with a fresh Red-winged Blackbird (RWBL) egg, (2) artificial parasitism with a fresh Brown-headed Cowbird (BHCO) egg, or (3) no manipulation. Sample sizes are shown above the bars. Female redwings were equally likely to abandon nests artificially parasitized with a redwing or cowbird egg, but were more likely to abandon an artificially parasitized than an unmanipulated nest.

tion; each of 16 received a redwing egg (control) and each of 16 received a Brown-headed Cowbird egg (experimental). As shown in Figure 1, nearly 25% of artificially parasitized nests were abandoned, although experimental and control nests did not differ significantly in likelihood of abandonment ($\chi^2 = 0.18$, df = 1, P = 0.67). In contrast, only one of 26 unmanipulated nests was abandoned, thus unmanipulated nests were abandoned significantly less often than control and experimental nests combined ($\chi^2 = 3.92$, df = 1, P = 0.048).

In several cases our "parasitic" egg disappeared before we could retrieve it. Our introduced redwing egg disappeared from two of 16 (12.5%) control nests, whereas the cowbird egg disappeared from five of 16 (31.3%) experimental nests; this difference was not significant, however ($\chi^2 = 1.65$, df = 1, P = 0.20).

**Nest Records—**

An examination of 1984–2005 nest records from Newark Road Prairie provided further evidence that abandonment was significantly more common when the nest was parasitized than when it was not parasitized. Of 146 naturally parasitized nests first located prior to egg laying, 69

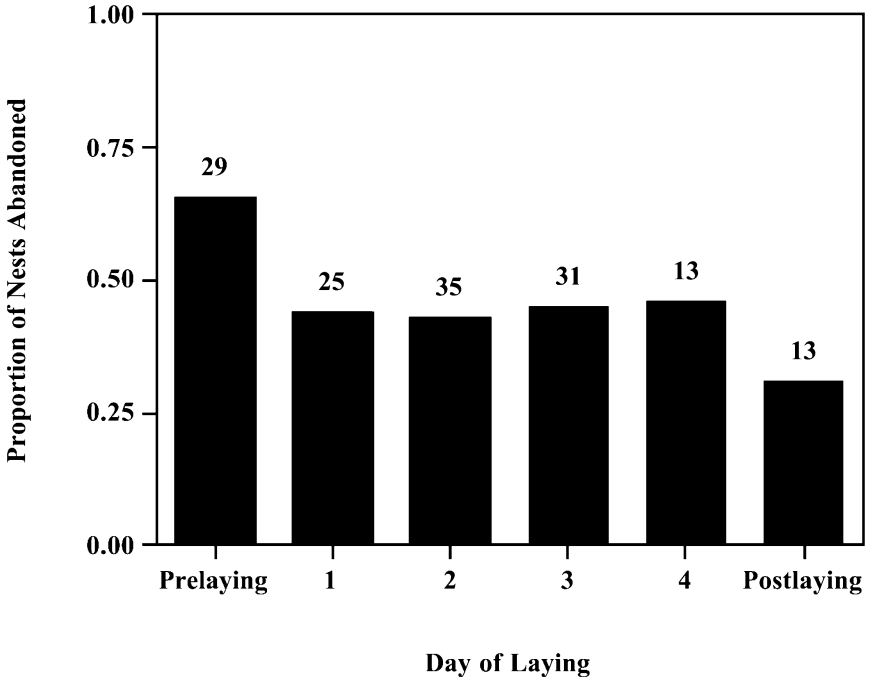


Figure 2. Nest abandonment by female Red-winged Blackbirds in response to natural parasitism by Brown-headed Cowbirds (1) before, (2) during, or (3) after the 4-day egg-laying period. Sample sizes are shown above the bars. Female redwings were equally likely to abandon nests parasitized on days 1–4 of the laying period, were more likely to abandon a nest parasitized prior to laying, and were less likely to abandon a nest parasitized after the clutch was completed.

(47.3%) were abandoned, whereas only 100 of 829 (12.1%) unparasitized nests first located prior to egg laying were abandoned ($\chi^2$ = 107.3, df = 1, P < 0.0001). In addition, the timing of naturally occurring parasitism affected the likelihood that female Red-winged Blackbirds abandoned their nests. As shown in Figure 2, 44.2% of redwing nests that received a Brown-headed Cowbird egg during the 4-day laying period were abandoned, but abandonment rate did not differ among these 4 days ($\chi^2$ = 0.58, df = 3, P > 0.99). Nests that were parasitized after the clutch was complete were less likely to be abandoned (30.8%), whereas nests parasitized before redwing eggs were present were more likely to be abandoned (65.5%). These three periods (prior to laying, during laying, after laying) were significantly different in abandonment frequency ($\chi^2$ = 7.41, df = 2, P = 0.025). Of these three categories of natural parasitism by Brown-headed Cowbirds, prior to laying was most similar to our artificial parasitism experiment. Despite this apparent similarity, however, our experimental nests were significantly less likely to be abandoned (21.9%) than were nests naturally parasitized

prior to laying (65.5%; $\chi^2 = 11.8$, df = 1, P = 0.0006).

**Female Age—**

We found no effect of female Red-winged Blackbird age (SY vs. ASY) on likelihood of abandonment ($\chi^2 = 1.21$, df = 1, P = 0.27) of artificially parasitized nests. We also found no evidence from our nest records that SY (5/33 = 15.2%) and ASY (23/108 = 21.3%) females differed in the likelihood of being parasitized ($\chi^2 = 0.60$, df = 1, P = 0.44).

## Discussion

Relationships between specialist parasites and their hosts are models of co-evolution, with clear examples of adaptations and counter adaptations. For the parasites, adaptations include removal of host eggs or nestlings, mimicry of host eggs or nestlings, and nestling monopolization of parental care (Rothstein 1990, Johnsgard 1997, Davies 2000). For the hosts, adaptations include specifically anti-parasite nest defense, parasitic egg or nestling removal, or minimizing care provided to parasitic nestlings (Rothstein 1990, Johnsgard 1997, Davies 2000).

In contrast, although generalist parasites have evolved many adaptations for brood parasitism, they lack host-specific adaptations. The Brown-headed Cowbird, known to parasitize 220 host species (150 of which successfully produce cowbird fledglings) is a well-studied example of a generalist brood parasite (Rothstein 1990, Johnsgard 1997, Davies 2000). Female cowbirds have adaptations to locate suitable host nests, to lay their eggs successfully, and to ensure that hosts provide care. Red-winged Blackbirds, a major host for Brown-headed Cowbirds, have counter-adaptations to prevent cowbirds from locating or parasitizing their nests (see Clotfelter and Yasukawa 1999b). Once a cowbird has successfully parasitized a nest, however, Red-winged Blackbirds usually accept the parasitic egg (Rothstein 1975, Ortega and Cruz 1988, Røskaft et al. 1990).

We investigated abandonment of parasitized nests by Red-winged Blackbirds as another possible adaptation (e.g. Strausberger and Burhans 2001), using an experimental protocol that allowed us to examine responses to a cowbird egg specifically as well as to a foreign egg in general. Approximately one quarter of the nests we manipulated were abandoned, a significantly higher frequency than abandonment of unmanipulated nests, but we did not find a significantly different response at nests that received cowbird eggs and nests that received redwing eggs. Ortega and Cruz (1988) also placed eggs in Red-winged Blackbird nests prior to egg laying and found that 12 of 13 (92.3%) artificial cowbird eggs were accepted, and 11 of 14 (78.6%) artificial redwing eggs were accepted. The likelihood of acceptance did not differ between egg types ($\chi^2 = 1.01$, df = 1, P = 0.32). Although our artificial parasitism produced some nest abandonment, given the lack of egg mimicry, we suspect that abandonment is a general response to the presence of a foreign egg or to disturbance at the nest, rather than a specifically anti-parasite adaptation.

Examination of 22 years of nest records from our study area revealed that naturally parasitized Red-winged Blackbird nests were more likely to be

abandoned than unparasitized nests, and that nests parasitized before the hosts began to lay were most likely to be abandoned. To place our experimental results in a broader context, we compared the abandonment frequencies of our manipulated nests with abandonment frequencies of nests naturally parasitized prior to the onset of laying. The two groups proved to be substantially different; nearly two-thirds of naturally parasitized nests were abandoned compared to less than one-fourth of artificially parasitized ones.

Clearly, we did not have as large an effect on female Red-winged Blackbirds as did female Brown-headed Cowbirds. One possible explanation for this difference in host reaction is that the combination of finding a foreign egg in the nest and seeing a female cowbird near the nest may be very likely to induce nest abandonment (Rothstein 1975, Graham 1988), but hosts did not encounter female Brown-headed Cowbirds near their nests when we parasitized their nests, so were less likely to abandon.

One surprising result of our artificial parasitism was the disappearance of the foreign egg from just over one-fifth of our experimental nests. In one case the foreign egg had been "topped" (the upper one-third of the shell had been removed and the contents were clearly visible). Although the redwing has been classified as an "acceptor" species (Rothstein 1975, Ortega and Cruz 1988, Røskaft et al. 1990), ejection has been documented in from 3% (Rothstein 1975) to 27% of cases (Kren 1996). Ortega and Cruz (1988) found that 7.7% of artificial cowbird eggs added prior to laying were rejected, but all cowbird eggs added during laying were accepted. Ortega and Cruz (1988) also demonstrated that redwings were able to eject cowbird-egg-sized objects, but only did so if the objects were not egg shaped. Kren (1996) observed female redwings attempting to eject cowbird eggs by sweeping them from the nest with the side of the bill. Although it is tempting to speculate that we also observed evidence of egg ejection, we could not rule out partial nest predation. Our attempts to observe the disappearances of foreign eggs were unproductive.

Although modeling attempts to investigate potential advantages of abandoning parasitized nests suggest that the mechanism (e.g. innate or learned) by which female Red-winged Blackbirds discriminate between "own" and "foreign" eggs can make a difference (Hoover et al. 2006), we found no evidence that female redwing age or experience had any effect on abandonment of artificially parasitized nests, or the likelihood that a nest would be naturally parasitized, and Kren (1996) found no evidence that female redwings learned egg ejection from other females, although older ejectors were more aggressive towards foreign eggs than were young ejectors.

Finally, even though both our artificial and natural parasitism results show that nest abandonment occurs in response to a foreign egg, especially to one deposited before the host initiates laying, we do not believe that these results constitute strong evidence that nest abandonment is specifically an adaptation to reduce brood parasitism. Female Red-winged Blackbirds will abandon nesting attempts in response to disturbance

near their nest sites, including attempts by ornithologists to locate well-hidden nests. As predation is the most important cause of nest failure in this species (Yasukawa and Searcy 1995), it seems most likely that abandonment in response to disturbance is an adaptation to reduce the risk of predation. Folkers and Lowther (1985), however, demonstrated that both male and female redwings were more aggressive towards a female cowbird mount than to a Song Sparrow (*Melospiza melodia*) mount, and our long-term data showed that female redwings did frequently abandon nests that were naturally parasitized before they began to lay. Perhaps combining artificial parasitism with presentation of a female Brown-headed Cowbird mount at the nest (with a suitable control) will help to resolve these apparent contradictions.

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Female Northern Cardinal by Rich Phalin

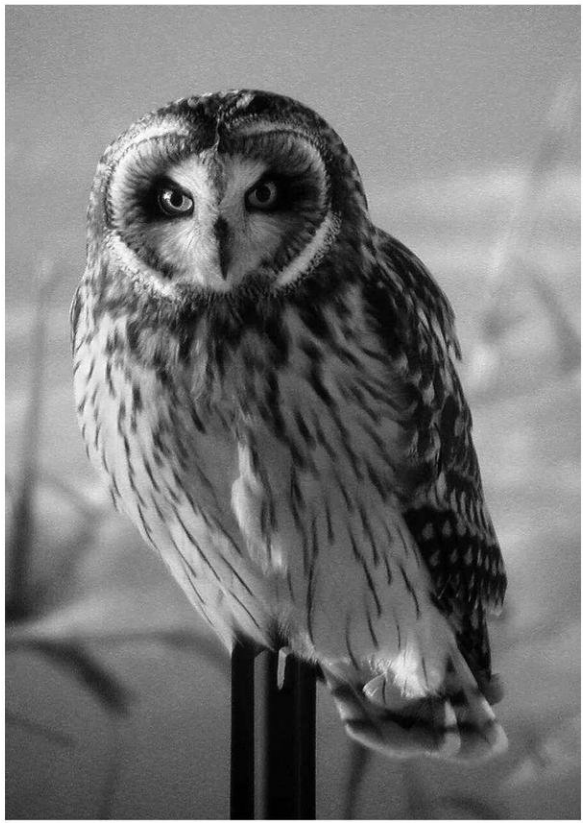
## 50 Years Ago in *The Passenger Pigeon*

Most of this issue was devoted to four spraying articles. WSO's Board of Directors authorized the reprinting of booklets containing the four articles to be distributed to legislators, conservationists, foresters, county and local government officials, chemical company personnel, and others who must make decisions about the use of sprays.

The articles were *Spraying Must Be Controlled!* by Sam Robbins, *Committee of a Thousand* by Dixie Larkin, *DDT: Its Effects on Wildlife* by Paul Springer, and *Birds, Bugs, and Jack Pines* by James Hale.

Inclusion of photographs in *The Passenger Pigeon* has been important throughout its history. In this issue, which features about 20 WSO members walking along a water-filled drainage ditch on an outing at the Sandhill Game Farm on the cover, are photos of a robin nesting on a porch light; a mist-blower in operation; a group of about 20 members observing migration at Cedar Grove; five additional pictures taken at Sandhill, including three of Wallace Grange addressing the assembled group and the Granges' pet crane 'Silver'; a juvenile Least Bittern by the Prins brothers; and a goshawk nest by Carl Richter.

*Excerpt from Vol. 19(4), 1957 by WSO Historian Noel J. Cutright, 3352 Knollwood Road, West Bend, WI 53095. h. 262 .675. 2443, w. 262. 268. 3617, noel.cutright@we-energies.com.*



Short-eared Owl on post by Gary Krogman

# Lessons From the Seasons: Winter 2006–2007

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A tempting lesson for the season could be commentary on the significance of the Slaty-backed Gull invasion. The importance of the first Great-tailed Grackle record would also be an event worthy of discussion. Recollection of the flurry of comments around a cluster of Groove-billed Ani records a few years back steered me away from making hasty proclamations. Many people, even national birding experts, were surmising the anis were in an expansion mode. The anis did not return to the upper Midwest and in fact the populations in Texas have declined. The commentary was speculation, not a lesson regarding actual trends; therefore, this winter's lesson is about the slow almost imperceptible movement of some species.

Tufted Titmouse records from Ashland and Iron Counties piqued my interest. This species has moved north and become much more abundant over the past sixty years. In the late 1940s, Christmas Bird Count and WSO data indicated Tufted Titmouse to be an uncommon species with a bizarre range in the state. This species was sparsely scattered in southern Wisconsin with small pockets in the Madison area, disjunct enclaves in West Central Wisconsin (Prairie du Chien and Viroqua), and along the Chippewa River near Eau Claire. The locations comprised the largest populations, although they were relatively small with fewer than ten birds recorded on Christmas Counts.

In *The Passenger Pigeon* Vol. 68, No. 2, Kevin Kearns examined Tufted Titmouse CBC data. He found increased numbers through the late 1970s, then a crash, which rebuilt to higher numbers today, although causal factors were not abundantly evident. Amazingly consistent in the data from the 1940s through the expansion/contraction to today is the extraordinary fidelity to the core areas. Locations with consistent but low numbers in the 1940s are the areas with the highest numbers now. Areas in Central Wisconsin with no populations in the 1940s now have consistent low numbers on CBCs, Over the next decade we should keep our eyes open for an increase in numbers for Central Wisconsin, and maybe establishment of

consistent but low numbers in Ashland and Iron Counties.

A second species has shown a dramatic increase since the 1940s, although the trajectory has been of a gradual linear rise in numbers and a broad frontal push north. Red-bellied Woodpeckers were found in modest numbers 60 years ago. Consistent populations occurred only in the southern third of the state. Winter season editor, Sam Robbins, made special note of first county records for Waupaca, Door, and St. Croix Counties. CBC data indicated multiple Red-bellied Woodpeckers were recorded from only three sites.

Today, Red-bellied Woodpeckers are found as a regular resident nearly statewide with low numbers similar to the 1940s coming only from the most northern tier of counties. Southern and Central Wisconsin CBCs report dozens to hundreds of birds, producing statewide estimates in five if not six digits.

The third species of interest for this winter season is going the opposite direction. Evening Grosbeaks formerly wintered in consistent, albeit variable, numbers statewide. Today this species is recorded in winter almost exclusively north of a line from Shawano to Grantsburg.

Early in my birding life, I found Evening Grosbeak consistently in southern Wisconsin. In the 1970s, they were so easy to find, I considered them to be a common winter resident. I have personal records of 80 birds at a feeder in Poynette, 50 from Sauk City, and 37 from my feeder in Waunakee. I have no records from these locations for the past fifteen years.

The National Audubon Society has recently released a state of "Common Birds in Decline" document. This report identifies Evening Grosbeak as the No. 2 common bird in decline. They estimate this species has declined 78% in 40 years with an estimated population dwindling from 17 million to 3.8 million. Reasons for the decline are complex. Evening Grosbeaks in summer feed heavily on spruce budworm. Foresters aggressively tackle the effects of this insect pest by salvaging the product before it decays in the woods. Conversely, Evening Grosbeaks eat copious amounts of maple seeds, a resource in abundant and ever-increasing supply. In winter, they may be limited by decreases in the supply of conifer seeds, but tremendous increases in feeding stations seemingly assure them of great over-winter survival.

A single factor for the decline is unknown to birders. Many conservation actions such as timber harvest on public lands and climate change are beyond the realm of backyard birders. The most effective action birders can do is to monitor their feeders. If you see dead or dying birds, stop feeding for at least two weeks. Sanitize your feeders before you put them back up. By saving a few more birds, you may be aiding the source for recovery. You can also encourage officials to consider Evening Grosbeaks when planning for state and regional conservation activities.

# The Winter Season: 2006–2007

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This will be my last winter report, and I'm pleased to be departing on a dramatic note—it was quite a winter. Hold on, folks, a memorable season is about to unfold.

It began typically enough. Rain and mild weather in late November changed on 29 November and into December when a major cold front, with snow, moved into the Great Lakes region; below-normal temperatures persisted through the first week of December. But then temperatures moderated and remained above normal for the next two weeks. Finally, on the winter solstice, a storm with rain changing to snow moved into the state so that at least some of Wisconsin had a white Christmas. Much of the state, however, continued to have "a lot of brown," as a resort owner expressed it, and the mild weather returned, with rain instead of snow. By the end of the year, at least in southern Wisconsin, garden plants—for example peonies, tulips, and daffodils—were emerging.

Above-normal temperatures, with little or no snow, continued into January. One newspaper article on the weather was appropriately titled, "Less skiing, more golf." In the first week of January these three events, all related, were noteworthy: the Colsac Ferry across the Wisconsin River between Merrimac and Lodi was reopened, the first time in its recorded history that it was closed due to ice at the onset of winter and then opened again before spring; people were beginning to wonder if this would be the "winter with no ice," if, for example, the deeper lakes in southern Wisconsin, such as Lakes Mendota and Monona in Dane County and Devil's Lake in Sauk County, would completely freeze; and the naturalized shrub, Asiatic honeysuckle, was showing spots of green from leaves up to 1¼ inches long in Devil's Lake State Park. The weather nation-wide was prompting interesting newspaper headlines, such as: "Record highs, record snows, tornadoes in January—is the world coming to an end?" Well, I figured that it wasn't, but this winter was making people sit up and take notice.

The unusual weather, according to meterologists, was due to a combination of factors. An El Niño, a weather system which brings milder conditions, was again being recognized, and the jet stream, the high-altitude air current which acts like a barrier between colder northern air and warmer southern air, was located much farther north than usual.

But then, in mid-January, it all changed. A snowfall blanketed the state, and cold temperatures followed. The Colsac Ferry was grounded, and deeper lakes in southern Wisconsin began freezing over. I wanted to cheer for Old Man Winter! "What's going on here?" an Associated Press writer asked, then answered his own question: "Actually, it's called winter [but] it came when . . . most of us were least expecting it."

And then there was February, cold and snowy February. On most days the highs were below 32 degrees, and on some days the lows were 15–20 degrees below zero; it turned out to be the third coldest February on record for the United States. Major snow storms, often with strong winds, covered the state on several occasions. Some places in southern Wisconsin actually had two major storms, each with about a foot of snow, on successive days in the last week of the month; businesses and schools were closed and people stranded for several days in a number of communities. It definitely was a wintry landscape, with up to several feet of snow on the ground, at the end of the month. But there were exceptions, for example the Ashland and Superior area. Here, as reported by Ryan Brady, Robbye Johnson, and the Smiths, there was little or no snow cover (maximum approximately three inches) throughout the period.

I suppose that "changeable" would best describe the winter. Karen Etter Hale supplied a wonderful example. Rock Lake in Jefferson County froze over and broke up twice in December, then froze over a third time on 10 January; four days later, with warmer weather, it was nearly completely open again. Finally, on 16 January, it froze over until spring break up.

It was also a noteworthy winter for the birds, with a new species being found in the state and a number of interesting records. The new bird was the Great-tailed Grackle, a southern species which has been expanding its range northward. In 1900, the northern limit of its range barely extended into Texas; a century later, it was nesting in at least 14 states and had been reported from 21 states and 3 Canadian provinces. This explosive northward expansion of range occurred mainly after 1960 and coincided with increasing irrigation and urbanization; climate change is also a likely factor, since it and other southern species showing this trend have not been expanding their ranges southward, just northward. This grackle and the Boat-tailed Grackle of coastal marshland in the southeastern United States had been treated as a single species, but these two grackles are now judged to be reproductively isolated; the Great-tailed Grackle prefers drier habitats. Wisconsin's Great-tailed Grackle was found in Dodge County and documented and photographed by a number of people.

Certain gulls, notably Slaty-backed Gull and Laughing Gull, also made headlines. The former, a coastal northeastern Asian species, was first verified in Wisconsin (one in Milwaukee County) in November 2001. This winter at least two were found: one in Winnebago and Outagamie Counties, and another at the same time in LaCrosse County; single birds in Milwaukee County and Pierce County on other dates may have been these same two birds. Before this winter, there were only three winter records for

Laughing Gull, one in January 1988 and two in February 1996. This winter there two reports: one in Winnebago County on 23 December, and one in Racine County on 7 January. These two species, along with other species of gulls, were attracted to Lake Winnebago and adjacent lakes by a massive die-off of gizzard shad. A total of 10 species of gulls was reported for Wisconsin this winter, and several observers found 8 of these species in one day in the Menasha area in Winnebago County.

Loons were represented by three species: Common Loon (into January in Dane County); Pacific Loon (through 2 December in Milwaukee County for just the third state record for winter); and Red-throated Loon (into January, with a total of 15, a record high number, on 20 December in Sheboygan County). All three scoters were again found on Lake Michigan into at least January; Daryl Tessen on 17 January, for example, found all three in Sheboygan County.

There has been only one official winter record for Wisconsin of a jaeger, namely a Parasitic Jaeger in Milwaukee County on 1 December 1933. Two jaegers, one identified as a Parasitic Jaeger (9 December in Ozaukee County) and one identified as a "very probable" Pomarine Jaeger (13 December in Milwaukee County), were reported for this winter, but unfortunately they were rejected because of insufficient documentation.

Great Blue Heron overwintered in some 12 southern and eastern counties, and was also found into January in Portage and Marathon Counties, and Marinette and Door Counties. The more cold-sensitive Great Egret also made news: one was in Ozaukee County from 7–10 January, just the 4th winter that this species has been found in Wisconsin; it was also reported in the winters of 1980–81, 2000–01, and 2001–02. Still another wading bird, the Black-crowned Night-Heron, was found this winter for the first time in three years.

Northern Harrier and Short-eared Owl were widespread and likely in record numbers throughout the period; one has to assume that these birds were finding ample food, despite the snows in February. Sandhill Crane probably overwintered in several counties, for example Iowa, Sauk, and Outagamie; I know of no previous reports of cranes overwintering.

Folks, the world is changing right before our eyes! Here are additional records that could be related, at least in part, to climate change: two December *Selasphorus* hummingbirds, one in Green County and one in Kenosha County (both at feeders); a Tree Swallow in Door County on 1 December; a Tufted Titmouse throughout the period in Ashland County and in Door County, with record numbers on a record number of Christmas Bird Counts once again; Carolina Wren again widespread and numerous (but this should be qualified: most birds, like the two hummers, were at feeders); a Ruby-crowned Kinglet in Door County (also at a feeder); American Pipit for the 6th consecutive winter; and four species of warblers, including a Prairie Warbler in Milwaukee County on 2 December, the first winter record for this species in Wisconsin. Also refer to the species accounts for winter updates on Rose-breasted Grosbeak and Indigo Bunting. A final suggestion: be sure to read the ac-


counts of Northern Cardinal and House Finch for Scott Swengel's comments on these species.

Late fall migration was reported for various waterfowl, Double-crested Cormorant, and Sandhill Crane. Spring migration was limited because of the heavy snow cover here and to the south of Wisconsin toward the end of the period, but was noted for these species: Greater White-fronted Goose, Canada Goose (?), Tundra Swan, various ducks (for Lake Michigan, Tessen reported Greater Scaup and Common Goldeneye flying southward in hundreds and thousands on 17 January in Sheboygan County, and Ron Hoffmann in Kenosha County reported high numbers of waterfowl on 20 January and 19 February), Pied-billed Grebe (?), Turkey Vulture, Northern Harrier, Sharp-shinned Hawk, Sandhill Crane, Ring-billed Gull, Herring Gull, Horned Lark, American Robin (?), Red-winged Blackbird, and Eastern Meadowlark (?). See the species accounts for details.

These signs of spring were also

noted: a Bald Eagle on its nest in Oconto County, beginning 19 February (the Smiths), and a Northern Sawwhet Owl calling on territory in Wausau, Marathon County, on 8 January (Dan Belter).

A total of 118 people contributed Single County or Multi-County Field Forms, Rare Bird Report Forms, ebird reports, notes, and photos for 66 of Wisconsin's 72 counties: 54 contributors submitted Field Forms or Rare Bird Report Forms from 56 counties, while 78 contributors submitted ebird reports, notes, or photos (but see the explanatory note at the end of this seasonal summary). The counties with the most coverage (five or more contributors per county) were the following: Ashland, Brown, Dane, Dodge, Kenosha, LaCrosse, Langlade, Manitowoc, Milwaukee, Ozaukee, Sauk, Sheboygan, and Winnebago. Twenty counties were covered by just one contributor per county: Barron, Buffalo, Burnett, Clark, Dunn, Eau Claire, Green Lake, Lafayette, Lincoln, Marathon, Monroe, Pierce, Price, Richland, Rock, Trempealeau, Vernon, Washington, Waupaca, and Wood. These six counties were not covered: Polk, Rusk, Chippewa, and Taylor in western Wisconsin, and Adams and Marquette in the central part of the state.

The following statewide species are not included in the species accounts: Great Horned Owl, Barred Owl, Downy Woodpecker, Hairy Woodpecker, Pileated Woodpecker, Blue Jay, American Crow, and Black-capped Chickadee.

These abbreviations are included with the species accounts: BOP = beginning of period; EOP = end of period; TTP = throughout the period; m. obs. = many observers; and CBC(s) = Christmas Bird Count(s).

There were 105 Christmas Bird Counts in Wisconsin this winter. Once again my thanks to Bob Domagalski for sending a copy of the Christmas Bird Count Report in time for me to include the highlights in this seasonal summary.

## REPORTS
## (1 December 2006–28 February 2007)

***Greater White-fronted Goose***—Seven on the Hustisford CBC, then no reports until 11 and 21 February, one in Dane County (m. obs.).

***Snow Goose***—Total 38 on 4 CBCs. Later reports: one through 4 January in Manitowoc County (Sontag); in Dodge County through 12 January, maximum 65 on 8 January (Tessen); and one on 22 January in Dane County (Thiessen).

***Ross's Goose***—One on the Madison CBC.

***Canada Goose***—TTP in some 25 counties scattered throughout the state; northernmost reports included 15 December and 16 February in Douglas County, and TTP in Ashland County, maximum seven. Peak numbers (thousands) reported for Winnebago County, and Dodge County (6,000 from 6–24 January); presumably also in the thousands in counties bordering Lake Michigan (m. obs.).

***Cackling Goose***—Total 252 on 15 CBCs, most birds (151) on the Madison Count. One TTP in Manitowoc County (Sontag). Latest date for northeastern Wisconsin—3 January, three in Shawano County (Knispel), and for southern Wisconsin—28 January in Rock County (Yoerger).

***Mute Swan***—On 15 CBCs, total 243, including 99 on the Washington Island Count. After the CBCs, reports for 8 counties: Door, Marinette, Shawano, Sheboygan, Milwaukee, Racine, Waukesha, and Dane. Maximum 25 on 1 January in Dane County, where TTP (m. obs.).

***Trumpeter Swan***—On 10 CBCs, total 265, most birds (197) on the Hudson (St. Croix County) Count. TTP in St. Croix County, where on 10 February Haseleu saw two adults with two

young. After the CBCs, also reported for Douglas County (TTP, maximum 2), Shawano County (19 on 9 February), Juneau County (a family group of 5 on 27 January), Grant County (8 January), and Dane County (probably TTP).

***Tundra Swan***—Approximately 52,000 in the last week of November 2006 along the Mississippi River, mostly in the LaCrosse area, on a Wisconsin Department of Natural Resources survey. Noted into January in a number of counties, for example Bayfield/Ashland, Oconto, Brown, Winnebago, Sauk, and Rock. For Dane County, fall migration noted 1–4 December, 11 and 16 December, and 20–24 January; Tessen reported what must have been spring migration—a flock of 80 on 21 February. Also in Dane County, Thiessen reported at least 17 TTP on the Yahara River.

***Wood Duck***—Total 8 on 7 CBCs. After the Counts, single birds in January in Dane, Sheboygan, and Ozaukee Counties, and in February in Door County (the 14th) and Milwaukee County (the 27th).

***Gadwall***—TTP in these counties: St. Croix (maximum 82 on 1 January); Winnebago (maximum 2); Dane (maximum 120 on 24 January); Milwaukee (maximum approximately 50); Waukesha (maximum 2); and Rock (maximum 2).

***American Wigeon***—Three on the Madison CBC, and one on the Beloit Count. Later reports: Rock County, TTP, maximum 2; Dane County, one through 13 January; and Sauk County, one on 27 January (m. obs.).

***American Black Duck***—TTP in some 16 counties, mainly in southern, eastern, and northeastern Wisconsin, but also in Marathon County—maximum 20+ on 25 December, St. Croix County, and Bayfield/Ashland Counties, maximum 10 (m. obs.).

***Mallard***—TTP in at least 22 counties scattered throughout the state, including Bayfield/Ashland Counties (maximum 50), Marathon County, and Oconto, Marinette, and Door Counties (m. obs.). The only estimate of numbers for southern Wisconsin was by Frank—maximum 150 on 8 February in Ozaukee County.

***Blue-winged Teal***—An injured female on the Madison CBC (Thiessen).

***Northern Shoveler***—One on the Green Bay CBC, two on the Appleton Count, and 516 on the Madison Count. Tessen on 21 February in Dane County noted a total of 400; wintering birds and migrants? Also these reports after the CBCs: one on 17 February in St. Croix County, one TTP in Milwaukee County, and TTP, maximum 5, in Kenosha County (m obs.).

***Northern Pintail***—On seven CBCs, total 37, most birds (26) on the Washington Island Count. After the Counts, these reports: 3 January, one in Sauk County; 1–2 (TTP?) in Green Lake County; and one TTP in Milwaukee County (m. obs.).

***Green-winged Teal***—Total 11 on 6 CBCs. Later reports: two on 20 January in Dane County (Thiessen), and a male on 22 January in Oconto County (Smiths).

***Canvasback***—On 12 CBCs, total 206 including 99 on the Madison Count and 74 on the Lake Geneva Count. From 1–3 TTP in Dane, Winnebago, Sheboygan, and Ozaukee Counties; also TTP in Kenosha County (maximum 50+ on 19 February must have included migrants). Single birds in February in Milwaukee, Racine, and Rock Counties may have been migrants (m. obs.).

***Redhead***—On 14 CBCs, total 133, highest number (42) on the Lake Geneva Count. TTP in counties bordering Lake Michigan from Kenosha County to Door County, maximum 10–50, with hundreds (migrants) on 19 February in Kenosha County. After the CBCs, also in Dane County (probably TTP, maximum 17), and Winnebago County (9 February, 3).

***Ring-necked Duck***—Total 54 on 12 CBCs, most birds (30) on the Riveredge Count. From 1–6, usually 1–2 after the Counts in these counties: Bayfield/Ashland (6 January), Pierce (21 January), Marinette (12 January), Manitowoc (11 January), Milwaukee (TTP), Racine (18 February), Kenosha (27 February), Walworth (6 January), Dane (probably TTP), and Winnebago (4–13 January).

***Greater Scaup***—TTP in counties bordering Lake Michigan from Kenosha County to Door County; highest numbers in Milwaukee County on 10 February. After the CBCs, also these reports: Dane County, 4 on 20 January, and Winnebago County, TTP? (m. obs.).

***Lesser Scaup***—Total 157 on 17 CBCs, including 40 on the Milwaukee Count, 25 on the Madison Count, and 24 on the Oshkosh Count. TTP in Lake Michigan from Racine to Manitowoc Counties, also TTP in Winnebago County

and Dane County; maximum number usually less than 10, except for a total of approximately 400 on 17 February in Milwaukee County (m. obs.).

***Harlequin Duck***—Several (female-immature plumage) in these counties: Ozaukee (14 December–19 February), Sheboygan (11 December–12 February), Manitowoc (20–23 January), and Kewaunee (5 January). Documented by Frank, Gustafson, Sontag, Stutz, Tessen, and Wood).

***Surf Scoter***—Two on the Racine CBC; through 25 December in Manitowoc County; and into January in Sheboygan and Ozaukee Counties. Latest date 23 January in Ozaukee County. Usually 1–2, maximum 10+ on 17 January in Sheboygan County (m. obs.).

***White-winged Scoter***—Wisconsin Point in Douglas County, 10 December, 3 (Peder Svingen); 1–3 on Lake Mendota in Dane County, 14 December–14 January; Oshkosh CBC, 6; Sturgeon Bay CBC, 4; Manitowoc County through 22 February; and Sheboygan County, two on 17 January (m. obs.).

***Black Scoter***—One in Dane County on the Madison CBC. After the Counts, these reports: Sheboygan County, 10+ on 17 January (Tessen); Ozaukee County, 6–19 January (including a group of 3 females, an immature male, and an adult male on 14 January documented by Wood); and Milwaukee County, 2–19 January, 2 (m. obs.).

***Long-tailed Duck***—Total 750 on 10 CBCs in counties bordering Lake Michigan; later reports indicate that this species overwintered in Lake Michigan at least from Door County south into Racine County, and (15 on 20 January) perhaps Kenosha County. Tessen estimated a thousand plus on 19 February in both Sheboygan and Ozaukee Counties. Unusual was a pair TTP in the Fox River off Kimberly Point in Neenah, Winnebago County (documented by David Kuecherer).

***Bufflehead***—TTP in Lake Michigan from Door County to Kenosha County; maximum numbers in the hundreds on 19 February in Kenosha County. Probably TTP in Dane County, maximum 70 on 3 December (m. obs.).

***Common Goldeneye***—TTP in these localities: Bayfield/Ashland Counties; St. Croix County; Lake Michigan from Oconto and Door Counties to Kenosha County; Outagamie County; Winnebago County; the Wisconsin River from at least Iowa County north to Marathon County; Waukesha County; and (?) Rock County. After the CBCs, these estimates of maximum numbers: 60 on 19 February in Bayfield/Ashland Counties (Brady, Swengel); 450+ on 30 January in Manitowoc County (Sontag); 700 on 11 January in Ozaukee County (Frank); 700 on 5 January in Milwaukee County (Frank); and 500 on 28 February in Winnebago County (Tessen).

***Barrow's Goldeneye***—Adult males reported from four localities: Doctor's Park in Milwaukee County, 23 November–27 February (documented by Bontly, Gustafson, Frank, Mooney, Wood); Ozaukee County, 20 January–19 February (documented by Tessen, Wood); Sheboygan County, 12 February-EOP (documented by the Brassers); and Kenosha County, two on the Kenosha CBC, 16 December, and through 10 January (documented by Hoffmann).

***Hooded Merganser***—TTP in these localities: Lake Michigan, north to at least Ozaukee County; Rock County (?); Dane County; and St. Croix County. Brady noted one through 19 February in Bayfield/Ashland Counties, and there were January reports for Sauk, Oconto, and Door Counties. One in Outagamie County on 21 February might have been a migrant. Maximum numbers: 9 in Kenosha County, 6 in Milwaukee County, and 4 in Ozaukee County (m. obs.).

***Common Merganser***—TTP in these localities: Bayfield/Ashland Counties; St. Croix County; the Wisconsin River north to Marathon County; Lake Michigan from Kenosha County to Door County; Winnebago County; and Rock County. BOP and EOP in Oconto County. Maximum numbers after the CBCs: 200 on 28 February in Winnebago County, 184 on 8 February in Ozaukee County, and 50+ on 27 February in Kenosha County (m. obs.).

***Red-breasted Merganser***—Approximately half of the 1,566 birds on the CBCs were on the Milwaukee Count. TTP in Lake Michigan from Kenosha to Door Counties; maximum number 350 on 5 January in Milwaukee County. (m. obs.). Latest date for Bayfield/Ashland Counties: 1 January (Brady).

***Ruddy Duck***—Total 61 on 6 CBCs, most birds (35) on the Lake Geneva Count. TTP in Dane County (maximum 4 on 11 December), and in Lake Michigan in Kenosha County (maximum 2) and possibly Milwaukee and Ozaukee

Counties (maximum 1 for each county). Through 13 January in Rock County (m. obs.).

***Gray Partridge***—Two on the Bridgeport CBC. TTP in Brown County (maximum 10), and Manitowoc County (maximum 10). Hoffmann on 20 January in Kenosha County saw three birds, which had escaped from a game farm.

***Ring-necked Pheasant***—Northward to these counties: Bayfield (13 January), Marathon (21 January), and Door (TTP).

***Ruffed Grouse***—Numbers on the CBCs the highest since 1998, and Brady for Bayfield/Ashland Counties reported an increase in numbers. However, numbers remain low in southern Wisconsin, for example Sauk County (m. obs.).

***Spruce Grouse***—A group of eight males and females in Vilas County on 10 December (documented by Stutz), and six on the Phelps (Vilas County) CBC.

***Sharp-tailed Grouse***—Twelve on the Gilman CBC in Taylor County, and 13 on 6 January in Douglas County (Prestby).

***Greater Prairie-Chicken***—Reports for these counties: Marathon (maximum 18 on 27 January, Belter), Wood (17 on the Arpin CBC), and Portage (TTP in the Buena Vista Grassland, maximum 70 on 20 January, Stutz).

***Wild Turkey***—After the CBCs, reports for 34 counties, north to Douglas, Oneida, Marinette, and Door Counties (m. obs.). Swengel saw a maximum of 70 on 3 February in the Buena Vista Grassland in Portage County, and Belter reported a maximum of 180+ on 1 February in Marathon County.

***Northern Bobwhite***—Total 24 on 4 CBCs, most birds (15) on the Montello Count. TTP in Kenosha County (m. obs.).

***Red-throated Loon***—A record number (15 on 20 December) in Sheboygan County, where found from 17 December–20 January (documented by Gustafson, Wood). Also reported in these counties: Milwaukee (Milwaukee CBC—6 January, 1, documented by Frank), Racine (Racine CBC—4 January, 1), Ozaukee (6–31 January, 1), and Manitowoc (1–6 January, maximum 5).

***Pacific Loon***—One in Atwater Park, Milwaukee County, through 2 December (Huf), Wisconsin's third winter report and first since the winter of 1997–98.

***Common Loon***—Total 12 on 6 CBCs, most birds (7) on the Madison Count; one in Dane County through 22 January (m. obs.).

***Pied-billed Grebe***—On 5 CBCs, total 13, including 5 on the Lake Geneva Count and 4 on the Madison Count. Later reports: Dane County, two on 13 January at Picnic Point on Lake Mendota (Adrian Mauss), and one on 18 January in the same place in Stoughton for the fifth winter (Thiessen); Kenosha County, one on 20 January (Hoffmann); and Milwaukee County, one on 20 February (migrant?; Gustafson).

***Horned Grebe***—Total 33 (record number) on 5 CBCs, most birds (28) on the Racine Count. Later reports: 2–6 January, 2, Sheboygan County (documented by Wood), and 6 January, one in Ozaukee County (Kavanagh).

***Red-necked Grebe***—One in Manitowoc County, 1–10 January (m. obs.), and one in Ozaukee County, 19 February (Tessen).

***American White Pelican***—Brown County, total 9 on the Green Bay CBC. As Domagalski noted in his CBC Report: "With several nesting colonies established in the state, lingering and over wintering American White Pelicans might now be an annual event." Tessen in Brown County noted 3 on 2 January, and 3 on 20 February.

***Double-crested Cormorant***—Approximately 9 migrating with 18 Tundra Swans near Genoa in Vernon County, 3 December (Evanson). Total 113 on 7 CBCs, most birds (78) in Brown County on the Green Bay CBC. In Brown County, noted through 20 February (TTP?), with a maximum number after the Counts of 8 on 3 February. Definitely TTP in Winnebago County, maximum 3 (Tessen), and Kenosha County, maximum 4 on 20 January, with one still there on 27 February (Hoffmann). Gustafson reported one in Racine County, 28 December–9 January.

***Great Blue Heron***—A record number of birds (113) on a record number of CBCs (46). TTP or presumably so in these counties: Manitowoc, Washington, Rock, Dane, Iowa, and Sauk; January reports for Marinette, Door, Marathon, Portage, Winnebago, Sheboygan, Ozaukee, Milwaukee, Waukesha, Lafayette, and Columbia Counties (m. obs.). Mainly single birds; Belter on 3 January in Marathon County

saw a group of 4 near the Little Eau Pleine River.

***Great Egret***—One by the Milwaukee River in Mequon, Ozaukee County, 7–10 January (Bender and Keppel, Hansen; documented by Gustafson); only the 4th winter that this species has been reported in Wisconsin.

***Black-crowned Night-Heron***—Two records: one on the Montello CBC in Marquette County, 15 December (Christensen), and one at Neenah, Winnebago County, 22 December (Ken Uslabar).

***Turkey Vulture***—In Walworth County, Jacyna saw one on 5 January, and Gustafson also saw one on this date and then 3 on 9 January; Gustafson's sightings were north of Elkhorn. Kirschbaum saw one heading north at Prairie du Chien, Grant County, on 27 February.

***Bald Eagle***—TTP in northern counties, for example Bayfield/Ashland, Burnett, Barron, and Door, also TTP in central and southern counties.

***Northern Harrier***—Widely distributed and likely in record numbers after the CBCs. TTP in these counties: Dodge (maximum ten on 8 and 17 February), Winnebago (maximum 4), Manitowoc (maximum 4), Portage (maximum 2 in the Buena Vista Grassland), and Marathon (maximum 12+ on 3 January in the Mead State Wildlife Area). Possibly TTP in Wood County (maximum 8 on 20 January). January reports for another dozen or so southern and eastern counties. Likely migrants from 9 February-EOP in Jefferson, Dane, Sauk, Brown, Shawano, Oconto, and Douglas Counties (m. obs.).

***Sharp-shinned Hawk***—After the CBCs, noted in 24 counties scattered throughout the state (m. obs.).

***Cooper's Hawk***—After the CBCs, noted in 28 counties, north to St. Croix County, Marathon County, Marinette County, and Door County (m. obs.).

***Northern Goshawk***—After the CBCs, reports for 9 counties: Douglas, Bayfield/Ashland, Price, Florence, Oconto, Door, Brown, and Waushara (m. obs.).

***Red-shouldered Hawk***—Total 19 on 16 CBCs. TTP or presumably so in Iowa and Dane Counties (A. Holschbach, Stutz), and January records for Washington, Winnebago, and Brown Counties (m. obs.).

***Red-tailed Hawk***—Northward to these counties: Douglas (TTP), Bayfield/Ashland (one on 11 January), Marathon (TTP), Marinette (through 20 January), and Door (TTP).

***Rough-legged Hawk***—TTP in much of Wisconsin. Latest dates for southern Wisconsin: 22 February—Grant County, 23 February—Iowa County, and 17 February—Sauk County. High counts included 18 on 11 February in Dodge County (Bob Busci), 15 on 10 January in Calumet County (Harriman), 13 on 4 February in Brown County (Mike Goodman), 11 on 18 February in Oconto County (Smiths), 17 on 14 and 28 January in Bayfield/Ashland Counties (Brady), and 11 on 15 February in Douglas County (Haseleu).

***Golden Eagle***—A remarkable total of 30 on Count Day and another 4 in Count Week (end of January) in Buffalo County on the 2007 Golden Eagle Count (Joan Schnabel). After the CBCs, also reports for these counties: Jackson, La Crosse, Monroe, Juneau, Sauk, Iowa, Dane, Winnebago, Outagamie, Marathon, and Langlade (m. obs.).

***American Kestrel***—Northward to these counties, where TTP: Bayfield/Ashland (one), Marathon, and Door (m. obs.).

***Merlin***—Excluding the CBCs, reports for 12 counties, including several southern counties (Sauk, Dane, Rock, Racine). Apparently one predated a Purple Sandpiper at North Point, Sheboygan County, on 24 December (Noel Cutright).

***Gyrfalcon***—In Douglas County, a sub-adult gray phase bird in the Superior area on 7 January (D.B. Johnson), and one (same bird?) on 17 February (Michael Hendrickson). In Ashland County, an adult gray phase bird for the 3rd consecutive winter, noted from 3 December–9 January (Brady).

***Peregrine Falcon***—TTP in counties along Lake Michigan from Racine to at least Manitowoc Counties. Also reports for Brown County, 2 January, 2; Outagamie County, 30 December; and Winnebago County, 13–25 February (m. obs.).

***Virginia Rail***—This is the 16th consecutive year that Ashman has found this species at the western end of Lake Wingra, Dane County, in

early winter; also on the Poynette and Palmyra CBCs. One later report: 9 February, one in a frozen marsh in the Lake Koshkonong State Wildlife Area near Ft. Atkinson, Jefferson County (Paulson).

***American Coot***—TTP in these counties: Dane (maximum 1,100–1,200 on 24 January), Winnebago (maximum 2), and possibly Ozaukee, Milwaukee, and Racine (maximum 10–20). Persico in Pierce County saw one on 21 January and 8 on 8 February.

***Sandhill Crane***—Found on seven CBCs, total 1,250, including 1,146 on the Baraboo Count. Harris reported 1,035 on 7 January near the International Crane Foundation property in Sauk County; several were still there on 19 January. Swengel, also in Sauk County, found a total of 6 on 10 February. Cranes likely overwintered in Sauk County, and probably also in Iowa County (noted 19 February by A. Holschbach) and Outagamie County (noted 7 December–10 February by the Mosquito Hill Nature Center Staff). Frank saw one in flight on 19 January in Washington County. In Columbia County a flock of approximately 50 flew over Poynette mid morning on 9 January, the first day in the last 31 days when the high daytime temperature was below freezing (Dischler). Latest date for Jefferson County was also 9 January, when one was noted (Gustafson). Paulios saw 1–2, most likely migrants, in Dane County on 28 February.

***Killdeer***—None on the CBCs for the first time since 1991. Gustafson found two in Racine County on 27 February; judged to be migrants.

***Purple Sandpiper***—Maximum four from 19 December–5 January in Sheboygan County (documented by M. Peterson, who initially reported the species, also by the Brassers, Stutz); one eating zebra mussels on 2 January (Prestby). Also in Racine County, one on 28 December (documented by Dixon and Gustafson).

***Wilson's Snipe***—Reports for 5 counties: Oconto, 10 December–8 February, maximum 2 (Smiths); Waupaca, 27 January, 3 (Tessen); Outagamie, 24 January–28 February (Mosquito Hill Nature Center Staff); Sauk, 10 February, 2 (Swengel); and Dane, 17 February, 1 (McDowell).

***Laughing Gull***—Before this winter there had been only three winter reports for this species, one in January 1988 and two in February 1996. This winter one was found at Little Lake Butte de Morts in Winnebago County on 23 December (documented by Bruce, J. Peterson, Tessen, Wood), and one was found in Racine County on 7 January (documented by Fare).

***Bonaparte's Gull***—Reports for three counties: Sheboygan, 10 on 20 December (Tessen), Racine, one on 4 January (Rebecca Jarvis), and Kenosha, found during the count period on the Kenosha CBC.

***Ring-billed Gull***—TTP in Lake Michigan, north to at least Sheboygan County; also TTP in Waukesha County, Winnebago County (maximum 2), and Douglas County. Lingering until 6–20 January in a number of southern and eastern counties; through 2 December in Marathon County. Spring migration on 26–27 February in Dane County, and probably on 23 February in Rock County (m. obs.).

***Herring Gull***—TTP in counties along Lake Michigan from Racine to Door Counties, also TTP in Waukesha County, Winnebago County (with an increase in numbers on 28 February), Outagamie County, Sauk and Iowa Counties, and Douglas and Bayfield/Ashland Counties (m. obs.). Brady reported a maximum of 440 on 21 December in Bayfield/Ashland Counties.

***Thayer's Gull***—Reports for these counties along Lake Michigan: Racine (Racine CBC-EOP), Milwaukee (5 December-EOP, maximum 4), Ozaukee (11 January–24 February, 1), Sheboygan (9 December–17 January, maximum 4), and Kewaunee (4–5 January, 1). After the CBCs, reports also (1–2 birds) for Waukesha, Dane, Winnebago, Calumet, and Douglas Counties (m. obs.).

***Iceland Gull***—Reports for these counties along Lake Michigan: Milwaukee, Ozaukee, Sheboygan, and Manitowoc; noted from 2 January–28 February, maximum 3 (documented by Frank, Gustafson, Lubahn, Stutz, Wood). After the CBCs, reports also for these counties: Winnebago, 23 December-EOP, maximum 2 (documented by Wood), Pierce, 21 January, 1 (documented by Persico), and Douglas, 14 February, 1.

***Lesser Black-backed Gull***—Including the CBCs, reports for Racine, Milwaukee, Ozaukee, Sheboygan, and Manitowoc Counties, 2 December–19 February, maximum 2. Gustafson documented a 3rd year bird on Little Muskego Lake in Waukesha County, 16 December–10 January. Also these reports: Dane County, one during the count period on the Madison CBC; Win-

nebago County, 15 December–2 January, 1; and Outagamie County, one on 1 January (m. obs.).

***Slaty-backed Gull***—The first winter records for this species. One at Little Lake Butte des Morts by Menasha, Winnebago County, 16 December–5 January (documented by Bruce, Gustafson, Sontag, Wood), and one (probably the same bird) by the Fox River in Outagamie County on 30 December (Gardella). The bird reported by Lubahn in Milwaukee County on 12 February might also have been this bird. Definitely a second bird in La Crosse County on 2–3 January (Jackson) and (probably the same bird) one in Prescott in Pierce County on 21 January (Persico). Wisconsin this winter was therefore visited by at least two Slaty-backed Gulls, possibly by more than two.

***Glaucous Gull***—Including the CBCs, reports from all the counties along Lake Michigan, maximum 1–6. TTP in Manitowoc County, also TTP (maximum 3) in Douglas County. Brady for Bayfield/Ashland Counties found this species from 23 December–7 February, maximum 2. Also January reports for these counties: Pierce, Calumet, Winnebago, and Waukesha (m. obs.).

***Great Black-backed Gull***—Anich reported one in first winter plumage in Bayfield County, 20–23 December. Also reports from counties along Lake Michigan from Racine to Kewaunee Counties; TTP in Sheboygan and Manitowoc Counties. Maximum numbers after the CBCs: 10 on 6 January in Ozaukee County, and 8 on 21 January in Manitowoc County. After the CBCs, found also in Winnebago County (19 February-EOP, 1), and Calumet County (4 January, 1).

***Rock Pigeon***—North to the following counties, where TTP: Douglas, Bayfield/Ashland, Marinette, and Door (m. obs.).

***Eurasian Collared-Dove***—After the CBCs, these reports: Poynette in Columbia County, 14 January, 2; Milwaukee County, 9 on 6 January and 6 on 1 February (documented by Wood); and Racine County, 2 on 29 January.

***Mourning Dove***—North to the following counties, where TTP: Douglas, Bayfield/Ashland (45 on 18 February, Brady), Forest (14 on 5 February, Kavanagh), Florence (50 on 20 January, Kavanagh), Marinette (75 on 16 January, Campbell), and Door.

***Eastern Screech-Owl***—TTP in these counties: Grant, Rock, Milwaukee, Ozaukee, Dane, Sauk, Winnebago, and Marathon (m. obs.).

***Snowy Owl***—First reported on 10 December in Langlade County (Richmond) and Outagamie County (Mooney). Total 5 on 4 CBCs. Later reports for 11 counties: Kenosha, Racine, Milwaukee, Manitowoc, Brown, Dodge and Fond du Lac, Dane and Iowa, and Bayfield/Ashland. Latest date away from Lake Michigan: 19 February in Iowa County. Still in Manitowoc County EOP (m. obs.).

***Great Gray Owl***—For Bayfield County, Swengel made this observation for the northern section: "permanent residents now," and Brady reported 3 birds which probably overwintered.

***Long-eared Owl***—After the CBCs, reports (1–2 birds) for these counties: Manitowoc, Ozaukee, Milwaukee, Kenosha, Waukesha, Washington, Dane, Sauk, and Iowa (m. obs.).

***Short-eared Owl***—On the CBCs found in record numbers (50) on a record number of Counts (18). This continued throughout the period, with this species after the Counts being reported from a total of 19 counties; Short-eared Owl usually is found in just a half dozen or so counties after December. High numbers were at least 30 on 11 February in Collins Marsh in Manitowoc County, where TTP (Dennis Kuecherer), 11+ on 19 February in Marathon County, where also TTP (Belter), and at least 11 on 1 January in Brown County (Baumann).

***Northern Saw-whet Owl***—Found on 19 CBCs. Later reports for 10 counties: Douglas (6 January, 1), Bayfield/Ashland (26 February, 1), St. Croix (BOP-29 December), Marathon (8 January and 28 February), Marinette (27 January, 1), Crawford (17 February, 1), Iowa (19 February, 2), Sauk (TTP, maximum 7–8), and Waukesha (18 February, 1).

***Selasphorus* Hummingbird, species uncertain**—The hummingbird genus *Selasphorus* consists of 6 species; the 3 species (Broad-tailed, Allen's, Rufous) found in North America are difficult to distinguish. This winter there were two feeder records of *Selasphorus* in female-immature plumage, one in New Glarus, Green County, from September through 8 December (Evanson), and one in Salem, Kenosha County, through 3 December (Erika Behling; documented by Wood). These are the first winter records of this genus (species uncertain) in Wisconsin.

***Belted Kingfisher***—TTP or presumably so in some dozen southern counties, plus St. Croix County and Oconto County; one bird in all cases, except for two in Dane County (m. obs.).

***Red-headed Woodpecker***—The numbers of this species continue to decline on the CBCs; this winter there were only 40 on 11 Counts. Later reports for these counties: Milwaukee, Brown, Door, Richland, Iowa, and Grant (m. obs.).

***Red-bellied Woodpecker***—After the CBCs, northernmost reports for the following counties, where TTP: Burnett, Marathon, Marinette, and Door (m. obs.).

***Yellow-bellied Sapsucker***—Total 16 on 11 CBCs. After the Counts, reports for these counties: La Crosse, Grant, Rock, and Ozaukee (m. obs.).

***Black-backed Woodpecker***—After the CBCs, records for Ashland, Iron, and Oneida Counties (m. obs.).

***Northern Flicker***—After the CBCs, reports for 9 counties, mainly in southern Wisconsin, but also Outagamie, Oconto, and Door Counties. Mainly single birds, maximum 3 in Dane County (m. obs.).

***Eastern Phoebe***—For the second consecutive year, this species was found in December, one on the Riveredge CBC.

***Northern Shrike***—After the CBCs, reports for 26 counties scattered throughout the state. Still in southern counties, for example Iowa and Racine, EOP (m. obs.). Highest numbers in Bayfield/Ashland Counties, for example 9 on 27 January (Brady).

***Gray Jay***—Including the CBCs, reports for these counties: Bayfield and Ashland, Vilas, Forest, Florence, Marinette, Price, Oneida, Lincoln, Langlade, and Shawano (m. obs.).

***Common Raven***—Southernmost reports for Jackson County (6 on 20 January, Stutz), Juneau County (5 on 20 January, Stutz), Dane County (one on 3 December, Matt McDonald, and one on 28 February, Adrien Mauss), and Racine County (one from 1–9 January, Rebecca Jarvis).

***Horned Lark***—TTP in at least several counties, for example Dane and Marathon. Maximum numbers indicating peaks in migration from approximately mid January-EOP, mainly from the last week of January into the last week of February (m. obs.).

***Tree Swallow***—1 December, one in Door County (Lukes), the first winter record since 1 December 1998.

***Boreal Chickadee***—Including the CBCs, reports for these counties: Vilas, Oneida, Forest, Langlade, and Oconto (m. obs.).

***Tufted Titmouse***—Again a record number of birds (688) on a record number of Counts (43) on the CBCs. Noteworthy reports: one TTP in Ashland County; one on 6 December in Vilas County; one TTP in Door County; total 4 at Wausau area feeders in Marathon County; in Chippewa County through 19 January, with a maximum of 5 on 20 December; and in Dunn County through 31 January, with a maximum of 4 on 1 January. Also expanding into southeastern Wisconsin, for example one on 25 January in Waukesha County, 13 January–1 February in Milwaukee County, and one on 16 December in Ozaukee County (m. obs.).

***Red-breasted Nuthatch***—High numbers on the CBCs, mainly in northern Wisconsin. After the Counts, reports for 32 counties, including a dozen counties in south central and southeastern Wisconsin (m. obs.).

***White-breasted Nuthatch***—Throughout the state, with northernmost reports from Douglas, Bayfield and Ashland, Vilas, Florence, Marinette, and Door Counties (m. obs.).

***Brown Creeper***—After the CBCs, reports for Bayfield and Ashland Counties, Forest and Florence Counties, Oconto County, and Door County (m. obs.).

***Carolina Wren***—TTP or presumably so in these counties: Green, Washington, Racine (?), Milwaukee, Ozaukee, Waukesha, Dane (at least 5 in at least 2 localities; documented by Stutz), Sauk (a pair in Devil's Lake State Park, a pair in Baraboo, and a pair in Mirror Lake State Park), Eau Claire, and Door (two pairs in the rural Sturgeon Bay area). Most associated with feeders, one exception being a bird in January in Racine County, which was in a brush pile (documented by Gustafson).

***Winter Wren***—After the CBCs, these reports: one (TTP?) at a feeder in Door County (Lukes); through 27 January in Sauk County (Swengel); and through 20 January in Dane County (McDowell).

***Golden-crowned Kinglet***—After the CBCs, reports for 17 counties: TTP in Door, Langlade (?), Marathon, and Winnebago Counties; and into January in Forest, Florence, Marinette, Oconto, and Menominee Counties, and 8 southern counties (m. obs.).

***Ruby-crowned Kinglet***—The first winter records since December 2002: three on the Madison CBC; two on the Kickapoo CBC; and (Lukes) one at a feeder in Door County, 8 January–4 February.

***Eastern Bluebird***—TTP in several southern counties, for example Grant and Iowa; possibly also in Door County. Maximum 9 at a feeder in La Crosse County on 7 February (m. obs.).

***Townsend's Solitaire***—One probably TTP in Ashland County (Brady), one on the Caroline CBC in Shawano County, and at least one TTP in Devil's Lake State Park in Sauk County (documented by Wood).

***Hermit Thrush***—Total 7 on 5 CBCs. After the Counts, single birds in Brown, Dane, Waukesha, Milwaukee, and Racine Counties, with just one February record (Dane County, through 18 February).

***American Robin***—Widespread for the 9th consecutive winter. TTP in 22 counties, north to Bayfield/Ashland, Oconto, and Door Counties. Hoffmann in Racine County noted over 200 overwintering at cattle feedlots. Also large flocks in Iowa County (532 on 19 February) and Dane County (200 on 26 February); these flocks may have included migrants (m. obs.).

***Varied Thrush***—Including the CBCs, reports for six counties: Bayfield, Marinette, Door, Oconto, Lincoln, and Sauk. Most birds (a total of at least six) were in female plumage, and most were at feeders (m. obs.); an exception was a bird in Devil's Lake State Park in Sauk County on 27 January (Yoerger).

***Gray Catbird***—Total 4 on the Trempealeau, Poynette, and Milwaukee CBCs. One later report, a bird in Dane County, 20 January (Adrien Mauss).

***Northern Mockingbird***—One on the Waterloo CBC in Jefferson County, 19 December (Michael).

***Brown Thrasher***—One at a feeder on the Bridgeport CBC in Grant County on 15 December (it had been frequenting this feeder since November), and one at a feeder in Richland County on 20 December (documented with photos by Curnow). Later reports: single birds in Dane County (29 January, at a feeder), Dunn County (27 December–6 January), Outagamie County (at a feeder in February), and Door County (24 February-EOP).

***European Starling***—Throughout the state: northernmost reports for Douglas, Bayfield and Ashland, Vilas, Marinette, and Door Counties (m. obs.).

***American Pipit***—Noted for the 6th consecutive winter: one at South Metro Pier in Milwaukee County on 4 December (documented by Gustafson), and one on the Sturgeon Bay CBC.

***Bohemian Waxwing***—Found on a Manitowoc County CBC, and during the count period on the Arpin CBC. Other reports: Oneida County, 20 on 23 January (Tessen) and 32 on 30 January (Richmond); Door County, 5–27 January, maximum 30 (Lukes); and Marathon County, two in a flock of Cedar Waxwing on 1 January (Belter).

***Cedar Waxwing***—TTP in St. Croix County, Columbia and Dane Counties, and Milwaukee County. Maximum numbers 75+ on 1 January in Marathon County (Belter), and 70+ on 7 January in Marinette County (Campbell).

***Yellow-rumped Warbler***—Total 19 on 7 CBCs. Later reports: one in Door County, 28 January-EOP (Lukes); one coming to a feeder in Outagamie County, 17 December-EOP (Shillinglaw); one in Ozaukee County, 7 January (Frank); again (like last winter) in red cedar thickets in Kenosha County, 5 locations, 6 January through at least 3 February, maximum 16 (Jacyna); and one in Grant County on 8 January (Romano).

***Pine Warbler***—First winter record since the winter of 1993–94: one at a feeder in Menasha, Winnebago County, eating a mix of peanut butter, oatmeal, and cornmeal. Tessen documented it for 9 and 28 February, and was informed by the residents, Carol and Mike Quinn, that it had been there since about 10 December.

***Prairie Warbler***—First winter record for this species in Wisconsin: one by South Metro Pier in Milwaukee County through 2 December (Abert).

***Palm Warbler***—The 4th winter record, and first since the winter of 2002–03: one on 3

December along the beach in Bender Park, Milwaukee County (Abert).

***Eastern Towhee***—One at an Iron County feeder, 15 January–25 February (Brady, documented by Rongstad); a male TTP in Door County (Lukes); one at feeders in Kohler-Andrae State Park in Sheboygan County on 17 January (Tessen); and a male in Crawford County on 26 December (Kirschbaum).

***American Tree Sparrow***—TTP in Door County; 5–20 January in Marinette County, maximum 22 on 20 January (Campbell); and 100+ on 23 January in Shawano County (Tessen). Brady in Bayfield/Ashland Counties noted this species through 10 February, maximum 11 on 3 February.

***Chipping Sparrow***—One on the Stevens Point CBC in Portage County, and one on the New Franken CBC in Brown County. One later report: one at a feeder on 18 January in St. Croix County (Roen).

***Field Sparrow***—Found on three CBCs: Bridgeport in Grant County (6), Sauk City (1), and Stevens Point in Portage County (1).

***Fox Sparrow***—Total 18 on 8 CBCs. TTP or possibly so (1–2 birds) in these counties: Marinette, Manitowoc, Ozaukee, Washington, Walworth, Dane, and Richland (m. obs.).

***Song Sparrow***—After the CBCs, reports for 1–2 birds in 11 southern counties, also single birds in Portage County on 11 January, and Shawano County on 23 January (m. obs.).

***Lincoln's Sparrow***—One on the Platteville CBC in Grant County on 19 December.

***Swamp Sparrow***—One TTP in Dane County, also January records for Lafayette and Waukesha Counties, and a February record (the 21st) for Green County (m. obs.).

***White-throated Sparrow***—TTP in several southern counties, for example Milwaukee, Walworth (?), and Dane, maximum 3, also one at a feeder (TTP?) in Vilas County, and one from 23 January–20 February in Door County (m. obs.).

***White-crowned Sparrow***—Total 27 on 11 CBCs. Later reports: Dane County, 17–25 February, maximum 2; Walworth County, 27 January; and Milwaukee County, 6 January, 3 (m. obs.).

***Dark-eyed Junco***—TTP in Marinette County, maximum 20. Also northward to Florence County (18–30 January, maximum 5) and Forest County (5 on 5 February), and Bayfield/Ashland Counties (through 30 January, maximum 7 on 7 January).

***Lapland Longspur***—Excluding the CBCs, reports for 20 northeastern, eastern, and southern counties. TTP in Dane County, and still in Manitowoc County EOP. Largest flocks (at least 100) in these counties: Langlade (100 on 3 January), Manitowoc (200 on 9 January), Calumet (400 on 10 January), Portage (175 on 8 January), Dodge (100+ on 10 February), Jefferson (100+ on 17 February), and Dane (100 on 23 January).

***Snow Bunting***—Excluding the CBCs, reports for 29 counties, mainly in northern, eastern, and southern Wisconsin. TTP in Douglas, Bayfield and Ashland, and Door Counties. Tessen found the largest flock, some 10,000 on 3 January in Langlade County; sizeable flocks (at least 100) were also reported from these counties: Bayfield/Ashland (approximately 600 on 7 December), Oconto (125 on 23 January), Marathon (500+ on 1 February), Calumet (3,250 on 10 January), Dodge (120 on 11 January), Kenosha (approximately 270 on 3 January), and Jefferson (200+ on 17 January).

***Northern Cardinal***—Swengel reported that this species is "now year-round" in northern Bayfield County. Also TTP or presumably so in Ashland County, Forest and Florence Counties, Marinette County, and Door County (m. obs.).

***Rose-breasted Grosbeak***—An injured male at a feeder in Ashland County (Brady); this species has now been reported in 8 of the last 10 winters.

***Indigo Bunting***—One on the Peshtigo CBC in Marinette County, 16 December (Kavanagh). Wisconsin's first documented Indigo Bunting in winter was at a feeder in the winter of 1986–87; this is the 5th winter in which this species has been documented.

***Red-winged Blackbird***—TTP in several southern counties, namely Kenosha, Waukesha, Dodge, and Dane, also TTP in the Mead State Wildlife Area in Marathon County (several at a feeder), and TTP (?) in Oconto and Bayfield/Ashland Counties. Migration in mid February suggested for eastern Wisconsin by the dates for peak numbers in Dodge County

(the 16th, 500+) and Oconto County (the 18th, 58).

***Eastern Meadowlark***—Not a single meadowlark, Eastern or Western, on the CBCs. One later report for the Eastern Meadowlark, a bird in Manitowoc County on 15 February (J. Holschbach); migrant (?).

***Yellow-headed Blackbird***—One on the Seymour CBC in Outagamie County (Kevin Kearns), and a male in Dodge County on 16 February (Tessen).

***Rusty Blackbird***—Found on 5 CBCs, total 190, including 185 on the Pensaukee Count in Oconto County. Also these reports: one on 16 December and 16 January in Vernon Marsh, Waukesha County, where several overwintered last winter (Gustafson), 13 January in Rock County (Yoerger), 11 February in Green County (Yoerger), and one on 16 February in Dodge County (Tessen).

***Brewer's Blackbird***—Ten on the Hartford CBC, one on the Waterloo CBC, and one on the Medford CBC. Tessen reported 1–2 TTP in Dodge County.

***Common Grackle***—After the CBCs, these reports: 3–6 TTP at feeders in Kenosha County, one in Door County on 25 January, and at least 2 in Dodge County on 16 February.

***Great-tailed Grackle***—First state record: one in Dodge County along SH28 between Horicon and Mayville, 30 January–22 February (documented by Michael, who initially reported it, and also by Bontly, Gustafson, Tessen, Volkert, and Wood); photographed by Bartholmai). See the introduction to this seasonal summary for more information.

***Brown-headed Cowbird***—After the CBCs, these reports: TTP in Dodge County, maximum 15; TTP (?) in Walworth County, maximum 6; and 40 on 1 January in Rock County (m. obs.).

***Pine Grosbeak***—Total 285 on 16 CBCs. Later reports for 13 counties, all in northern Wisconsin. Largest flocks: 75 on 14 January in Bayfield/Ashland Counties (Brady), and 43 on 29 January in Florence County (Kavanagh). Johnson in Douglas County reported this species eating box elder seeds on several dates in February.

***Purple Finch***—Relatively low numbers on the CBCs. Later reports for 32 counties scattered throughout the state. Maximum flock size in most cases less than ten; Kavanagh reported a flock of 75 on 19 February in Forest County, and a group of 75–100 from 30 January–19 February in Florence County. Only one other large flock reported: one of 100 on 12 February in Langlade County (m. obs.).

***House Finch***—Swengel reported that this species, like the Northern Cardinal is "now yearround" in northern Bayfield County. Also TTP or presumably so in Vilas, Forest, Florence, Marinette (maximum 2), and Door (maximum 45 on 9 December) Counties. Also TTP in Oconto County, where the Smiths reported a high number of 94 on 14 January.

***Red Crossbill***—Found on 8 CBCs, total 120 birds, including 60 on the Florence Count. Later reports for 10 northern counties and (one on 20 January) Juneau County. Largest flock—75 on 29 January in Ashland County; also sizeable flocks in Oneida County (maximum 17), Forest County (38 on 26 January), Marinette County (25 on 27 January), and Price County (32 on 28 January).

***White-winged Crossbill***—On 11 CBCs, total 388, including 181 on the Clam Lake Count. Later reports for 11 northern counties and Marathon and Portage Counties. Flocks of 14–28 in 6 northern counties (m. obs.).

***Common Redpoll***—Relatively low numbers on the CBCs. Excluding the Counts, reports for 11 northern counties and (2 on 30 January) Racine County. Largest flocks: 115 on 21 December in Bayfield/Ashland Counties, 200 on 28 January in Price County, 62 on 9 February in Vilas County, 100 on 26 January in Oneida County, 50 on 3 January in Langlade County, and 50 on 4 January in Menominee County (m. obs.).

***Hoary Redpoll***—One on the Bayfield CBC. Swengel for northern Bayfield County regards this species as a "routine sighting."

***Pine Siskin***—Relatively low numbers on the CBCs. Later reports for 15 northern counties, and (11 December–17 January) Columbia County (m. obs.). Most flocks less than 15, the largest groups (100 on 26 January, and 220 on 29 January) in Florence County (Kavanagh).

***American Goldfinch***—Sizeable flocks in a number of northern counties: 60 on 27 January in Bayfield/Ashland Counties; maximum 30 in Forest County; maximum 250 in Florence County; maximum 69 in Marinette County; 78

on 14 January in Oconto County; 87 on 11 December in Door County; and 80+ on 13 January in Marathon County (m. obs.).

***Evening Grosbeak***—Stutz on 9 December found 25 in Langlade County and one in Forest County. On 8 CBCs, total 241, including 174 on the Clam Lake Count; these are low numbers for both Counts and birds (see last winter's summary in The Passenger Pigeon, Volume 68, Number 3, page 251). Later reports for these counties: Douglas (one on 6 January), Bayfield (one on 17 February), Ashland (20 January–8 February, maximum 155 on 29 January; Ann Sherlock), Forest (one on 5 January), Florence (10 January-EOP, maximum 26 on 19 February), Langlade (13 on 3 January), Menominee (7 on 3 January), and Milwaukee (one on 21 and 26 February).

***House Sparrow***—Northward to Douglas, Bayfield/Ashland, Vilas (8 on 10 December), Marinette, and Door Counties (m. obs.).

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*Note: This is a selective list; not all the individuals who submitted ebird reports are included, although the information in their reports was utilized in this seasonal summary.*

# "By the Wayside"—Winter 2006–2007

*Some of the species documented this season as rare or uncommon include Barrow's Goldeneye, Red-throated Loon, Red-necked Grebe, Golden Eagle, Purple Sandpiper, Laughing Gull, Slaty-backed Gull, Selasphorus hummingbird, Pine Warbler, Eastern Towhee, and Great-tailed Grackle.*

### BARROW'S GOLDENEYE (*Bucephala islandica*)

***14, 23, and 28 February 2007, Sheboygan Harbor, Sheboygan County***—This bird was about the same size and shape as the Common Goldeneyes with which it was swimming, diving, and feeding, except that the Barrow's forehead was more perpendicular to the head and the nape was more sloping. The white spot on the face was crescent-shaped (instead of round, as on the Common Goldeneyes); the iridescence/sheen on the head was purplish-maroon (rather than green); the back was mostly black, with white spots (rather than mostly white with black streaks).—*David and Margaret Brasser, Sheboygan, WI.*

### RED-THROATED LOON (*Gavia stellata*)

***6 January 2007, seen in Lake Michigan from North Point, Sheboygan, Sheboygan County***—Three of the loons I reported on 17 December 2006 remain at this location, apparently trying to overwinter. These birds were small and slender appearing for loons, although much larger than two nearby Horned Grebes (also late for this species). Their heads and napes were pale in comparison to their backs and the side of the neck was very white almost to the nape. The white of the neck formed a straight unbroken line with the gray of the nape, unlike the jagged separation of a Common Loon. All three had slender, long bills that they held above horizontal. The gray from the crown reached just to the top of the eye unlike Pacific Loon which would have dark coloration to below the eye. All three birds showed some white on the flanks above the waterline.

Common Loon was eliminated by bill size and shape and also by head shape. These loons had small evenly curved forehead and crown unlike the block headed shape of a Common Loon. The extensive white on the neck and face, and bill posture eliminated Pacific Loon. Western Grebe would have a longer neck and obvious yellow-green bill; these loons had gray

bills.—*Thomas C. Wood, Menomonee Falls, WI.*

### Red-necked Grebe (*Podiceps grisegena*)

***10 January 2007, South of wastewater treatment plant and north of the power plant, Manitowoc lakeshore, Manitowoc County***—The first thing noticed that seemed different about this swimming waterbird was the prominent light colored bill. Its body seemed somewhat low in the water in contrast to the more bouyant ducks near it. The back was dark, the longish neck buffy to sandy colored with lighter, but not white, plumage in the auricular and throat area. The neck was straight as it swam and the bill slightly below horizontal and yellowish. As it swam away from shore the head seemed prominent and flattened. It was smaller than the Red-breasted Mergansers in the area and close to the length of the Common Goldeneyes. After swimming further out into the lake, it began to dive and was lost to observation.—*Fawn and John Shillinglaw, Appleton, WI.*

### Golden Eagle (*Aquila chrysaetos*)

***29 January 2007, Langlade County***—While driving south, I saw two Common Ravens fly over the road to the east and when I looked in the direction they flew, I spotted a soaring eagle. I stopped the car and got out, expecting to see a young Bald Eagle. Instead, through 10 × 42 binoculars I noted that this bird had white on the dark underwings only at the base of the primaries and none near the body. The base of the tail was white and the terminal band was black. When it changed direction I saw a golden brown coloration on the upperwing. A Bald Eagle would have white irregularly distributed on the underwing, not just a well defined patch at the base of the primaries, and the white/black separation on the tail would not be sharply visible as on this bird.—*Thomas C. Wood, Menomonee Falls, WI.*

### Purple Sandpiper (*Calidris maritima*)

***19 December 2006, North Point, Sheboygan shoreline, Sheboygan County***—I drove down to Sheboygan from Shawano, arriving at about 1 p.m. I parked north of the parking area and began walking north toward the point. Three shorebirds flew to the tip of the rocky point, so I went back to the car to get my scope.

These birds were plump and about the size of a Killdeer. The backs were dark gray and scaly. The heads were a darker gray and looked like they had been dipped in soot to the neck. The undersides were white with streaking on the flanks. There were very faint white eyerings. The bills were about the same length as the distance from the back of the head to the base of the bill and slightly drooped. The bills were a dull orange at the base and dark gray at the tip. The legs and feet were orange. All three of the birds were similar and looked like triplets.—*Mark Peterson, Bartlesville, OK.* [*See Fig. 1*]

***28 December 2006, Wind Point, Racine, Racine County***—After hearing that the Purple Sandpipers in Sheboygan had departed, I decided to try

Figure 1. One of the Purple Sandpipers at North Point in Sheboygan was photographed by Tom Prestby on 2 January 2007.

looking for them at Wind Point. I almost overlooked this one, because its gray color blended well against the rocky shore. This sandpiper was a little smaller than a Killdeer, but very "plump" looking. The head, neck, and breast were solid gray (only a hint of purple tinge). The rest of the upper parts were speckled (scalloped?) gray-brown. The undersides were white, also speckled with gray. There was a slight eyering. Most distinct was the leg color, a bright orange. The medium length bill was mostly dark and slightly drooping, but also had orange on the basal third. Wings when extended were dark gray, with a thin white wing stripe. The stripe extended from the tertials and secondaries out to about the middle of all the primaries.—*Dennis Gustafson, Muskego, WI.*

***28 December 2006, Shoop Park, Racine, Racine County***—Size was about 8 inches, a rather stocky, plump bird. Color was purplish-gray on head with an incomplete white eyering, purplish-gray on upper breast with streaks down the sides of the same color. Upper back also purplish with darker streaks. Coverts and tertials were dark with whitish fringes, and scapulars a purplish-gray with a dark rusty-brownish color in center on both sides of feather shaft. Bill was of medium length with the basal ⅓ to ½ an orange-yellow color. The legs were short and a bright orange-yellow color throughout. The bird was actively feeding by picking at algae covered rocks, and pulling out and eating insides from the many zebra mussels washed up on shore.—*John Dixon, Kansasville, WI.*

### LAUGHING GULL (*Larus atricilla*)

***23 December 2006, Little Lake Butte des Morts, Menasha, Winnebago County***—The bird was somewhat smaller and more slender than nearby Ring-billed Gulls and much smaller than nearby Herring Gulls. The bird appeared to be a first year bird. Wings

were mottled brownish and the back was a darker gray than the nearby Ring-billed and Herring Gulls. The breast was a dusky gray up to a white chin. The tail was mostly white with a black band at the end of the tail that gave the appearance of being wider at the outer edges giving the white area a rounded shape. The primary feathers were all black with no obvious white spots or other markings. In flight, the wings had a very narrow white trailing edge. The bill was long, rather heavy for the size of the bird, and looked as if it drooped at the end. The flat spot at the bottom of the end of the bill (Gonys?) was basically parallel with the ground and the top of the bill curved down smoothly to the tip of the bill. The head was flat and somewhat small looking. Legs were black and long in proportion to the other gulls in the area.—*Jesse Peterson, Waunakee, WI.*

***7 January 2007, On the beach at Myers Park, Racine, Racine County***—There was a group of about 50 Ring-billed and Herring Gulls along the shore. I was observing a first winter Thayer's Gull when a dark-backed gull walked into the scope view. It was about 4–5 inches smaller than the ring-bills. The mantle and scapulars were a uniform dark, sooty gray extending from behind the eye to the tertials. It seemed to have a slightly darker narrow band extending over the eyes. The forehead and throat were white, there was a slight amount of brown juvenile covert feathers seen under the scapulars. The eye was dark with slight crescents (white). The bill was black, with a slight droop and it appeared as long as the ring-bill's. The legs were also black. In flight the tail had a large black band across its whole outer width. The primaries and [their] coverts were black. The secondaries were also black. The lesser and median coverts were brown.—*Rick Fare, Racine, WI.*

### SLATY-BACKED GULL (*Larus schistisagus*)

***19 and 30 December 2006 and 3 January 2007, Little Lake Butte des Morts, Menasha, Winnebago County***—This gull's very dark gray mantle first attracted my attention (close to charcoal gray of Lesser Black-backed Gull seen earlier). It was a near adult gull (3rd–4th winter?) with an all white head, neck, undersides, and tail. Limited streaking was present on the head and neck, but more especially around the eye (like a line almost). Typical winter Slaty-backed Gulls usually have more streaking but this is within normal variations, and is more than Western Gulls have. In strong light, the eye was yellow, but appeared darker with the eye "smudges" and in less light. The bill was pale yellow, less so towards the base (more flesh-colored). Almost at the tip was a blackish mark, with some apparent red mixed in on the lower mandible (hence, not full adult). Bill size was slightly heavier (little gonydeal angle) than adjacent Herring Gulls; distinctly larger than Lesser Black-backed Gull and smaller than Great Black-backed Gull. Body size was similar to adjacent Herring Gulls (a little more bulky); distinctly larger than Lesser Black-backed and smaller than Great Black-backed. Legs were very pink (in strong light), unlike the yellow of Lesser Black-backed Gull, Yellow-footed Gull, Kelp Gull, and California Gull. Mantle color was

not as black as Great Black-backed or Kelp Gulls, but much darker than "vega" Herring Gulls (seen with Slaty-backed Gulls in 2005 in Alaska) and California Gulls. (See reverse for Western Gull). The wings were diagnostic when folded, white tertials were very wide; also with large white primary tips. In flight, subterminal white tips of primaries (string of pearls) were present (more so on the undersides), along with white "mirrors" on P 9 and 10. The black on some primaries appeared limited to the outer margins.—*Dennis Gustafson, Muskego, WI.* [*See Figures 2–4.*]

***23 December 2006, Little Lake Butte des Morts, Menasha, Winnebago County***—I spent most of the day either looking at or looking for this rare gull.It moved from ice patch to ice patch and I saw it at several locations between the Broad Street trestle to just south of the highway 10-441 bridge which crosses the lake. There were many gaps during the day when I could not find it, but I found this to be a difficult identification so I spent the day working on it.

The first impression was of a Great Black-backed Gull, but since many people had reported a Slaty-backed Gull, I assumed this was the bird and started studying it. The contrast between the dark gray mantle and the black wingtips was greater than on a Great Black-backed Gull, but less than on a Lesser Black-backed Gull. The dull dark gray seemed lighter than a Great Black-backed Gull's with less sheen, but lighting (it was overcast) can affect preception so this did not seen definitive. Eventually, I saw the bill well enough to see it was fairly even throughout its length and not massive and bulging at the tip, so I could eliminate the Great Black-backed Gull. When I saw a Herring Gull side-by-side with this bird I noted the size was similar which eliminated any larger than Herring dark-backed gulls. Lesser Black-backed Gulls would be noticeably smaller and would show at least a hint of yellow, if not all yellow, legs. This bird had pale pink legs. Kelp Gull would be much blacker on the mantle and would not have streaks on the head. This bird had a white head with streaking near the eye and lower neck. Streaking on most of the head was not dense, and I did not see the dark line extending from the rear of the eye as shown in many field guides.

Western Gull is somewhat similar to this bird but usually paler. It took a long time to see it, but eventually I saw the extended upperwing both in flight and once when it was threatened by a Herring Gull on the ice. The black on the upperwing tip was limited and several white dots appeared between the gray and the black of the primary tips. Western [Gull] has terminal, but not subterminal, white marks on the wingtips.

Other field marks not specific to this species were a pale yellow bill with a black mark near the gonys, thickest on the lower mandible, but slight on the upper mandible so not forming a complete ring. There was a very broad white tertial crescent, white dots on the folded black wingtips, and a large white scapular crescent. The underwing was pale gray and underwing coverts white. The tail was unmarked white. The eye was pale yellow, not gleaming as described in one field guide, but there was no sun to illuminate it.—*Thomas C. Wood, Menomonee Falls, WI.*

Figures 2. Slaty-backed Gull on the ice of Little Lake Butte des Morts in Winnebago County as photographed by Scott Franke.

Figures 3. Slaty-backed Gull seen with Herring Gulls at Little Lake Butte des Morts in Winnebago County (from December 2006 into January 2007) as photographed by Scott Franke.

Figure 4. View of flying Slaty-backed Gull seen at Little Lake Butte des Morts in Winnebago County by Scott Franke.

***2 and 3 January 2007, On the Black River about a half mile south of Interstate 90, La Crosse County***—This bird was almost identical in size to the Herring Gulls in the flock. However, it was a little blockier and more pot-bellied in appearance (especially evident when the bird was facing us). This bulk allowed it to be picked out when it was sitting on the ice and faced directly at us.

The bird had a yellow bill with small red and black spots on the lower mandible just back from the tip. The bill was similar in size and shape to that of a Herring Gull and was fairly slim and straight. It was not large and bulbous like that of a Great Black-backed Gull and didn't show the large bulge near the tip that some species of gulls exhibit. The gape line drooped sharply under the eye which almost gave it a frowning expression.

The bird had yellow eyes and bright pink legs and feet. This pink was much more vibrant and darker than those of nearby Herring Gulls.

The coloration of the bird's mantle and wings are what caused me to pick out the bird in the first place. The bird's mantle was a medium gray that was significantly darker than that of the Herring and Ring-billed Gulls in the same flock (not black). The white margin on the tips of the bird's secondary flight feathers was relatively wide—nearly twice as wide as the lower margin on the nearby Herring and Ring-billed Gulls. The bird's primaries were jet black with a long white spot on the leading edge of the wing about 1.5 inches in from the tip of the outermost primary. The bird had white spots on the tips of primaries and there was also a string of white spots at ends of the sub-terminal

feathers in the wingtips. This created a margin of white spots that separated the dark gray mantle from the black primaries—the "string of pearls" referred to in field guides.

When the bird was in flight, the underside of its wing showed a striking pattern. The under-wing coverts were white and the white terminal band on the secondaries was clearly visible. The underside of the primaries and secondaries was dark gray and the white spots on the tips and at the leading edge of the wing were visible. The dark gray started as a thin band in the secondaries in front of the terminal band and then expanded to include the whole wing tip.

At rest and standing, this bird showed very little primary projection beyond the tail (approximately 1 inch). The bird's head and neck were slightly mottled with brownish feathers with the mottling being more concentrated around the eye. When looking at the bird head-on, the mottling ended fairly abruptly about half way down the chest. This gave the mottling an almost bib-like appearance.

When first seen, the bird was standing on the ice. It then began actively feeding on dead shad. It would fly up and glide down to the water to pick up a fish. After grabbing one, it would land on the ice and swallow it.

The bird's all white head (with mottling) eliminated all of the black-headed gulls. The bird had bright pink/red feet and legs and was the same size as a Herring Gull. This eliminated Lesser Black-backed Gull. The bird's mantle was a medium gray (not black) that was significantly darker than the mantle of nearby Ring-billed and Herring Gulls. This dark mantle eliminated those species as well as the other light-mantled species such as Glaucous-winged, Glaucous, Thayer's, and Iceland Gulls. The bird's bill was similar in size and shape to that of a Herring Gull. This combined with the bird's smaller size eliminated Great Black-backed Gull. The bill's more diminutive shape, and more faded color, as well as the large white triangle spot on the leading edge of the primaries, and the "string of pearls" eliminated Western Gull. The very wide lower white margin in the secondaries also eliminated the other dark mantled species. The bird also was fairly bulky with a slightly pot-bellied appearance, a characteristic of this species. The drooping gape and under-wing pattern in combination with the other characteristics also helped finalize the indentification. This bird was a full adult Slaty-backed Gull (Fig. 5).—*Daniel E. Jackson, Chaseburg, WI.*

## HUMMINGBIRD (*Selasphorus*)

***2 December 2006, Residence on Silver Lake Road, Kenosha County***—This hummingbird was coming to a feeder which the owner was keeping warm with an electric bulb. It also spent time perching on a lilac bush in the backyard, but it would disappear for several minutes at a time and was not in view. I stood at the edge of the yard about 15 yards away from the bush and feeder, using both my 10 × 42 binoculars and spotting scope. The weather was clear, snow was on the ground, and the temperature was 21°F.

The face of the hummingbird was

green but there was some reddish-orange coloration around the eyes. The crown was a dull olive-green and the throat and breast were white with a black patch of feathers at the center of the throat which turned irridescent red when the bird rotated its head.

The back was a bright emerald green and the wings charcoal gray. The undertail coverts were white and the undertail was black with white tips on the feathers. The sides were buffy orange and this color extended onto the belly but not completely cross the belly, leaving just a small white gap.

The bill was black, long, and slender. Several times while perched, the bird extended its long tongue, but there didn't seem to be any insects in this cold temperature, so I don't know the reason for this behavior.—*Thomas C. Wood, Menomonee Falls, WI.*

### PINE WARBLER (*Dendroica pinus*)

***9–28 February 2007, Menasha yard, Winnebago County***—Tom Sykes forwarded a note from a Menasha birder who believed she had a Pine Warbler coming to her feeder. After talking with her, I went the following morning to check. After about an hour and a half, the bird in question appeared at the "suet" feeder and for five minutes ate a peanut/oatmeal/corn meal mixture.

It was obviously a warbler. The back was a greenish-brown.There was no streaking. The throat and breast were obviously yellow with a few streaks on the side of the breast. The dark wings had distinct wingbars. The tail was dark and long. The bill was quite large. Legs were dark. Undertail coverts were white— obviously a male Pine Warbler. The Quinns indicated the bird had first appeared about 10 December 2006. It was still present on 28 February 2007.—*Daryl Tessen, Appleton, WI.*

### EASTERN TOWHEE (*Pipilo erythrophthalmus*)

***19–20 January 2007, Backyard in Saxon, Iron County***—The bird had a black head, chest, and wings, rust colored side-striping, and white underparts with white sides on the tail visible in flight. On 19 January, it landed in a balsam tree next to a feeder, then flew a few feet to a snowbank under another feeder; I watched him fly 50′ or so into a covered shed, then back to our deck where he landed briefly in front of the patio door. On 20 January, I followed his alarm chip back to a drainage creek/cedar swamp and with binoculars I observed him moving from tree to tree.—*Bobbi Rongstad, Saxon, WI.*

### GREAT-TAILED GRACKLE (*Quiscalus mexicanus*)

***30 January 2007, from State Hwy 28 south of the DNR Service Center and north of Horicon, Dodge County***—On 30 January at around 11 a.m. I was driving south on Hwy. 28 when I noticed an American Kestrel perched in a dead willow tree close to the road and immediately saw a large dark bird with a very long tail perched a few feet below. My first thought was that of a magpie and its long black tail. As I got closer, I realized that the bird was all black so I made a quick u-turn and pulled along side the bird on the opposite side of the road. I mounted my

Figure 5. This La Crosse County Slaty-backed Gull was documented by Dan Jackson in early January 2007.

scope and was amazed at the length of the tail, the size of the bill and the over all size of the bird as I compared it to the kestrel that sat just above.

For the next ½ hour or so I made mostly mental notes with a few jotted down on scrap paper, of all the ID features that I could think of and that I thought I needed to identifiy this bird that I quickly believed was a different species of grackle. As always, I was carrying all of the bird books I have listed on the documentation form, and for the next hour or so went about comparing those identification descriptions to those that I was seeing. This new-found bird was a very, very cooperative subject as it flew only short distances (mostly following a kestrel) and often came to the roadside right across from my parked location. Only a few times did I have to reposition my truck to get closer to the bird.

When compared to the perched kestrel, this grackle looked to be almost one and a half times the size of the kestrel, with a greater body mass and a much longer tail. When both birds flew together, the length of the grackle was not quite twice the length of the kestrel. While I could not make a direct comparison of the two Blue Jays and the grackle, as they never were on the same plane of view, the grackle was much larger. These were the only direct comparisons to other birds that I could make.

The tail was not only long (almost

as long as the body), but seemed to me as more massive or fuller than that of a Common Grackle. There were times when this bird was feeding along the road when a gust of wind would turn the bird sideways and, or almost, knock it off its feet. The tail was keel shaped and somewhat ragged and when spread was very wide. When the tail was ruffled by the wind, it showed many of the long tail feathers and gave the bird's tail that ragged look. In flight, at take-off and landing, the tail was spread somewhat and showed a pointed or spade shape. I later found this to be noted by picture in the Sibley Field Guide. In straight flight, the tail was keel shaped and as long as the body/head length. In both crossing (horizontal) and overhead flight, the massive and very long tail was the most noticeable thing that made this bird stand out.

The bill of the bird was a mid to dark gray color and seemed very long with the help of almost no forehead and a flat crown. This lack of forehead and flat crown was most prevalent when the bird had its neck outstretched, looking up, and in flight. At first look, I noted the upper bill (culmen) was almost straight, and only curving down at the very tip. Its length was almost as long as the head was deep.

Depending on the lighting, the iris was yellow to bright yellow. The legs were black. The head, breast, and back were all one deep purple-blue color. When the lighting was right, I noted a purple-blue iridescence throughout the bird's body, except for the wings and tail which seemed to me to remain black to blue-black. There were times when I had good straight on frontal views of the bird and I saw what seemed to me to be a more bluish color to the breast, but it may have been that I did not get similar views of the back or head in the same lighting conditions.

While most of the time the bird was not heard, at various times when it was at close range, it made a short throaty "chut" or "cluck" call.

For most of the observation time the bird was seen resting/perched. At times it would visit the roadside, where it would feed on spilled corn, pieces of a road-killed deer carcass, and grit. It seemed to like the company of one or both of the kestrels that were also using the same habitat. I observed on at least five occasions the bird chasing or following close behind a kestrel. At one point the bird seemed to chase off a kestrel that was feeding on its catch, as the grackle landed where the kestrel was perched and fed on the remaining meat and fur. More than once the grackle would follow a kestrel(s) in short order after they would move, often landing in the same tree, sometimes within a few feet.

This bird seemed to have "cold feet" so to speak, as it often would tuck a foot/leg up into its body, switching feet often. It did this both while perched and while feeding along the roadside. It seemed to have very little fear of the traffic and seemed to be accustomed to both cars and semis, as it would continue feeding when cars passed and only walked off the gravel shoulder when a semi was about to drive by.

Black-billed Magpie was my first thought when I saw this bird while I was driving. I quickly eliminated magpie due to the fact that the bird was entirely dark/black and showed no

white primaries and/or white flashes in flight. I had a more difficult time eliminating Common Grackle as there were no Commons close by to compare to this bird. The Common did get eliminated for the following reasons: Size was used as a comparison using the kestrels. This bird was at least one and half times as large as the kestrels and a Common Grackle is only 1″ to 2″ larger than a kestrel's length. With the size difference noted between a Common and this Great-tailed Grackle, the tail length was a major factor in eliminating the Common. This bird was almost a foot and and a half (head to tail) long, which would make the tail itself almost 9" long, much longer than that of a Common Grackle. The mass of the tail was also something that I have never seen in a Common Grackle. If I recall correctly the keel or shovel shape of a Common Grackle's tail remains the same when spread in flight take-off and landing. What I mean is, while the tail is pointed on a Common, it comes to a point as if one side of the tail is missing (keel shape). The "new" bird's tail had a full spade or diamond shape to it on take-off and landing. While I have seen a few ragged tails on Commons before, I have never seen as many massive long tail feathers as this bird had.

The bill of this bird was much heavier and longer than that of a Common Grackle and the straightness of the bill (culmen) did not match that of the more curved shorter bill of a Common Grackle. In flight I have never seen a Common Grackle with the long and wide wings that this bird had. While I did not have a crow nearby to compare with, these wings were closer to crow size than that of a Common Grackle's.

With the Common Grackle eliminated, all that I had left as far as I know, was that of the Boat-tailed Grackle. I have not had the chance to see both species at the same time, so I had to use the field guides to help me eliminate this species. This bird definitely had a clear yellow eye as compared to the "pale or dull yellow" of a boat-tailed. The flat crown and almost no forehead of this bird is different from the "rounded crown" and "steep forehead" of a boat-tailed. The bill of this bird was heavy and long which does not match the "smaller" bill that is noted in most field guides [for Boat-tailed Grackle]. While color is subject to what a birder sees, I never saw any other colors on this bird but purple-blue and black. I never noted any of the blue-green color of a boat-tailed. I think it was last year, maybe two years ago that I saw these birds while birding in Costa Rica. Other than that I have, over the past 10 years, seen this bird while birding in Texas, Oklahoma, New Mexico, Arizonia, southern California, and Mexico.—*Larry Michael, Horicon, WI.*

***31 Janaury 2007, Adjacent to State Hwy 28 about 300 yards south of the DNR Serivce Center entrance, north of Horicon, Dodge County***—On 31 January, at about 9:15 a.m., as I was working in my office at the DNR Service Center, Jack Bartholmai came into the building having just photographed this bird (Figures 6–8). He told me the story of Larry Michael having sighted this bird over the past day or so and that he was recently there to obtain photos of this particular bird. At first, Jack showed me photos on the monitor of his camera, which looked

intriguing but were difficult to see enough detail to be convincing. Following this, Jack said that he was going home to get a pole in order to photograph the perch where this bird was last seen and photographed, so that he would have a definitive scale by which to gauge the bird's size in the photos he had recently taken. 0nce at home, he emailed me some photos of this bird which were much better viewing than his camera monitor and to me provided solid proof of the bird's identification.

Of the photos I saw were a profile of the bird on the ground and a photo of the bird taking flight. Here I noticed the long, rather straight bill, flat crown of the head, purple iridescence on the breast and flank, and the extremely long tail.

Shortly after this, Larry Michael came into the office and told me of his experiences and recent observations. We both viewed the photos I had received from Jack and from these I gave Larry my assessment of the field marks and convincing evidence that this indeed was a Great-tailed Grackle. Larry was very certain of his identification by that time, but wanted some verification of his suspicion that this could not be a Common Grackle and therefore possibly a first state record. As Larry and I were going over the identification points, Jack called my office from his cell phone. He had returned to Hwy 28 and had the bird in sight. We immediately drove down the road from the office to observe it together.

At first sight this bird was perched in a willow on the west side of the road, about 12 to 15 feet off the ground and only 30 feet away. It was looking straight on at first, but soon began to turn to the left and right, providing good views of several identifying features. It also would pick up its feet periodically to warm them, as the wind chill was quite extreme.

I watched from my vehicle from a distance of about 30 feet, both with the naked eye to get a good look at the relative size of the bird and with my binoculars in order to observe detailed field marks. The first thing I observed was the large and stout size of the bird. It was puffed up in the breast due to the cold, but I watched for other indications of its true size. While the tail was tucked together tightly as it perched, the total length of the tail stood out, being about the same size as the bird's body.

As the bird turned its head to the left, I immediately noticed the bill. It was about as long as the distance across the head, not as stout at the base as a Common Grackle, relative to its length, and the upper mandible was rather straight and not as deeply curved as in a Common Grackle. The size and shape of the bill were the first convincing feature of its identification. I also noticed the rather flat crown of the bird. The head was not rounded, as in other blackbirds, but distinctly flattened.

I also noted the amount of iridescence on the bird. It lacked the purple-green gloss on the head and shoulders as in a Common Grackle, but instead showed a black-blue gloss on the breast and flanks. The legs and feet were all black.

Finally, the bird took flight to the south and landed in a cottonwood tree about 75 yards beyond. We drove forward to observe it from here. As it flew the large size of the tail was very noticeable. While the tail looked quite

Figures 6, 7, and 8. Three views of the Great-tailed Grackle found near Horicon were taken on 31 January 2007 by Jack Bartholmai.

long as it perched, it was difficult to see any detail of its shape as it was tucked together. In flight, the long tail and deep wedge shape was apparent. The bird perched in the cottonwood for only a short period of time (about 2 to 3 minutes), but while in this tree it was accompanied by two kestrels which it had been seen with over the past day or more. The kestrels provided additional comparison of the size of this bird. While I expect a Common Grackle to appear about the same size as a kestrel, this bird was more than one and a half times the size of the nearby kestrels. This provided a clear comparison of its apparent large size when it was perched alone.

From here, this bird flew across the road and perched in a red-osier dogwood bush. It flew over the highway to the east and, being parked the west side of the road, I was able to observe it from behind as it flew towards its perch. As the bird flew slightly up to reach its perch it spread its tail wide and showed the very large size, wide spread of the feathers, and this distinct wedge or diamond shape. As it landed I noted the bird briefly put its bill in the air upon reaching its perch. Here the flat crown and long bill were apparent. While I have noted this behavior in other icterids as a sign of dominance among others of their kind, it reminded me of observations of Great-tailed Grackles as they perched alone in palm trees where I have seen this species quite often in my travels.

The other item of note was as it perched in this open shrub and was more subject to the wind. The tail feathers would separate and show a somewhat ragged edging to the very tips of the rectrices. In observing Common Grackles, whose tail is relatively long, I have rarely seen the wind separate the tail feathers. Rather they tend to be held tightly together, since they are not that extremely long. In Great-tailed Grackles, I have commonly noticed the tail feathers separate as the birds perch or the wind blows the very long tail feathers apart.

After about 15 minutes of careful observation, I saw the bird fly down into the cattails and I needed to return to the office to tend to work. However, I left absolutely convinced of what I saw and was glad to add confirmation to the observations and suspicions of Larry and Jack.—*Bill Volkert, Horicon, WI.*

Spruce Grouse by Tom Prestby.

Up close with a Pileated Woodpecker by Laura Erickson

# WSO Records Committee Report Winter 2006–2007

***Jim Frank***

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The WSO Records Committee reviewed 41 records of 15 species for the winter 2006–2007 season. Thirty-five of the records were accepted. The most unusual of these records was Wisconsin's first Great-tailed Grackle, pushing the state list to 428 species. On the heels of the second Slaty-backed Gull record for the state in November, there came the third and fourth reports in December and January.

## Accepted Records

**Barrow's Goldeneye—**

#2006-055 Milwaukee Co., 2 December 2006–6 January 2007, Frank; 24 December 2006, Mooney; 12 January 2007, Bontly.

#2006-097 Kenosha Co., 16 December 2006, R. Hoffmann.

#2007-001 Ozaukee Co., 20 January 2007, T. Wood.

#2007-002 Sheboygan Co., 14, 23, 28 February 2007, Brasser, Brasser.

These drake Barrow's Goldeneyes were observed to have a dark head with a white crescent-shaped facial spot, a steeper forehead than the Common Goldeneyes, black extending down the flanks encompassing white spots (instead of white extending up the edge of the back encompassing black spots). This black extended down even farther at the shoulder area than along the flanks.

The Milwaukee County Barrow's Goldeneye returned, giving us a bird in 5 of the past 6 winters at Doctor's Park and 12 of the past 13 winters if the Virmond Park seven year run of winter sightings is included. This winter there was finally evidence of other individuals wintering on the Lake Michigan shoreline.

**Red-necked Grebe—**

#2007-003 Manitowoc Co., 10 January 2007, Shillinglaw.

This bird swam lower in the water than nearby ducks, had a longer neck, and a flattened head. It was smaller than the Red-breasted Mergansers, but similar in length to a goldeneye. The bill was large and yellowish in

color. Of significance was the buffy-colored neck and paler, but not white, auricular and throat region above this buffy area.

The bill size eliminates a duck, the size comparison helps eliminate a Horned Grebe, and the neck and auricular coloration eliminates a Western Grebe and loons.

**Green Heron—**

#2006-099 Portage Co., 16 December 2006, Whitmire.

A small heron was described with a grayish-green back, a chestnut-colored breast and extended neck, with a white stripe on the neck.

**Gyrfalcon—**

#2006-090 Ashland Co., 20 December 2006, Anich (photo).

This large hawk was grayish overall with darker gray barring evident. The whitish underparts were barred with gray, more heavily on the lower half, minimally on the uppermost portion. The breast/body seemed disproportionately broad, while the head seemed relatively small. An indistinct moustachial stripe was discernible and the cere was yellow. When the bird was perched, the primary extension was only half as long as the tail.

**Laughing Gull—**

#2006-091 Winnebago Co., 23 December 2006, T. Wood, J. Peterson; 23, 24 December 2006, Tessen.

#2007-004 Racine Co., 7 January 2007, Fare.

These first winter birds were slightly smaller than Ring-billed Gulls with proportionally longer black legs, and a dark, proportionately longer, slightly droop-tipped bill. The folded wings were brownish, the mantle a darker gray than the ring-bills, and the primary tips were very dark in color. The back of the head had a grayish hood effect that gave way to a white forehead and throat. Thin white eyelids were also reported.

**Slaty-backed Gull—**

#2006-092 Winnebago Co., 16 December 2006, 1 January, 28 February 2007, Tessen; 19, 30 December 2006, Gustafson; 20 December 2006, S. Cutright (photo); 23 December 2006, T. Wood; 1 January 2007, Franke (photo).

#2007-005 La Crosse Co., 2, 3 January 2007, D. Jackson (photo).

This large gull was similar in size to the Herring Gulls present, but its mantle was strikingly charcoal gray in color, quite similar to the mantle color of a Lesser Black-backed Gull.

The body shape was more robust than the attenuating folded wing profile of a Lesser Black-backed. The head, breast, and tail of this individual were white. A yellow bill with a smudge of black and red toward the tip of the lower mandible were also evident. In contrast to the yellowish legs of a Lesser Black-backed, this bird had pink legs. The distinguishing characteristic for this species relative to the Great and Lesser Black-backed Gulls as well as Western Gulls is the "string of pearls" description given to the tips of the outer primaries. More precisely, the subterminal areas of the 6$^{th}$ -8$^{th}$ primaries exhibited white crescents between the charcoal proximal portion of the primaries and the black subterminal tip of the primaries. This pattern was evident on both the upper

and lower wing surfaces. Completing the wingtip description were fairly large white spots on the 9th and 10th primaries. Observers also noted a wider white caudal edge to the entire wing relative to the Herring Gulls.

The limited brownish streaking on the head and indistinct markings on the bill of the Winnebago County bird suggest a third year bird; whereas the lack of streaking and distinct red and black lower mandibular markings suggest the La Crosse County bird to be an adult bird.

Following closely the November 2006 report of a Slaty-backed Gull in Douglas County, these two reports represent the state's third and fourth records.

**Purple Sandpiper—**

#2006-093 Sheboygan Co., 19 December 2006, M. Peterson; 2 January 2007, Prestby (photo).

#2006-094 Racine Co., 28 December 2006, Gustafson, Dixon (photo).

These stocky, plump Killdeer-sized shorebirds were purplish-gray in overall color with a thin white eye ring, purple-gray upper breast, and purple-gray streaks down the sides of the lighter lower breast. The somewhat longer bill was orange on the proximal third and dark distally, where it drooped slightly. The short legs were bright orange.

**Eurasian Collared-Dove—**

#2006-072 Grant Co., 8 January–22 February 2007, Romano.

This stocky dove was larger than a Mourning Dove with a squared off tail. The overall whitish coloration of the bird was accented by a black collar on the hindneck and dark gray undertail coverts with black on the proximal outer undertail feathering.

This bird had been present since 19 April 2006 at this location.

**Selasphorus (sp.) Hummingbird—**

#2006-075 Kenosha Co., 3 December 2006, T. Wood.

This hummingbird was a holdover from the fall season at this residence. It exhibited a green crown and back, white throat and breast feathering, a small iridescent red patch of throat feathering, and buffy orange flanks. The bill was thin, long, and straight.

**American Pipit—**

#2006-101 Door Co., 16 December 2006, Cochrane.

A Horned Lark-sized bird was noted walking on the shore of Lake Michigan, periodically wagging its tail. Its general color was brownish with streaks. The outer edges of the tail were white. The bill and legs were dark, the bill long and thin, more flycatcher-shaped than sparrow-shaped.

**Pine Warbler—**

#2007-006 Winnebago Co., 9, 28 February 2007, Tessen.

This warbler was seen at a suet feeder. Noted were a green-brown back, yellow throat and upper breast, white belly, and white wingbars. Several dark streaks were evident on the sides of the upper breast. The beak appeared a bit larger in proportion to the bird than is expected for other warbler species.

The homeowners indicated this bird had been a visitor to this feeder since the 10th of December. This is the ninth November or winter record for this species in Wisconsin.

**Rose-breasted Grosbeak—**

#2006-096 Ashland Co., 19 December 2006, Brady (photo).

Photographed visiting a feeder, this young male individual exhibited a flesh-colored, heavy, conical bill. The head had a dark brownish crown, cheek, and lateral throat stripe broken by a whitish superciliary line, and a whitish malar stripe. The back and wings were brownish-black and the breast was white with a few tiny dark streaks laterally. The upper breast showed a rosy-red inverted triangle.

**Great-tailed Grackle—**

#2007-007- Dodge Co., 30 January 2007, Michael; 31 January 2007, Volkert, Bartholomai (photo); 1 February 2007, Gustafson; 1, 16 February 2007, Tessen; 14 February 2007, Bontly; 19 February 2007, T. Wood.

This very long-tailed grackle was almost crow-sized in length due to the tail. In typical grackle fashion, the tail was keel-shaped. Although the bird was very long, the wingspread was only slightly more than a Common Grackle, not nearly crow-sized in this aspect. Distinguishing this bird from a Boat-tailed Grackle was a flat forehead extending out to the longer bill, without a break in the contour. Completing the field marks was a yellow eye.

This is Wisconsin's long-anticipated first record for the species.

## Records Not Accepted

**Red-necked Grebe—**

#2006-098 Ozaukee Co., 14 December 2006.

This grebe was described as having an overall grayish in color with a darker brownish neck and a yellowish bill. No relative size was indicated and no comparison to other grebes was made.

Although the description probably best fits a Red-necked Grebe, some size reference would help eliminate a young Horned Grebe as would specific mention of the lighter ear area on the Red-necked Grebe in comparison to the more extensive white on the ear area and throat of a young Horned Grebe. A bill shape/size description would be useful as well.

**Gyrfalcon—**

#2006-100 Grant Co., 15 December 2006.

This brief observation was made from inside a slowly driven car as the bird flew past at close range. It was reported to be Red-tailed Hawk-sized, uniformly gray with barring evident on the underwing, and relatively long undertail. The upper surface of the bird was gray. It flew with steady wing beats and had slightly pointed wings.

Gyrfalcons are always hard to describe because of the lack of striking field marks and the normally brief looks that are permitted. This report might have benefitted from definitively stating that the bird lacked the eyeline of a Northern Goshawk, the white undertail coverts of a goshawk, instead of relying only on the flight pattern to eliminate an accipiter.

**Slaty-backed Gull—**

#2006-092 Winnebago Co., 28 December 2006.

This report is very likely the Slaty-backed Gull seen by numerous others; however, this observer suffered the misfortune of watching this bird for

more than an hour in which time the bird did not stretch its wings nor fly. This failure to show evidence of the white subterminal crescents on the 6th - 8th primaries needed to exclude other large dark-backed gulls from the Slaty-backed Gull identification prevents acceptance of this report.

**Purple Sandpiper—**

#2006-093 Sheboygan Co., 20 December 2006–1 January 2007.

This two sentence description indicated small shorebirds and an entirely orange bill with no indication of its length or shape. These inconsistencies in the description create confusion as to the identity, but could be clarified by a more complete effort at describing the birds.

**Great Gray Owl—**

#2006-095) Shawano Co., 16 December 2006.

This very limited description simply states that the bird was large, had yellow eyes, dark feathers, a white bowtie, and a black moustache. The only additional characteristic mentioned that doesn't also fit a Great Horned Owl is the suggestion that there were rings around the eyes.

Starting the description with more general structural features would probably have lifted the doubt in this report. An indication of ear tufts or a specific lack of them would be important as would comparison to the features of a Great Horned and Barred Owl would also assist the completion of this documentation.

Of interest is the indication that this bird has been present in this area of Shawano County for 10 years and that another bird was heard responding to its hoots.

**Hoary Redpoll—**

#2007-008) Iron Co., 22 January 2007.

The identification of this bird was based primarily on the relative whiteness compared to the other redpolls. Faint striping was described on the sides, upper and lower tail coverts.

No mention of the breast color was made, nor was any indication that the bill shape was shorter than that of the Common Redpolls. Little if any streaking would have been expected on the rump and undertail coverts instead of the amount described. Without a more extensive comparison, this bird could fit well in the spectrum of variation of the Common Redpoll.

Snowy Owl in flight by Jack Bartholmai

# WSO Awards—2007

The Board of Directors of the Wisconsin Society for Ornithology presented four awards on 19 May 2007 during the annual convention of the Society in Richland Center.

### Green Passenger Pigeon Award

The Green Passenger Pigeon is the Society's newest award and given for outstanding contributions to and excellent work in conservation on behalf of birds in Wisconsin. The 2007 Green Passenger Pigeon award was bestowed on the Wisconsin Department of Natural Resources Bureau of Endangered Resources (BER), (Fig. 1). This agency is the foremost conservation group in state government, serving as the prime driving force in cooperative efforts on behalf of Forster's and Common Tern, Bald Eagle, Osprey, Whooping Crane, Eastern Bluebird, Trumpeter Swan, Peregrine Falcon, and Cooper's Hawk. Each removal of one of these species from the endangered or threatened list in our state is a testimony to the dedication of the staff of the BER. Always working on a shoestring budget that comes mostly from voluntary contributions, BER has demonstrated an exceptional capacity to conserve bird species in Wisconsin. Accepting the award on behalf of the entire staff of BER was Signe Holtz, Director of the Wisconsin DNR Bureau of Endangered Resources.

Figure 1. Members of the staff of the WDNR Bureau of Endangered Resources, from left to right: Randy Jurewicz, Signe Holtz, Sumner Matteson, Bill Smith, and Beth Goodman.

### Bronze Passenger Pigeon Award

The Bronze Passenger Pigeon is presented to individuals who have made exceptional contributions to the study and appreciation of birds outside of service to WSO, particularly at the state or local level. The 2007 Bronze Passenger Pigeon award was given to Laura Erickson (Fig. 2) for her incredible accomplishments as a public educator through radio programs, books, and her weblog—reaching 1000s of citizens not only in Wisconsin, but across the United States. Laura informs the public about many bird related subjects, always giving a broad and knowledgeable conservation focus. She writes articles and keeps track of migration for an online education program, "Journey North." Her books include: *For the Birds—An Uncommon Guide, Sharing the Wonder of Birds with Kids*, and *101 Ways to Help Birds*. She is a former licensed rehabilitator and has shared her home with birds and as an educator has federal and state permits to use live birds in her educational presentations. Although Laura's home is in Duluth, Minnesota, she started her bird career in Wisconsin and can still be found frequently in our state giving her extremely entertaining presentations. She is listed in Who's Who of American Women and Who's Who in Media and Communication.

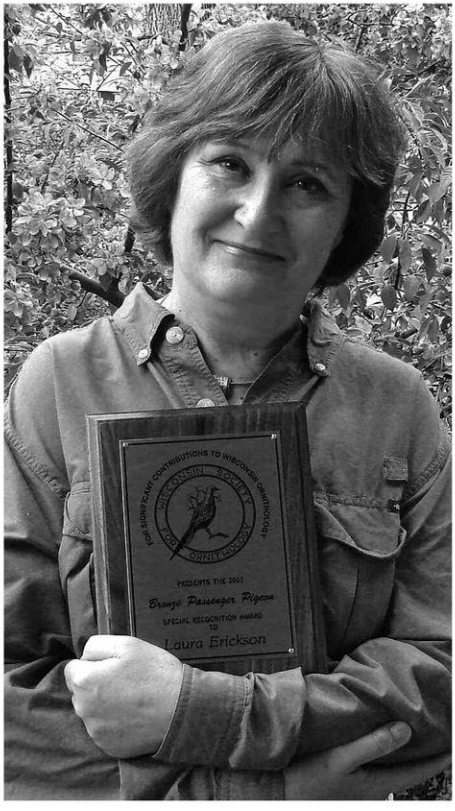



Figure 2. Laura Erickson

### Silver Passenger Pigeon Award

The Silver Passenger Pigeon Award is given to individuals who have served the Wisconsin Society for Ornithology in an outstanding and dedicated manner—both in quality and length of service to the Society. The 2007 Silver Passenger Pigeon Award was presented to Janine Polk. Janine has served 2 five-year terms on the WSO Records Committee, and 15 years as the Chair of the Scholarships and Grants Committee. She was in charge of field trips for the Chippewa Falls and Eau Claire Conventions, participants in many Christmas Bird Counts in her area, and has run two BBS routes—one for more than 25 years and the other for more than 10 years. She is certainly one of the state's most expert birders and a strong supporter of WSO.

### Certificate of Appreciation

The Certification of Appreciation is given to individuals who have already received a Silver Passenger Pigeon Award but continue to serve WSO in various capacities. The 2007 Certificate of Appreciation was presented to Bettie Harriman (Fig. 3) and reads in part: "Whereas she serves as co-editor of *The Passenger Pigeon*, procuring quality articles of ornithological interest, including the seasonal reports, with highlights in "By the Wayside," plus insuring that the quarterly issues are on schedule with the appropriately dated material; and served for more than 10 years as the chairperson for Wisconsin's first Breeding Bird Atlas, where she directed the steering committee, guided regional coordinators, hired an array of hard-working field personnel, prepared highly informative Atlas newsletters, presented Atlas programs across the state, helped raise funds, and generally gave generously of her time and energy for a project for which the State of Wisconsin can be proud; and was a co-editor for the *Atlas of the Breeding Birds of Wisconsin*, the highly successful book published by the WSO in May 2006; and served as Publicity Chair for many years, making known the existence and merits of our organization, and coordinating a seminar on Wetland Birds in 1999, the third in a series of highly successful WSO winter seminars; and continues to provide most valuable and thoughtful insight and leadership as a member of the WSO Board of Directors; be it resolved that the Wisconsin Society for Ornithology, Inc. expresses its grateful appreciation to Bettie Harriman in recognition of her exceptional service to the Society."


Figure 3. Bettie Harriman

Snowy Owl landing by Gary Krogman

# Report of the Annual Meeting 19 May 2007

## Minutes of the 2007 Annual Business Meeting of the Wisconsin Society for Ornithology

In the student center of the University of Wisconsin-Richland, Richland Center, at the 68th Annual Wisconsin Society for Ornithology Convention, President Dave Sample called the annual business meeting to order at 12:00 pm on Saturday, 19 May 2007.

Sample extended his congratulations to the WSO Convention Planning Committee (Scott Baughman, Jeff Baughman, Christine Reel, Joan Sommer, Marilyn Bontly, Charlie Geiger, Christine Zimmerman, and Margaret Brasser; also including Bob Hirschy and Barbara Duerksen in 2007) for choosing to explore the Richland Center location as our convention site.

The minutes of the last business meeting had previously been approved by a reading committee (Chuck Heikkinen and Carol Goegeline) and were published in the Fall 2006 issue of *The Passenger Pigeon*, where they are available for review. Chuck Heikkinen (again, thank you) and Dave Sample agreed to review the minutes of the 2007 WSO business meeting. After much delay, however, and need for last-minute modification, two new reviewers for the minutes of the 2007 meeting were enlisted: Bill Brooks and Jesse Peterson.

WSO Treasurer Christine Reel summarized the Financial Report (see *The Wisconsin Society for Ornithology, Inc., Annual Report, May 2006–May 2007*, pp. 1–5). Reel called attention to the notes on page 1: Membership income roughly covered expenses of maintaining membership, as required by the Policies of the organization; members again donated an amazing amount of funds to the organization; and the amount available to cover general operating expenses as of 2006 year-end was just over $74,000. Members were reminded that WSO administers a number of funds, and the amounts earmarked for those funds must be segregated from amounts WSO can spend for its programs. In addition, donations to WSO for a specific purpose must be kept for that purpose (see Restricted Revenue/Expenses, p. 3)

The numbers in the WSO Balance Sheet (pp. 4–5) reflect a much greater accumulation of interest, Reel said, because WSO has moved some funds from low-interest savings accounts into money market funds.

The bank forced WSO to change all of its accounts into business accounts—the accounts had been set up over a period of 25+ years in a variety of account types, none of which was subject to fees. Reel worked with a banker to maximize the flexibility of the bank accounts while minimizing fees. The system now requires vigi-

lance, but Reel hopes to continue to manage the bank accounts without incurring further fees.

Why does WSO maintain separate bank/money market accounts, it was asked; why segregate some of the funds? The separate accounts guarantee that the interest generated goes back to the source funds without the need to determine allocations, Reel said. Maintaining segregated accounts makes the job easier for the Treasurer.

Reel said thank you to WSO membership for allowing her to serve. Sample said thank you to Reel, for you have our eternal gratitude.

WSO President Dave Sample initially thanked WSO member Mark Korducki for taking on the duties of overseeing the WSO hotline (262. 784. 4032). He then called attention to one item in his written report (p. 5, *WSO Annual Report, May 2007*), the first "named fund" established explicitly for bird conservation. Noel Cutright spearheaded this effort, Sample said, and worked with Charlie Luthin of the Natural Resources Foundation to set aside seed money, generated by Cutright during his Quad 30 campaign, for an endowed fund to benefit Wisconsin's Important Bird Area program.

*Passenger Pigeon* co-editor Bettie Harriman also called special attention to an item in the editors' written report: Ken Lange is retiring after 27 years of compiling the Winter season reports for *The Passenger Pigeon.* WSO extends a very special thank you to Ken Lange for a job well done, she said. The gathered WSO members applauded lengthily.

Harriman said she discovered the person replacing Lange after she read the Bird Reports Coordinator's report (see p. 7, *Annual Report*). Kay Burcar Kavanagh will be the first female WSO Winter season compiler, and Kim Kreitinger will be the first female Big Day reporter.

Please keep sending contributions to *The Passenger Pigeon,* Harriman said, and keep sending pictures to the Art Editor, David Kuecherer.

Awards Committee chair Daryl Tessen said that several awards for special people will be presented tonight at the convention banquet.

Tessen reported that the WSO Board had talked at its April meeting about sponsoring another bird book for Wisconsin. After long discussion, he said, he gave a tentative okay for his compiling another edition of *Wisconsin's Favorite Bird Haunts.* Like previous *Haunts,* Tessen said, the book will be limited in size and will have maps. But it will incorporate some new things, which will be reviewed by a committee (Tom Schultz, Jeff Baughman, Jesse Peterson, and Tessen). Please tell us what you want, Tessen asked. The success of the book depends on you. You can circle the state to update sites; it's a great state to bird, as you can see from the field trips.

Thanks for taking on a new *Haunts,* Sample said. It's a unique and special state bird guide, and it's thrilling that you're doing it.

When have I not had something to say, said Bird Reports Coordinator Randy Hoffman, adding to his written comments (p. 7, *Annual Report*). How do you report the birds that you've seen? Hoffman will post a guideline on Wisbirdn and print the guide in *Badger Birder.* Records Committee chair Jim Frank will publish an article on how to report rare birds. There's a comfort

level with reporting birds, Hoffman said. How do you report? What do you document? What do you do? This is all to come.

WSO Bookstore Manager Don Reel repeated one item in his written report (p. 7, *Annual Report*): last year WSO sold over 1,700 copies of *Atlas of the Breeding Birds of Wisconsin* [edited by Noel J. Cutright, Bettie R. Harriman, Robert W. Howe (Waukesha: Wisconsin Society for Ornithology, 2006)].

WSO Education chair Mariette Nowak's book on landscaping for birds has been published. [*Birdscaping in the Midwest: A Guide to Gardening with Native Plants to Attract Birds*, by Mariette Nowak. Bird photography by Jack Bartholmai. Blue Mounds, WI: Itchy Cat Press, 2007.]

The first week in June, Field Trip co-chair Jeff Baughman said, birders will be in the northern Kettle Moraine.

Are there any questions about the membership charts (p. 9, *Annual Report, May 2007*), asked WSO Membership chair Jesse Peterson. We report membership totals for every year for the last 10 years. It's been fairly stable for the past 4 years or so; the drop-off in 2006 was mainly because WSO had fewer new members.

Peterson gave a plug for the electronic version of the *Badger Birder*: it's eco-friendly, it's easy to use, and it's easy for me to send out. We now have about 200 member-subscribers to *e-Badger Birder*, and we'd like to encourage WSO members to sign on to reduce paper and mailing costs.

Youth Education chair Barbara Duerksen gave an update to the written report (p. 11, *Annual Report*). The 18th Bird Conservation Mentor kit was prepared today, she said. It goes to the Hunt Hill Audubon Sanctuary in Rice Lake. Thanks to everyone for their contributions to this project fund.

Congratulations, and thank you, Barbara, President Sample said; you live here in Richland Center, a truly incredible place.

Honey Creek Birdathon/Bandathon coordinator Carl Schwartz gave a report on this year's birdathon/bandathon, which had apparently been rained out. Not so, said Schwartz. We started at 3:50 am, thought we'd lucked out, hearing both Whip-poor-will and Barred Owl. By 5:00 am, we saw the clouds coming in, and after 5:30 it rained hard for 3 hours. On-off weather, Schwartz said: 92 species by day-is-done, with a Canada Warbler by the pond, where the Black-throated Blue was last year. Thanks for your pledges, said Schwartz, and for the publicity.

President Sample asked anyone interested in dealing with invasive species at the WSO Honey Creek Preserve please to contact Honey Creek chair Barb Morford, for she has undertaken this battle.

Bill Brooks presented the report from the WSO Nominating Committee, comprising Jeff Baughman, Judith Huf, and Brooks. He said that Secretary Jane Dennis, Treasurer Christine Reel, and Co-editors Bettie Harriman and Neil Harriman were all willing to continue in their WSO posts, and the committee approved their nominations. Are there more nominations? Dave Sample was nominated to be WSO President, and Jesse Peterson, Vice President. Hearing no more nominations, it was moved that WSO members accept the slate of nominees as proposed and the nominations as

voiced. The motion was seconded and approved.

It was announced that the 2007 WSO Convention Committee was taking orders for convention T-shirts, for which thanks were extended to Tom Schultz.

The WSO Convention next year will be hosted by Riveredge Bird Club, at Mequon Nature Preserve, on the third weekend in May. The 2007 WSO Convention Committee comment form is in everyone's packet, and a box remains in the bookstore for retrieval of the form.

The location of the WSO website is to be changed, Noel Cutright said. Does anyone have suggestions? Look at other state ornithological society websites for content ideas, he said.

The business meeting for the 68th annual WSO convention was adjourned at 1:00 pm.

[*A complete copy of these minutes may be obtained from Jane Dennis, Secretary, 138 S. Franklin Avenue, Madison, WI 53705-5248; 608. 231. 1741; jadennis@facstaff.wisc.edu.*]

## Financial Report
## May 2006–May 2007

WSO's Policies (adopted April 2005) state that annual dues payments shall cover the cost of membership services—that is, all costs in providing *The Badger Birder, The Passenger Pigeon,* and other direct membership benefits, and the costs associated with maintaining membership and soliciting renewals and new members. The breakdown of those costs during 2006 is as follows:

| | |
|---|---|
| *Pigeon–* | |
| Expenses for 2006 (the usual 4 issues, not including color printing) | $18,081 |
| *Birder–* | |
| Expenses for 2006 (10 issues ) totaled | $6,697 |
| pro-rated expenses (if the usual 11 issues had been paid for) | $7,367 |
| Total usual publication costs | $25,448 |
| Membership expenses | $1,069 |
| **Total cost of membership services** | **$26,517** |
| Membership dues received | $25,650 |
| Library subscriptions/ back issues | $444 |
| **Total membership-related income** | **$26,094** |

The costs of membership services and membership income were roughly equal during 2006.

Donations to WSO during 2006 amounted to an amazing total of $22,867, including $6,087 in support of Honey Creek, our Baraboo Hills nature preserve. Thank you for your generosity in supporting our programs. It is owing to that generosity that WSO currently is in a solid financial position.

Of the total assets as of 31 December 2006 ($485,052—*see III. WSO Balance Sheet as of 31 December*), the amount available to cover general operating expenses is $74,398; the remainder is restricted. All of the amounts listed as received in *Restricted Revenue in Part I,* as well as in *II. Grants Administered by WSO and Other Non-budget Projects* must be reserved for their intended uses.

## Financial Summary

**I. WSO Statement of Revenue and Expenses, 2001-2005**

| Unrestricted Revenue* | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| Birder Adv/Back Issues | 505.00 | 750.00 | 741.00 | 837.00 | 799.00 |
| Convention | 1,980.10 | 2,450.11 | 5,259.00 | | 2,522.88 |
| Donations-Unrestricted | 4,196.00 | 5,381.53 | 8,611.00 | 8,311.00 | |
| Hotline | 478.30 | 25.65 | 25.65 | | |
| Other | | | | 1,665.46 | 2,012.00 |
| Interest/Dividends | 5,964.41 | 3,049.41 | 634.34 | 438.64 | 1,357.69 |
| Membership Dues | 25,650.00 | 34,365.00 | 34,320.00 | 37,058.00 | 31,088.25 |
| Pigeon-Subscr/Back Issues | 444.00 | 1,882.25 | 930.00 | 813.00 | 879.92 |
| Color Fund | 1,105.00 | 1,742.24 | | | |
| WSO Pubs/Bookstore | 617.65 | 2,781.99 | 3,559.93 | 6,486.74 | 8,950.50 |
| Miscellaneous | 950.55 | | 5,563.92 | | |
| **Total Unrestricted Revenue** | **41,891.01** | **52,428.18** | **59,644.84** | **55,609.84** | **47,610.24** |

* Unrestricted Revenue includes some amounts that are actually restricted as to use (e.g., donations for hotline and color printing in the *Pigeon*). They are included here because we are committed to covering costs incurred by these programs from general operating funds if donations do not cover 100% of the costs.

| Expenses (Unrestr Rev) | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| Administration | 118.92 | 145.83 | 172.91 | 297.92 | 477.50 |
| Awards | 49.00 | 147.00 | 160.00 | 289.00 | 114.60 |
| Bird Reports Coord | 115.44 | 292.87 | 433.99 | 156.77 | 51.16 |
| Birder-Mailing | 1,930.90 | 2,615.89 | 2,374.96 | 1,994.30 | 1,425.51 |
| Printing | 4,765.86 | 6,474.24 | 4,787.60 | 4,467.01 | 8,550.74 |
| Conservation | 100.00 | | | | |
| Convention | | 530.00 | 655.00 | | 1,280.00 |
| Field Trips | 52.49 | 59.99 | | | |
| Hotline | 269.76 | | | 75.60 | 88.45 |
| Membership | 1,068.74 | 1,946.39 | 1,034.08 | 1,437.95 | 1,274.69 |
| Pigeon-Mailing | 2,503.28 | 2,595.25 | 3,685.50 | 1,305.85 | 1,757.42 |
| Page Comp, Printing, etc. | 15,578.01 | 18,894.65 | 24,010.22 | 8,625.99 | 13,849.04 |
| Color Printing | 1,864.01 | 732.65 | | | |
| Publicity | | 25.00 | 444.00 | 185.00 | 647.75 |
| Records | 154.23 | 125.95 | 151.60 | 166.89 | 220.53 |
| Schol/Grants | 2,375.00 | 1,600.00 | 3,000.00 | 2,950.00 | 2,000.00 |
| Treasurer | 517.65 | 563.36 | 358.44 | 529.27 | 208.81 |
| WSO Pubs/Bookstore | 995.00 | 1,131.54 | 1,211.10 | 1,048.96 | 1,155.75 |
| Printing | 562.90 | | | 7,179.30 | 157.80 |
| Youth | 11.42 | 45.99 | 28.97 | 140.36 | |
| Miscellaneous** | 1,350.00 | 1,100.00 | 200.00 | 900.00 | 663.80 |
| **Total Expenses (Unrestr Rev)** | **34,382.61** | **39,026.60** | **42,708.37** | **31,750.17** | **33,923.55** |

** Miscellaneous support during 2006:
American Bird Conservancy, $100
Flying WILD, $1,000
Land Legacy Report, $250

| Restricted Revenue | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| Endowment-Donations | 174.27 | 55.00 | 1.00 | 161.00 | 292.00 |
| Interest/Dividends | 2,672.94 | 1,518.11 | 54.85 | 43.62 | |
| Life/Patron Memberships | 3,600.00 | 2,975.00 | 3,800.00 | 4,000.00 | 1,450.00 |
| Honey Creek-Donations | 1,121.00 | 4,741.00 | 1,751.00 | 696.00 | 1,340.45 |
| Bandathon | 4,966.26 | 5,549.50 | 3,140.47 | 2,713.73 | 2,503.70 |
| Schol/Grants-Donations | 441.00 | 976.00 | 1,931.00 | 2,831.54 | 2,832.00 |
| Haunts Sales | 2,375.00 | 3,110.00 | 3,568.00 | 3,228.00 | 5,838.00 |
| Interest | 2,382.83 | 1,011.35 | | | |
| Youth Schol/Grants Dons. | 406.00 | 1,266.00 | 61.00 | 246.00 | 135.00 |
| WSO Pubs-Atlas Sales | 56,115.67 | | | | |
| Other Donations | 750.00 | | | 486.55 | 2,485.00 |
| **Total Restricted Revenue** | **75,004.97** | **21,201.96** | **14,307.32** | **14,406.44** | **16,876.15** |

| Expenses (Restr Rev) | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| Honey Creek | 4,387.21 | 4,455.62 | 4,912.52 | 4,013.11 | 3,527.94 |
| Youth Schol/Grants | 250.00 | 390.00 | 527.00 | 100.00 | 388.28 |
| WSO Pubs-Atlas Sales | 2,345.85 | | | | |
| Miscellaneous | 750.00 | | | 43.00 | |
| **Total Expenses (Restr Rev)** | **7,733.06** | **4,845.62** | **5,439.52** | **4,156.11** | **3,916.22** |

**II. Grants Administered by WSO and Other Non-budget Projects, 2002–2006**

| Grants | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| Atlas Mgment Income | 1,941.90 | 1,382.57 | 62,111.68 | 7,486.34 | 34,313.73 |
| Atlas Mgment Expenses | –76,020.38 | –10,079.95 | –6,626.57 | –25,960.09 | –34,440.55 |
| Bird Mentor Kits Inc | 3,901.00 | 4,281.00 | 231.00 | | |
| Bird Mentor Kits Exp | –3,827.84 | –4,769.57 | | | |
| Convention Inc | 6,297.00 | | | | |
| Convention Exp | –6,297.00 | | | | |
| Costa Rica Trip Inc | 7,190.00 | 27,000.00 | | | 6,038.20 |
| Costa Rica Trip Exp | –24,760.00 | –9,430.00 | | | –19,888.20 |
| Flying WILD Inc | 1,000.00 | | | | |
| Flying WILD Exp | –0 | | | | |
| Grant-Bald Eagle Inc | 4,557.72 | 4,229.32 | 2,465.25 | 3,623.30 | |
| Grant-Bald Eagle Exp | –4,557.72 | –4,229.32 | –2,465.25 | –3,623.30 | |
| Grant-Nicaragua Inc | 0 | | | | 10,000.00 |
| Grant-Nicaragua Exp | –0 | | | –3,285.65 | –6,714.35 |
| Grant-1 Bird 2 Habitats Inc | 0 | | | | 120.00 |
| Grant-1 Bird 2 Habitats Exp | –0 | | | | |
| Grant-Osprey Inc | 0 | | 14,150.40 | 11,050.00 | 13,000.00 |
| Grant-Osprey Exp | –5,674.05 | –3,722.98 | –12,234.19 | –6,359.46 | –8,142.48 |
| Grant-WNV Tracking Inc | 2,883.76 | 4,184.76 | 13,092.05 | | |
| Grant-WNV Tracking Exp | –2,883.76 | –4,184.76 | –13,092.05 | | |
| IBA Quad 30 Campaign Inc | 3,051.87 | 18,603.92 | 30,868.60 | 150.00 | |
| IBA Quad 30 Camp Exp | –0 | –4,170.40 | | | |
| MBS/CTB Summit Inc | 0 | | | 83,416.07 | 5,029.20 |
| MBS/CTB Summit Exp | –0 | | | –90,935.33 | –23.78 |
| Nicaragua Field Gd Inc | 0 | 570.00 | 1,220.00 | 490.00 | |
| Nicaragua Field Gd Exp | –0 | –1,480.00 | –220.00 | –490.00 | |
| Raptor Res Inc | 500.00 | | | | |
| Raptor Res Exp | –0 | | | | |
| SRSEF Inc | 969.51 | 2,799.59 | 1,690.71 | 1,353.35 | 1,062.52 |
| SRSEF Exp | –472.50 | | | | |
| WBCI Gull Symp Inc | 0 | | 1,245.00 | | |
| WBCI Gull Symp Exp | –0 | | | | |
| WBCI IBA Coord Inc | 21,549.45 | 33,828.19 | 44,171.81 | 20,000.00 | |
| WBCI IBA Coord Exp | –20,765.12 | –38,805.28 | –40,343.36 | –16,635.69 | |

| Grants (Continued) | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| WBCI IBA Migr Surv Inc | 7,056.00 | | | | |
| WBCI IBA Migr Surv Exp | –1,214.52 | | | | |
| WBCI PR/Nat Tr Coord Inc | 0 | | 48,578.63 | 15,525.00 | |
| WBCI PR/Nat Tr Coord Exp | –1,031.87 | –625.00 | –50,297.43 | –12,149.33 | |
| Workshop-GWWA 2005 Inc | 0 | 10,646.10 | | | |
| Workshop-GWWA 2005 Exp | –350.00 | –7,791.04 | | | |
| WSO/WBCI Symp Inc | 755.00 | 6,401.47 | 2,927.00 | | |
| WSO/WBCI Symp Exp | –460.87 | –9,174.40 | –154.07 | | |
| Misc Inc | 525.00 | | | | |
| Misc Exp | –0 | | | | |

**III. WSO Balance Sheet as of 31 December 2006**

| | 2006 | 2005 | 2004 | 2003 | 2002 |
|---|---|---|---|---|---|
| Checking-WSO | 1,750.46 | 735.48 | 2,170.45 | 2,924.12 | 2,582.70 |
| Bookstore | 5,006.34 | 2,127.10 | 4,176.07 | 6,805.88 | 6,043.44 |
| Slides | 1,362.68 | 1,362.68 | 1,539.24 | 7,156.64 | 7,007.79 |
| General-Savings | 51,480.92 | 57,158.58 | 140,606.88 | 78,391.40 | 34,873.01 |
| Money Mkt | 158,309.76 | 102,724.57 | 17,229.09 | 17,146.24 | 17,037.90 |
| Endowment-Savings | 17,886.55 | 14,001.41 | 14,158.45 | 10,302.60 | 16,120.98 |
| Money Mkt/Mut Funds | 61,252.77 | 54,893.43 | 47,220.54 | 43,494.39 | 36,646.21 |
| MBS-Savings | | | | | 7,520.05 |
| Atlas Mgment-Savings | 510.01 | 41,794.29 | 110,876.96 | 55,391.85 | 70,363.31 |
| Money Mkt | 27,591.09 | 60,385.29 | | | |
| Schol/Grants-Money Mkt | 50,865.99 | 46,011.35 | | | |
| SRSEF-Savings | 5,913.25 | 6,101.41 | 5,508.11 | 3,817.40 | 2,867.70 |
| CD | 20,849.50 | 20,164.33 | 18,269.25 | 17,793.71 | 17,587.38 |
| Inventory-WSO Pubs | 48,712.79 | 17,169.68 | 21,697.85 | 27,081.61 | 26,455.11 |
| Slides | 1,664.97 | 1,664.97 | 1,590.02 | 1,590.02 | 1,609.85 |
| Fixed Assets (Equip/Land) | 31,895.13 | 31,895.13 | 31,895.13 | 30,410.00 | 38,464.74 |
| **Total** | **485,052.21** | **458,189.70** | **416,938.04** | **302,305.86** | **285,180.17** |

## Annual Reports of Officers

***President—Dave Sample***—I can hardly believe that it has been a year since I became WSO president. Last year's convention in Rhinelander seems like it was about 2 weeks ago; chalk it up to age, I guess. It has been an honor to work with such a dedicated group of board members and other committee members, and I express my thanks to each of them for all of their hard work this year.

Several events of note occurred for WSO this year that bear repeating:

- A celebration of the publishing of the *Atlas of the Breeding Birds of Wisconsin* was held. Congrats to author/editors Noel Cutright, Bettie Harriman, and Bob Howe!
- WSO agreed to commit $1,000 to Project Flying Wild, a "program of the Council for Environmental Education (CEE) which introduces middle school students to bird conservation through standards-based classroom activities and environmental stewardship projects" implemented via a national network of City Partners. We now have a

signed MOU with the CEE that establishes WSO as the Wisconsin State Coordinating partner for Flying Wild.
- Mark Korducki agreed to take over housing the WSO Hotline and keep it running smoothly; thanks Mark!
- Honey Creek Committee chair Barbara Morford took on the task of creating a management committee for the property, to deal with worsening issues of invasive plants and building upkeep. The first work day of this group, spearheaded by members of The Nature Conservancy, was held this past winter.
- We held a successful event, "Symposium 2007: Recent Developments in Wisconsin Ornithology," in Port Washington in late February. The symposium was co-sponsored by WSO, the Wisconsin Bird Conservation initiative (WBCI), the Citizen-based Monitoring Network of Wisconsin, and the Wisconsin Audubon Council. Thanks especially to Andy Paulios, Sheldon Cooper, and Christine Reel for help in organizing this well-attended event (in spite of the bad weather!).
- Noel Cutright spearheaded an effort to create a "Named Fund," through the Natural Resources Foundation (NRF), to benefit Wisconsin's Important Bird Area program. Importantly, this is the first fund established by the NRF explicitly for bird conservation. As seed money for this endowed fund, WSO donated $10,000 of the monies generated by Noel during his Quad 30 campaign. Thanks to Noel and to Charlie Luthin (NRF) for making this exciting funding mechanism a reality.
- The WSO board voted to support bird habitat conservation by selling the Migratory Bird Hunting and Conservation Stamps (also known as federal Duck Stamps). We will also sell inexpensive plastic holders for the stamp that have the WSO logo on the reverse side. Birders can display the stamp on binocular straps, zipper pulls, etc., as an additional sign of their commitment to bird habitat conservation.
- In the world of bird record-keeping, WBCI announced the creation of a special Wisconsin eBird web page. I suggest you check it out. Our bird reports coordinator, Randy Hoffman, now keeps track of all the Wisconsin records posted on that page, in addition to all the other things he keeps track of!

***Vice President – Jesse Peterson***—Primary activities performed in 2006 include research on past annual convention locations and development of potential sites for the 2009 and 2010 conventions.

***Treasurer – Christine Reel***—See Financial Report.

***Secretary – Jane Dennis***—No written report.

***Editors, The Passenger Pigeon – Neil and Bettie Harriman***—Five issues of *The Passenger Pigeon* were produced in 2006: the last issue of Volume 67 and four issues of Volume 68. The last issue of Vol. 68 did not contain a seasonal report and came early in the usual schedule of mailing. Because of this change all four issues of each volume of the *Pigeon* will now appear in the same calendar year and the season stated on the cover of each issue will be the season reported inside the issue. The Editors hope that this will

make it easier for all of us to keep track of the seasonal reports.

Color continues to be used for photographs within the journal as often as possible and all the cover photos are now in color. To continue this practice, please contribute to the **Pigeon Color Fund** so that the costs of printing in color can be covered. And a huge thank you to all who have donated to this fund.

As always, the Editors wish to thank everyone who helps make *The Passenger Pigeon* happen: Art Editor, David Kuecherer (who has taken on even more duties in 2006); Bird Reports Coordinator, Randy Hoffman (keep those reports of birds going to Randy); and the four Field Note Compilers, Karl David (Spring), Thomas Soulen (Summer), Mark Peterson (Fall), and Kenneth Lange (Winter). It is with reluctance and sadness that the Editors say good-bye to Ken Lange as the Winter Season compiler. Ken has done that task for 27 years and the 2006 winter report will be his last. If you have not done the work each seasonal editor does, it is not possible to understand the amount of time and effort the job requires. Ken, we are deeply grateful for all those years of work you have donated to WSO and this journal. THANK YOU. We wish you much enjoyment of your well-earned retirement and happy birding.

We also thank Jim Frank for providing the four Records Committee reports and writing the May Counts article each year (Jim gets a special thanks for getting his articles to us by our deadlines). Wayne Rohde is thanked for providing the Big Day article for several years. Wayne is now retiring from this task, maybe so he can go birding more? Thanks, and good birding, Wayne.

As always, our thanks to each of you who has contributed material for the Pigeon: articles, photographs for documentation of rare birds or for art, and original art work. But remember, editors never have too much material, so please continue to send David Kuecherer your art and photographs and these editors your articles.

## Annual Reports of Committee Chairs

***Awards – Daryl Tessen***—Awards to be announced at convention banquet.

***The Badger Birder Editor – Mary Uttech***—Completed 11 issues of the newsletter.

***Bird Reports Coordinator – Randy Hoffman***—This past year has seen the initiation of the transition from hard copy to electronic reporting. The kickoff of Wisconsin eBird resulted in a dramatic increase in the number of bird sightings. The value to the understanding of patterns and trends in Wisconsin avifauna should be unprecedented. A "How to Report Wisconsin Bird Sightings" guide will be published soon. In essence, WSO will recommend bird sightings should, if at all possible, be reported using Wisconsin eBird. The second method would be to fill in the form at the WSO website and electronically submit it to the Bird Reports Coordinator. The third method would be to print the form and mail it to the coordinator. And finally, the old-fashioned way of requesting forms be sent and submitted by regular mail is still acceptable.

The coordinator will be working with the seasonal editors to sort and filter this vast amount of data to more efficiently tabulate the seasonal reports. In closing, WSO wishes to send a hearty thank you to the winter season editor Ken Lange and Big Day editor Wayne Rhode. After 27 years as winter season editor, Ken is going to enjoy spring birding. Wayne will be equally missed as Big Day Reports editor. WSO wishes to welcome their replacements: Kay Kavanagh has graciously accepted the role of winter season editor and Kim Kreitinger will assume the Big Day Reporting duties.

***Bookstore – Don Reel***—The main purpose of the WSO Bookstore is to provide an outlet for WSO-published materials to WSO members and resale outlets (nature centers, bird stores, ABA, etc.). In addition, the bookstore offers a limited selection of other items of interest to Wisconsin birders.

The bookstore is divided into two parts:

1. The traditional bookstore, which is handled out of my home. I fill these orders, which can be placed directly with me by phone (262. 547. 6128), mail (2022 Sherryl Lane, Waukesha, WI 53188) or email (wsobookstore@hotmail.com).
2. The online bookstore (Nature Mall). Please do not bookmark the Nature Mall, because WSO gets credit for your order **only** when you go through the bookstore page of the WSO website (http://www.uwgb.edu/birds/wso/bookstore.htm).

A major part of bookstore activity since taking delivery in May of more than 3,000 books has been sales of *Atlas of the Breeding Birds of Wisconsin.* By the end of 2006, over 1,700 copies had been sold, and sales have continued at a steady pace during 2007.

The bookstore appeared at Convention 2006 (sales totaled $3,250), the art show celebrating birds of Wisconsin in conjunction with publication of the *Atlas* (sales of $2,385), and Symposium 2007 (sales of $1,100).

Sales for calendar year 2006 totaled almost $70,200. In addition to handling sales requests, I accomplished the following:

- assisted my wife Christine in marketing the *Atlas*;
- kept members informed of bookstore activities via articles in *The Badger Birder*, and posted information of general interest to Wisbirdn;
- offered members new items of importance to Wisconsin birders;
- submitted updated information for the bookstore page of the WSO website;
- attended quarterly Board meetings.

Please contact me with any concerns or requests you have about the WSO Bookstore.

***Conservation – Bill Mueller***—During the past year, I have attended four WSO Board Meetings and worked on the following projects and publications as a representative of WSO:

- Represented WSO on the Bird Conservation Alliance and American Bird Conservancy, signing on

for WSO to a number of group letters and actions.
- Submitted "Conservation Notes" columns to Mary Uttech, for inclusion in *The Badger Birder.*
- Served as Issues Committee Chair of the Wisconsin Bird Conservation Initiative (WBCI).
- Initiated a new "WSO Earth-friendly Birdathon" for spring of 2007, with the intent of raising funds for Cerulean Warbler conservation through the Bird Conservation Alliance of the American Bird Conservancy.
- Co-authored and published, with members of the WBCI Issues Committee, an introduction and a set of Issues Papers in Volume 69, Number (1) of *The Passenger Pigeon.* These papers are all also available online at http://www.wisconsinbirds.org/IssuesPapers.htm. The Issues Committee is continuing work on additional Issues Papers on other topics, including climate change and its potential and current effects on bird populations, the effect of deer herbivory on ground-nesting birds, and a paper on the Mute Swan in Wisconsin.
- Started a new WBCI Issues Committee initiative on creating signage for Lake Michigan beaches to provide information on shorebirds and their protection.
- Provided messages on an array of avian conservation topics to the WisBirdNet statewide birding listserve.

***Education – Mariette Nowak***—I have continued to work on educating people on the value of landscaping with native plants for birds. Since the last annual meeting, I have given 13 talks on landscaping for birds and participated in a bird fest with a table display on the subject. I encourage everyone to landscape their home, school and church yards with native plants for birds—to keep our common birds common and, in the case of larger properties, to provide habitat for less common birds. For more on the subject, see my brochure, "Birdscaping Your Yard," on the WSO website (under Education – Fact Sheets).

***Field Trips – Jeff Baughman and Tom Schultz***—We discovered recently we have now reached 20 years in serving as chairs of this committee, after being invited by Noel Cutright in December of 1986. WSO field trips continue to be popular and well attended, and they provide great opportunities for birders to learn and share skills and experiences. This year we made some revisions to the traditional schedule—one was to change one of the two Milwaukee field trips to Sheboygan, and the other was to move the Eagle trip back to the Necedah area after many years of going to Prairie du Sac. We are always looking for individuals who might be willing to offer and lead field trips in other parts of the state, to help us expand our offerings. Please contact one of us if you are interested in doing so. Thanks to Fred Lesher and Kent Hall for leading trips for us again in 2007!

***Historian – Noel Cutright***—I

- Transported several boxes of WSO-related materials to WSO room at UWGB.
- Worked to organize and file materials in this room.

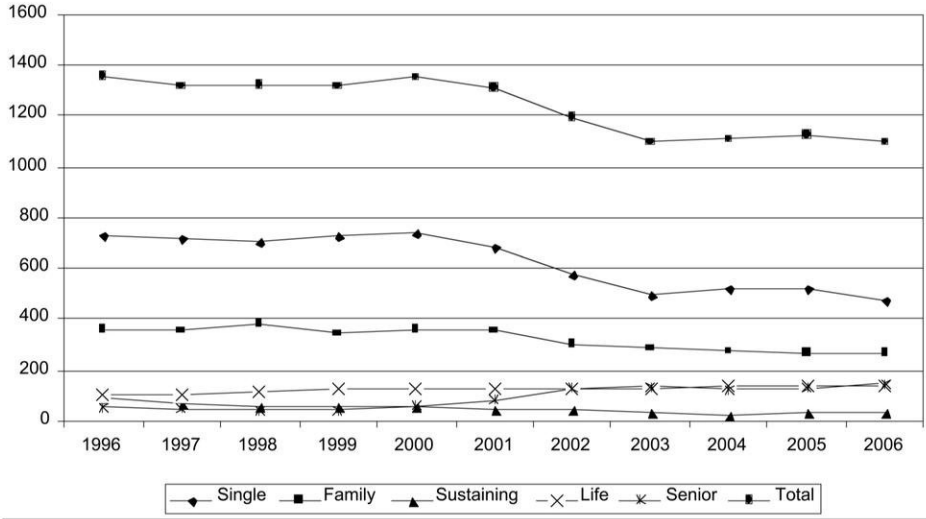
**Total Membership at Calendar Year End**

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single | 730 | 718 | 700 | 726 | 738 | 685 | 572 | 494 | 520 | 521 | 473 |
| Family | 361 | 353 | 380 | 344 | 358 | 351 | 304 | 282 | 275 | 268 | 268 |
| Sustaining | 86 | 63 | 51 | 56 | 50 | 49 | 40 | 34 | 25 | 32 | 30 |
| Life (1 of 4) | 3 | 8 | 9 | 9 | 10 | 3 | 2 | 0 | 2 | 3 | 2 |
| Life (2 of 4) | | | | | | | 2 | 2 | 0 | 1 | 3 |
| Life (3 of 4) | | | | | | | 1 | 2 | 1 | 0 | 1 |
| Life-Couple (1 of 4) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 |
| Life-Couple (2 of 4) | | | | | | | 0 | 0 | 2 | 1 | 0 |
| Life-Couple (3 of 4) | | | | | | | 0 | 0 | 0 | 2 | 1 |
| Life | 107 | 107 | 110 | 119 | 120 | 126 | 130 | 129 | 133 | 134 | 135 |
| Life-Couple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 10 |
| Patron | 6 | 6 | 6 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 7 |
| Senior | 50 | 49 | 41 | 41 | 60 | 79 | 126 | 131 | 120 | 129 | 147 |
| Student | | | | | | 6 | 6 | 7 | 11 | 15 | 12 |
| Honorary Life | 6 | 5 | 4 | 3 | 3 | 4 | 2 | 2 | 2 | 2 | 2 |
| Board | 8 | 8 | 18 | 12 | 5 | 4 | 3 | 3 | 3 | 3 | 3 |
| **Total** | **1357** | **1317** | **1319** | **1315** | **1350** | **1313** | **1195** | **1096** | **1106** | **1122** | **1095** |

- Worked with a few WSO members to secure items of interest to WSO.

***Membership – Jesse Peterson***—In 2006, membership dropped slightly from 2005 levels but remained steady relative to the previous three years. A primary cause of this slight drop in membership was that new members joining in 2006 were significantly below recent years.

**MEMBERSHIP TRENDS 1996–2006:**



Membership activities and accomplishments throughout the past year include:

- Continued oversight of printing and mailing of *The Badger Birder*
- Continued oversight of distribution of the *e-Badger Birder*, the electronic version of the WSO newsletter, to over 200 subscribers
- Monitored and managed the publication exchange program
- Managed the annual membership renewal activity.

***Publicity – Ursula Petersen***—All committee members assisted with transporting to/setting up the WSO displays and printed materials at various events. Thanks go to Christine Reel, Mariette Novak, Bill Mueller, Jane Dennis, Judith Huf, Barb Duerksen, as well as others who helped. Judith Huf developed the second display and has revised the first one. She is planning to also develop several smaller, mailable displays for easier accessing by more events. I assisted with publicizing the 2007 convention by sending the press release to birdnets and several ornithologists as well as 5 state newspapers and a reminder 2 weeks before the convention. I coplanned a bird festival for Washington Island June 2–3 with the support of WSO, other organizations, and Washington Island businesses.

***Records – Jim Frank***—The Records Committee processed the following documentations for 2006:

| | Records | Accepted | Rejected |
|---|---|---|---|
| Winter | 27 | 11 | 16 |
| Spring | 44 | 39 | 5 |
| Summer | 16 | 13 | 3 |
| Fall | 97 | 81 | 16 |
| **Totals** | **184** | **144** | **40** |

The committee accepted Wisconsin's second records for Band-tailed Pigeon, Wilson's Plover, Slaty-backed Gull, and Townsend's Warbler; the third Say's Phoebe; and the first hypothetical record of Yellow-browed Warbler.

Committee members were Bob Domagalski, Dan Belter, Mark Korducki, Bill Cowart, and Jim Frank. Karl David has accepted the position vacated by Dan Belter. Thanks to Dan for 5 years of service.

***Research – Sheldon Cooper***—My primary research related activity during 2006–2007 was the 2007 WSO Symposium, "Recent Developments in Wisconsin Ornithology." I was a coplanner of the symposium along with Dave Sample, Andy Paulios, and Christine Reel. I contacted some of the symposium speakers, helped moderate the Friday session of the symposium, and also gave a presentation at the symposium.

***Scholarships and Grants – Janine Polk***—WSO Grants, to provide additional support for work that is being carried out and funded through another program, went to:

- Dan Haskell, Houghton, MI, Measuring the ecological benefits of lakeshore restoration for breeding birds in northern Wisconsin
- Janet C. King, Stevens Point, "Red-shouldered Hawk Distribution and Nesting Habitat on Marinette County Forest, Wisconsin"
- Urban Ecology Center (for the MCAMMP Project), Milwaukee, "Monitoring Avian Migration—Use of Stopover Sites in Milwaukee County"

- Janice Sinur, Cedarburg, "Ozaukee Interurban Trail Birding Guide"
- William E. Stout, Oconomowoc, "An Urban Cooper's Hawk Population in the Metropolitan Milwaukee Area"

Nelson Award, for ornithological research involving wetlands, was presented to:

- Matthew A. Hayes, Madison, "Dispersal and Gene Flow in the Eastern Flyway Population of Greater Sandhill Cranes"
- Dana M. Varner, Carbondale, IL, "Foraging Ecology and Survival of Interior Population Trumpeter Swans."

***Website – Jennifer Davis***—No written report.

***Youth Education – Barbara Duerksen***—*Youth Grants Program*—Grants are awarded in spring and fall for bird research or education. The youth grants committee awarded grants to two students in St. Croix Falls and to three groups of students in Schofield for projects in bird education and research, as follow:

- Katie Petzel and Haley Younker of the Northern Lights 4-H Club of St. Croix Falls for their 4 H club project "Bluebird Trail," which includes creating a DVD of the process of establishing a bluebird trail.
- Three groups of students from the St. Peter Lutheran School in Schofield received grants for bird education:
  —The kindergarten class for educational materials for their project "Further Classroom Birding."
  —The first and second grade classes for their project "It's a Bird's Life."
  —Quinten Eberhardy, a third grader, for the third grade bird education project "Up Close and Personal." The students will observe birds at a mirrored windowsill feeder, create their own feeders from recycled materials, and observe birds and other creatures in the schoolyard.

*Meetings*—attended WSO Board Meetings and those of the education subcommittee of WBCI, the Wisconsin Bird Conservation Initiative.

*Presentations*—

- A two-day outdoor bird conservation workshop with the Richland County Conservation Field Days for sixth graders.
- Earth Day and International Migratory Bird Day guided bird walks for youth at the Kickapoo Reserve.
- Bird programs for an elementary class and high school environmental education classes in Richland County.

*Bird Conservation Mentor Program*—continued development of this joint project of WSO and WBCI to introduce students and others to the common birds of Wisconsin and their habitats, with the use of a kit containing a scope, tripod, binoculars, field guides, a CD, and educational materials. The WBCI education committee is finalizing a teacher guide for the use with the kit. The National Audubon Society provided funds for six kits,

which were presented at the October Upper Midwest Audubon Conference at an orientation workshop, to the following recipients: the Boston School Forest in Portage County, the Central Wisconsin Environmental Station in Portage County, the Lakeland Audubon Society in Walworth County, the Madison Audubon Society in Dane County, the Milwaukee Audubon Society in Milwaukee County, and the Ellwood H. May Environmental Park in Sheboygan County.

*Workshop*—attended a facilitator training workshop for Flying Wild, a national bird education program developed for middle school students, which is adaptable for all ages. The WBCI education committee introduced Flying Wild to Wisconsin in early March, hosting the workshop for the committee members and other Wisconsin educators. The committee is planning additional workshops throughout the state in 2007 and 2008.

A Northern Cardinal pair in falling snow were pictured by Jack Bartholmai.

# About the Artists

**Jack R. Bartholmai** is an amateur wildlife photographer and wood sculptor living near Beaver Dam. His work appears frequently in local newspapers, travel brochures, calendars, and bird publications. He is an active member of the Horicon Bird Club and was the 2005 recipient of the WSO Bronze Passenger Pigeon Award.

**Laura Erickson** is host of the popular radio show "For the Birds" and writes regularly for BirderBlog.com. She is the author of several books about birds and gives numerous presentations at birding events. She is the 2007 recipient of the WSO Bronze Passenger Pigeon Award.

**Gary Krogman** has been digiscoping birds in western Wisconsin for several years. He finds butterflies another favorite subject for his camera.

**David Kuecherer**, Art Editor for this publication, taught art at both the high school and college levels for more than 30 years. He combines his artistic talents with his love of birdwatching to paint birds. This fall he will have one of his paintings in "Birds in Art" at the Leigh Yawley Woodson Museum in Wausau. This will be his third showing in this event.

**Major Dennis R. Kuecherer** is retired from the US Army and from many years of doing field work for WDNR, the Department of Interior, and the Wisconsin Breeding Bird Atlas. He has been an active birder most of his life, and enjoys drawing and photographing birds as well as counting them.

**Dennis Malueg** is a serious amateur bird and wildlife photographer who travels Wisconsin in search of his photos. He also works from his own backyard, prairie, and 80-acre forest in Waushara County to capture wildlife images.

**Rich Phalin** is a serious photographer who lives in Mukwonago, Wisconsin. Rich says he enjoys spending time capturing nature's moments with a camera.

**Tom Prestby** is an undergraduate at UW-Madison, studying Wildlife Ecology. He plans on attending graduate school and pursuing a career in wildlife or environmental conservation. He has been birding over 10 years and has taken up the hobby of digiscoping.

# INDEX TO VOLUME 69

## C

## D



## E



## F

## G



## H

## N



## O



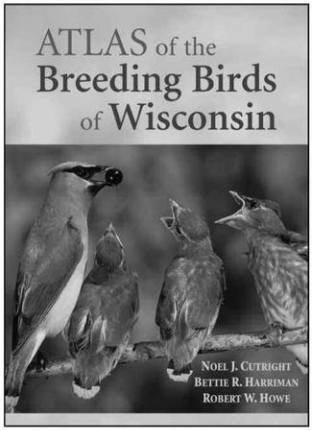
## P

## R



## S

## T



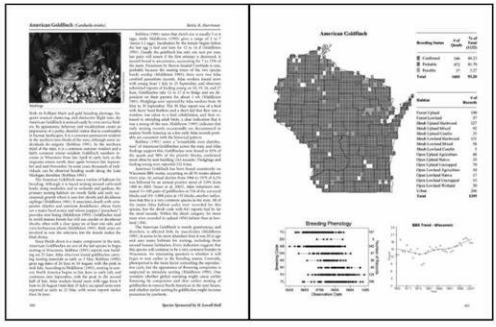

# *Atlas of the Breeding Birds of Wisconsin*

- Features almost 1,400 photographs, distribution maps, and figures – **all in color**!
- Based on studies done by more than 1,600 field observers between 1995 and 2000.
- Edited by Noel J. Cutright, Bettie R. Harriman, and Robert W. Howe.

The largest natural history survey ever conducted in Wisconsin has resulted in this comprehensive guide to birds that breed in the state.

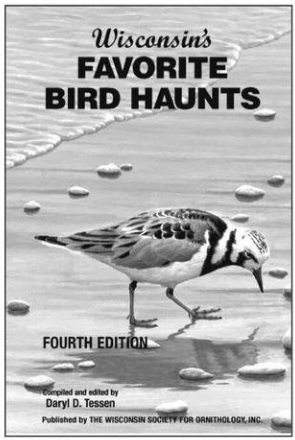
Hardcover, large format (9" x 11.25"), 624 pages. Copyright 2006. ISBN-10: 0-9774986-0-3; ISBN-13: 978-0-9774986-0-4.

Published by The Wisconsin Society for Ornithology, Inc., with proceeds used for projects supported by the organization.



The two-page species accounts – 214 of them in all – provide a host of information on the state's breeding species, including their range, habitat preference, breeding biology, conservation concerns, and population trends. An additional 23 less-common species also are covered. Also included are chapters on Atlas methodology, results, history, habitats, and conservation.

Contact WSO Bookstore for price and ordering information:
262-547-6128 or wsobookstore@hotmail.com



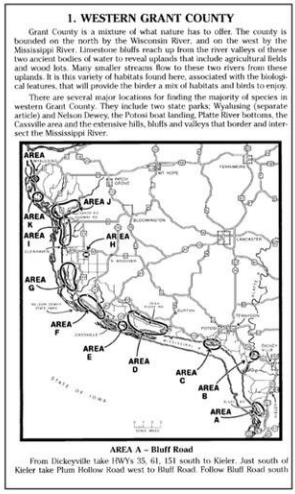

# *Wisconsin's Favorite Bird Haunts,*

Fourth Edition (2000)

Compiled and edited by Daryl Tessen with contributions from birders throughout the state. Features artwork by Thomas Schultz, David Kuecherer, Rockne Knuth, Judith Huf, and Jeannie Perry.

- Covers all 72 counties
- Contains 135 favorite haunts, detailing more than 1,000 areas
- Includes detailed directions as well as a map for each location
- Features some 45 bird illustrations, 15 of them in color
- Includes a list of 400 valid Wisconsin state species and 15 hypothetical species (current as of January 2000)

This book, designed for durability and functionality, is printed on heavy coated paper and has a spiral binding so it lies flat when open. 6″ by 9″. 544 pages.



**1. WESTERN GRANT COUNTY**

Grant County is a mixture of what nature has to offer. The county is bounded on the north by the Wisconsin River, and on the west by the Mississippi River. Limestone bluffs reach up from the river valleys of these two ancient bodies of water to reveal uplands that include agricultural fields and wood lots. Many smaller streams flow to these two rivers from these uplands. It is this variety of habitats found here, associated with the biological features, that will provide the birder a mix of habitats and birds to enjoy.

There are several major locations for finding the majority of species in western Grant County. They include two state parks; Wyalusing (separate article) and Nelson Dewey, the Potosi boat landing, Platte River bottoms, the Cassville area and the extensive hills, bluffs and valleys that border and intersect the Mississippi River.



**AREA A – Bluff Road**

From Dickeyville take HWYs 35, 61, 151 south to Kieler. Just south of Kieler take Plum Hollow Road west to Bluff Road. Follow Bluff Road south

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*Contact WSO Bookstore for price and ordering information.*
*262.547.6128 or wsobookstore@hotmail.com*

UNITED STATES POSTAL SERVICE®

# Statement of Ownership, Management, and Circulation (All Periodicals Publications Except Requester Publications)

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| Full Name | Complete Mailing Address |
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12. Tax Status *(For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one)*
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:
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☐ Has Changed During Preceding 12 Months *(Publisher must submit explanation of change with this statement)*

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| | (2) | Mailed In-County Paid Subscriptions Stated on PS Form 3541 *(Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies)* | 0 | 0 |
| | (3) | Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS® | 0 | 0 |
| | (4) | Paid Distribution by Other Classes of Mail Through the USPS (e.g. First-Class Mail®) | 8 | 8 |
| c. Total Paid Distribution *(Sum of 15b (1), (2), (3), and (4))* | | | 989 | 966 |
| d. Free or Nominal Rate Distribution *(By Mail and Outside the Mail)* | (1) | Free or Nominal Rate Outside-County Copies included on PS Form 3541 | 1 | 1 |
| | (2) | Free or Nominal Rate In-County Copies Included on PS Form 3541 | 1 | 1 |
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| f. Total Distribution *(Sum of 15c and 15e)* | | | 1003 | 983 |
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| h. Total *(Sum of 15f and g)* | | | 1045 | 1016 |
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☒ If the publication is a general publication, publication of this statement is required. Will be printed in the Winter 2007 issue of this publication. ☐ Publication not required.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Christine R. Reel — Treasurer, The Wisconsin Society for Ornithology, Inc. — Date: 07/01/2007

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

PS Form **3526**, September 2006 *(Page 2 of 3)*

## THE WISCONSIN SOCIETY FOR ORNITHOLOGY

The Wisconsin Society for Ornithology is an educational and scientific non-profit organization founded in 1939 "to encourage the study of Wisconsin birds." The Society achieves this goal through programs in research, education, conservation, and publication.

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# CONTENTS WINTER 2007

Volume 69, Number 4