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Send all manuscripts and correspondence to the Editor; information for "Seasonal Field-Notes" should be sent to the Associate Editor or the appropriate Field-Note Compiler. Manuscripts that deal with information on birds in the State of Wisconsin, with ornithological topics of interest to WSO members, or with activities of the WSO will be considered for publication. All manuscripts submitted for possible publication should be typewritten, double-spaced, and on only one side of page-numbered typing paper. Illustrations should be submitted as photographs or good-quality drawings. Keep in mind that illustrations must remain legible when reduced to fit on a journal page. All English and scientific names of birds mentioned in manuscripts should follow *The A.O.U. Checklist of North American Birds (6th Edition)*. Use issues after Vol. 50, No. 1, 1988, as a general guide to style.

Are we really ready?

Over the weekend, Parker and I set out on an excursion that ultimately led us through rural Outagamie, Shawano, Waupaca, and Waushara Counties. Our time together was spent mostly out-of-doors where we enjoyed a nice, long bicycle ride, managed to hike more than three hours on the Ice Age Trail and traveled more than two hundred miles by car. Parker probably thought all this father-son bonding was a fine way to celebrate his first nine months on earth. I knew better. Mom was away for a few days, the weather was perfect, and I had actually whisked my son away on a quest for inspiration . . . and a topic for this article!

Capitalizing on the cool pre-dawn temperature of the day, we left one of the many parking areas in Navarino Wildlife Area by bicycle. Parker, safely settled in his baby trailer, was in tow. Little more than thirty minutes into our outing, we encountered what would become my subject for this issue of *Passenger Pigeon.*

At first, we only detected their distinctive calls. But as the sun rose slightly above the horizon, they began taking flight to fields of clover and alfalfa. They were Greater Sandhill Cranes. Another success story for the many dedicated wildlife managers at work in our state, these majestic and stately birds can now easily be observed during spring, summer and fall in many counties of Wisconsin. During our two days of casual observation, Parker and I eventually tallied more than two hundred adult and immature cranes. There is no doubt that the numbers of Greater Sandhill Cranes have risen dramatically in Wisconsin over the past twenty years. My personal recollections after nearly two decades as a crane counter for the International Crane Foundation's annual April census support this population growth. During the early years, a half dozen or fewer cranes heard or sighted on count day was a normal occurrence. Today, I can expect upwards of one hundred birds on my site.

The facts that our Greater Sandhill Crane population appears secure and that these birds are not considered endangered or threatened in our state seem to have put a noose around their necks. At least it seems this way because a hunting season on these birds has been proposed by Representative DuWayne Johnsrud who serves as chairman of the State Assembly's Natural Resources Committee. He reasons a fall hunt would benefit both farmers and sports people. State aid for crop damage and an additional species to hunt would result from just a single request to the DNR.

I've read some articles concerning Johnsrud's suggestion. I've contacted the International Crane Foundation (ICF). I've also talked to a few farmers and hunters. My opinion is firm but here are a few points to consider about the prospect of crane hunting in Wisconsin before you establish yours.

Jay Reed, outdoor writer for the *Milwaukee Journal Sentinel,* was quick to point

out that battle lines on this issue could "conceivably pit neighbor against neighbor, brother against brother, men against women." Mr. Reed who has had experience hunting lesser sandhills in North Dakota favors the proposal as "long as managers determine the population is large enough."

But what is "large enough"? During the mid '80s, I witnessed the autumn flights of Lesser Sandhill Cranes in North Dakota. There were hundreds of thousands of cranes that blackened the sky as they set out to feed each morning. Their noise was so deafening that conversation between hunters sitting together was impossible. With this astronomical number of Lesser Sandhill Cranes, farmers begged hunters to harvest as many as legally possible, which at that time was one per day. They gladly gave their permission for duck hunting with the stipulation that a mandatory crane or two be taken as well.

Please remember, the numbers of Greater Sandhill Cranes in Wisconsin don't begin to rival those of the lesser subspecies hunted in North Dakota. At the International Crane Foundation, Baraboo, Wisconsin, Bryant Tarr is the person challenged with keeping track of the 1997 crane count results for the entire Midwest. His data at the time of this writing indicated 11,944 cranes were tallied by 2,842 volunteers on 1,519 sites throughout Wisconsin. Of the nearly 12,000 cranes, 2,887 were determined to be breeding pairs. Undoubtedly, these figures will increase slightly as the last county reports for 1997 trickle in.

Tarr's numbers from adjoining states were significantly less dramatic than in Wisconsin, due in part to large tracts of habitat that are as of yet unsurveyed: Iowa—13 (3 pr.), Illinois—74 (20 pr.), Michigan—276 (88 pr.) and Minnesota—36 (13 pr). All the Greater Sandhill Cranes counted in the five midwestern states total 12,343 (3011 pr.).

It is known that the crane census taken each April accounts for only a third or less of all the cranes in these states. The entire eastern population of Greater Sandhill Cranes is estimated at between thirty-five and forty thousand birds. If all these birds were concentrated in Wisconsin (and they are not), I don't believe the skies would even begin to blacken.

According to Jeb Barzen, the Director of Field Ecology at ICF, "assuming that states in the Mississippi and Atlantic flyways request similar hunts, the quota of cranes that could be sustainably harvested each year in Wisconsin would be low." This would allow only a select few hunters to ever take to the field!

Barzen stressed that two basic issues concerning the hunting of cranes must be addressed: First, can damage to crops be limited without damaging the crane population? According to Barzen, "to accomplish this, the population would have to be drastically reduced!"

Second, would hunting keep the population from growing out of control? Jeb replied "eight counties hold approximately fifty per cent of our state's cranes. Yes, there has been substantial population growth since 1980. But in the '90s, the birds in these counties appear to be plateauing. Their numbers have grown only slightly or are stagnant" so "out of control" growth does not appear imminent.

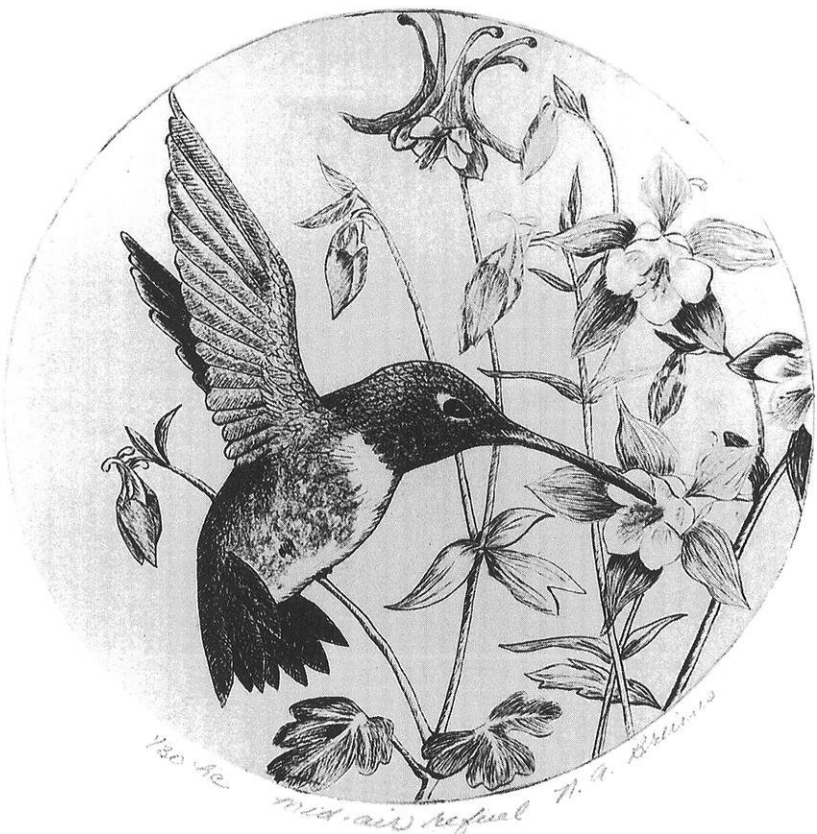
After my conversations with the ICF personnel, I believe there are too many arguments against the proposal to justify a hunting season based solely on agri-

culture. I think Jeb Barzen really hit the nail on the head. "The real question should be do people want to hunt cranes?"

Steve Petznick, Assistant Naturalist at Mosquito Hill Nature Center, offered his position. "Greater Sandhill Cranes are as symbolic (to many Wisconsinites) as Bald Eagles. Who would consider shooting this ambassador of our wetlands, a species we've brought from the brink of non-existence in the state?"

I don't know! Who would?

President



Etching *by N. A. Bruins*

A Standard Method for Monitoring Songbird Populations in the Great Lakes Region

The authors describe very specific, standardized protocol for counting songbirds and other diurnal bird species in the Great Lakes Region. The primary goal is to provide guidelines for managers of public and private forests, wildlife refuges, and nature reserves for monitoring birds in forested habitats, but the methods can also be applied to other environments.

by Robert W. Howe, Gerald J. Niemi, Stephen J. Lewis, and Daniel A. Welsh

More than one hundred scientific papers and several recent books (Ralph and Scott 1981, Koskimies and Vaisanen 1991, Bibby et al. 1992, Ralph et al. 1993, Ralph et al. 1995, Hamel et al. 1996) have addressed methods for sampling bird populations. Several standard procedures have been described and are widely used today. Kendeigh (1944) and Van Velzen (1972), for example, outlined "spot-map" methods for estimating breeding bird densities in local areas. Robbins et al. (1986) introduced a more extensive method for monitoring bird populations; this procedure (a series of fifty 3-minute roadside counts) has become the foundation for the North American Breeding Bird Survey, one of the most successful standardized bird monitoring programs in the world (Robbins et al. 1986, Peterjohn et al. 1995, Price et al. 1995).

Blondel et al. (1981) and Reynolds et al. (1980) described a rigorous method for sampling birds at a single point. Point counts are effective for sampling birds in specific habitats and at a given locality over a period of time. This method is particularly desirable because it is simple, quantitative, and requires relatively few subjective decisions by the observer, especially compared to the spot-map method. In an unlimited-radius point count, the observer simply counts all birds seen and heard from a given point during a fixed period of time. Because this procedure can be followed precisely at other times or at other places, unlimited-radius point counts are ideal for comparative studies. The North Amer-

ican Breeding Bird Survey employs short duration (3-minute) point counts; longer counts are desirable if one is interested in specific habitats or localities, because many resident species are not detected during 3-minute counts (Buskirk and McDonald 1995, Dawson et al. 1995, Petit et al. 1995).

Recently, Ralph et al. (1995) formulated general standards for point counts based on contributions by numerous researchers. These standards include recommendations about count duration, spacing of census points, and other issues. Although these standards offer considerable detail, several elements are left to the discretion of the observer. Most importantly, count duration can be either 5 or 10 minutes, depending on the travel time between points.

The purpose of this paper is to describe a very specific, standardized protocol for counting songbirds and other small diurnal bird species in the Great Lakes Region of northeastern North America and adjacent Canada. We follow the recommendations of Ralph et al. (1995), with several modifications to provide explicit directions for biologists in this region. We recognize that every method is burdened by problems or trade-offs (Mayfield 1981, Johnson 1995), but numerous benefits are gained by establishing a single, standardized method. Experience has shown that large sample sizes over broad geographic areas (and over long time periods) provide valuable information about bird populations, with equally valuable implications for conservation (Howe et al. 1996). Such data bases are possible when results from several or many sources can be combined.

The method described below is appropriate for many practical applications. We are particularly interested in establishing a standard for monitoring birds in forested habitats, but the methods also can be applied to other environments. Our primary goal is to provide guidelines for managers of public and private forests, parks, wildlife refuges, and nature reserves. We assume that long term monitoring of larger areas (e.g., states, ecoregions, continents) will be provided by the North American Breeding Bird Survey (Sauer and Droege 1990). More intensive studies at a local scale can provide complementary information about bird-habitat associations, site-specific population fluctuations, and landscape-specific distribution patterns. A standard method will help biologists design local studies and will facilitate the development of more extensive regional databases.

The method described below represents a variation of the standards proposed by Ralph et al. (1995). Specific details were developed during a series of workshops organized by Gerald Niemi at the Natural Resources Research Institute at the University of Minnesota-Duluth during 1992–94. Participants included biologists from academic institutions, public agencies, conservation organizations, and private consulting companies.

Standard Point Count Protocol

1. The standard method for sampling birds is an unlimited-radius, 10-minute point count. All birds seen or heard from a specific point are recorded during a 10 minute period by a qualified observer.
2. A standard form with map (Figure 1) should be used to record data. This form requires the observer to estimate where each bird was *first en-*

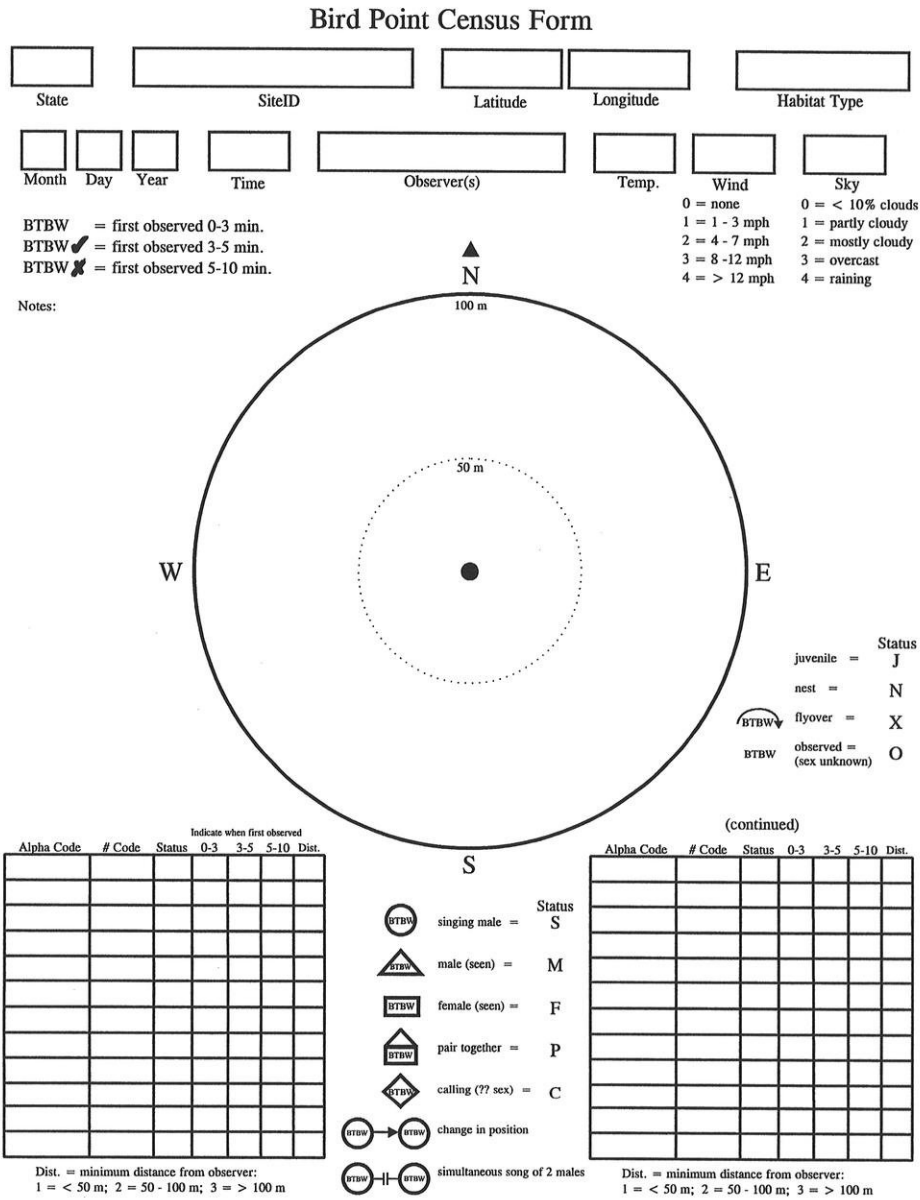


Figure 1. Sample data form for 10 minute point counts. Observers are encouraged to estimate in which concentric circle (0–50 m = 1; 50–100 m = 2; > 100 m = 3) each bird is believed to occur. If many birds are present, field observations should be recorded on map and later transcribed to tables as described below (adding # Code for each species, etc. from Appendix).

countered (< 50 m, 50–100 m, > 100 m) and when each bird was first encountered (during the first 3 minutes, next 2 minutes, or last 5 minutes of the census period). These details facilitate comparisons with other studies.

3. Birds flying over and not actively using the count area should be recorded separately as "flyovers." Forest raptors, swallows, and other species which are or appear to be hunting over the count area should be included with the main list of species (i.e., they should not be recorded as flyovers).
4. Whenever possible, sex and age (adult vs. juvenile) of each bird should be recorded. In particular, juvenile birds (e.g., recent fledglings) should be distinguished from adults in order to estimate the number of breeding pairs in the area.
5. Time of day, weather conditions, and exact locality in latitude/longitude or UTM coordinates (preferably determined from a global positioning system [GPS] should be recorded for each count locality).

Site Selection

1. Points should be located at least 250 m apart.
2. If habitat associations are an objective of the study, points should be located at least 125 m within the target habitat type. If habitat associations are not a major aim of the study, then points should be selected randomly within the area of interest.
3. Randomization can be achieved by identifying a list of potential sites, stratified (e.g., within subregions) or constrained (e.g., along roads) according to the objectives of the study. Point count localities subsequently should be selected randomly from the list of potential sites. If time is a major limitation, then a geographically stratified procedure can be employed which minimizes the time required to go from one point to another (see Hanowski and Niemi 1994).
4. Because of the inherent variability among bird counts (even at the same point over time) a large sample size is required to provide meaningful results. A single observer can complete approximately 7–15 point counts in a single morning. Comparisons among areas or years will require a minimum sample size of 20–50 points, depending on the species or variable of interest. Much larger sample sizes will be needed if the study area is large and heterogeneous. Detailed comparisons among habitats and analysis of uncommon or rare species require hundreds of samples. A general rule of thumb is the following: the more variation among samples within groups (e.g., habitats) that are being compared, the larger will be the sample size needed to compare groups (Hamel et al. 1996).

Census Schedule

1. During the breeding season, counts should be conducted between ½ hr before sunrise and 9:30 A.M.
2. Unless short-term changes are an objective of the study, or if an objective is to thoroughly sample a specific area, each site should be visited only once during a given season, leaving more time to sample additional points. In other words, the site selection strategy should maximize

the number of geographically distinct points sampled during a given year.

3. Counts should not be conducted when it is raining, during heavy fog, or when steady winds exceed 11–12 km/hr (7–10 mph). As a rule of thumb, counting should be discontinued if an observer determines that conditions cause loss of detection of 10% or more of the birds present in the count area (Ralph et al. 1995).
4. Breeding season counts should be conducted no earlier than 1 June and should be completed no later than 15 July. However, if spring phenology is delayed or accelerated, slight adjustments to these dates may be acceptable.

Data Management

1. Data should be organized in a computerized database (e.g., Paradox), with each species at a single point representing a separate record or row.
2. Each record (Figure 2) should include the standardized 4-letter species code (see Appendix), the corresponding numeric code (for error checking), the type of observation (singing male, female, juvenile, flyover, etc.), the number of individuals *first observed* during each time interval (0— 3 minutes, 3–5 minutes, 5–10 minutes), and (optionally) the minimum distance from the observer (<50 m, 50–100 m, >100 m).
3. A separate database (Figure 3) should be established to describe site characteristics (locality, habitat type, etc.). Additional databases can identify more detailed characteristics of each site (tree species composition, average canopy height, etc.) and characteristics of each species (e.g., common and scientific name, guild membership, etc.). Information can be shared among data bases as long as they are linked by one or more common data fields (e.g., site number and date, species code).

Habitat Description

A description of the habitat within 100 m of the census point should be recorded (Figure 4). Sampling efficiency can be maximized by recording habitat information after 9:30 A.M. or after the main avian nesting season (e.g., after mid–July). Minimum elements of the description include the following:

1. Habitat type(s) within 100 m according to a general scheme (Wisconsin Society for Ornithology 1995) or some other classification system relevant to the study (e.g., U.S. Forest Service *stand type*).
2. Dominant tree species (up to 5) and their respective % cover.
3. Dominant shrub/sapling species and their respective % cover.
4. Tree density (# trees/10 m radius).
5. Average canopy/vegetation height.
6. Average % cover of high canopy trees (dbh > 2.5 cm).
7. Average % cover of deciduous trees (relative to total canopy cover).
8. Average % cover of sub-canopy trees (dbh > 2.5 cm).
9. Average % cover of deciduous trees in sub-canopy (relative to total sub-canopy cover).
10. Average % cover of understory shrubs/saplings (dbh < 2.5 cm).
11. Average % cover of deciduous shrubs/saplings.

Figure 2. Database structure for recording point count results, with example from a sample count. Codes are described in Figure 1 and Appendix. Note that the nesting pair (P) of Golden-crowned Kinglets (GCKI) represents 2 individuals (= # Indiv.).

Site ID	Year	Date	Species Code	Species #	Status	0–3 min.	3–5 min.	5–10 min.	# Indiv.	Min. distance
308	1997	06/12/97	WIWR	7220	S	1		1	2	2
308	1997	06/12/97	REVI	6240	S	2	1		3	2
308	1997	06/12/97	REVI	6240	S	1			1	1
308	1997	06/12/97	BLBW	6620	M	1			1	1
308	1997	06/12/97	BLBW	6620	F	1			1	1
308	1997	06/12/97	GCKI	7480	P	1			2	1
308	1997	06/12/97	NAWA	6450	S		1		1	2
308	1997	06/12/97	CORA	4860	O	2			2	3
308	1997	06/12/97	GRAJ	4840	J	1	2		3	1

Figure 3. Database structure for recording site details and conditions, with example from several sample point counts. Note that this database can be related to the database in Figure 2 by the common fields SiteID and Date. Latitude and longitude create an additional link to large scale GIS databases. Habitat types are taken from Wisconsin Society for Ornithology (1995). For example, FLMs = *F*orested *L*owland, *M*ixed conifer/hardwood, *s*pruce dominated.

Site ID	Date	Observer	Time	Temp.	Wind	Sky	Habitat	Lat.	Long.
308	06/12/97	RWH	0611	56	0	1	FLMs	450736	882245
401	06/11/97	RWH	0648	58	0	1	SLMc	450713	881541
409	06/11/97	RWH	0713	61	1	1	SLCn	450722	881601
812	06/13/97	GJN	0601	72	2	0	FUHa	441230	891930
813	06/13/97	GJN	0638	72	2	0	FLHn	441256	891921

Point Census Habitat Description

(Estimate habitat characteristics w/in 100 m of point)

State	SiteID	Year	Date	Habitat Type*

*see Wisconsin Society for Ornithology 1995 (Breeding Bird Atlas Handbook)

Topography	Aspect	Habitat Heterogeneity	Distance to Road/Opening	Road/Opening type
			1.	1.
			2.	2.

1 = flat lowland
2 = flat ridgetop
3 = gently rolling
4 = moderate slope
5 = steep slope

N = 1
S = 5
E = 4
W = 3

1 = uniform habitat type
2 = dominant habitat > 75%
3 = mixed 2 habitat types
4 = mixed 3 habitat types
5 = mixed > 3 habitat types

1 = logging road / trail
2 = gravel road
3 = secondary blacktop
4 = primary blacktop
5 = lake/river
6 = clearing

Tree Density (w/in 10 m radius)					Average Canopy Height
none	< 5 trees	6-20 trees	21-40 trees	> 40 trees	

Estimate w/in 10 m and adjust to reflect 100 m radius

If scattered trees, estimate average height of trees only

Layer	% cover	% deciduous
High canopy		
Sub-canopy		
Shrub/sapling		
Ground (non-woody)		**********

% deciduous = % of total cover (not % of area)

Special Features (w/in 100 m)			
1. pond		5. large opening(s)	
2. stream		6. snags	
3. open wetland		7. large downed logs	
4. small opening(s)		8. rock outcrop	

other feature(s):

Tree Species (> 2.5 cm dbh)	% Cover

Shrub/Sapling Species	% Cover

Figure 4. Sample data form for habitat measurements.

12. Average % cover of non-woody ground vegetation.
13. Topography (flat, rolling, hillside, etc.).
14. Habitat heterogeneity (subjective scale)
15. Distance to road/opening.
16. Special features (rock outcrop, pond, grassy opening, etc.)

Estimation of habitat variables can be facilitated by measuring or estimating within 10 m and adjusting the re-

sult (up or down) to best represent the larger 100 m radius. More detailed vegetation sampling methods can be found in James and Shugart (1970).

Discussion

Additional details and recommendations can be found in Ralph et al. (1993, 1995). Our proposed method departs from the national recommendations by advocating a 10-minute rather than a 5-minute count. (The method of recording, however, enables 5-minute or 3-minute counts to be derived from the 10 minute total.) Experience has shown that 10-minute counts yield significantly fewer zero values for species of interest and provide a more representative (although still incomplete) picture of birds using a local area. This consideration becomes important for uncommon species, which comprise the majority of birds occurring in any region (Howe et al. 1996).

In the design of a sampling scheme, the objectives of the study must be clearly identified. These objectives will dictate choices among alternative strategies, such as the allocation of sampling points among habitat types, the number of points, etc. Randomized selection of sites must be given careful attention. One should avoid selecting sites because of desirable characteristics (e.g., nice trees, easy access), unless the area is of specific interest for the study's objectives. Any site selection procedure that does not include a random selection of sampling points from a larger pool of points will be perceived as potentially biased and violates a basic assumption of statistics. When in doubt about sampling design, consult a person who is experienced in statistical analysis or experimental design.

If the study seeks to relate bird observations to habitat information or to estimate bird densities directly, distances between birds and the census point should be recorded. Researchers should be aware, however, that estimation of distances (especially beyond 25 m) is very difficult even for experienced observers. Most forest songbirds move over relatively large areas (> 1 ha), and observations during a point count represent only a brief snapshot of the birds use of the local habitat.

No single sampling strategy is optimal for all circumstances. The method described here, for example, is not adequate for raptors and many waterbirds. By standardizing the point count method, however, observers establish opportunities for comparisons with other local, habitat-based bird surveys (e.g., references in Ralph et al. 1995). Studies conducted in small geographic areas (where sample size is necessarily limited) can be analyzed in the context of other studies using the same, standardized method. Researchers in the Great Lakes Region have begun to compile an extensive regional database that is widely accessible and archived for long term studies. Information about contributing to and using this database can be obtained through the authors or from the Natural Resources Research Institute worldwide web site. Collaborative data analysis will help promote large scale and efficient strategies for the conservation of Great Lakes bird populations.

Acknowledgments

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velopment of a standard point count protocol include the U.S. Forest Service, U.S. Fish and Wildlife Service, Canadian Wildlife Service, Wisconsin Department of Natural Resources, University of Minnesota-Duluth, University of Wisconsin-Green Bay, and the Minnesota State Legislature, as recommended by the Legislative Commission on Minnesota Resources. We especially acknowledge the contributions of participants in the two workshops held in Duluth during 1992 and 1994. The habitat classification scheme used by the Wisconsin Breeding Bird Atlas and recommended here was developed by Michael Mossman of the Wisconsin Department of Natural Resources. This is contribution 223 of the Center for Water and the Environment, Natural Resources Research Institute, University of Minnesota.

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Appendix. Standard alphabetic and numeric codes for common species of western Great Lakes region. Codes are taken or derived from *North American Bird Banding Manual* (Environment Canada, Canadian Wildlife Service, US Fish and Wildlife Service, 1994).

Name	Species	Code
Alder Flycatcher	ALFL	4661
American Bittern	AMBI	1900
American Black Duck	ABDU	1330
American Coot	AMCO	2210
American Crow	AMCR	4880
American Goldfinch	AMGO	5290
American Green-winged Teal	AGWT	1390
American Kestrel	AMKE	3600
American Redstart	AMRE	6870
American Robin	AMRO	7610
American Wigeon	AMWI	1370
American Woodcock	AMWO	2280
Bald Eagle	BAEA	3520
Baltimore Oriole	BAOR	5070
Barn Swallow	BARS	6130
Barred Owl	BAOW	3680
Bay-breasted Warbler	BBWA	6600
Belted Kingfisher	BEKI	3900
Black-and-white Warbler	BAWW	6360
Black-billed Cuckoo	BBCU	3880
Black-capped Chickadee	BCCH	7350
Black-crowned Night-Heron	BCNH	2020
Black Tern	BLTE	0070
Black-throated Blue Warbler	BTBW	6540
Black-throated Green Warbler	BTNW	6670
Blackburnian Warbler	BLBW	6620
Blackpoll Warbler	BLPW	6610
Blue Jay	BLJA	4770
Blue-winged Teal	BWTE	1400
Blue-winged Warbler	BWWA	6410
Bobolink	BOBO	4940
Boreal Chickadee	BOCH	7400
Brewer's Blackbird	BRBL	5100
Broad-winged Hawk	BWHA	3430
Brown Creeper	BRCR	7260
Brown Thrasher	BRTH	7050
Brown-headed Cowbird	BHCO	4950
Canada Goose	CAGO	1720
Canada Warbler	CAWA	6860
Cape May Warbler	CMWA	6500
Cedar Waxwing	CEDW	6190
Cerulean Warbler	CERW	6580

Name	Species	Code
Chestnut-sided Warbler	CSWA	6590
Chimney Swift	CHSW	4230
Chipping Sparrow	CHSP	5600
Clay-colored Sparrow	CCSP	5610
Cliff Swallow	CLSW	6120
Common Goldeneye	COGO	1510
Common Grackle	COGR	5110
Common Loon	COLO	0070
Common Merganser	COME	1290
Common Nighthawk	CONI	4200
Common Raven	CORA	4860
Common Snipe	COSN	2300
Common Yellowthroat	COYE	6810
Connecticut Warbler	CONW	6780
Cooper's Hawk	COHA	3330
Dickcissel	DICK	6040
Double-crested Cormorant	DCCO	1200
Downy Woodpecker	DOWO	3940
Eastern Bluebird	EABL	7660
Eastern Kingbird	EAKI	4440
Eastern Meadowlark	EAME	5010
Eastern Phoebe	EAPH	4560
Eastern Screech-Owl	EASO	3730
Eastern Wood-Pewee	EAWP	4610
European Starling	EUST	4930
Evening Grosbeak	EVGR	5140
Field Sparrow	FISP	5630
Golden-crowned Kinglet	GCKI	7480
Golden-winged Warbler	GWWA	6420
Grasshopper Sparrow	GRSP	5460
Gray Catbird	GRCA	7040
Gray Jay	GRAJ	4840
Great Blue Heron	GTBH	1940
Great-crested Flycatcher	GCFL	4520
Great Horned Owl	GHOW	3750
Green-backed Heron	GNBH	2010
Hairy Woodpecker	HAWO	3930
Hermit Thrush	HETH	7590
Herring Gull	HERG	0510
Hooded Merganser	HOME	1310
Horned Lark	HOLA	4740
House Finch	HOFI	5190
House Sparrow	HOSP	6882
House Wren	HOWR	7210
Indigo Bunting	INBU	5980
Killdeer	KILL	2730
Least Bittern	LEBI	1910
Least Flycatcher	LEFL	4670
LeConte's Sparrow	LCSP	5480
Lesser Scaup	LESC	1490
Lincoln's Sparrow	LISP	5830
Long-eared Owl	LEOW	3660
Magnolia Warbler	MAWA	6570
Mallard	MALL	1320
Marsh Wren	MAWR	7250
Merlin	MERL	3570
Mourning Dove	MODO	3160
Mourning Warbler	MOWA	6790
Nashville Warbler	NAWA	6450
Northern (Baltimore) Oriole	BAOR	5070
Northern Cardinal	NOCA	5930
Northern Goshawk	NOGO	3340
Northern Harrier	NOHA	3310
Northern Parula	NOPA	6480
Northern Rough-winged Swallow	RWSW	6170
Northern Saw-whet Owl	NSWO	3720
Northern Waterthrush	NOWA	6750
Olive-sided Flycatcher	OSFL	4590
Osprey	OSPR	3640
Ovenbird	OVEN	6740
Palm Warbler (Western)	WPWA	6720
Philadelphia Vireo	PHVI	6260
Pied-billed Grebe	PBGR	0060
Pileated Woodpecker	PIWO	4050
Pine Siskin	PISI	5330
Pine Warbler	PIWA	6710
Purple Finch	PUFI	5170
Purple Martin	PUMA	6110
Red-bellied Woodpecker	RBWO	4090
Red-breasted Nuthatch	RBNU	7280
Red Crossbill	RECR	5210
Red-eyed Vireo	REVI	6240
Red-headed Woodpecker	RHWO	4060
Red-shouldered Hawk	RSHA	3390
Red-tailed Hawk	RTHA	3370
Red-winged Blackbird	RWBL	4980
Ring-necked Pheasant	RNPH	4175
Ring-necked Duck	RNDU	1500
Rose-breasted Grosbeak	RBGR	5950
Ruby-crowned Kinglet	RCKI	7490
Ruby-throated Hummingbird	RTHU	4280
Ruffed Grouse	RUGR	4150
Rufous-sided Towhee	RSTO	5870
Sandhill Crane	SACR	2060
Savannah Sparrow	SAVS	5420
Scarlet Tanager	SCTA	6080
Sedge Wren	SEWR	7240
Sharp-shinned Hawk	SSHA	3320
Slate-colored Junco (Dark-eyed)	SCJU	5670
Solitary Sandpiper	SOSA	2560
Solitary Vireo	SOVI	6290
Song Sparrow	SOSP	5810

Name	Species	Code
Sora	SORA	2140
Spotted Sandpiper	SPSA	2630
Swainson's Thrush	SWTH	7580
Swamp Sparrow	SWSP	5840
Tennessee Warbler	TEWA	6470
Tree Swallow	TRES	6140
Turkey Vulture	TUVU	3250
Trumpeter Swan	TRUS	1810
Unidentified Blackbird	UNBL	4999
Unidentified Corvid	UNCR	4899
Unidentified Cuckoo	UNCU	3889
Unidentified Duck	UNDU	1399
Unidentified Finch	UNFI	5199
Unidentified Flycatcher	UNFL	4599
Unidentified Hawk	UNHA	3499
Unidentified Jay	UNJA	4799
Unidentified Meadowlark	UNME	5099
Unidentified Nuthatch	UNNU	7299
Unidentified Owl	UNOW	3799
Unidentified Sparrow	UNSP	5599
Unidentified Species	UNID	9999
Unidentified Swallow	UNSW	6179
Unidentified Thrush	UNTH	7599
Unidentified Vireo	UNVI	6299
Unidentified Warbler	UNWA	6399
Unidentified Woodpecker	UNWO	3999
Upland Sandpiper	UPSA	2610
Veery	VEER	7560
Vesper Sparrow	VESP	5400
Virginia Rail	VIRA	2120
Warbling Vireo	WAVI	6270
Western Kingbird	WEKI	4470
Western Palm Warbler	WPWA	6720
Whip-poor-will	WPWI	4170
White-breasted Nuthatch	WBNU	7270
White-throated Sparrow	WTSP	5580
White-winged Crossbill	WWCR	5220
Wild Turkey	WITU	4160
Wilson's Warbler	WIWA	6850
Willow Flycatcher	WIFL	4660
Winter Wren	WIWR	7220
Wood Duck	WODU	1440
Wood Thrush	WOTH	7550
Yellow-bellied Sapsucker	YBSA	4020
Yellow-bellied Flycatcher	YBFL	4630
Yellow-billed Cuckoo	YBCU	3870
Yellow-breasted Chat	YBCH	6830
Yellow-headed Blackbird	YHBL	4970
Yellow Rail	YERA	2150
Yellow-rumped (Myrtle) Warbler	MYWA	6550
Yellow-shafted Flicker	YSFL	4120
Yellow-throated Vireo	YTVI	6280
Yellow Warbler	YWAR	6520

The 1995 Status of the Common Loon in Wisconsin

*In 1995, LoonWatch conducted the third Common Loon (*Gavia immer*) population survey in a series carried out at 5-year intervals since 1985. Two hundred seventy-two volunteers surveyed 191 randomly selected lakes in 28 northern counties. We estimated a population of 3,017 adult loons and 678 chicks, representing a significant increase in adult loons since the 1985 survey. Loon population estimates in all years are likely slightly conservative, because cross-checks of some lakes by duplicate observers indicated that a single count at a lake may occasionally miss loons. The increase in adult loons since 1985 may be due to higher chick production during a period of favorable spring and summer weather in 1986–1990. The majority of adults and chicks were found on lakes under 150 acres, and such lakes may require special management emphasis if Wisconsin is to retain a healthy loon population.*

by Terry Daulton, Michael W. Meyer, and Paul W. Rasmussen

In describing the call of the Common Loon, Sigurd Olson stated "This was the sound that more than any other typifies the rocks and waters and forests of the wilderness." In this concise statement Olson captured the sentiments of many people who live and work within the breeding range of the Common Loon. Much of the public sees the loon as a charismatic symbol of wild lakes, and expresses strong support for the protection of loons and their nesting habitats. Yet, this support does not always translate into appropriate human behaviors. Impacts from recreational use of lakes, shoreline development, and degradation of water quality are seen as threats to stable loon populations.

The range of the Common Loon in the Upper Midwest once reached as far south as Illinois and Iowa (Palmer,

1962). Loon range in Wisconsin now lies primarily in the northern 1/3 of the state (Dunn, 1992). Concern has been expressed about declines in the species' range in North America (McIntyre, 1988) and has spurred efforts to monitor populations. In addition, the loon's specific habitat needs and position at the top of the aquatic food chain have led to the use of the loon as an indicator of aquatic health by many federal and state agencies (Evers, 1996). The loon is particularly sensitive to accumulation of mercury and lead (Ensor, 1992); (Pokras, 1992). In Wisconsin, mercury can be most problematic when loons nest on poorly buffered lakes where mercury received from atmospheric deposition becomes more available in the food chain (Meyer et al. 1995).

In Wisconsin, loon population monitoring includes a) intensive bio-monitoring on segments of the population, under the Wisconsin Department of Natural Resources (WDNR) Bureau of Integrated Science Services, b) an annual volunteer monitoring program in which citizens report loon presence and activities on a non-random sample of lakes (through the Sigurd Olson Environmental Institute LoonWatch program at Northland College) and c) the random sample survey described in this paper. In addition, loons were reported for 28 Wisconsin Breeding Bird Survey routes between 1966–1991 (Robbins et al., 1996). Combining data from these efforts provides the most complete picture of loon status for the state.

The first comprehensive survey of Wisconsin's Common Loon population was conducted in 1976–77 when Zimmer conducted aerial or land surveys of all lakes over 30 acres in 20 northern Wisconsin counties. The population was estimated at 1,300 adults and 258 juveniles (Zimmer, 1982). In 1985, LoonWatch developed a random sample survey designed to be repeated every five years. An analysis of the 1978 and 1985 population estimates found a 78% and 90% increase in adults and young, respectively (Strong, 1988). Between 1985 and 1990 no significant change was found in the loon population (Dunn, 1992).

Methods

Methods of estimating the Wisconsin Common Loon population size followed the 1985 and 1990 survey protocols as closely as possible (see Dunn 1992 and Olson 1986). The 1995 sample included the 256 lakes in 28 counties from 1990. Survey volunteers were asked to count adult loons and chicks by boat or from shore using binoculars or spotting scopes. Volunteers were recruited from past participants as well as from the LoonWatch annual lake monitoring volunteers. Press releases and personal contacts brought new volunteers into the program. When possible, volunteers were assigned the same lake they surveyed in past years and natural resource professionals were assigned to lakes over 500 acres. Volunteers were mailed a survey form, detailed instruction packet, a lake map, and reply envelope.

The survey date was Saturday, July 15, 1995 between 0500 and 1000 CDST. This date was selected to insure that most loon chicks would be in family groups and large enough for accurate observation. July 22, 1995 was held as a rain date. The limited morning period was established to minimize impacts of high wind and waves, to take

advantage of low boating densities, and to minimize the potential for duplicate counting due to movements of adults or young on or between lakes. Duplicate observers were assigned to 37 lakes to assess volunteer accuracy. Volunteers were asked to mail their completed data forms on the first Monday after the survey.

The lakes were divided into four lake size classes: 25–49.9, 50–149.9, 150–499.9, and >500 acres. The data from the surveys were summarized and means, percentages, estimates, and standard errors were calculated for both adults and chicks. We used standard methods for estimation of population totals and standard errors from a stratified random survey (Cochran 1977). Calculations were carried out in SAS (SAS 1990). Geographic distribution was also determined.

Results and Discussion

Characteristics of the Sample—In 1995, reports were received for 191 lakes in 26 of the 28 counties. 7.6% of all lakes in the study area were surveyed. Fifteen of the original sample lakes were eliminated due to errors in the state's master waterbody file which incorrectly identified their size as over 25 acres. Lakes under 25 acres were not included in the sample. Some investigators cite 25 acres as a minimum lake size requirement for adult Common Loons (McIntyre, 1975). A study of small lake use in Crow Wing County in Minnesota found a 36% occupancy rate for lakes between 10–24 acres (Perry, 1987). In Wisconsin only 3.5% of lakes less than 30 acres had loons (Zimmer, 1979). Wisconsin has relatively few lakes over 500 acres. In the original survey design, a larger percentage of lakes over 500 acres was sampled in order to insure that a variety of large lakes types be included.

Adult Loon Population Estimate—The 1995 adult Common Loon population was 3,017, with a standard error (SE) 252 (Table 1). The revised 1990 population estimate was 2,420 (SE 203) and 2,358 (SE 208) for 1985. The increase in adult loon population estimates is significant from 1985 to 1995 and nearly significant for 1990 to 1995. In 1995, loons were present on 55% of lakes surveyed and the average number of loons per lake was 1.38. These figures are slightly higher than earlier survey results (Table 2).

Recalculation of previous survey results was required for two reasons. First, between 1985 and 1995, the WDNR updated the state's official lake database, correcting the area measurement of a number of lakes. Secondly, the number of duplicate lake observers for estimating volunteer accuracy was larger in 1995 than in the previous surveys. This could inflate the 1995 population estimate if the same estimation methods were used as for previous surveys. In 1985 and 1990 maximum loon counts were used for all duplicate observer records, assuming that it was more likely for a volunteer to miss a loon than to over count. While this is likely the case, as the number of multiple visits increases, using maximum counts would increase the population estimate and bias comparisons with past years' results.

For this reason, all surveys were recalculated by randomly sampling one count from each of the lakes with duplicate counts. This procedure was repeated 50 times for each survey, and the population estimate and its vari-

Table 1. Wisconsin Common Loon population estimates: 1985–1995. These estimates were calculated by repeatedly randomly selecting one visit for lakes with multiple visits.

		Adults					
Stratum (acres)	Total # lakes	1985 adult loons	SE	1990 adult loons	SE	1995 adult loons	SE
25–49.9	906	643.0	119.6	490.4	95.0	758.3	154.4
50–149.9	914	918.6	109.3	926.7	124.4	974.7	125.9
150–499.9	286	475.8	95.0	526.9	88.3	700.7	111.0
500+	202	320.3	90.1	476.3	94.0	583.0	106.9
Total	2508	2357.7	208.3	2420.4	202.8	3016.6	251.9

		Chicks					
Stratum (acres)	Total # lakes	1985 loon chicks	SE	1990 loon chicks	SE	1995 loon chicks	SE
25–49.9	906	146.1	57.6	163.4	63.1	295.4	106.5
50–149.9	914	261.9	75.9	211.1	60.5	185.7	59.8
150–499.9	486	64.3	29.2	164.2	44.3	92.6	37.4
500+	202	43.3	30.2	69.7	25.0	104.5	31.6
Total	2508	515.7	104.1	608.4	101.2	678.3	131.6

Table 2. Percent of adults and chicks on lake size classes.

		1985			
Stratum (acres)	Lakes surveyed	% With adults	Adults per lake	% With chicks	Chicks per lake
25–49.9	62	38.7	0.71	9.7	0.16
50–149.9	67	55.5	1.00	17.3	0.29
150–499.9	42	41.8	0.98	14.3	0.21
500+	14	64.3	1.59	14.3	0.21
Total	185	47.4	0.94	13.1	0.20

		1990			
Stratum (acres)	Lakes surveyed	% With adults	Adults per lake	% With chicks	Chicks per lake
25–49.9	61	31.2	0.54	9.8	0.18
50–149.9	69	52.9	1.01	15.9	0.23
150–499.9	48	49.0	1.08	23.2	0.34
500+	29	60.2	2.36	20.7	0.34
Total	207	46.6	1.08	16.5	0.26

		1995			
Stratum (acres)	Lakes surveyed	% With adults	Adults per lake	% With chicks	Chicks per lake
25–49.9	46	41.2	0.84	17.4	0.33
50–149.9	69	54.7	1.07	14.1	0.20
150–499.9	47	55.4	1.44	11.7	0.19
500+	29	77.4	2.89	27.6	0.52
Total	191	55.1	1.38	16.4	0.28

ance were calculated as the mean of the 50 estimates. Because in a single visit to a lake loons are more likely to be missed than over counted, all estimates are probably conservative.

All estimates by the adjusted method are slightly smaller than by the maximum count method. Estimates for 1985 and 1990 are about 60 loons less, and the 1995 estimate is about 260 loons less than if the maximum count was used. This method of randomly sampling one visit from the multiple visits provides an estimate which minimizes the differences in survey effort due to increased numbers of cross-checked lakes in 1995.

Analysis of Wisconsin Breeding Bird Survey results between 1966–1991 suggested a stable Common Loon population. Twenty-eight survey routes recorded loons and 20 to 35 individuals were recorded annually on 8–13 routes. Wisconsin, Minnesota and Michigan (BBS) trends were not significant, but there was a significant increase continent-wide and in the eastern region (Robbins et al., 1996).

Data from the LoonWatch annual lake monitoring program show high chick recruitment during 1986–1990 followed by a steady decline in 1992–1993 (Meyer and Daulton, 1995). Juvenile loons remain on the wintering grounds for four seasons, thus the 1995 adult loon increase may reflect the return of the 1986–1990 juvenile birds to the breeding grounds.

Loon Chick Population Estimate—Chick production in 1995 is estimated at 678 (SE 132). This compares to revised estimates of 608 (SE 101) and 516 (SE 104) for 1990 and 1985, respectively (Table 1). There was no significant change in the chick population at alpha .05 (95% CI).

Most loon chick mortality occurs during the first two weeks of life when the chicks are more vulnerable to predation and disturbance (McIntyre, 1975). Survival is best measured late in the summer after the juvenile birds have fledged. However, as juveniles mature, family units are more difficult to observe. This survey documents productivity after the most critical survival period but before family units are more dispersed. Therefore, our survey estimate is best used as a comparison between years or with other surveys conducted in a similar time frame. It is not indicative of chick hatch rates or survival to fledging.

While chick production can vary from year to year and is influenced by factors such as weather, human disturbance, and predation, Strong (1988) suggests that loon longevity make adult loon population estimates less effective in assessing changes in population than number of chicks.

Lake Size Preference—As might be expected, lakes over 500 acres were more likely to support at least one loon (77%) and on average supported 2.9 loons/lake (Figure 1). Large lakes were also more likely to support loon chicks (Figure 2). However, Wisconsin has a higher number of small lakes (Figure 3) and we found that lakes under 150 acres supported 57% of the loon population and 70% of chicks (Figure 4). It was interesting to note that while there are more adult loons on 50–149.9 acre lakes, the largest portion of the chick population (43.6%) is produced on lakes from 25–49.9 acres.

Increasing recreation and develop-

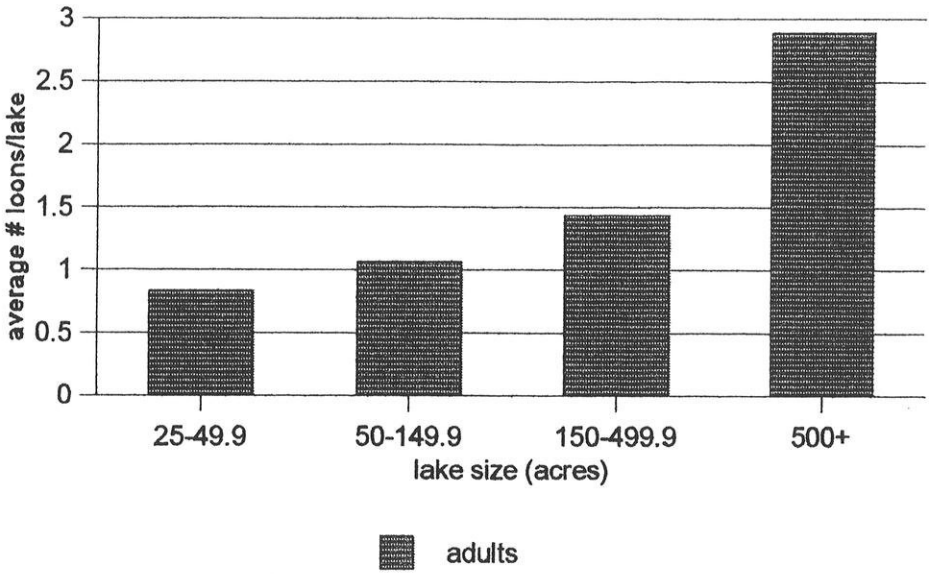

Figure 1. 1995 average number of loons per lake by lake size class.

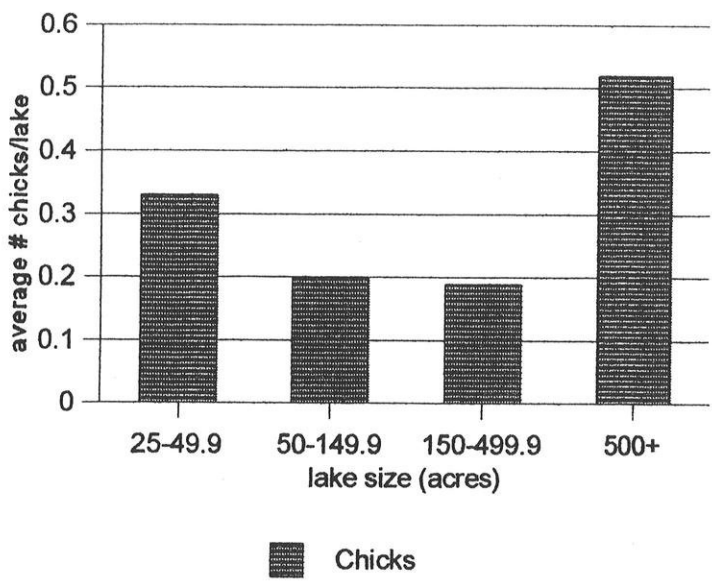

Figure 2. Average number of chicks per lake by lake size.

ment pressures may be affecting availability of nesting sites on large and moderate sized lakes. Since 1984, the average boat horsepower in Wisconsin has gone from 10 to 50 and use conflicts from personal watercraft are in-

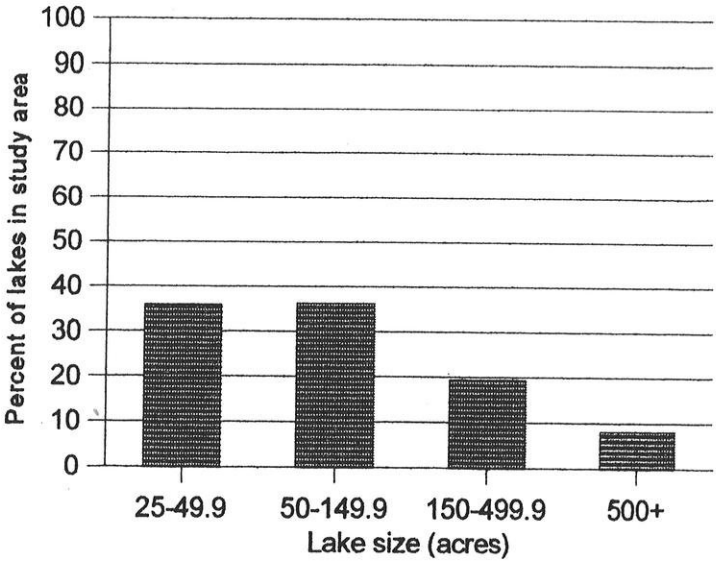

Figure 3. Percent of lakes in study area in lake size class.

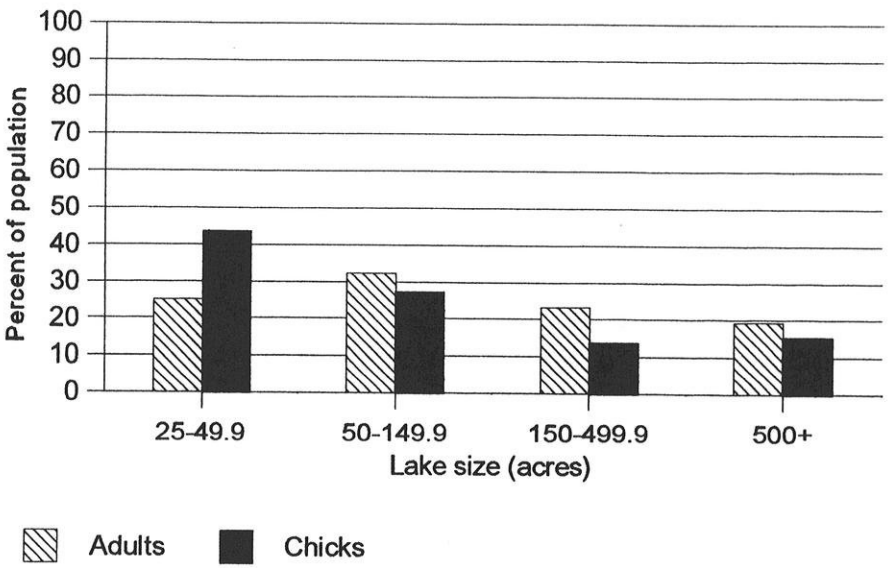

Figure 4. Percent of 1995 loon population occupying lakes by lake size.

creasing (R. Korth pers. comm.). In a survey of development on lakes north of Wisconsin State Highway 29, only 3% of all lakes 200 acres and larger remain undeveloped today (WDNR, 1996).

On smaller lakes where loon nesting and chick rearing percentages are

highest, development is also a threat. Only 15% of lakes under 200 acres are in public ownership. The WDNR 1995 aerial survey of lakes north of Hwy. 29 found only 88 privately owned lakes over 10 acres were undeveloped as compared to 1,200 in the mid 1960s. If current development rates continue, the remaining privately owned undeveloped lakes could be developed by the year 2015. The highest development rates were found on lakes 10–49 acres (103%) and 200–999 acres (87%) (WDNR, 1996). Overall, there has been a 216% increase in numbers of dwellings on northern lakes since the 1960s. Common Loon reproductive success was shown to decline when two or more cottages occur within 150m of a nesting site (Heimberger et al., 1993). The 1995 survey results and these human use trends suggest that identification and protection of loon nesting and chick rearing habitat on lakes under 150 acres is critical.

Geographic Distribution—Of the 26 counties where lakes were surveyed Marinette, Lincoln, Iron, Sawyer, and Chippewa had the largest percentage of lakes with loons present (75–100%). Vilas, Oneida, Burnett, Polk, Oconto, Price, Forest, Washburn, Langlade and Taylor counties had loons present on 50–74% of lakes. Bayfield, Florence, Ashland and Douglas counties had between 25–49% lakes with loons present. Menominee, Rusk, Barron, Shawano, St. Croix, Marathon, and Dunn had loons present on 0–24%. (Table 3). With the exception of a few counties where the sample size was very low (fewer than three lakes for Douglas, Dunn, Lincoln, Marinette, St. Croix, and Taylor), loon distribution can be linked to habitat availability. Lake rich counties with a history of loon use support the largest percentage of the population and lake poor counties along the periphery of loon range support fewer birds.

Volunteer Accuracy—Of the 191 lakes surveyed in 1995, 37 were visited by more than one volunteer to allow for evaluation. In previous surveys, 24 and 23 lakes were cross checked (about 10% of the sample). As described in Methods, the nearly 50% increase in cross-checked lakes required an adjustment of statistical methods to ensure that survey results for different years could be compared.

In 1990 and 1985 duplicate observer data agreed for 88.4 and 89.3% of survey lakes. An analysis of the LoonWatch annual monitoring volunteers found that when compared to wildlife professionals, volunteers were 92% accurate in counting adult loons and 90% accurate in assessing numbers of chicks (Meyer and Daulton, 1995). An evaluation of volunteer loon monitors in Minnesota found that training sessions did not make a significant difference in accuracy of loon counting but did increase efficiency, compliance with protocols, and increased commitment and understanding in volunteers (Hanson, 1996). Hanson found that loon movement (especially when monitoring large lakes) was a strong factor in volunteer discrepancies. Variation in the Minnesota training program did not have a significant impact on survey results. This was also found in analysis of Christmas bird counts where under-counted and over-counted birds balanced (Ralph and Scott, 1981).

In 1990 seven discrepancies were found in duplicate observer reports,

Table 3. Loon presence on survey lakes by county in 1995.

County	Number of lakes surveyed	Number of lakes with loons present	Percent of lakes with loons present
Ashland	6	2	33
Barron	7	1	14
Bayfield	10	4	40
Burnett	9	6	67
Chippewa	10	8	80
Clark	N.D.	N.D.	N.D.
Douglas	3	1	33
Dunn	1	0	0
Florence	5	2	40
Forest	9	5	56
Iron	9	8	89
Langlade	4	2	50
Lincoln	1	1	100
Marathon	6	0	0
Marinette	3	3	100
Menominee	5	1	20
Oconto	10	6	60
Oneida	30	21	70
Polk	11	7	64
Price	5	3	60
Rusk	6	1	17
Sawyer	23	19	83
Shawano	4	0	0
St. Croix	2	0	0
Taylor	2	1	50
Vilas	34	24	71
Washburn	17	9	53

and in 1985 only four reports showed discrepancies. These were in large part attributed to observations outside the established survey time period. In 1995, 68% of duplicate observer reports showed different counts. Of these lakes, 33% of observers were on the lake at different times but within the established 0500 and 1000 CDST time period. Other explanations included boat versus shore survey (17%), more than two volunteers (17%), observation of less than one hour (4%), or use of binoculars versus no binoculars (4%). Duplicate observers were assigned to lakes in all lake size classes. As lake size increased, observers were more likely to have different counts (Table 4).

Table 4. Number of lakes with multiple visits by volunteers.

Year	Number of lakes visited more than once	Total visits
1985	24	48
1990	23	46
1995	37	78

Differences in volunteer data could be due to movements of birds during the five-hour observation period. While this factor would have existed in 1985 and 1990, an increase in the loon population could cause additional movements of birds. Research in northeastern Wisconsin has been documenting substantial movements of

loons between nesting lakes (Piper, in press) which might also relate to an influx of new breeding birds. The 1995 LoonWatch annual data reports showed a dramatic increase in the number of loons reported as "occasional visitors" by volunteers and may also support the increased movement explanation.

In future surveys, it may be advisable to shorten the observation time period to reduce the likelihood of loon movement. Walter Piper found that loons frequently travel between lakes in early morning (pers. comm.) Perhaps adjusting the beginning time to 0700 CDST would reduce discrepancies due to movements.

Conclusions

Results of the 1995 Wisconsin common loon survey suggest that there has been a significant increase in the state's loon population over the past ten years. This increase may be due to higher chick production during 1986–1990 when weather was unusually warm and spring flooding was minimal. The recent increase may reflect the return of these chicks to the breeding grounds.

The 1995 data also shows that Wisconsin loons are most dependent on lakes under 150 acres for nesting and chick rearing. Current development trends and increasing recreational use on northern Wisconsin lakes suggests that a strong management and protection emphasis must be placed on these lakes if loon populations are to remain stable or grow.

This survey is a broad population measure and is designed to be used for long-term population monitoring. There are many factors which can influence loon populations such as weather, predator populations, disease outbreaks, wintering grounds conditions, and human impacts on nesting areas. For this reason, the results of this survey will be most significant as additional data are collected and long-term trends established.

In future years, it is recommended that the number of duplicate observers be kept as close to 10% as possible and that consideration be given to shortening the survey time window to reduce observer deviations. In addition, specific research on annual loon presence and productivity should be encouraged as a supplement to this broader population measure.

Acknowledgments

This survey depends on the cooperative energies and dedication of hundreds of citizens and natural resources professionals from throughout Wisconsin and beyond. As noted, the survey was conducted by "loon rangers" who volunteered time and logistical support. Sherry Baker and Amy Wilke Britt coordinated volunteer assignments and assisted with data entry. Anne Barnes supervised the survey, and statistics and analysis were conducted by Paul Rasmussen and Michael W. Meyer of the WDNR. The Sigurd Olson Environmental Institute expresses its appreciation to all who contributed time and energy to this survey effort.

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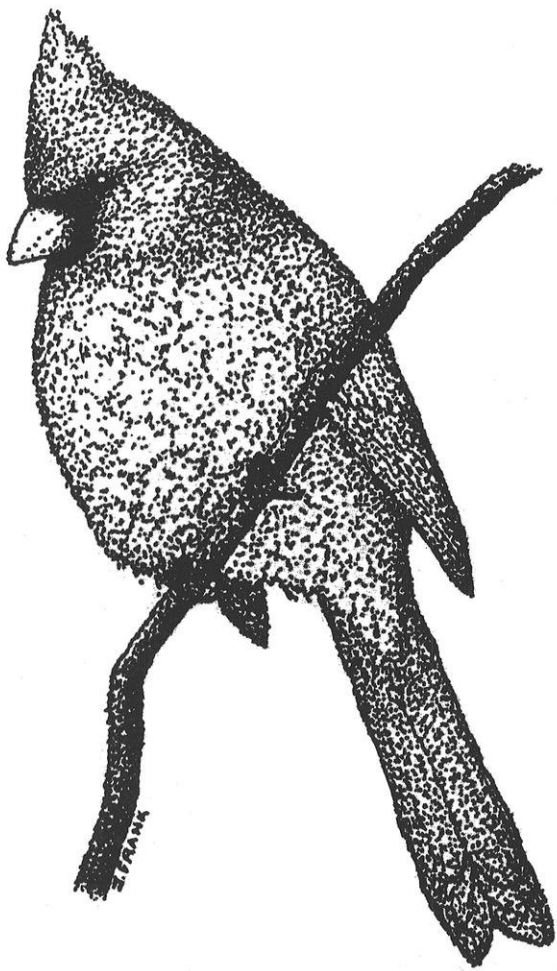

Cardinal *by Jim Frank*

The Phenology of Autumnal Hawk Migration at Cedar Grove, Wisconsin

The authors compile hawk migration data collected at Cedar Grove Ornithological Station from 1951 to 1996. Migration patterns of 21 species are discussed.

by Helmut C. Mueller, Nancy S. Mueller, Daniel D. Berger, George Allez, William R. Robichaud, and John L. Kaspar

In 1921, Herbert Stoddard and Clarence Jung discovered that hawks migrating in fall were concentrated along the shore of Lake Michigan near Cedar Grove, Wisconsin (Jung 1964). Staff and volunteers of the Milwaukee Public Museum began trapping and banding hawks at the locality in 1936, but the Second World War interrupted operations. In 1950, Daniel Berger and Helmut Mueller renovated a small shack abandoned by the Museum and began trapping and banding, but systematic observations and record keeping did not begin until 1951. We report here a summary of our observations from 1951 through 1996, with emphasis on the timing of migration.

Methods

Although hawks can be seen passing over Cedar Grove in every month of the year, the vast majority of "fall migrants" pass during August through early December, and all but a few of our observations were conducted during this period (Fig. 1). We watched for hawks for a total of 3,669 days during the 46 years, a mean of 79.8 ± 27.0 (SD) days per year. The fewest observation days (21) were in 1951; the most (125) in 1963. The maximum number of years that observations were made on a given calendar date was 44 on 2 and 6 September (Fig. 1). We usually watched for hawks from dawn until dusk although on some days with little or no migration observations became sporadic.

The Cedar Grove Ornithological Station has been largely a volunteer operation. The only exception was in 1962–64 when HCM and DDB were paid from a National Science Foundation grant. In many years the necessity of earning a living limited the number of days the station was manned. In those years, observations were more likely to be conducted on days when the weather forecast suggested that there might be hawks migrating. This

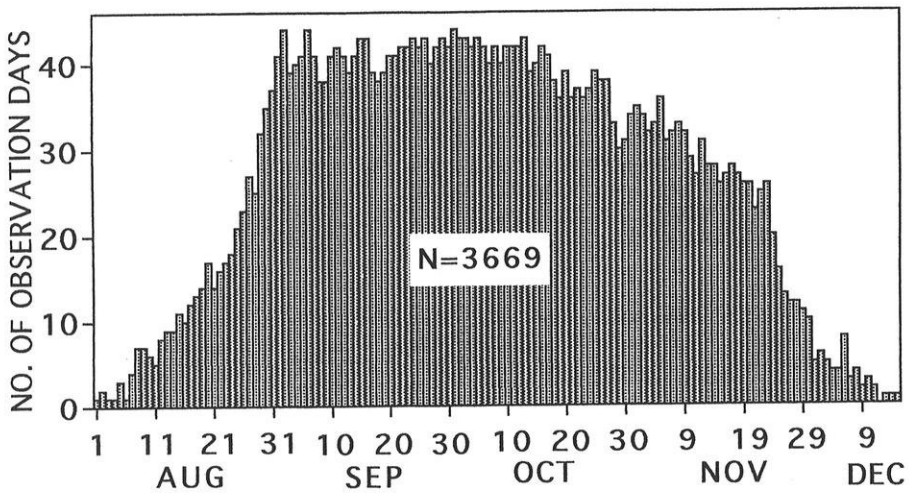

Figure 1. Number of hawk migration observation days at Cedar Grove, Wisconsin, 1951–1996.

was particularly true in November and December. Accounts of the effects of weather on hawk migration at Cedar Grove can be found in Mueller and Berger (1961, 1967a). Detailed analyses of the timing of migration were limited to 7 August to 30 November because few observations were made before and after these dates (Fig. 1).

Results

For each species we present (1) the extreme dates within 1 August–15 December when it was observed, (2) the range of dates within which 95% of the individuals were observed, (3) the best day, (4) the best and worst years, (5) a graph showing the mean number of individuals observed per observation day during the period 7 August–30 November. Some of these are not provided for species seen less often than once per year.

Turkey Vulture (Cathartes aura)—Extremes, 8 August–23 November; 95% were seen between 27 August and 4 November. The best day was 9 October 1994 when 77 were seen. The best year was 1994, when 187 were observed, no birds were observed in 1951 and only two in 1953. The Turkey Vulture migrates mainly in mid–September through late October (Fig. 2). The species has shown a considerable population increase during the 46 years of our study.

Black Vulture (Coragyps atratus)—Only two individuals were observed; one on 27 October 1980 and another was seen on four days between 13 and 19 November 1996.

Mississippi Kite (Ictinia mississippiensis)—Only one individual seen: on 10 September 1970.

Northern Harrier (Circus cyaneus)—Extremes, 7 August–13 December; 95% were seen between 14 August and 3 December. The best day was 8 October 1969 when 160 were observed. The

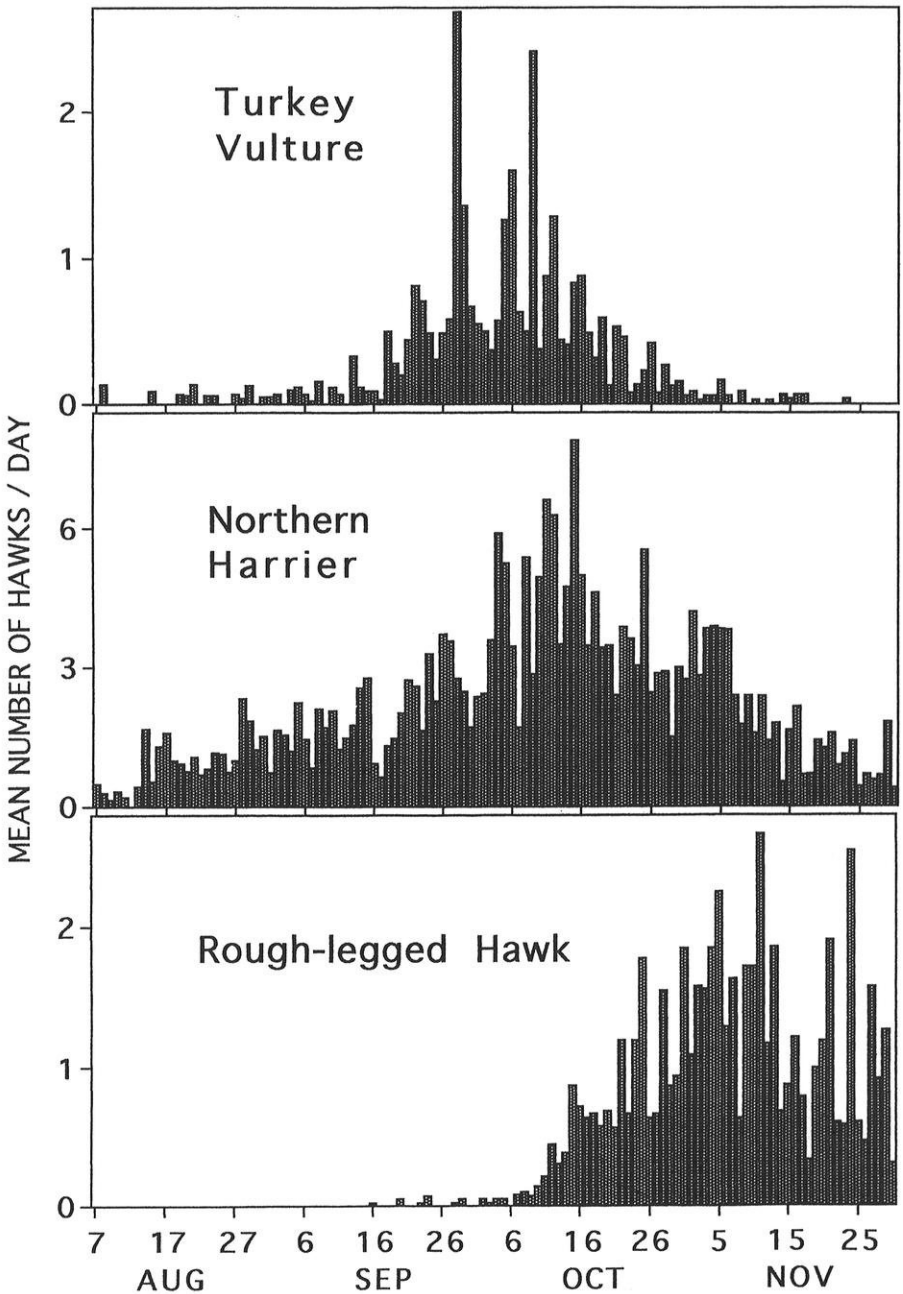

Figure 2. Mean numbers of hawks per observation day (1 August–15 December) at Cedar Grove, Wisconsin in the years 1951–1996.

best year was 1964, when 441 were seen; only 62 were recorded in 1956. The Northern Harrier occurs throughout the fall but is most abundant in October (Fig. 2).

Northern Goshawk (Accipiter gentilis)—Extremes, 22 August–10 December, 95% were seen between 5 October and 10 December. The best day was 5 November 1982, when 119 were observed. The best year was 1982, when 617 were seen; no birds were seen in 1955. The Goshawk occurs mainly after mid–October (Fig. 3), particularly in invasion years. Invasions occurred in 1962–63, 1972–73, 1982–83 and 1992–93. More than 69% of the Goshawks observed in the 46 years of this study were seen in the 8 invasion years. Analyses of the invasions of Goshawks at Cedar Grove can be found in Mueller and Berger (1967b, 1968) and Mueller et al. (1977).

Cooper's Hawk (Accipiter cooperi)—Extremes, 9 August–15 December; 95% were seen between 16 August and 29 November. The best day was 28 September 1992, when 51 were observed. The best year was 1992, when 232 were recorded; only 9 individuals were seen in 1976. The Cooper's Hawk is found throughout the fall, with a peak in late September and early October (Fig. 3). The population of this species was severely reduced in the 1960's and 1970's by chlorinated hydrocarbon pesticides.

Sharp-shinned Hawk (Accipiter striatus)—Extremes, 7 August–15 December, 95% were seen between 18 August and 31 October. The best day was 15 October 1995, when 2,343 were recorded. The best year was 1994 when 5,904 were observed and the poorest years were 1951 (582) and 1963 (722). Most Sharp-shinned Hawks migrate between 10 September and 25 October (Fig. 3). There is considerable day-to-day fluctuation in the number of hawks per observation day in this and several other species. The peaks are the result of one or a few outstanding days. For example, the highest mean number of Sharp-shinned Hawks per day is 106.2 on 6 October. If we delete 6 October 1983 (1,800 hawks) and 6 October 1978 (810 hawks), the mean drops to 46.2 hawks per day. The second highest peak is 95.4 hawks per day on 15 October. If we delete 15 October 1995 (2,343 hawks), the mean drops to 36.3 hawks per day. A detailed account of the migrations of Sharp-shinned Hawks at Cedar Grove can be found in Mueller and Berger (1967a).

Harris Hawk (Parabuteo unicinctus)—Only one individual of this southwestern species was observed, captured and banded on 25 October 1994.

Rough-legged Hawk (Buteo lagopus)—Extremes, 16 September–15 December; 95% were seen between 13 October and 14 December. The best day was 11 November 1977, when 36 were recorded. The best year was 1991 when 101 were observed; only two individuals were seen in 1956 and 1957. The Rough-legged Hawk migrates later than all other species (Fig. 2).

Red-tailed Hawk (Buteo jamaicensis)—Extremes, 8 August–15 December; 95% were seen between 17 August and 6 December. The best day was 4 November 1960, when 563 were recorded. The best year was 1991, when 1,674 were seen. Only 43 individuals were seen in 1951, but there were only 21

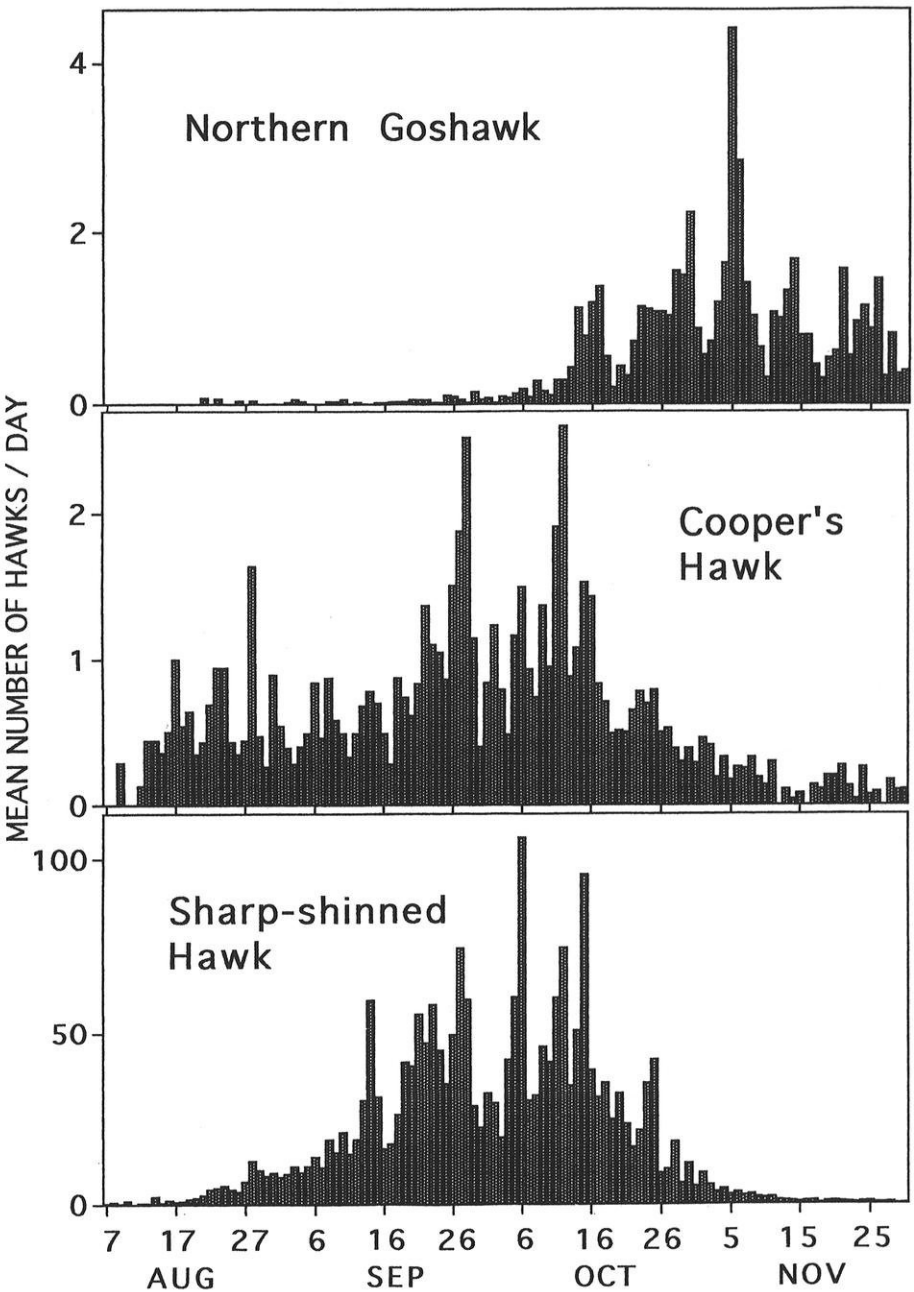

Figure 3. Mean numbers of hawks per observation day (1 August–15 December) at Cedar Grove, Wisconsin in the years 1951–1996.

observation days. Only 165 of the species were seen in 1978. Red-tailed Hawks can be seen in fair numbers throughout the fall, but there is a broad peak from the middle of October through late November, composed largely of adults (Fig. 4), and a smaller peak in August composed entirely of immatures.

Red-shouldered Hawk (Buteo lineatus)—Extremes, 15 August–15 December; 95% were seen between 1 September and 15 December. The coincidence of the end of the 95% interval and the end of the observation period is because 5 hawks were seen on 15 December 1988, the only year in which observations were conducted on that date. Also, it was an excellent day for migration for so late in the season. These 5 hawks yield an average of 5 hawks per observation day out of a total of 57.6 for the year. The best day was 7 November 1991, when 58 were seen. The best year was 1991, when 149 were observed. Only 3 individuals were seen in 1952. The Red-shouldered Hawk is a remarkably late migrant, with few individuals moving before mid–October (Fig. 4).

Broad-winged Hawk (Buteo platypterus)—Extremes, 7 August–22 November; 95% were seen between 13 September and 3 October. The best day was 19 September 1952, when 7,462 were observed. The best year was 1952, with a total of 9,018. The poorest year was 1955, when only 4 were seen in spite of daily observation throughout the period when 95% of this species occurs. Broad-winged Hawks migrate during a very short time interval (Fig 4), and a lack of westerly winds to drift the hawks to the lake shore during this period results in few birds being seen.

Swainson's Hawk (Buteo swainsoni)—Extremes, 28 August–1 November. Only 29 individuals of this western *Buteo* were observed and 11 of these were trapped and banded. Swainson's Hawks migrate early; 70% were seen before 18 September. The best days were 1 and 2 September 1952 and 12 September 1988, when two individuals were observed. The best year was 1952 when 4 individuals were recorded.

Golden Eagle (Aquila chrysaetos)—Extremes, 3 October–28 November. Only 61 individuals were seen. The best day was 15 October 1962, when 3 were observed. The best year was 1962, when 5 were recorded. No Golden Eagles were observed in 18 of the 46 years. This species is a late migrant, with a peak in October (Fig. 5).

Bald Eagle (Haliaeetus leucocephalus)—Extremes, 14 August–30 November; 95% were seen between 31 August and 29 November. The best day was 21 November 1995, when 7 were seen. The best year was 1991, when 18 were observed. No Bald Eagles were recorded in 1952, 1956–1958, and 1966. The species occurs throughout the fall, with a few more seen in November than in other months (Fig. 5).

Osprey (Pandion haliaetus)—Extremes, 14 August–3 December; 95% were seen between 19 August and 20 October. The best day was 8 September 1994, when 38 were seen. The best year was 1991, when 151 were seen. Only 6 individuals were recorded in 1967. Populations of this species were low during the pesticide era. Ospreys are

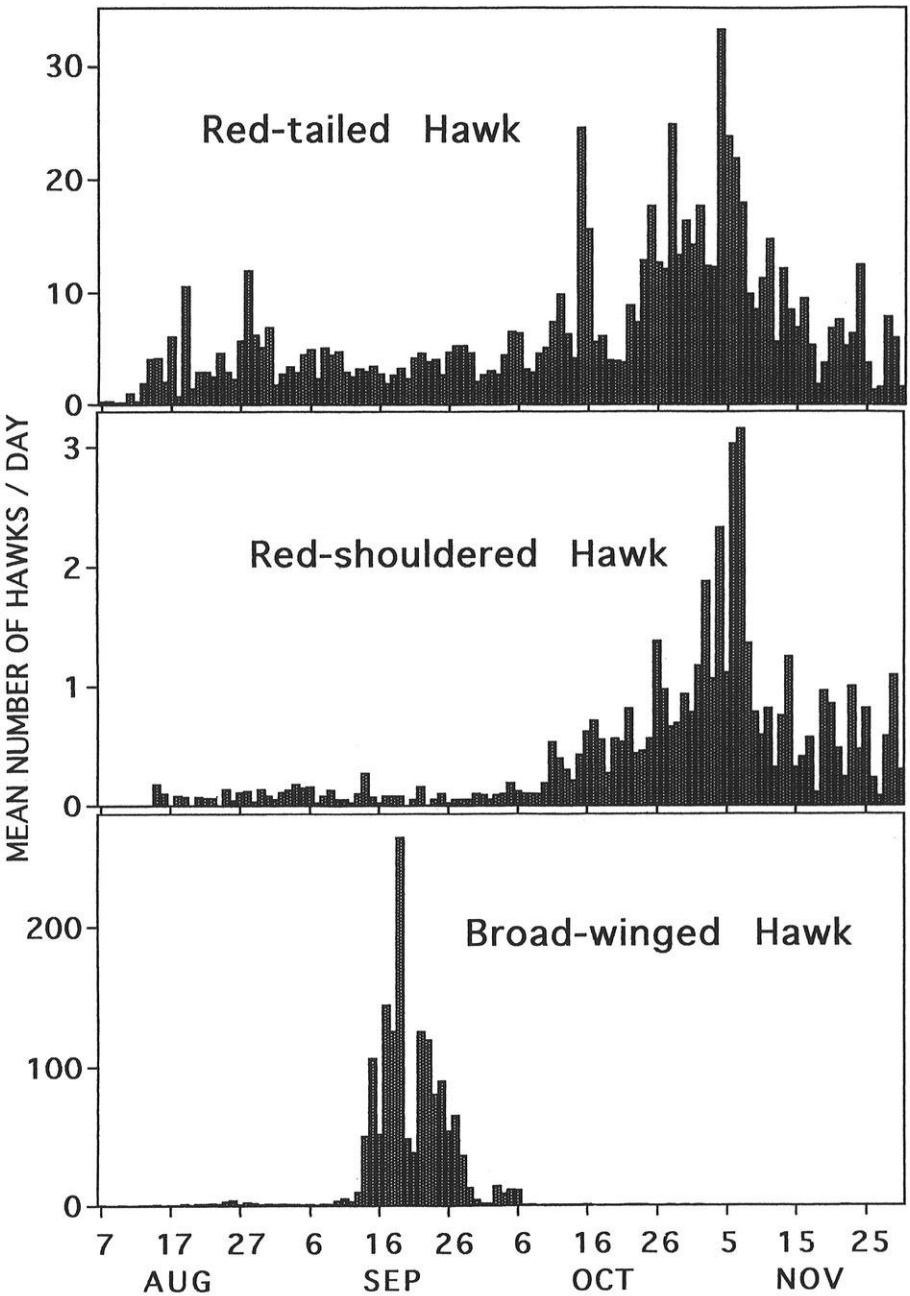

Figure 4. Mean numbers of hawks per observation day (1 August–15 December) at Cedar Grove, Wisconsin in the years 1951–1996.

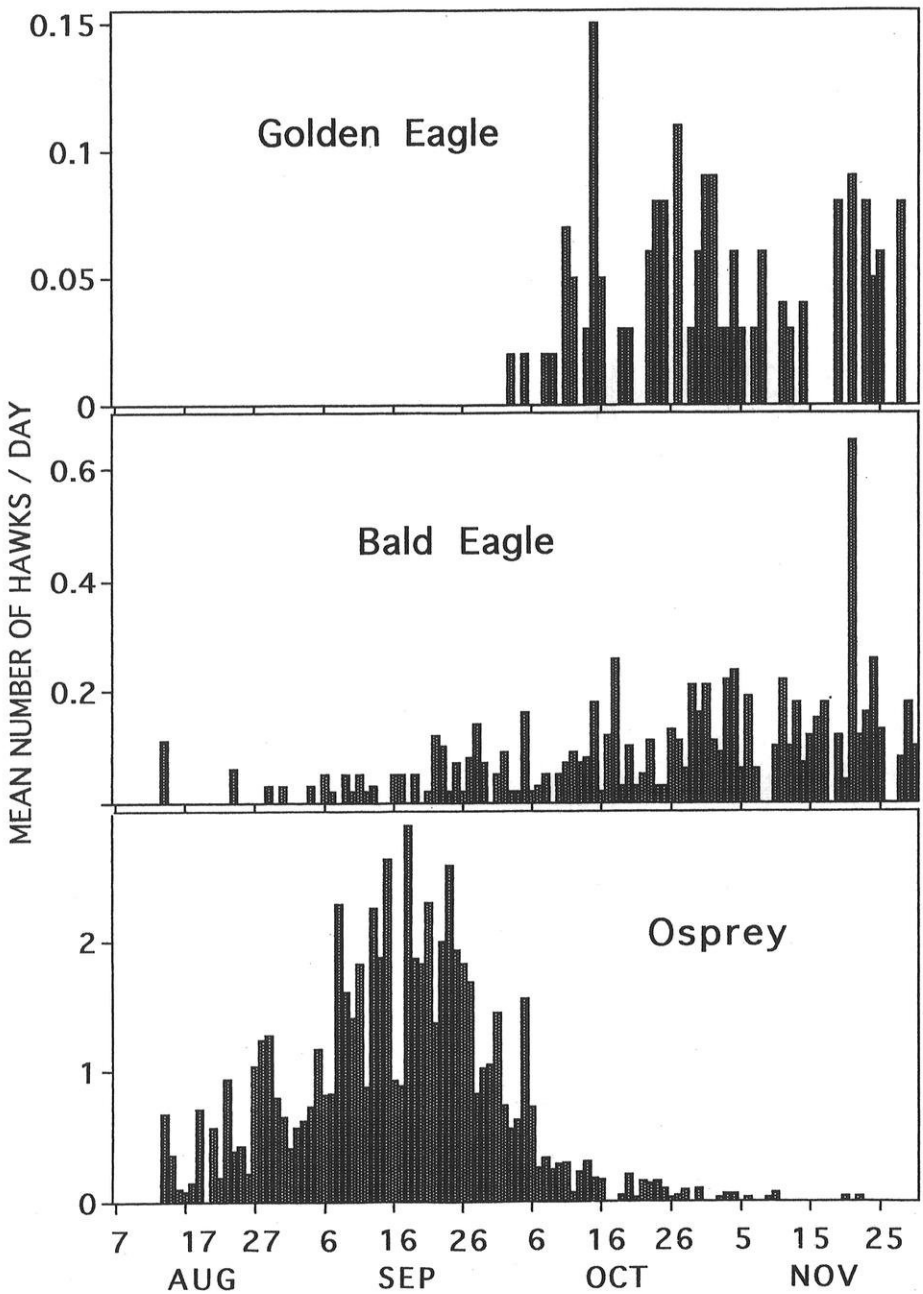

Figure 5. Mean numbers of hawks per observation day (1 August–15 December) at Cedar Grove, Wisconsin in the years 1951–1996.

common mid–August through early October (Fig. 5).

Peregrine Falcon (Falco peregrinus)—Extremes, 14 August–22 November; 95% were seen between 8 September and 18 October. The best day was 24 September 1985, when 25 were seen. The best year was 1991, when 101 were recorded. Only 7 individuals were seen in 1972, when populations were severely reduced by pesticides. The peregrine shows a pronounced peak in mid–September through early October (Fig. 6).

Prairie Falcon (Falco mexicanus)—Observed only twice at Cedar Grove on 23 September 1957 and 15 October 1982.

Gyrfalcon (Falco rusticolus)—Only one individual of this species was observed (and trapped and banded) on 11 November 1989.

Merlin (Falco columbarius)—Extremes, 15 August–24 November; 95% were seen between 8 September and 24 October. The best day was 14 October 1995, when 248 were observed. The best year was 1991, when 765 were counted. Only 27 individuals were seen in 1975. This species also had a severe population reduction because of pesticides. The Merlin migrates past Cedar Grove mainly in mid–September through mid–October (Fig. 6).

American Kestrel (Falco sparverius)—Extremes, 7 August–30 November; 95% were seen between 14 August and 22 October. The best day was 26 September 1977, when 116 were recorded. The best year was 1992 when 384 were seen. Only 3 individuals were seen in 1951 and only 27 in 1967. The Kestrel is common during migration from mid–August through mid–October (Fig. 6).

Discussion

To determine changes in the timing of migration over the 46 years of our study we compared the mean percentages of total hawks seen in the first half of the season in years 1956 to 1965 and 1986 to 1995. The Wilcoxon signed ranks test was used to compare the two sets of year. The procedure was repeated for the second half of the season.

Changes in the timing of migration over the 46 years of our study were found in only the Red-shouldered and Cooper's Hawks. Red-shouldered Hawks were relatively less common on more days in the first half of the season in 1986–95 (Fig. 7) than in 1956–65 ($P < 0.002$), and although they are less common in the last half of the season in 1986–95 than in 1956–65 the difference is not quite significant ($P = 0.098$). The Red-shouldered Hawk continued to decline in Wisconsin in the years 1966–91 (Robbins et al. 1996). Perhaps more northern populations have declined less (or not at all) and migrate later than southern populations. This would explain the later migration of the species in 1986–95 compared with 1956–65. Our data show no decline in the species; 0.44 birds per observation day were recorded in 1956–65 and 0.50 in 1986–95, but the rarity of sightings of Red-shouldered Hawks in August in recent years leads us to believe that the species has declined locally.

Cooper's Hawks were relatively more common on more days in the first half

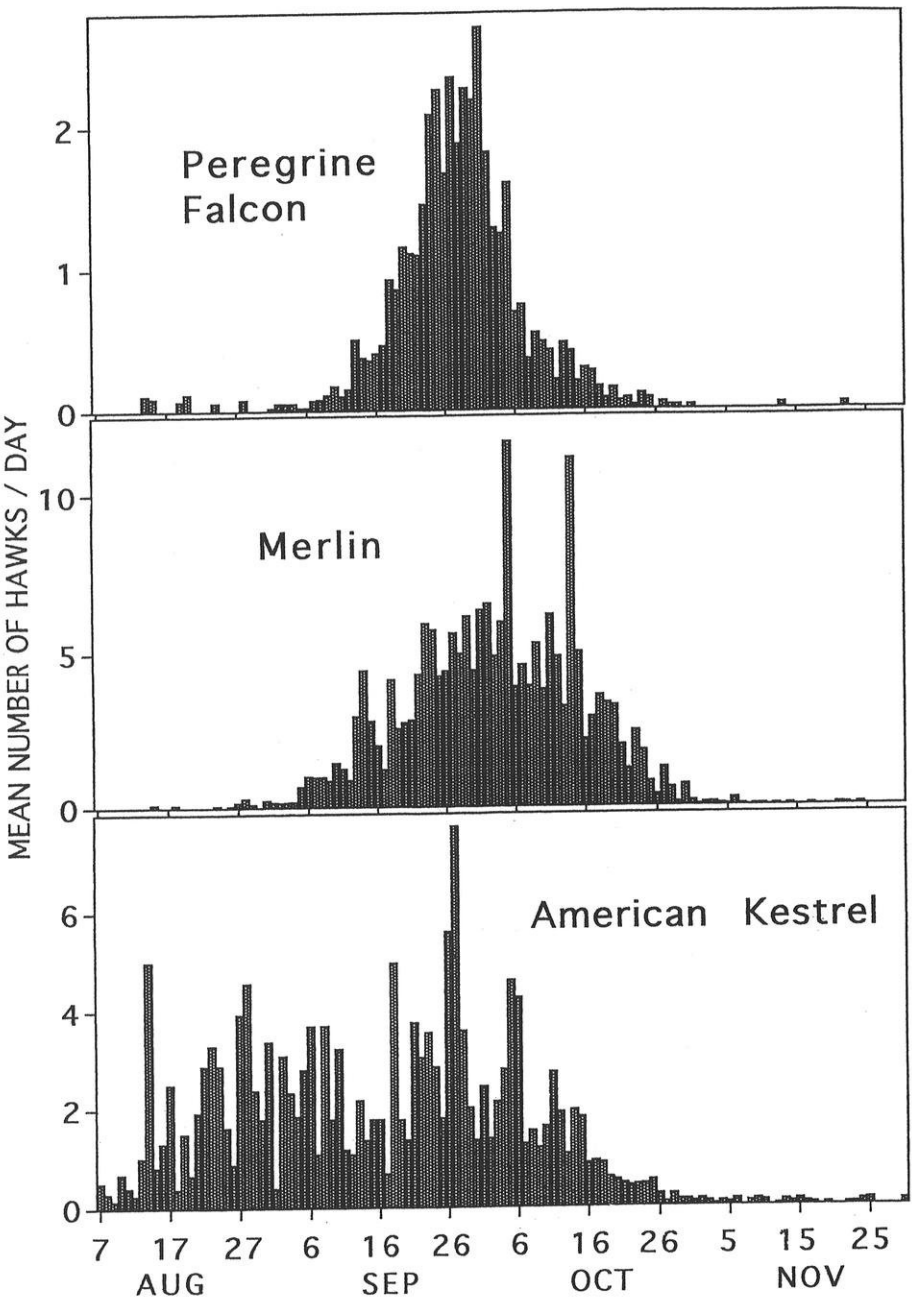

Figure 6. Mean numbers of hawks per observation day (1 August–15 December) at Cedar Grove, Wisconsin in the years 1951–1996.

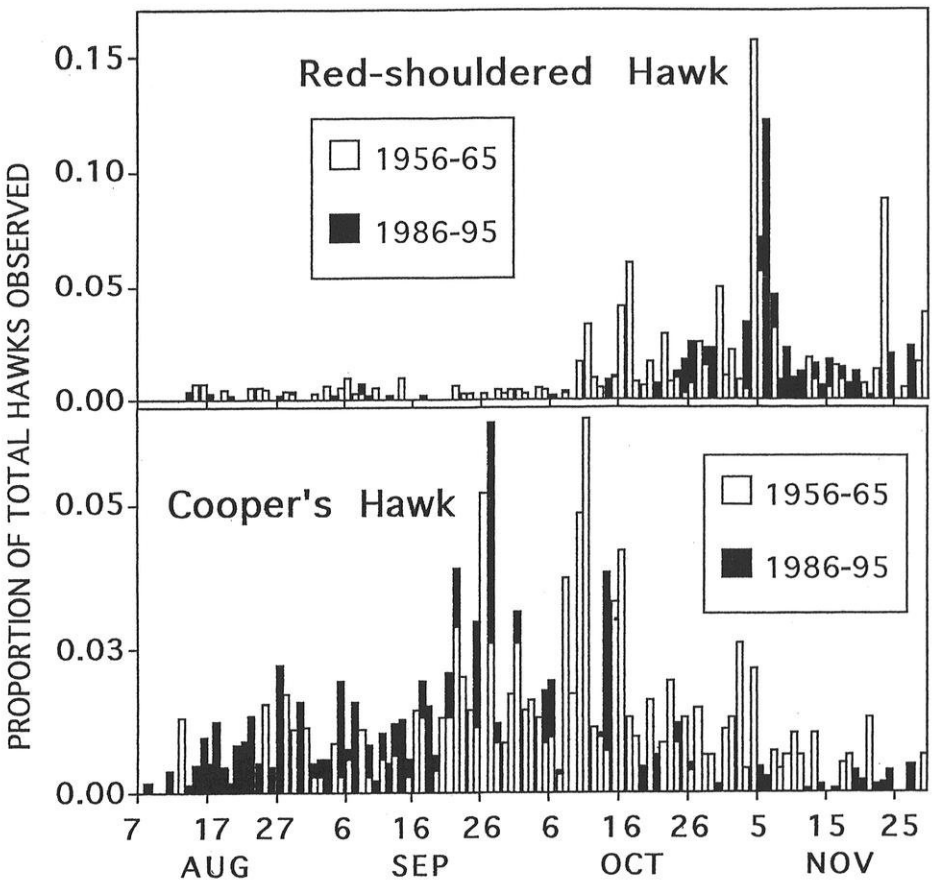

Figure 7. Proportion of the total hawks seen per day. Bars for 1956–65 (white) superimposed on those for 1986–95 (black).

of the season and less common in the second half of the season in 1986–95 (Fig. 7) than in 1956–65 ($P = 0.006$ and $P = 0.005$, respectively). Cooper's Hawks were more than twice as abundant in 1986–95 (a mean of 1.25 birds per observation day during the period when 95% of the individuals were observed) than in 1956–65 (0.48 birds per observation day). Populations of the Cooper's Hawk were severely reduced in the late 1940's through the 1970's by pesticides and the species was listed as threatened in Wisconsin in 1979. Pesticide usage was higher in agricultural areas and Cooper's Hawks in southern Wisconsin may have been affected more than those breeding further to the north in Wisconsin and southern Canada. These northern birds might migrate later than more local birds, accounting for the later migration of the species in 1956–65.

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The Winter Season: 1996–97

by Kenneth I. Lange

I've discovered that being a Seasonal Editor can entail certain occupational hazards. Take, for example, the usage of such terms as "incredible" and "unprecedented." I used them in last winter's account in reference to northern owls, but now what can I say? The owl numbers for this winter render such terms irrelevant.

It was the biggest Great Gray Owl and Boreal Owl invasion on record: the final tally was at least 70 Great Grays in 15 counties and at least 50 Borealss in 12 counties, far surpassing last winter's record totals of 35 in 14 counties and 6 in 5 counties, respectively. In addition, at least 5 Northern Hawk-Owls were noted in as many counties, and Snowy Owls were in high numbers, for example a total of at least 18 in Taylor and Clark Counties. Unfortunately, many of these reports, especially Borealss, were of dead birds, most likely victims of starvation. Additional dead owls reported were 2 Great Grays, a Barred Owl, and a Northern Saw-whet.

One wonders what caused this dramatic increase in northern owls, particularly Great Gray and Boreal, in Wisconsin in the last 2 winters. Presumably many of these birds moved into Wisconsin from northern areas because of scarcity of prey related to deep snow. But if this was the case, then why did so many remain in Wisconsin with its deep snow cover of last winter and especially of this winter? Were they too weakened by this time to move elsewhere? More on snow cover later.

Other ornithological highlights, in addition to the record numbers of northern owls, included Wisconsin's first winter reports for Pacific Loon, Red Phalarope, and Wood Thrush; the state's second winter report for White Pelican; a Sora in Langlade County on 1 March that undoubtedly arrived sometime in February, rather than being there all winter; and high numbers of Horned Lark and Snow Bunting. See the species accounts for details.

Winter finches, except for crossbills and perhaps Evening Grosbeak in northern Wisconsin, were generally in low numbers.

Much of the state had at least a minimal snow cover at the beginning of the period. And at the end of the period? Parts of Wisconsin, for example Door County and Jefferson and Dane Coun-

ties, had only a moderate snow cover in late February, but some counties still were covered with deep, often ice-crusted snow at the end of the period. From the end of February, these contributors reported the following snow depths: Murray Berner in Portage County, up to 2½ feet; Joan Williams in Marathon County and Marge Gibson in Langlade County (where the Sora was found), 3+ feet; Larry Gregg in Price County, 21 inches; Alta Goff in Barron County, over 2 feet; and Mary Griesbach Cahow in Washburn County, over 5 feet. These snow depths were greater than usual, but I don't have comparative figures from previous winters.

Yet at the same time a number of contributors commented on the overall mildness of the winter. Daryl Tessen characterized the season as "cold but not extreme," with a few cold snaps, and Bill Reardon in Vilas County ("fairly mild"), Larry Gregg in Price County ("milder than last winter"), and Karen Etter Hale in Jefferson County ("relatively mild") all sounded much the same theme.

Spring arrived, or so it seemed, by mid February, for example in southern Wisconsin the temperature reached 50 degrees F. on 18 February, the first day

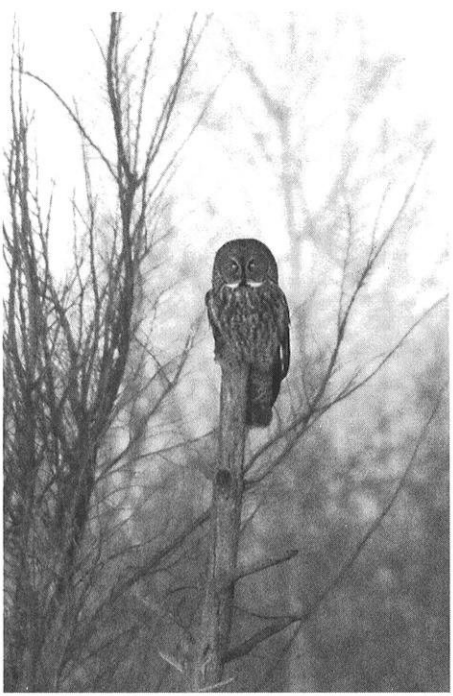

Figure 1. Great Gray Owl in Wood County, 8 February 1997, photo by Noel Moser, submitted by Judy Haseleu.

Figure 2. Great Gray Owl in Winnebago County, 20 January 1997, photo by John Van Den Brandt.

Figure 3. Boreal Owl in Oconto County, 14 December 1996, photo by Jerry and Karen Smith.

in the 50s since November; there was minor flooding and water standing on roads. However, winter returned later in the month with colder temperatures and snow.

Fall migration was reported for just one species, Tundra Swan. Spring migration was reported for the following species: Snow Goose, Canada Goose Wood Duck (?), Green-winged Teal, Northern Pintail, Northern Shoveler, Gadwall, Canvasback, Ring-necked Duck, Lesser Scaup, Common Goldeneye, Common Merganser, Ruddy Duck (?), Northern Harrier (?), Sharp-shinned Hawk (?), Cooper's Hawk (?), Red-shouldered Hawk, American Kestrel, Sora, Sandhill Crane, Ring-billed Gull, Herring Gull, Belted Kingfisher (?), Horned Lark, American Robin, Cedar Waxwing, European Starling, Song Sparrow (?), Red-winged Blackbird, Western Meadowlark, Meadowlark species, and Common Grackle. See the species accounts for details.

In addition to migrants, there were

these signs of spring: the Bald Eagles that nest along the Eau Claire River in Schofield, Marathon County, were back on the nest and carrying branches by the end of the period (Lynn Ott); Song Sparrow was singing on 24–25 February in Waupaca County (Don Nussbaum); and White-winged Crossbill was in song (Daryl Tessen).

A total of 88 people contributed reports or photos covering 58 counties. The 14 counties not covered were scattered thruout the state. The counties with the most coverage (at least 5 contributors) were Dane, Dodge, Douglas, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Sauk, Sheboygan, Washington, Waupaca, Winnebago, and Wood. A total of 14 counties was covered by just one report per county.

The following common statewide species are not included in the species accounts: Ruffed Grouse, 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 the period, EOP—end of the period, TTP—thruout the period, CBC–Christmas Bird Count(s), and m. obs.—many observers.

Reports (1 December 1996–28 February 1997)

Pacific Loon.—One on Big Cedar Lake in Washington County, 1 December (documented by Domagalski); Wisconsin's first winter record, the previous late date being 4 November 1984 in Douglas County.

Pied-billed Grebe.—One TTP in Waupaca County (Nussbaum; Tessen).

Red-necked Grebe.—One on Lake Monona, Dane County, 7 December (Ashman), and one in Lake Michigan, Ozaukee County, 15 December (Wood).

Western Grebe.—Robbins found one in Dane County, 13 December.

White Pelican.—A hatching year female, frostbitten and bleeding, was recovered from Delavan Lake, Walworth County, 21 December, by Steven and Yvonne Blane; they nursed it back to health with the help of other people. On 3 January the bird arrived via airplane at a sanctuary in Florida (*Lake Geneva Regional News* 9 and 16 January 1997; via Parsons).

Wisconsin's only other winter record, herein reported for the first time, was one in Brown County, BOP—2 January 1993 (Ty and Ida Bauman).

Double-crested Cormorant.—Nussbuam noted one thru 2 January in Winnebago County.

Great Blue Heron.—A total of 4 January records for these counties: Pierce, Vernon, Outagamie, and Kewaunee (m. obs.).

Tundra Swan.—90+ over Lake Mills, Jefferson County, 1 December (Hale), and 90 over Dane County, 13 December (Robbins). Thru 1 January in Dane County (Burcar) and Ozaukee County (Uttech). Diehl reported a diseased bird in Milwaukee County, 31 December, and J. Williams reported a free flying bird in a wildlife zoo pond in Marshfield, Marathon County, 7 February–EOP.

Trumpeter Swan.—TTP in Polk County (Hudick), one in the Wolf River in Langlade County, 2 December–15 January (Schimmels), two in a wildlife zoo pond in Marshfield, Marathon County, 7 February–EOP (J. Williams) and four banded adults at the mouth of the Plover River, Portage County, 2–8 December (banded as 2-year-olds in May 1996 in Ashland County; Berner).

Mute Swan.—After the CBC, noted in these counties: Douglas, Bayfield, Ashland, Shawano, Door, Dane, Washington, Waukesha, Milwaukee, and Walworth (m. obs.).

Snow Goose.—TTP in Winnebago County (Nussbaum; Tessen). Burcar noted this species on 28 February in Dodge County.

Canada Goose.—Wintering in at least 19 counties, north to Douglas County, 28 January (LaValleys), and Marathon and Door Counties, where TTP (m. obs.). Spring migrants in Dane County on 3 February (Ashman), and southeastern Wisconsin on 9 February (Domagalski).

Wood Duck.—After the CBC, single birds in Portage, Waupaca, Brown, Winnebago, and Dane Counties (m. obs.); some of these records might represent early migrants.

Green-winged Teal.—Single birds on 26 February in Waupaca County and 28 February in Shawano County (Peterson).

American Black Duck.—Noted in 16 counties thruout the state (m. obs.); northernmost record—Bayfield and Ashland Counties, where Verch reported a maximum of 45 on 11 February.

Mallard.—Noted in 25 counties thruout the state (m. obs.); Verch reported a maximum of 70 in Bayfield and Ashland Counties, 11 February.

Northern Pintail.—TTP in Dane County, maximum 2, also TTP in Outagamie County (m. obs.). Migrants in Marathon County, 22 February, 1 (Belter), and Winnebago County, 28 February (Nussbaum).

Northern Shoveler.—TTP in Dane County (m. obs.), maximum 110, 29 December (Ashman). Also a record for Milwaukee County: 27 February (Frank).

Gadwall.—TTP in these counties: Winnebago (Nussbaum), maximum 5–6 (Tessen), Dane (m. obs.), maximum 240, 8 February (Tessen), Washington, maximum 21, 11 January (Domagalski), and Milwaukee (m. obs.). Tessen noted one on 26 February in Brown County.

American Wigeon.—TTP in Outagamie and Milwaukee Counties (m. obs.).

Canvasback.—BOP and EOP in Dane County (Burcar). One in Milwaukee County, 14 January (Tessen).

Redhead.—TTP in Milwaukee County, maximum 4 (m. obs.), and 1–2 TTP in Winnebago County (Tessen).

Ring-necked Duck.—TTP in Waupaca County (Nussbaum), and Winnebago County, 1 (m. obs.). EOP in Brown County (Tessen).

Greater Scaup.—TTP in Lake Michigan, from Door County to at least Milwaukee County (m. obs.).

Lesser Scaup.—TTP in Milwaukee, Ozaukee, and Manitowoc Counties, and apparently Waupaca County (m. obs.). Migrants (presumably) in Dane County, 18 February–EOP, 2–8 (m. obs.), Winnebago County, 20 February–EOP, 8 (Nussbaum; Tessen), and Brown County, EOP (Tessen).

King Eider.—One in Milwaukee County, 7–24 January (documented, in chronological order, by Korducki, Gustafson, Domagalski, and Wood).

Harlequin Duck.—An immature male in Sheboygan County, 31 January–EOP (m. obs.), and a female in Milwaukee County, 4 December–EOP (m. obs.).

Oldsquaw.—TTP in Lake Michigan, at least in Milwaukee and Ozaukee Counties; 1000 on a Door County CBC, 21 December (m. obs.).

Black Scoter.—21 December, one in Milwaukee County (Gustafson).

Surf Scoter.—Records for 3 counties: Ozaukee, 14 January, 1 (Tessen), Milwaukee, 15 December, 1 (Wood), and 19 January, 1 (Frank), and Kenosha, 11 December, 25 (Boldt).

White-winged Scoter.—Milwaukee County, 4 January–15 February (m. obs.), maximum 3, 9 January (Korducki).

Common Goldeneye.—TTP in these localities: Lake Michigan, from Door County to at least Milwaukee County; Waupaca and Winnebago Counties; the Wisconsin River, from Sauk and Dane Counties to Marathon County; Dunn County; and Polk County (m. obs.). At least some

of the following records represent migrants: Walworth County, 26 February (Parsons); Outagamie County, 3 February (Nussbaum); Price County, 6 on the Flambeau River, 3 February (Gregg); Ashland and Bayfield Counties, 11 February–EOP (Verch); and Douglas County, 28 January (LaValleys). Migrants appeared inland, away from Lake Michigan, on 28 February in Washington County (Domagalski).

Barrow's Goldeneye.—A male in Lake Michigan by Ozaukee County's Virmond Park for the 3rd consecutive winter; documented by Tessen for 4 December.

Bufflehead.—TTP in Lake Michigan, from Door County to at least Milwaukee County. January records for Waupaca, Dane, and Walworth Counties (m. obs.).

Hooded Merganser.—TTP in Milwaukee and Manitowoc Counties, 19 January–EOP in Brown County, TTP in Outagamie and Winnebago Counties, 1 February in Portage County, 14 February in Columbia County, and TTP in Dane County; generally 1–2 birds at a given locality (m. obs.).

Common Merganser.—TTP in these localities: Lake Michigan, from Door County to at least Milwaukee County; Waupaca and Winnebago Counties; and the Wisconsin River in at least Sauk and Dane Counties (also Portage County, 1 February, and Marathon County, thru 9 February, 6). At least some of the following records represent migrants: Outagamie County, 28 February; Oconto County, 19 February; Pierce County, 19 February–EOP; and Bayfield and Ashland Counties, 24 February–EOP (m. obs.). Migrants appeared inland, away from Lake Michigan, on 28 February in Washington County (Domagalski).

Red-breasted Merganser.—TTP in Lake Michigan from Door County to at least Milwaukee County (m. obs.).

Ruddy Duck.—Records for 3 Lake Michigan counties: Milwaukee, 4 January (Jeff Baughman) and 2 February (Domagalski), Ozaukee, TTP (Uttech), and Sheboygan, 26 January (Jeff Baughman); also Winnebago County, thru 3 January, 3, and 20 February, 1 (Tessen).

Black Vulture.—A sick bird reportedly found on 29 December in Sheboygan County and taken to a wildlife rehabilitation center, where apparently it died on 1 January; the documentation was rejected by the Records Committee. This information is being published with the hope that it will generate a photo or acceptable written description of what could be a significant record.

Bald Eagle.—TTP in at least 20 counties, including Douglas, Bayfield, Ashland, Vilas, Forest, Oconto, and Door Counties (m. obs.).

Northern Harrier.—TTP in these counties: Green, Dane (?), Dodge, Fond du Lac, Winnebago (?), Sheboygan, and Ozaukee, also January records for Walworth and Manitowoc Counties (m. obs.). One in Waupaca County, 25 February (Nussbaum); migrant?

Sharp-shinned Hawk.—After the CBC, records for 21 counties, north to Bayfield and Ashland, Vilas, Oconto, and Door Counties (m. obs.); including migrants (?).

Cooper's Hawk.—After the CBC, records for 22 counties, north to Polk, Price, Langlade, Oconto, and Door Counties (m. obs.); including migrants (?).

Northern Goshawk.—One in Ozaukee County, 2 December (Tessen). After the CBC, records for Marathon, Langlade, Oconto, Door, Brown, and Winnebago Counties (m. obs.).

Red-shouldered Hawk.—TTP in Monroe County (Kuecherer) and Oconto County (Smiths), 3 January in Sauk County (Burcar), and 18 January in Washington County (Domagalski). Jeff Baughman reported this species in Fond du Lac County, 28 February.

Red-tailed Hawk.—Northward to these counties, where TTP: Douglas, Marathon, Oconto, and Door (m. obs.).

Rough-legged Hawk.—On 19 January, Sontag saw 4 in Manitowoc County and the Smiths found a total of 22 in Oconto County, and on 8 February Jeff Baughman tallied 26 in Sauk, Columbia, Dane, and Dodge Counties.

Golden Eagle.—Exclusive of the CBC, these records: Jackson County, 30 January–17 February, maximum 3 (Peterson; Tessen), Mon-

roe County, at least 6 (Kuecherer), and Juneau County, an adult, 5 February (Belter).

American Kestrel.—Northward and at least into January in these counties: Douglas, Clark, Langlade, and Door (m. obs.). Hudick noted this species in Polk County, EOP.

Merlin.—27 December, an injured bird in Milwaukee County (Diehl), and 4 January, Dane County (Ashman).

Peregrine Falcon.—Dane County, 31 December (R. Johnson), Brown County, 30 January–EOP (Hansen), and Milwaukee County, TTP (Korducki).

Gray Partridge.—Door, Oconto, Outagamie, Brown, Kewaunee, Manitowoc, Calumet, and Columbia Counties (m. obs.); maximum 16, 3 January, Brown County (Hansen), and 15, 1 February, Calumet County (Tessen).

Ring-necked Pheasant.—North to Barron, Marathon, Oconto, and Door Counties (m. obs.).

Greater Prairie-Chicken.—Dan Belter visited Mead Wildlife Area in Marathon County, a reliable locality for this species, about 7 times this winter and for the first time did not find prairie-chickens. Decker found 16 on 23 February in Clark County, and Tessen found 70 on 30 January in Portage County.

Sharp-tailed Grouse.—Taylor County, 14 February, 8 (Belter), and Jackson County, 2 February, 25 (Peterson).

Wild Turkey.—Records for 25 counties, north to Polk, Dunn, Clark, Marathon, Oconto, and Door Counties (m. obs.).

Northern Bobwhite.—Richland County, maximum 8, 6 December (Duerksen), and Dane County, a flock of 7 in the Brooklyn Wildlife Area, 6 January (Ashman).

Virginia Rail.—One at Lake Wingra, Dane County, thru 5 January (Ashman).

Sora.—A weakened individual brought to the Raptor Education Rehabilitation Center in Antigo, Langlade County, 1 March (Gibson); most likely a migrant, arriving sometime in February, rather than an overwintering bird, considering the severity of the winter. The previous early arrival date was 29 March 1975 in Kenosha County.

American Coot.—TTP in Dane, Brown, and Ozaukee Counties, with January records for Milwaukee and Walworth Counties and a 3 February record for Winnebago County (m. obs.).

Sandhill Crane.—One in Green County, 31 December (Link). Migrants on 22 February in Jefferson County (Hale) and 28 February in Waukesha County (Strelka).

Common Snipe.—TTP in Monroe County (Kuecherer).

Red Phalarope.—Wisconsin's first winter record: one at Bradford Beach, Milwaukee County, 4–7 December (documented, in chronological order, by Korducki, Peterson, Tessen, Frank, Bontly, Domagalski, and Wood). The previous late date was 30 November 1993, also Milwaukee County.

Ring-billed Gull.—TTP in Milwaukee, Ozaukee, and Sheboygan Counties, and Brown County (m. obs.); thru 5 January and 3 February–EOP in Manitowoc County (Sontag), thru 6 January and 18 February–EOP in Kewaunee County (Regan), and thru 26 December in Door County (Regan). Away from Lake Michigan and Green Bay, thru 22 December in Dane County, thru 29 December in Winnebago County, and thru 21 December, 1, in the Superior landfill, Douglas County (m. obs.). Strelka noted this species in Waukesha County, 17 February.

Herring Gull.—TTP in Lake Michigan, north to Door County (m. obs.); Tessen estimated 3000 in Manitowoc County, 1 February. Also TTP in Washington County and Winnebago County (m. obs.). Noted in Dane County thru 7 January, then again on 28 February; also found EOP in Walworth County and Waupaca County (m. obs.). In northwestern Wisconsin, Verch reported this species in Ashland and Bayfield Counties thru 31 December, and Bardon at the Superior landfill in Douglas County found 1500+ on 7 December, 2000+ on 21 December, and 8 on 8 February.

Thayer's Gull.—Excluding the CBC, records for these Lake Michigan counties: Milwau-

Figure 4. Sora from Langlade County, 2 March 1997, photo by Marge Gibson (see the species account for details).

kee, an adult on 13 January and another on 6 February (Gustafson), Sheboygan, TTP, at least 3 (m. obs.), Manitowoc, 2 December and 7 February, 1 (Tessen), and Kewaunee, 28–31 December (Regan) and 14 February (Tessen). Also, Bardon found from 4–6 at the Superior landfill in Douglas County, 7 and 21 December.

Iceland Gull.—Excluding the CBC, records for these Lake Michigan counties: Milwaukee, 13 January (documented by Gustafson), Ozaukee, 3 dates between 18 December and 24 February in the Port Washington harbor (Uttech; visited daily), Manitowoc, 14 January and 7 February, 1 (Tessen), and Kewaunee, 10 December, 1 (Tessen), and 3 and 16 February, 1 (Peterson; Regan). Also, Bardon found different birds on 7 and 21 December in the Superior landfill in Douglas County.

Glaucous Gull.—Excluding the CBC, records for these counties: Douglas, the Superior landfill, 7 December—12+, 16 December—several dozen, 21 December—at least 18, and 8 February—2 (Bardon; Polk), Oconto, 1 December, 1 (Smiths), Brown, 7 February, 3 (Hansen), Door, 26–28 February (Regan), Kewaunee, 3 December–EOP, maximum 7 (Regan), Manitowoc, TTP (Sontag), maximum 15, February (Tessen), Sheboygan, 12–14 January, 5 (Jeff Baughman), Ozaukee, 12 December–26 February (Uttech), Milwaukee, 10 December–21 February, at least 3 (m. obs.), Washington, 1 December (Domagalski), and Winnebago, 3 January–2 February, 1 (Tessen).

Great Black-backed Gull.—Excluding the CBC, records for these Lake Michigan counties: Milwaukee, 21 December, an immature, and 8 January, an adult (Gustafson), Sheboygan, 2 December–12 January (m. obs.), maximum 5 adult and a 3rd-year bird on 12 January (Jeff Baughman), Manitowoc, 14 December, 2 immatures (Gustafson), and 1–23 February, maximum 3, 1 February (Tessen), Kewaunee, 5 December–EOP, maximum 6, 28 February (Regan), and

Door, 3 January (Regan). Also, Bardon found one at the Superior landfill in Douglas County, 21 December.

Rock Dove.—North to the following counties, where TTP: Douglas, Bayfield, Ashland, Vilas, Oconto, and Door (m. obs.).

Mourning Dove.—North to the following counties, where TTP: Bayfield, Ashland, Vilas, Oconto, and Door (m. obs.).

Eastern Screech-Owl.—After the CBC, records for these counties: Pierce, Shawano, Waupaca, Brown, Winnebago, Dodge, Washington, Ozaukee, Milwaukee, Dane, and Iowa (m. obs.).

Snowy Owl.—After the CBC, records for 26 counties, south to Iowa, Dane, and Milwaukee Counties (m. obs.). Most numerous in Taylor and Clark Counties, where Decker reported a total of at least 18. Still in Milwaukee and Ozaukee Counties EOP, but leaving inland southern Wisconsin by 22 February (m. obs.).

Northern Hawk-Owl.—Documented records for these counties: Douglas, 8 January–EOP (R. Johnson; LaValleys), Vilas, 21 January (Dring), Marathon, 2 February (Ott), and Wood, 30 January–27 February (Tessen; Wood; Robbins), also in Clark County, 1 December and 12 February, 2 (Decker).

Great Gray Owl.—The greatest invasion on record: a total of at least 70 in 15 counties, far surpassing last winter's previous high count of approximately 35 birds in 14 counties. Ken and Jan Luepke verified at least 14 in Taylor, Clark, Marathon, and Wood Counties, and banded 10 of them (Robbins). Apparently south to Rock County, where one was reportedly found in the Avon Bottoms, 15 February (a second-hand record from D.T. Williams, Jr.). The only report of dead birds was from Cahow in Washburn County, where 2 were brought to the Spooner Ranger Station in January. Also records for these counties: Douglas, Polk, Pierce, Dunn, Chippewa, Eau Claire, Waupaca, Winnebago, and Door (m. obs.). Documented by Anderson, Belter, Carlsen, Gamache, Haseleu, R. Johnson, LaValleys, Ott, Tessen, Van Den Brandt, Wood, and Ziebell.

Long-eared Owl.—A roost in red pines in the Brooklyn Wildlife Area, Green County, 6 January–EOP, 1–6 (Ashman), Ozaukee County, thru 1 January (Uttech), and Manitowoc County, 19 January, 3 (Sontag), and 7 February (Hansen).

Short-eared Owl.—Reports for 9 counties: Oconto, Door, Winnebago, Calumet, Fond du Lac, Sheboygan, Ozaukee, Kenosha, and Dane (m. obs.). High counts: 8 in Ozaukee County (m. obs.), 7 on 12 January in Bong Recreation Area, Kenosha County (Wood), and 6 on 12 February in Brillion Marsh, Calumet County (Nussbaum).

Boreal Owl.—A total of at least 50 in 12 counties, a record number for the period, including 23 banded in the Park Falls area, Price County (Gregg), and 5 at Stevens Point, Portage County (Jacobs); the previous high number was 6 in 5 counties, set last winter. Dead birds were reported from Douglas County (total of 3; LaValleys), Bayfield County (2; LaValleys), Washburn County (8 brought to the Spooner Ranger Station in February; Cahow), and Dunn County (1; Polk). Also records for these counties: Polk, St. Croix, Pierce, Buffalo, Taylor, and Oconto (m. obs.). Documented by Bratley, Irle, R. Johnson, and the Smiths.

Northern Saw-whet Owl.—Records for 5 counties: Washburn, one brought in for rehabilitation in January (Cahow), Price, one found dead in the last week of January (Gregg), Oconto, one netted on 8 February (Smiths), Ozaukee, a roosting bird in early March that obviously had been there (whitewash, pellets) for some time previous (Uttech), and Waukesha, rooting in a buckthorn tree in Vernon Marsh, 9 December–2 January (Boldt).

Belted Kingfisher.—After the CBC, records for these counties: Pierce, TTP; Monroe, TTP; Sauk, 3 January; Iowa, EOP; Dane, 21 February and Washington, TTP (m. obs.)

Red-headed Woodpecker.—After the CBC, records for Monroe, Portage, Waupaca, Brown, Waushara, and Dane Counties (m. obs.); maximum 5 on 18 January in Portage County (Berner).

Red-bellied Woodpecker.—North to Douglas County, where TTP in Cable (Cahow), Marathon County-TTP, Oconto County-TTP, and Door County-TTP (m. obs.).

Black-backed Woodpecker.—Forest County (Reardon) and Langlade County (Schimmels).

Northern Flicker.—After the CBC, records for 14 counties: Pierce, Oconto, Waupaca, Waushara, Winnebago, Manitowoc, Sheboygan, Ozaukee, Milwaukee, Jefferson, Dane, Columbia, Sauk, and Monroe (m. obs.).

Eastern Phoebe.—9 December, one at the Duck Pond in the University of Wisconsin Arboretum in Madison, Dane County (Ashman).

Horned Lark.—TTP in southern and central Wisconsin, for example Monroe, Fond du Lac, Sheboygan, and Brown Counties (m. obs.). Spring migration from approximately mid January–EOP, mainly in the first half of February (m. obs.). High counts: 165 on 11 January, Washington County; 95 on 6 February, Ozaukee County; 94 on 13 February, Marathon County; and 93 on 21 February, Dunn County (m. obs.).

Gray Jay.—Excluding the CBC, records for Price, Vilas, Oneida, and Forest Counties (m. obs.).

Common Raven.—Southernmost records for Jackson and Juneau Counties, maximum 3, 30 January, Jackson County (Tessen). A total of 25 in Langlade County, 11 February (Tessen).

Boreal Chickadee.—Excluding the CBC, records for Vilas, Oneida, and Forest Counties (m. obs.); Belter found 7 on 24 February in Forest County.

Tufted Titmouse.—Excluding the CBC, records for these counties: Dunn, Monroe, Richland, Iowa, Columbia, Dane, Jefferson, and Green (m. obs.), with one at a feeder in Washington County, 27 December–EOP (Domagalski; his first record for this species in the county).

Red-breasted Nuthatch.—Thruout northern and eastern Wisconsin—normal numbers, but found in only a few southern counties, where scarce (m. obs.).

White-breasted Nuthatch.—North to the following counties, where TTP: Bayfield, Ashland, Vilas, Forest, and Door (m. obs.).

Brown Creeper.—After the CBC, northernmost reports from these counties, where TTP: Washburn, Vilas, and Oconto (m. obs.).

Carolina Wren.—One at a feeder in Barron, Barron County, BOP-31 January (DeLong).

Winter Wren.—After the CBC, one record: one on 3 January in Sauk County (Burcar).

Marsh Wren.—No records after December.

Golden-crowned Kinglet.—After the CBC, reports from 8 counties: Vilas, 9 February (Hansen), Forest, 20 January, 2 (Tessen), Waupaca, 1 January (Nussbaum), Manitowoc, thru 4 February (Sontag), Fond du Lac, TTP (Jeff Baughman), Washington, TTP (Diehl; Domagalski), Dane, 8 February (Tessen), and Sauk, 3 January (Burcar).

Eastern Bluebird.—After the CBC, one record: Milwaukee County, 2 January–2 February, maximum 8, 2 January (Gustafson; Korducki).

Hermit Thrush.—After the CBC, these records: one in Milwaukee County thru 21 January (Diehl), and one at a feeder in Outagamie County, 20–31 January (Sauers).

Wood Thrush.—Wisconsin's first winter record: one in Milwaukee County, 8 December (Smiths); the previous late dates were in November (Robbins, S.D., Jr. 1991. Wisconsin Birdlife. UW Press, Madison, WI, p. 442).

American Robin.—TTP in these counties: Bayfield and Ashland, Price (?), Clark, Door, Brown, Manitowoc, Winnebago (?), Dane (?), and Milwaukee (m. obs.); maximum 90 on 3 February in Dane County (Ashman). Migration inferred or suspected for these records: Washington County, 19 February–EOP; Marathon County, 16 February; and Douglas County, 23 February (m. obs.).

Varied Thrush.—One at a feeder in Marathon County, 9 January (a second-hand report from J. Williams), and a male at a feeder in Waupaca County, 21–28 December (Buetow).

Gray Catbird.—25 December, one at the Duck Pond in the University of Wisconsin Arboretum in Madison, Dane County (Ashman).

Northern Mockingbird.—One in Milwaukee County, 3 December–EOP (m. obs.; first re-

ported by Diehl). Feeding on buckthorn berries (Tessen).

Brown Thrasher.—One at a feeder in Door County, 10 January–EOP (Lukes).

Bohemian Waxwing.—200+ in Bayfield and Ashland Counties on 17 January the only record (Verch).

Cedar Waxwing.—Northernmost reports from these counties: Polk—TTP, Marathon—TTP, and Door—16 January (m. obs.). On 28 February, Jeff Baughman found 60 in Fond du Lac County and Tessen saw 50–60 in Outagamie County.

Northern Shrike.—After the CBC, reported from 29 counties thruout the state (m. obs.).

European Starling.—North to these counties: Douglas—TTP, Bayfield and Ashland—TTP, Vilas—TTP, Forest—29 December, and Door—TTP (m. obs.). Domagalski noted a significant increase in numbers in Washington County and eastern Dodge County on 19–20 February.

Northern Cardinal.—North to these counties, where TTP: Bayfield and Ashland, Langlade, Oconto, and Door (m. obs.).

Eastern Towhee.—One at a feeder in Oconto County, TTP (Smiths), and one at a feeder in Adams County, last half of January (Jensen).

American Tree Sparrow.—North to these counties: Bayfield and Ashland—TTP, Vilas—17 December, Oconto—TTP, and Door—TTP (m. obs.).

Savannah Sparrow.—Boldt reported one with 200+ American Tree Sparrows in Ozaukee County, 20 December.

Song Sparrow.—TTP in Milwaukee, Washington, Manitowoc, Winnebago, and Dane Counties; generally 1–2 at a given locality (m. obs.). January and/or February records for another 6 counties, including 4 sites in Jefferson County (Hale); some of these records, for example 24–25 February in Waupaca County (Nussbaum), may represent migrants.

White-throated Sparrow.—TTP in Milwaukee County, approximately 6 at the Wisconsin Humane Society's feeders, the 3rd consecutive winter for this many birds (Diehl), TTP in Dane County, maximum 4, 9 December (Ashman), 3 on 22 January in Jefferson County (Hale), and 20 February in Winnebago County (Bruce).

Harris' Sparrow.—One in the first winter plumage at the Duck Pond in the University of Wisconsin Arboretum in Madison, Dane County (m. obs.).

Dark-eyed Junco.—North to Bayfield and Ashland Counties, thru 31 December; Price County, TTP; Vilas County, TTP ("unusual"—Reardon); Oconto County, TTP; and Door County, TTP (m. obs.).

Lapland Longspur.—After the CBC, noted in these counties: Dunn, Waupaca, Monroe, Sauk, Columbia, Iowa, Dane, Dodge, Washington, and Ozaukee (m. obs.). Generally low numbers (less than 10), except for 300+ on 8 January in Iowa County (Burcar).

Snow Bunting.—Widespread and numerous. After the CBC, reports from 32 counties thruout the state (m. obs.), the highest number since the winter of 1985–86, when this species was also found in 32 counties. Large flocks (at least 100) in 9 counties, with flocks of 400–1000+ in 4 counties—Oconto, Brown, Sheboygan, and Washington (m. obs.).

Red-winged Blackbird.—TTP in Dane, Dodge, and Fond du Lac Counties (m. obs.). Migrants EOP in Washington, Sheboygan, and Iowa Counties, and apparently Pierce County where noted from 20 February–EOP (m. obs.).

Western Meadowlark.—26 February, 1, Ozaukee County (Jeff Baughman and Dunn).

Meadowlark species.—13 January, 2, Green County (Link), and 30 January, Waupaca County (Tessen). Nussbaum found one in Winnebago County, 27 February.

Brewer's Blackbird.—TTP at feedlots in Dodge County, with cowbirds (Domagalski).

Common Grackle.—TTP in Bayfield and Ashland Counties (Verch), and January records,

usually single birds, for Oconto, Winnebago, Dodge, and Dane Counties (m. obs.). Migrants: 20 February, 1, Pierce County (Carlsen); EOP, Sheboygan County (Jeff Baughman); and 28 February, 1, Walworth County (Parsons).

Brown-headed Cowbird.—TTP at feedlots in Dodge County, with Brewer's Blackbirds (Domagalski), also 6 February, Walworth County, 1 (Parsons).

Baltimore Oriole.—One brought to a wildlife rehabilitator, 24 December, in Eau Claire County; it died a few days later (Polk).

Pine Grosbeak.—After the CBC, these records: Douglas County, TTP (LaValleys), Bayfield and Ashland Counties, 28 December–EOP (Verch), Vilas County, 24 February (Reardon), and Marathon County, 21 January (Ott).

Purple Finch.—Low numbers in southern and central Wisconsin, more numerous in northern Wisconsin but still relatively scarce (m. obs.); maximum 25, 16 February, Bayfield and Ashland Counties (Verch).

House Finch.—North to these counties: Douglas—TTP, Bayfield and Ashland—TTP, Vilas—thru 2 January, Oconto—TTP, and Door—TTP (m. obs.).

Red Crossbill.—After the CBC records for these counties; Douglas, Bayfield and Ashland, Price, Vilas, Forest, Langlade, Menominee, Fond du Lac, Sheboygan, and LaCrosse (m. obs.); maximum 20, 24 February, Forest County (Belter), and 15, Sheboygan County (Jeff Baughman).

White-winged Crossbill.—After the CBC, records for 9 northern counties: Douglas, Bayfield and Ashland, Price, Taylor, Vilas, Oneida, Forest, and Langlade (m. obs.); maximum 150 on 9 February in Langlade County (Hansen), and 60 on 24 February in Forest County (Belter).

Common Redpoll.—In striking contrast to last winter's major invasion, reports for only 2 counties this winter, after the CBC: Menominee, 20 January (Tessen), and Monroe, TTP (Kuecherer).

Pine Siskin.—After the CBC, records for 10 northern counties plus Fond du Lac and Sheboygan Counties, EOP, and Walworth County, 4 February, 1 (m. obs.). Maximum 60 on 20 January in Langlade County (Tessen) and 24 February in Forest County (Belter), otherwise generally low numbers.

American Goldfinch.—North to these counties, where TTP: Douglas, Bayfield and Ashland, Vilas, Forest—27 February, Oconto, and Door (m. obs.). Maximum 110, 9 February, Oconto County (Smiths), otherwise generally low numbers.

Evening Grosbeak.—After the CBC, records for 10 northern counties (m. obs.) plus Monroe County, one location (Kuecherer). Maximum 35 on 20 January in Menominee County and also Langlade County (Tessen), and 23 on 24 February in Forest County (Belter), otherwise generally low numbers.

House Sparrow.—North to these counties, where TTP: Douglas, Bayfield and Ashland, Vilas, Oconto, and Door (m. obs.).

Contributors

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Lesher, Emily Link, Charlotte and Roy Lukes, Bob Mead, Noel Moser, Don Nussbaum, Lynn Ott, James Otto, Patricia Parsons, Mark Peterson, Janine Polk, Mary Jean Raile, Bill Reardon, John Regan, Carol B. Richter, Larry Riedinger, Sam Robbins, L. Dean Sauers, Lynn James Schimmels, Tom Schultz, Jerry and Karen Smith, Charles Sontag, Jean M. Strelka, Daryl Tessen, Tom Uttech, John Van Den Brandt, Dick Verch, Daniel T. Williams, Jr., Joan Williams, Thomas C. Wood, Norma Zehner, Tom Ziebell.

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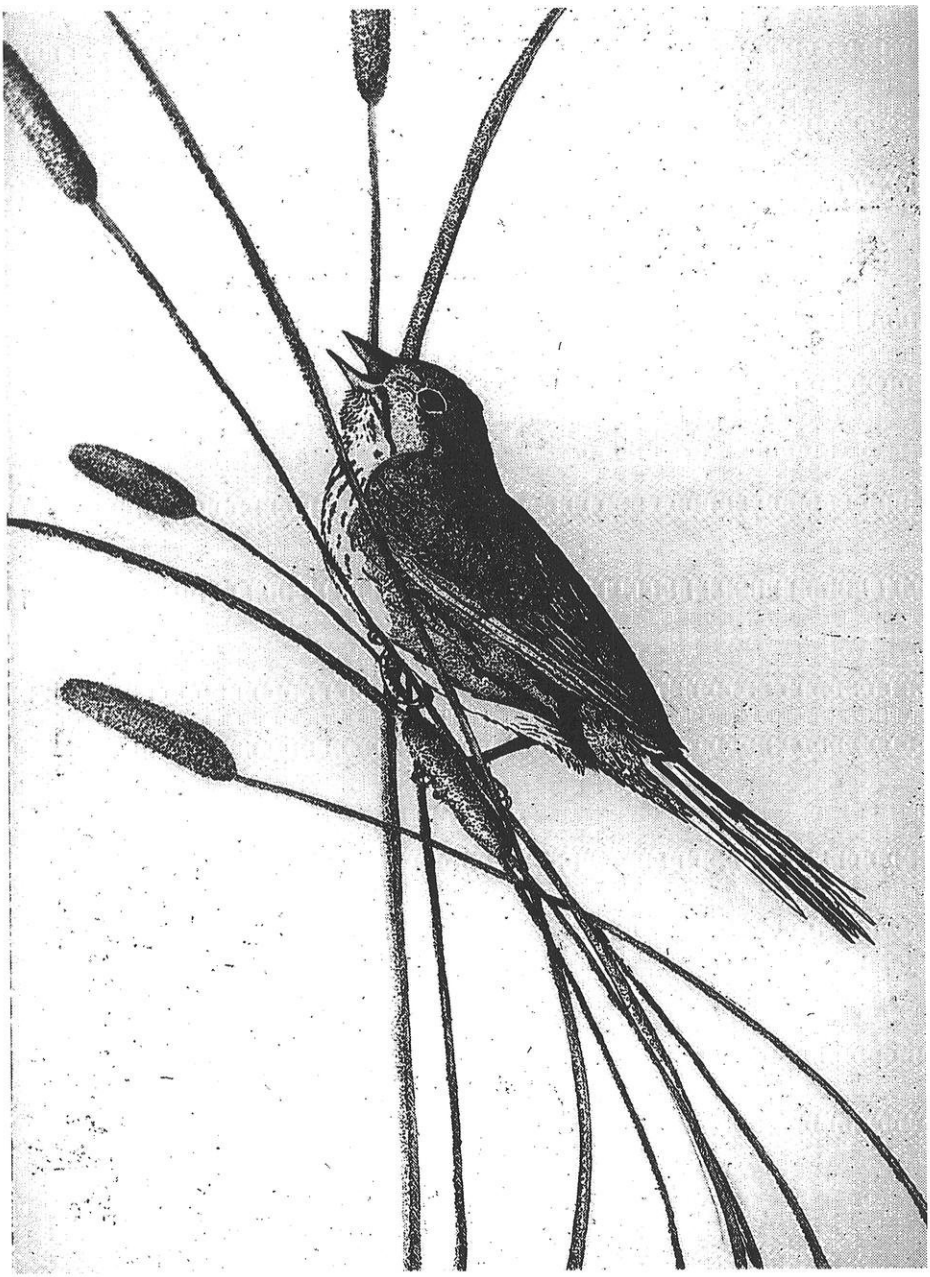


Etching *by N. A. Bruins*

"By the Wayside"

Observations of interest include information on a Great Gray Owl rehabilitation and a Black-throated Blue Warbler using a nectar feeder.

Great Gray Owl (*Strix nebulosa*)

It was erroneously reported in the Fall 1996 issue of *The Passenger Pigeon* [Volume 58, No. 3, page 297[that the Great Gray Owl found in Milwaukee County on 17 February, 1996 died in rehabilitation. Actually, the bird was successfully brought back from dehydration and emaciation by the staff and volunteers of the Wisconsin Humane Society Wildlife Department in Milwaukee. The bird however had an old partially healed fracture of one tarsometatarsus accompanied by partial paralysis of the toes on that leg. Because of this injury, the bird was deemed incapable of survival in the wild. With appropriate permits, it was transferred to the Northwoods Wildlife Center in Minocqua. There it was introduced to their resident permanently disabled Great Gray in their very large outdoor Great Gray Owl enclosure. The two owls are evidently highly compatible together.—*Scott Diehl, Wildlife Dept. Manager, Wisconsin Humane Society, Milwaukee*

Black-throated Blue Warbler (*Dendroica caerulescens*) Feeds at Hummingbird Feeder

On the afternoon of May 17, 1997, I observed a male Black-throated Blue Warbler consuming sugar water from a hummingbird feeder in Stetsonville, Wisconsin. Black-throated Blue Warblers are considered insectivorous during the breeding season (Holmes, R.T. 1994. Black-throated blue warbler (*Dendroica caerulescens*). No. 87 *in* The Birds of North America, A. Poole and F. Gill, eds. The Academy of Natural Sciences, Philadelphia), although a migrating Black-throated Blue Warbler was observed eating suet at a feeder in Minnesota (Morlock, L.M. 1984. Black-throated Blue Warbler visits a feeder. *Loon* 56:65). No insects, which also might have attracted the warbler, were visible on the feeder. Black-throated Blue Warblers consume some fruits, nectar, and sugar water on their wintering grounds (summarized in Holmes 1994); however, Coleoptera, Lepidoptera, Diptera, and other ar-

thropods comprise the majority of their diet in summer (Robinson, S.K., and R.T. Holmes. 1982. Foraging behavior of forest birds: the relationships among search tactics, diet, and habitat structure. *Ecology* 63:1918–1931).—*Neal D. Niemuth, College of Natural Resources, University of Wisconsin-Stevens Point, Stevens Point, WI 54481*

50 Years Ago in *The Passenger Pigeon*

From an article by A. W. Schorger on pheasants in Wisconsin:

"Pheasants were liberated in Wisconsin much earlier than has been assumed. The activity prior to 1900 was considerable. It is doubtful if more than a fraction, if any, of these early plantings survived owing to the small number of birds liberated and to inadequate consideration of climate and terrain. Howard Bosworth of Milwaukee was the pioneer in raising pheasants. A letter written by him on March 1, 1895, states that three years previously he purchased some Mongolian pheasants from Oregon, also some birds of English stock, and that he was now ready to supply eggs."

Schorger concludes with the paragraph: "A citizen of California felt it his duty to warn the people of Wisconsin against the introduction of the pheasant. He wrote in part: 'A female pheasant with young will fly over a field of grain and with her wings will thresh out the grain, which falls to the ground and is devoured by the young birds. They are hearty eaters and a few broods of them will make a rather sickly-looking grain field in a short time. Another thing is that after these birds are once introduced into a locality it is almost impossible to exterminate them for the reason that they multiply so rapidly. Considering all these points it is not advisable to introduce the pheasant into a grain county like Wisconsin.' To the best of my knowledge, no one has witnessed the aerial threshing or encountered a superabundance of pheasants in this state." (Excerpts from Volume 9, 1947)

"By the Wayside"

Observations of rarities include documentation of Pacific Loon, King Eider, Barrow's Goldeneye, Red Phalarope, Northern Hawk-Owl, Great Gray Owl, and Boreal Owl.

PACIFIC LOON (*Gavia arctica*)

1 December 1996, Big Cedar Lake, Washington County—While scoping Big Cedar Lake, I noticed a loon on the far shore that seemed smaller than the usual Common Loon. Also the throat and front of neck were unusually bright and in strong contrast to the dark crown and nape. There was also a crisp line of separation between these strong white and dark colored. I decided to zoom in on this loon. There were no other birds in the area against which to make a size comparison. Nonetheless, the loon seemed quite small and not as bulky as a Common Loon. The strong contrast between the white front of the neck and the dark nape was more apparent as was the sharp break between the two colors. I spent considerable time attempting to get a good view of the bill. Several times I had profiles of the bird at which times I could see an outline of the bill. It was straight and thin. It had none of the bulk and thickness that I associate with the Common Loon. I also looked for any hint of an upturned bill such as in a Red-throated Loon. I saw nothing to indicate an upturn—either in the shape of the bill or in the positioning of the head. I was always impressed by the straightness of the bill and how it was always held horizontal to the water. Also the back of the loon was blackish with no sign of mottling. The dark crown on the loon extended over the eye so that I could not find an eye on the bird. After viewing the loon for 45 minutes, it took flight. After circling the south end of Big Cedar Lake several times, the bird flew north and out of sight. I then drove north to a boat landing on Big Cedar and was fortunate to find the loon near a large number of gulls and mergansers and only 250 feet from shore. The loon at this time was actively feeding. It would give me 5 or 7 second looks and then disappear for 5 minutes before I could get another brief look.

At this 2nd viewing of the loon, I had good size contrasts with Common Mergansers and Herring Gulls. The loon was barely larger than a Common Merganser and about the same size as a Herring Gull. I was impressed by how small and slender the loon was. I also had looks at the bill size and shape. Again I was impressed by how straight and thin the bill was and how it was always held at a horizontal. I even had a chance to examine the lower man-

dible and saw that there was no upward slant to it. At this close distance, I was also impressed by the dense darkness of the back. The dark brown of the first year Herring Gulls was pale in contrast to the near blackness of this loon. Looking through the scope, I was not able to find white spotting or mottling on the back. The coloring of the back indicates an adult bird.—*Robert C. Domagalski, Menomonee Falls, WI.*

King Eider (*Somateria spectabilis*)

7–24 January 1997, Milwaukee County—A very bulky duck just slightly larger than the surrounding scaup. Could be easily located amongst the scaup by the warm, reddish-brown coloration. The sides and back were heavily barred, with crescents on the sides. There was a fairly prominent eye ring and a line of white extending down from the eye. Bill was black and fairly large. The feathers on the bill extended outward but stopped at least ¼ inch from the nostril. At certain angles, the head feathers appeared to give this bird the classic helmeted look. The forehead was steeply sloped, not the gradual slope of a Common Eider. I observed this female King Eider at least 6 times over a 3-week period.—*Mark Korducki, Milwaukee, WI.*

11 January 1997, Milwaukee Lake Front north of Bradford Beach—After numerous brief glimpses of a large rich-brown colored duck sleeping in the midst of a large, actively diving raft of scaup, I finally had a closer view of an eider both swimming and diving. The eider was easily larger than the scaup and slightly larger than one White-winged Scoter seen near it at one point. The warm brown color overall was typical of eiders, but the details of feathering patterns were hard to see at this distance. The wing was clearly seen when diving and was basically unmarked above with more light brown closer to the back, darker toward the wing tips and a hint of a light line above where the speculum would be. The identification as King Eider was based on head shape and frontal shield details. The head was more rounded than even other King Eiders I have seen and the bill appeared quite stubby, dark gray color, with a dip in the profile from forehead to bill tip, more redhead like, than Canvasback like. The frontal shield did not project far onto the forehead, with the nostrils being close to half way between the shield top and end of bill. In some light conditions, the lower cheeks appeared lighter than the crown, but sometimes this contrast was not noticed.—*Dennis Gustafson, New Berlin, WI.*

Red Phalarope (*Phalaropus fulicaria*)

4 December 1996, Bradford Beach, Milwaukee County—This bird was about the same size as the green on the head and neck of the nearby male Mallards. The back on this bird was a uniform pale gray. No streaking was noted. The tail and rump were dark gray. When the bird flew away from shore, the dark gray wings showed a white stripe running almost to the tips of the wings. I did not see the color of the legs. The bill was a dark gray color, the length was about equal to the distance from the base of the bill to the back of the head. The bill was not needle-like, like other phalaropes, but much thicker. The face, neck, and flanks were white. The back of the neck and head were

dark gray and this area split into a Y-shape on top of the head. A black smudge went from just in front of the eye to in back of the eye.—*Mark Peterson, Caroline, WI.*

5 December 1996, Lake Michigan shoreline, south of old Milwaukee Gun Club, Milwaukee County—Failing to find the phalarope at either end of Bradford Beach, I began to think the heavy wave action moved the bird out or farther south away from the crashing waves. Noting a small flock of gulls dropping into the waves along the shore up toward the gun club, I decided I could tolerate the sleet a bit longer in hopes of an odd gull or kittiwake. As I scanned the gulls, a flutter caught my eye as one wave crashed. The movement was opposite of the wave froth. As the water stilled a small gray and white shorebird was evident swimming in the water. Approaching within 40 to 50 feet, I watched as the bird repeatedly took flight over the heavy waves. It was gray-backed with darker gray flight feather and a darker gray stripe extending up the nape of the neck forking a short ways after reaching the base of the crown. The crown, neck, and breast were white broken by a dark face and eye patch. The bill was shorter and stouter than Wilson's or Red-necked Phalaropes, perhaps being about the length of the head. It was dark in color, but when the bird faced me it had a yellow-brown color to it on the proximal upper mandible. In flight the gray back and wings were broken by a white stripe. The back gray color was uniform.—*Jim Frank, Mequon, WI.*

6 December 1996, Lake Michigan off the old Gun Club property on the Milwaukee lake shore, Milwaukee County.—The Red Phalarope was found with a flock of Bonaparte's Gulls, bobbing along a rocky shoreline at the gun club. This small shorebird, only a little bigger than the "peeps," had a gray back and upper body, white belly and front of neck. The gray back was not marked with white lines. The back of the neck had a dark gray/black stripe or line down it, there was a black patch through the eyes and in back of the eyes. The bill appeared dark and relatively heavy for the size of the bird. Though the bird didn't spin around in the water, it did bob lightly on the water and swam slowly in half circles among the waves.—*Marilyn Bontly, Bayside, WI.*

NORTHERN HAWK-OWL (*Surnia ulula*)

8 January 1997, 28th St. near Hammond Ave., Superior, Douglas County—Through binoculars I noted a small owl, about crow or pigeon sized, with a tail nearly as long as his body. His breast was finely barred with reddish brown. His facial disks were edged heavily with black. The top of his head was finely spotted with white and he had a large white patch on each side of his head behind the facial disk. His eyes were yellow. This owl remained the rest of the winter, at one time sitting calmly on a power line one block away from operating snow removal equipment—graders, giant snow blowers and dump trucks.—*Robbye Johnson, Superior, WI.*

21 January 1997, South of Eagle River—We saw an owl about 12 plus inches long with a long barred tail. Barred breast and spotted back and crown. Face was framed with dark feathers and dark under the beak. Eyes

were yellow with dark centers. There were no other birds around and it would alternate watching us and apparently search the surrounding area for prey. It would occasionally bob its tail and even hold it in a raised position for a while. It finally flew and seemed to drop off the perch on what appeared to be long wings for an owl and flew low from 3 to 5 feet over the ground or about 200 to 300 yards and flew to another treetop.—*Peter Dring, Land O'Lakes, WI.*

2 February 1997, Corner of Hwy 13 and Eau Pleine Rd. in Marathon Co.—The small, dark owl with a longish (almost 1/2 the body length) tail perched in a lone deciduous tree in the middle of the field. The light band below the "face" of the bird was clearly visible along with the black markings to the side of the "face." There were no ear tufts and the head had a flat squarish shape. Barring on belly was almost in horizontal lines. Eyes were yellow. A local bander (Ken Leupke) attempted to band it but, it escaped the trap. The area behind the bird is a blueberry and spruce bog.—*Lynn Ott.*

5–27 February 1997, Power lines near the intersection of Hammond Ave. and 28th Street in Superior—The hawk-owl had a mall head for an owl but still larger than a hawk. No ear tuft. The owl was generally facing a bird feeder by the house so it was difficult to see its face. When it did turn, it had a dark edge to the sides of the facial disk and yellow eyes which were hard to see. The wider parts were streaked with rusty bars all the way to the tail. The back was brown and had large white spots. The owl had a long tail for an owl. Several times chickadees and/or goldfinches landed nearby and scolded. In comparison the owl would have been larger than a robin and slightly smaller than a crow.—*Steve LaValley, Poplar, WI.*

Great Gray Owl (*Strix nebulosa*)

19 January 1997, Winnebago County—A large (larger than a Red-tailed Hawk that was in a neighboring tree and also stooped at the owl), big-headed, round-headed (no ear tufts) owl. Body and head grayish with a distinctive bow tie shaped area of white in the neck area. Bright yellow eyes. Very large facial disks with distinctive rings. Very tame bird, appeared not to be bothered by human activity.—*Thomas Ziebell, Oshkosh, WI.*

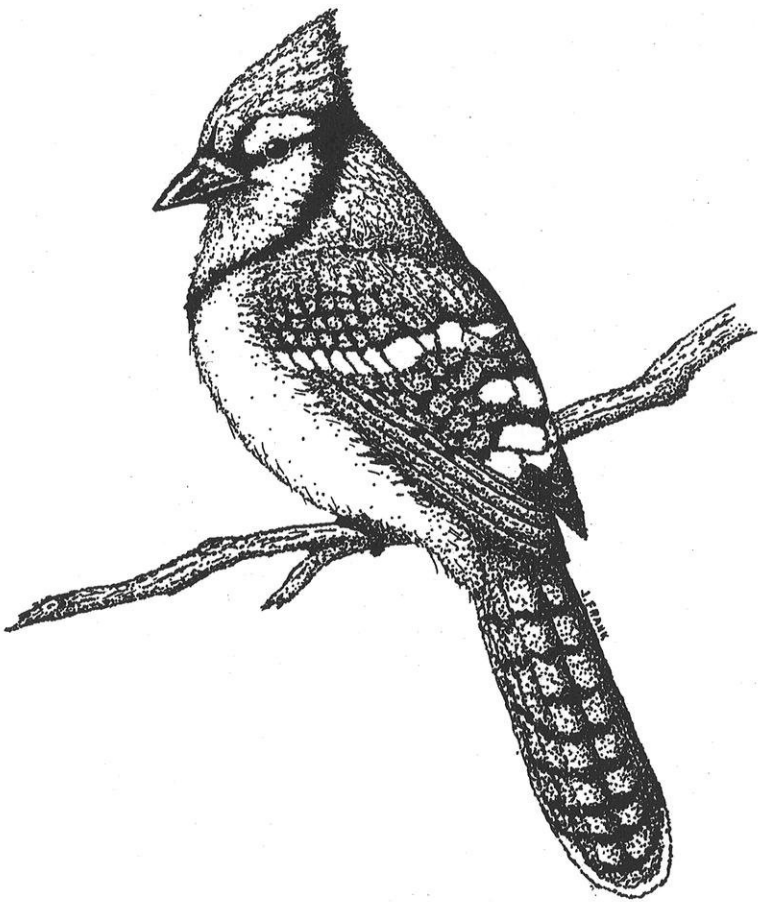
3 February 1997, Marathon County—I found the first Great Gray Owl along Sherman-Spencer Road, 2 miles southwest of Spencer, WI. Using my spotting scope, I easily saw the round facial disk, with two small yellowish eyes. Also seen was the conspicuous "bow tie" below the pale hooked bill. The body was an overall gray color with dark streaks. I watched this bird for about 25 minutes. I then moved onto the second great gray. Upon arriving, immediately I saw the bird sitting on top of 19 to 20 foot telephone pole next to the road. I pulled my car right up close to the telephone pole it was sitting on. Again I saw the round facial disk, but this time I could make out the individual rings that made up the facial disk. Also seen were the small, yellow eyes (iris) and the pale colored bill. Also the white "bow tie" was clearly present. With this bird so close to me, its head appeared huge on its overall grayish body. The tail was long and I could see the bands in it. I watched the bird for about 20

minutes as it sat on the telephone pole. It then flew off the pole and landed on the ground. After it landed on the ground, it turned its head back to look at the redpine plantation. It seemed startled. I then saw a second Great Gray Owl fly out of the redpine plantation towards the first owl. The first bird took light and flew back over the road towards the pine plantation, the second bird was very close behind it. Both birds disappeared into the pine plantation and I didn't see either owl after that.— *Dan Belter, Wausau, WI.*

28 February 1997, Fish Creek, WI, Door County—A very large owl at first in the low light I assumed it to be a Barred Owl. This was larger though, and the bright yellow eyes and grayer plumage made us realize it was a Great Gray Owl. The plumage was very fluffy and billowed in the slight breeze. The heavy feathering of the legs was very evident. The white "mustache" was distinguishable along with the circular markings ringing the "moon" face. It was not fazed by our presence and it flew effortlessly from its perch to several nearby vantage points. No voice was heard.—*Nick Anderson, Northbrook, IL.*

Boreal Owl (*Aegolius funereus*)

28 December 1996, Roman Point, Cornucopia, Bayfield County—A single adult Boreal Owl was located at 1:00 P.M. and observed for one-half hour. It was sitting in a paper birch about 20–25 feet high on a large branch paralling the ground. Its size was only slightly larger than a Northern Saw-whet Owl. The eyes had a yellow iris around a black pupil; the bill was light horn color; the white face was outlined by a sharp black facial disc, and a narrow black line also ran from the base of the bill to the eyes; the forehead was spotted with small white dots against a black background and the spotting extended to the back of the head. There was white blotching along the sides of the head beyond the facial disc. The back, wings, and tail were chocolate brown with large squarish whitish marks; the undertail coverts were white with brown marks; the breast & belly were white with broad stripes of chocolate brown; and the legs and feet were covered with brownish-white feathers. These large white squarish marks against a chocolate background are very distinctive and a good identification mark. On February 12, 1997, Phyllis Johnson brought me an adult Boreal Owl which was found dead about 2 miles east of Cornucopia.—*David A. Bratley, Washburn, WI 54891.*



Bluejay *by Jim Frank*

WSO Records Committee Report—Winter 1996–1997

by Jim Frank

Thirty-eight documentations of rare birds were reviewed by the WSO Records Committee for the Winter 1996–97 season. The 32 accepted reports constitutes an acceptance rate of 84%. One additional record from the previous winter was reviewed and accepted. Observers were notified of committee decisions by postcard in the case of accepted reports and by personal letter in the case of reports not accepted.

Accepted

Pacific Loon—

#96–115 *Washington Co.,* 1 December 1996, Domagalski.

A small loon, barely larger than adjacent Common Mergansers was seen. The marked contrast of the white foreneck relative to the darkness of the nape and back of the bird was noteworthy. The back was darker than the nape in color and lacked any mottling normally seen in Common Loons. A Common Loon's neck tends to be darker than its back. The dark of the crown extended down through the eye, making the eye difficult to discern. In contrast, the eye of a Common Loon has pale feathering around and particularly in front of it. The bill was small, dark, and straight demonstrating none of the upturned posture of the Red-throated Loon and none of the upward gonydeal angle of a Common Loon.

King Eider—

#97–001 *Milwaukee Co.,* 7–24 January 1997, Korducki; 11 January 1997, Gustafson; 12 January 1997, Domagalski.

This individual was noticeably larger and a "warmer" brown color than the scaup ducks it associated with. A whitish eyering and line extending down the side of the neck from this eyering were also evident. A lighter patch of feathering was seen at the upward turning gapeline of the beak. Darker crescent barring was seen on the flanks. The forehead was steeply sloped down to the black bill, not gradual like most subspecies of Common Eiders. The nostril position on the bill was noticeably forward from the cranial extension of the cheek feathering, rather than immediately next to the forward

cheek feather extension characteristic of Common Eiders.

Barrow's Goldeneye—

#96–111 *Ozaukee Co.*, 4 December 1995, Tessen.

This drake goldeneye had a shorter, dark bill and more abruptly rising forehead than the adjacent Common Goldeneyes. The white facial patch was crescent-shaped as opposed to round. The black back had white spots through the scapulars instead of black streaks through otherwise white scapulars, making the Barrow's stand out in the flock of Commons on the basis of significantly greater black on the back. This black on the back extended part way down toward the water in the area between the upper breast and flank. This is the third consecutive winter a Barrow's Goldeneye has wintered off Virmond Park in Ozaukee County.

Red Phalarope—

#96–116 *Milwaukee Co.*, 4–7 December 1996, Korducki; 4 December 1996, Peterson, Tessen; 5 December 1996, Frank; 6 December 1996, Bontly; 7 December 1996, Domagalski.

Generally seen feeding in the waves very close to shore with Bonaparte's Gulls, this small shorebird was gray-backed with darker gray, folded wings. The head and breast were basically white, but a dark stripe up the back of the neck and head and a dark gray eye patch were also reported. The bill was relatively shorter and stouter than that of Wilson's or Red-necked Phalaropes. It was dark in color, but some observers detected a tinge of yellowish color proximally. When seen in flight, the gray back and wings were broken by a white wing stripe.

Northern Hawk-Owl—

#37–003 *Douglas Co.*, 8 January 1997, Johnson.

#97–004 *Vilas Co.*, 21 January 1997, Dring.

#97–005 *Wood Co.*, 30 January–9 February 1997, Tessen.

#97–005 *Marathon Co.*, 2 February 1997, Ott.

#97–006 *Douglas Co.*, 5–27 February 1997, LaValley.

These owls were identified by their approximately crow-size, yellow eyes, lack of ear tufts, dark brown borders to the gray facial disks, horizontal barring on the breast, the relatively long tail, the white spotting on an otherwise brown head, and the horizontal posture when perched.

Great Gray Owl—

#97–006 *Winnebago Co.*, 19 January 1997, Ziebell, Tessen.

#97–007 *Douglas Co.*, 25 January 1997, Johnson (photo).

#97–008 *Marathon Co.*, 2 February 1997, Ott (photo), 3 February 1997, Belter.

#97–010 *Dunn Co.*, 10 February 1997, Camacho.

#97–011 *Door Co.*, 28 February 1997, Anderson.

#97–012 *Douglas Co.*, 18 February 1997, LaValley.

#97–013 *Douglas Co.*, 28 February 1997, LaValley.

#97–014 *Pierce Co.*, 21 January 1997, Carlon (photo).

#97–015 *Wood Co.*, 9 February 1997, Tessen.

Identification was based on observing a large gray owl, with no ear tufts, yellow eyes, large facial disks with concentric rings, and a white moustache and eyebrows.

These 12 documentations of 10 in-

dividuals represent the documented evidence received out of at least 35 individuals reported during the winter period in Wisconsin.

Boreal Owl—

#96–118 *Bayfield Co.,* 28 December 1996, Bratley, Johnson (photo).

#97–016 *Polk Co.,* 2 January 1997, ??

#97–017 *St. Croix Co.,* 15 January 1997, Irle (photo).

These saw-whet-sized owls had whitish as opposed to brownish facial disks, with dark brown borders to these disks. They had yellow eyes, no ear tufts, and a yellow (not black) bill. Though much is made of the white spots on the brown forehead (instead of white streaks), the previously mentioned field marks are definitive and more easily observed.

Iceland Gull—

#97–018 *Milwaukee Co.,* 13 January 1997, Gustafson.

This white gull was slightly smaller than, and slightly paler gray in the mantle than adjacent Herring Gulls. It lacked any black in the dorsal primary wing tips, exhibiting only a few gray edges of the middle primaries. The legs were noted to be pink, the eye pale in color, and the yellow bill was slightly slimmer and shorter than that of the Herring Gulls.

Spotted Towhee—

#96–027 *Shawano Co.,* 1 January 1996, Ackley (photo).

Observed at a feeder, surprisingly enough with an Eastern Towhee for easy reference!, it was similar to the Eastern except for the presence of two white wingbars and white spotting on the scapulars. Also noted by some observers was a different call note, described as more of a nasal "wheee." (This is an additional documentation on a previous winter's sighting.)

NOT ACCEPTED

King Eider—

#96–001 *Milwaukee Co.,* 14 January 1997.

Though undoubtedly the female King Eider present for much of January in Milwaukee, the view of this observer was too limited to decidedly differentiate the individual from a Common Eider. The bird was larger than the scaup, warm brown in overall coloration with V-shaped barring on the sides. Mention was not made of the forehead profile of the bird and the cheek feathering extension relative to the nostril was not described.

Black Vulture—

#96–084 *Sheboygan Co.,* 26 December 1996.

This is almost certainly the fall 1996 bird from Sheboygan and Ozaukee Counties. The brief description was of having white at the bottom of the underwing feathers, tail feathers shorter than a Turkey Vulture, and a head "different" from a Turkey Vulture's. The overall size and color were not indicated, nor was the head color. Since the bird died, hopefully photos will be forthcoming to adequately document the demise of this rarity in Wisconsin.

Turkey Vulture—

#97–002 *Green Co.,* 6 January 1997.

The description of this bird was limited to it being a large, dark bird with a "two-tone underwing" pattern flying with the wings in a dihedral position. It was coursing back and forth over the

field, not soaring. Though a Red-tailed Hawk was apparently hunting nearby, there was not a comparison made to its size or shape. Without a description of the head size, tail shape and color, and size relative to the Red-tail, a dark phase Rough-legged Hawk could also fit a dark bird with a "two-toned" wing pattern. The observer's experience with Turkey Vultures do make this observation highly probable, but incompletely described.

Great Gray Owl—

#97–009 *Door Co.,* 4 February 1997.

Though this is almost certainly a Great Gray Owl, the description was limited to a large, gray, "flat-faced" owl. Though it was described as much larger than a Barred Owl, the description needed to also describe light or yellow eyes and a lack of ear tufts to convincingly differentiate it from Barred and Great Horned Owls respectively.

Boreal Owl—

#96–117 *Sheboygan Co.,* 6 October 1996.

This owl was described as Screech Owl-sized, with white speckles on the forehead, and "dark spots directly above the eye." It did not have ear tufts. The extensive dark facial border was not described, nor were any other characteristics of the overall plumage color. Though photos were reportedly taken and viewed by others, these thus far have not been made available to the Records Committee. Without the photos, the description is too limited to allow acceptance of what is almost certainly a untimely Boreal Owl record in an unexpectedly southern location.

California Gull—

#96–119 *Kewaunee Co.,* 10 December 1996.

This gull was described as being slightly smaller than adjacent Herring Gulls and having a darker mantle; however, the degree of darkness was not mentioned. A dark eye and yellow bill with red and black spots were also described. All of the above characteristics could fit a California Gull, but a Thayer's Gull would also fit the description. The view of the feet according to the observer was limited to a couple of scratches of the body while swimming. The color of the foot was felt to be gray-green. Though the bird was reported to take flight out on to the lake with the other gulls, there was not a description of the wing tips. The larger white primary spots and lack of black in the underwing tips would describe a Thayer's, black upper and lower primaries with small white spots similar to the Herring Gulls would fit a California Gull. The limited view of the foot color and lack of primary description was not felt convincing enough to rule out a Thayer's Gull. The black spot near the gonys can be seen in many species of subadult gulls, thus not being diagnostic of a California Gull.

Jim Frank
WSO Records Committee, Chair

NORVAL R. BARGER

WSO owes a great deal to Norval Barger. A sign painter by trade, he settled in Madison in 1934, and soon organized the Madison Bird Club (forerunner of the Madison Audubon Society). By 1938 he, Walter Scott, Mary Walker and Mrs. Arthur Koehler were talking seriously with similar bird club leaders in Racine, Waukesha, Milwaukee and Green Bay about the possibilities of a statewide bird society. The result: the formation of the "Wisconsin Society of Ornithology" in Madison on May 6–7, 1939, with 80 members present.

N. R. Barger served as the first president. He also assisted with the society's monthly mimeographed magazine "The Passenger Pigeon" by summarizing notes of field observations submitted by keen-eyed WSO observers. Later, when the magazine had become a printed quarterly, Barger became its editor (1943–1953).

His writings also came to the fore with the Wisconsin Conservation Department (forerunner to WDNR). Between 1952 and 1974 he wrote interpretative sketches about song birds in a publication that had appealed mainly to hunters and anglers, helping to spread knowledge and appreciation of birds to a broader public.

Recognizing early on that it would be years before a full-fledged state bird book would be available, Norval helped prepare and publish a 32-page "Wiscon-

sin Birds'' checklist naming all the state's avifauna and showing the times of each species' presence. Printed with a bright yellow cover, featuring Norv's drawing of a goldfinch, the booklet became fondly known as the "yellow bible," and has been in wide use since 1942.

The WSO Supply Department was another of Barger's creations. Birders needed books. WSO needed money. So the Bargers set up a modest mail-order business in their home in 1947 and nursed it along until 1955 when it outgrew them.

How did he find time for field trips amidst these varied WSO and WCD responsibilities? Time was limited of course, but he found time for many local outings to Goose Pond, Lake Barney, Duschak's Pond, the Mazomanie River Bottoms, etc. I am eternally grateful that in my college years when I was "without wheels," he invited me to accompany him. He was a cautious, meticulous observer, well trained by eye and ear. One vivid memory illustrates this. On his way home from work one May afternoon, he discovered me sitting at the roadside frantically writing down details of an unfamiliar song I was hearing. Norv listened, but would not commit himself—even though I'm certain he recognized the songster from childhood days in North Carolina. "Wait here. I'll be back with binoculars." Only after good looks would he confirm that our stranger was a Yellow-throated Warbler, Wisconsin's first twentieth century record. Norval then called his bird friends, and soon the wooded grove was crawling with warbler-watchers. It was his nature to share his rare finds with others whenever possible.

Although advancing age and health limitations led to retirement and lessened field activity, he made extensive use of his camera and pen. In 1991 (at age 82!) he published his one and only book: "Birds Tomorrow," including over 300 of his photographs.

His death occurred on June 13, 1997, 88 years after his birth on December 20, 1908 in Conover, North Carolina. Following training at Concordia College, and his 1935 marriage to Clara Luebke, he raised a daughter Elaine and son Norval Jr. He and Clara teamed so beautifully in all WSO activities that when Norval received the Society's silver passenger pigeon award in 1964, and its certificate of appreciation in 1994, many of us felt we were honoring Norval and Clara Barger together.

Sam Robbins

ABOUT THE AUTHORS AND ARTISTS

George Allez is a cinematographer who has been a regular at the Cedar Grove Ornithological Station since 1965.

James S. Anderson has directed the operation of Mosquito Hill Nature Center in New London for nearly two and one half decades. Birds and habitat preservation play essential roles in his environmental teachings. When away from his 430-acre office and "The Hill," Jim enjoys birding, hiking, nature photography, canoeing and other outdoor endeavors.

Daniel D. Berger is an entrepreneur who founded the Cedar Grove Ornithological Station with Helmut Mueller in 1950. He has been at the station every fall (except 1983) since 1950.

Nancy Bruins has done etchings, watercolors and mixed media work that depict her sense of fantasy and love of nature and wild things. She is the recipient of numerous art organization awards and works from her home and studio in the countryside near Black Earth.

Terry Daulton was a staff biologist at the Sigurd Olson Environmental Institute from 1989 until December 1998. She received a M.S. from the University of Wisconsin–Stevens Point and a B.S. from Northland College. She is currently a self-employed biologist and environmental educator.

Jim Frank has been one of WSO's most active contributors to Seasonal Field-Notes. He now assists WSO by compiling and summarizing the annual May Day Counts, Big Day Counts and Migration Day Counts and is the Records Committee Chair. He is a veterinarian in Milwaukee with an interest in avian medicine.

Robert W. Howe is a Professor of Natural and Applied Sciences at UW-Green Bay; he is also Chair of WSO's Research Committee.

John L. Kaspar received his Ph.D. at the University of Wisconsin. He is Emeritus Professor at the University of Wisconsin–Oshkosh. He was first at Cedar Grove in 1952 and had been a frequent participant since 1980.

Kenneth I. Lange is the retired Naturalist of Devil's Lake State Park. He has a master's degree from the University

of Arizona. Ken has been a frequent contributor to WSO publications: as a field-note compiler and author of articles and the book, *Breeding Birds of the Baraboo Hills.* He formerly worked at the Smithsonian Institution's U.S. National Museum. He is the 1993 recipient of WSO's Silver Passenger Pigeon award.

Stephen J. Lewis is a biologist with the U.S. Fish and Wildlife Service, overseeing non-game bird monitoring, research, and management activities in eight upper-Midwestern states. He works with national wildlife refuges and outside agencies and organizations on bird conservation efforts such as Partners in Flight. Steve has worked for the Service 15 years and holds a Ph.D. from Cornell University.

Michael W. Meyer is a research biologist for the Wisconsin Department of Natural Resources Bureau of Integrated Science Services.

Helmut C. Mueller received his Ph.D. at the University of Wisconsin–Madison in 1962. He is Emeritus Professor of Biology at the University of North Carolina–Chapel Hill.

Nancy S. Mueller received her Ph.D. at the University of Wisconsin–Madison in 1962. She is Emeritus Professor of Biology at North Carolina Central University. She first participated at Cedar Grove in 1958 and currently spends each summer there with her husband, Helmut.

Gerald J. Niemi is a Professor in the Department of Biology and Director of the Center for Water and Environment, Natural Resources Research Institute both at the University of Minnesota–Duluth. He has been working on birds for over 25 years and has worked extensively in northern Wisconsin forests. He currently leads an effort entitled the Minnesota Forest Bird Diversity Initiative; a program to conserve Minnesota's rich diversity of forest birds. He received his Ph.D. from Florida State University.

Paul W. Rasmussen is a biometrician for the Wisconsin Department of Natural Resources' Bureau of Integrated Science Services. He has master's degrees in zoology and statistics from UW-Madison. His zoology thesis work involved aspects of warbler ecology in Minnesota, and he has been involved in the design and analysis of numerous bird-related projects for the DNR.

William R. Robichaud is the representative of the Wildlife Conservation Society in Laos. He has been a frequent participant at the Cedar Grove Ornithological Station since 1983.

Daniel A. Welsh is Director of Programs, Canadian Forest Service, Natu-

ral Resources Canada. He is presently responsible for the Canadian Model Forest Program, the First Nations Forestry Program, and management of CFS activities relating to forest certification. Previously he worked for many years as a scientist and research manager with the Canadian Wildlife Service, Environment Canada. His primary research interests are in the conservation of forest biodiversity, sustainable development, and particularly the birds of the boreal forest.

NOTICES AND ADVERTISEMENTS

Annual Reports
June 1996–May 1997

President—Bettie Harriman—This was another busy and exciting year for the Wisconsin Society for Ornithology, as you can see by reading the following reports from various board members. There are a few other items which need to be included that do not fall within the areas in these reports.

I would first like to mention a few changes that have occurred in the membership of the Board of Directors. Jane Dennis was elected Secretary at the convention last June, replacing Scott Baughman. I wish to take this opportunity to thank Scott for the service he gave to the WSO. It was a pleasure to have him on the board. Jane has quickly learned the requirements of the secretary position and is doing an excellent job at making sense of what we say at board meetings. Carlo Balistrieri, who served as WSO's Legal Counsel, has made some major changes in his life, including leaving Wisconsin. We thank Carlo for being available with advice when it was needed. Another WSO member, David Kinnamon, will be providing legal assistance for us as needed.

After 10 years as Education Chair, Bill Volkert asked to leave that position. We thank Bill for providing many, many people in Wisconsin with lots of information about birds during those 10 years, and for all the other ways he has helped WSO whenever asked. After Bill resigned, the board redefined the position of Education Chair, and recruited Laura Erickson to be the new chair. She is just beginning to organize and plan numerous activities, but we know Laura comes well prepared for promoting avian education. We welcome her to the board.

This past year WSO continued its long history of support for the Greater Prairie-Chicken in Wisconsin by providing $1000 for a lovely "grassland birds" panel at the education kiosk in the Buena Vista Grasslands. An audio tape of grassland birds accompanies the picture. When you are in the marsh plan to stop for a visit at the display along Hwy W just east of Hwy F.

In January 1997, WSO sponsored its second biennial bird symposium, this time on "Forest Songbirds," at UW-Green Bay. It was held in conjunction with the annual meeting of the Partners in Flight Neotropical Migratory Birds Wisconsin Working Group. Although the weather did not cooperate, this two-day event was well attended. The Reels provided a mini-version bookstore, which did great business, and the speakers presented excellent, educational papers on many aspects of forest-dwelling neotropical migrants.

WSO was accepted for membership on the Policy Committee of American Bird Conservancy. I am pleased to report that Stan Temple has agreed to serve as our representative to this group.

Continuing its efforts to encourage young birders, the WSO board has provided funding for Aaron Boone, a high

school senior, to attend a birding camp in Belize this summer.

On 31 May–1 June 1997, WSO will host a weekend at Wyalusing State Park to commemorate the 50th Anniversary of the Passenger Pigeon Monument. Field trips will occur both mornings, and a special ceremony will be held at 11 A.M. at the site of the Monument with presentations by Gaylord Nelson, Rep. Spencer Black, Nina Leopold Bradley, and Phil Sander, designer of the monument.

And while all the rest of these activities were happening, the Wisconsin Breeding Bird Atlas continued through the second summer of field work and into the third. Eight paid workers and hundreds of volunteer observers continued the effort to cover about 1100 Priority and Specialty Blocks. The Data Management Center got all the records processed and reports mailed to all primary block observers. Three issues of the Atlas newsletter were published. Financial support for the Atlas was very generous, with major contributions from the Wisconsin Department of Natural Resources, the Zoological Society of Milwaukee County, the National Fish and Wildlife Foundation, the Society of Tympanuchus Cupido Pinnatus, Kaytee Avian Foundation, the U.S. Forest Service, and the U.S. Bureau of Land Management.

These two years as President of WSO have passed very quickly for me. I have enjoyed every aspect of the job and will always be very grateful to you, the members, for giving me the opportunity to serve our Society in this manner. I thank each of you who has supported WSO and its work during this time, and I especially thank the members of the board for their unselfish commitment to this organization. This has certainly been the most satisfying and fun volunteer job I've ever had. I thank you very much.

***Passenger Pigeon Editor*—Becky Isenring**—Volume 58 of *The Passenger Pigeon* published over 400 pages, significantly more than Volume 57. Because one issue is still in production at the time of writing this annual report, I can't give percentages of pages devoted to categories but it was not significantly different from other years. Regularly featured articles such as Christmas Count reports, Big Day Count results, and seasonal field notes, etc., continued as usual.

One issue of Volume 58 was devoted to the summary of the first 25 years of the Federal Breeding Bird Survey in Wisconsin. The supply of papers submitted for publication was much better than the years before. My thanks to all that sent them.

The editorial staff remained the same as last year. Typesetting and printing continued under the same arrangement. A new customer service representative has made the process smoother.

The Volume 58 schedule was severely delayed by personal health difficulties and those of my family. (Between August of 96 and March of 97, there were 6 major surgeries between myself, son, daughter and husband.) As of writing this annual report, the Fall issue of Volume 58 is being printed, the Winter issue is being typeset, the Spring issue of Volume 59 is being transcribed, and the Summer issue of Volume 59 is in the editing stage. I hope to have the summer issue out on time.

When I took the job as editor, I

made a 5 year commitment. Volume 59 will be my last. The board appears to have found a replacement for me: an individual in Madison with a solid background in writing. He and I will be working together on Volume 59 in order to make a smooth transition.

As always, I welcome feedback on the Pigeon. I also urge members to submit work to be published, especially papers presented at the convention and results of studies funded by WSO scholarships.

Associate Editor—Daryl Tessen—The volume of seasonal reports was considerably higher than the previous year. Numbers ranged between 70–120 reports received per season with the approximate 120 for spring a record for any season. A major contributing factor was that the 1996 winter and spring were outstanding seasons, with a wealth of unusual sightings. While the summer and fall did not yield such a diversity, reports for both seasons were above average. Winter '97 also saw a high return of reports, about 80, in part due to the second consecutive northern owl invasion. If you enjoy reading the "Field Notes" and "By the Wayside" in the *Pigeon* be certain to send in your observations and experiences (PLEASE DO SO BY **10 DAYS** AFTER THE CONCLUSION OF THE PERIOD.)

The '97 mailings for seasonal, Big Day, May Day, and Christmas counts occurred in November, totaling 140+. As usual all seasonal sightings and counts received were analyzed and sent to the appropriate editor for their article. Rare/unusual sightings were forwarded to the Records Committee chair for analysis. In addition, significant sightings from each season were summarized for the Audubon *Field Notes.*

A special thanks to the seasonal and count editors who, year after year, sort through the numerous reports to prepare their articles. Most of these people have done this tirelessly for 10–20 years!

And last, for those who like to plan ahead, the 1997 Christmas count period is Friday, December 19, 1997 thru Sunday, January 4, 1998.

***Badger Birder Editor*—Jennifer Nieland**—This year will mark my third year as editor of *The Badger Birder,* WSO's monthly newsletter. This year has brought several changes in the way of equipment, format, content, and responsibilities. These factors promise to keep the position interesting, challenging, and very enjoyable for me. I hope my enthusiasm keeps the members well informed of monthly bird related information, events, and activities.

At the July 1996 Board meeting a proposal was approved for the Editor to purchase computer equipment and software to be used to produce *The Badger Birder.* The purchase included a Macintosh Performa 6300 computer and monitor, an HP DeskWriter 600 printer, Quark XPress software and a Logitech hand scanner. Also, I enrolled in a 4 credit Marketing Presentations class at Northeastern Wisconsin Technical College which taught use of Quark XPress software, Adobe Illustrator, and Photoshop. The transition was a little bumpy at first, but I believe the changes are an improvement in the production of the newsletter. I continue to learn the capabilities of the software.

The computer system has made producing the newsletter easier, but as we

all know the important thing is content. I am continually thankful for all the contributions I receive so regularly from many of the board members and members of the WSO. The contributions continually remind me we are all upholding the goal of the WSO, "to encourage the study of Wisconsin birds." And as always, I encourage everyone to contribute to *The Badger Birder* in any way possible including bird stories, poems, art work, photos, observations or other notes of interest. With today's technology it has never been easier to do so, through writing, letters, postcards, telephone, and now E-mail.

You will be seeing more advertising in *The Badger Birder.* By accepting advertising we hope to reduce ever increasing printing costs as well as provide members with information. Our rates are reasonable and provide exposure to Wisconsin's "birdiest" people. I hope the membership will continue to let me know what they would like to see in *The Badger Birder.*

The Badger Birder requires a time commitment of about 15 hours per month, most of which is processing, editing, and layout of the actual newsletter. Articles which you see in print are also put on disk and sent to WSO member Steve Konings who puts them on the World Wide Web. Copies of the *Birder* are also sent out monthly to solicit advertisers. Each month the mail brings about 15 newsletters from various bird clubs and nature centers throughout the country, the monthly articles by regular contributors, and notes, photos, or dates to remember from WSO members. E-mail inquiries or contributions have been running 7 to 10 per month, and telephone calls 2–3. From all this *The Badger Birder* is created, and thanks to Alex Kailing, gets printed, folded, labeled, and mailed to your home. I continue to enjoy the process of producing your newsletter with the help of the Board and membership, and look forward to your comments and contributions (as always!).

Bookstore—Don and Christine Reel— At the 1996 convention, Don and Christine Reel assumed managership of the bookstore, following Mark and Margie Amato's resignation after more than four years as managers. We have had a delightful year, and we are grateful for everyone's patience while we learned our job.

Sales have continued the trend of recent years, and 1996 sales totaled just over $14,400. That amount includes items purchased by WSO members and other conservation-minded people, as well as WSO-published items purchased by retail outlets ($3,320 during 1996).

We have continued to offer services to members that were already in place, including the following:

Adding new publications to the inventory, to offer members recently published items of interest.

Searching for other items requested by members.

Reducing the inventory of older items, and offering them to members at substantially reduced prices.

Sales at the 1996 convention totaled $3,455. The Forest Birds Symposium, held during January 1997, resulted in total sales of over $4,320. We displayed several new items that related to the topic at the symposium, and we provided an annotated listing to help peo-

ple make informed choices. Rather than renting a van to take the entire inventory to the symposium, we brought items of special interest and offered free shipping for a limited time on orders from people attending the symposium.

We published the WSO Bookstore Catalog during April 1997, and it was mailed with the April Badger Birder. Because of the nature of publishing—with new items becoming available, others going out of print, and prices changing frequently—we expect to publish a catalog annually, providing members with an up-to-date list of items we stock. In addition, we will continue to look for items we don't stock as members request them.

In response to an idea presented by a Board member, we designed a business birding card, which offers members a way to inform businesses they frequent while birding of the importance of natural areas to the economy. The cards are available free of charge from the bookstore.

We are happy to be serving the organization, and we are always glad to hear about ways we can better serve WSO members.

Conservation—Noel Cutright—During the past year I have:

Attended 3 of 4 WSO Board meetings;

Continued to play an active role in the WBBA;

Coordinated another successful Birdathon/Bandathon at Honey Creek;

Served on WDNR's Fish Hatchery Depredation Task Force (work of this task force has ground to a halt because of state/federal agency bureaucratic disagreements);

Served on WDNR's Urban Waterfowl Task Force (Group is close to issuing recommendations, which will be summarized in a future *Badger Birder*);

Supported "Teaming with Wildlife" funding initiative for nongame species;

Served on utility, natural resource agency, environmental group, and PSCW subcommittee exploring the siting of wind turbines in areas where birds will not be adversely affected;

Presented testimony at WDNR hearing on revisions to threatened/endangered species list;

Presented testimony at WDNR hearing on revisions to falconry regulations with particular focus on Northern Goshawks;

Presented 15 programs on various bird topics to a wide variety of audiences;

Provided comments to USFS on Nicolet/Chequamegon National Forest plans;

Conducted used book auctions through a mailed bid process to raise money for Grants/Scholarships fund;

Encouraged the WSO to become a voting member of the Policy Committee of the American Bird Conservancy; and

Initiated discussions to bring the Important Bird Areas (IBAs) program to Wisconsin.

Membership—1997 Convention Report—Alex Kailing, Membership Chair—*Membership Status:* [as of May 1st]

Category	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Senior	94	74	62	61	63	50	48	49	46	48	50
Regular	502	507	598	601	598	616	610	672	679	663	638
Family	260	303	318	349	376	346	321	349	358	336	330
Sustain	45	74	73	105	112	91	88	84	86	84	58
1/4 Life	0	5	10	14	5	6	10	7	9	3	7
Life	68	68	69	71	82	86	87	93	98	105	108
Patron	7	7	6	6	6	6	6	6	6	6	6
Honorary	7	7	7	8	8	7	7	7	6	6	6
Board	4	4	5	5	4	2	2	4	3	5	9
Library	58	55	48	45	48	46	40	44	47	44	45
Exchange	46	42	43	44	43	36	40	41	43	44	50
Total	1091	1145	1239	1309	1346	1292	1259	1356	1381	1344	1306
Deceased	3	5	4	2	4	5	6	9	5	3	8
Nonrenew	141	110	99	119	130	189	237	172	177	191	200
Library Drop	3	2	7	5	2	2	3	1	0	4	2

The decreasing Membership totals are thought to be a result of factors of our aging membership, Society recognition, the lack of any extensive recruitment mailings for the past 3 years, and economic [cost] factors.

New Members: [New members for the calendar year]

1990	1991	1992	1993	1994	1995	1996
140	171	176	180	163	134	147

Postal Regulations: Most of the many 1996 changes implemented in the mailing procedures by the Postal Service on bulk mailing [including rate increases] have been incorporated [Birder address area change, capitalized address labels, standardized address format, mail sorting changes, etc.] 1997 will require continued work on developing address verification and certification procedures.

Publicity—Bettie Harriman—Press releases about the Steenbock, Nelson and WSO Scholarship winners were written and sent to the appropriate newspapers in the state, and an article was prepared for *The Badger Birder.*

Notices of the WSO field trips were sent to area newspapers prior to each trip. If members see any of these notices, please clip and send to me at 5188 Bittersweet Lane, Oshkosh, WI 54901.

WSO again sponsored a reception for a presentation during *Birds in Art* at the Leigh Yawkey Woodson Museum in Wausau. This year the program was by Greg Budney, Curator, Library of Nature Sounds, Cornell Lab of Ornithology on 13 October 1996. About 70 people were in attendance.

I have attended six conferences to exhibit the WSO and/or Atlas Display, answer bird questions, and promote WSO since the 1996 annual meeting.

I have presented eight programs on birds this year, with one more scheduled in early May. WSO brochures and

informational handouts are always made available at these talks.

WSO received publicity in the coverage of the dedication of the new signs at the Greater Prairie-Chicken educational display at the Buena Vista Grasslands on 12 April 1997.

I have commented on behalf of WSO in several articles in the *Milwaukee Journal-Sentinel* concerning bird-related news items.

WSO continues to received considerable publicity through the coverage of the Wisconsin Breeding Bird Atlas. The Kaytee Avian Education Foundation, the Zoological Society of Milwaukee County, and the Society of Tympanuchus Cupido Pinnatus each published an article about the Atlas in their membership newsletters after giving the project funding. WSO is gaining considerable name recognition with other environmental organizations due to the Atlas work.

Records—Jim Frank—The WSO Records Committee evaluated and accepted documentations as follows:

SEASON	Records	Accepted	Rejected	Acceptance Rate
Winter 1995–96	73	67	6	
Spring 1996	75	52	23	
Summer 1996	18	15	3	
Fall 1996	62	52	10	
Total	228	186	52	81.5%

Notable accepted sightings included first state records for Glaucous-winged Gull, Scott's Oriole, Western Wood-Pewee, and Dusky Flycatcher. Additions to the state list due to splitting of species by the AOU were Bullock's Oriole and Spotted Towhee. This brings the state list for Wisconsin to 405 species. Also of note is the addition of Black-chinned Hummingbird to the hypothetical list for Wisconsin.

Members of the Records Committee during this reporting period were Jim Frank, Chair, Mark Peterson, Robbie Johnson, Randy Hoffman, and Jeff Baughman.

Research—Robert Howe—My activities during 1996–97 were mainly associated with the Wisconsin Breeding Bird Atlas and with collaborative research projects involving other ornithologists. The Data Management Center for the Atlas is in full operation and results of the Atlas can be viewed (along with bird pictures and other goodies) on the worldwide web (http://www.uwgb.edu/richter/wbba.html).

I also have completed a manuscript with Gerald Niemi of the University of Minnesota-Duluth, Dan Welsh of the Canadian Forest Service, and Steve Lewis of the U.S. Fish and Wildlife Service outlining a specific, standardized method for sampling birds in Great Lakes forests. This project is part of a larger, comprehensive study of forest birds in the entire Great Lakes Basin. The census method is designed to provide guidance for local bird monitoring projects in nature reserves, wildlife refuges, and other areas where local monitoring programs are desirable. The methods follow national standards but are more specific and provide additional guidance for data management and habitat analysis.

Together with Sam Robbins, Mike Mossman, Sumner Matteson, Noel Cutright, and Stan Temple, I pre-

sented a summary of bird diversity in Wisconsin at a special symposium on Wisconsin's biodiversity sponsored by the Aldo Leopold Chapter of the Society for Conservation Biology. This paper will be published later this year.

During 1997–98 I will be on sabbatical in Australia, but I plan to remain involved with bird research in Wisconsin and hope to have an even better opportunity to work on the Atlas data and other Wisconsin bird research projects.

Scholarships and Grants—Janine Polk—The WSO received five requests and gave three awards for 1997.

A Nelson Award was given to Sandra S. Gillum for her study on "Quantifying the Impact of Lake Shoreline Development on Breeding Bird Populations at Northern Wisconsin Lakes." This study will count and compare the number of species and numbers of individuals of each species on 10 developed and 10 undeveloped lakes.

A combined Nelson Award and WSO Scholarship was presented to Alec R. Lindsay for "Geographic and Individual Variation in the Vocalization of Common Loons." This study of the vocal behavior of Common Loons will analyze the individual differences in loon vocalizations from the perspective of both macro and micro-geographical variation. It will also take a preliminary look at the correlation of these differences to genetic relatedness.

A WSO Scholarship was awarded to John Jacobs and Eugene Jacobs to continue their work "Wisconsin Red-shouldered Hawk Nesting Study." This study continues the monitoring of 120 Red-shouldered Hawk nests in northeastern and central Wisconsin, banding young, and determining the rate of reproductive success. This is the third year of funding from WSO for this project.

Youth Education Coordinator—Steve Kupcho—During the report year, I have attended all of the board meetings of WSO. The "Budding Birder" column contained five articles related to youth birding in the state. I received correspondence relating to information in the articles from a number of educators. I followed-up the letters by sending pertinent materials that were requested by these members. The letter exchange made me feel good in knowing that my articles were being read.

The "One Bird—Two Habitat" workshop which I conducted at the Schlitz Audubon Center (Milwaukee) in August, was attended by 15 teachers and naturalists from Southeastern Wisconsin. Project Jason, an International Science and Technology Curriculum for middle school teachers had ornithology as one of its focal points this year. I attended two organizational meetings and offered a one day workshop relating to getting students interested in bird-watching to 150 teachers. WSO's six-panel display board was used, and WSO slides, books, and materials were available for perusal during the 5 mini-workshops. All participants received the WSO brochure and a copy of the Wisconsin bird checklist. My final workshop for the year was held in early May at the Wausau School Forest. I used the prepared booklets geared toward the teaching of ornithology in the classroom. These booklets contain many "hands-on" handouts that lend themselves easily to use in the teaching environment. The format of the booklet is such that it can be readily changed (with additions and deletions) as the teacher might desire.

The May issue of *The Badger Birder* contained an article on one of our state's youth birders. This format will be continued on a yearly basis as names are submitted to me. The topic of getting more youth involved in birding appeared in four of the five articles that were submitted to the *Birder.*

The funding of youth scholarships to birding camps was brought up at two of our board meetings. Both students who asked for financial assistance were given funds (with stipulations) by the board to be used toward their expenses. Tom Schultz and I will be working on a proposal during the coming year to deal with future requests of this nature on a fair and timely basis. The proposal will also need to be looked at from the standpoint of a "budgeted item" in the years to come. This proposal will be in keeping with one of our organization's main goals—the education in ornithology of youth birders in Wisconsin.

Treasurer—1997 Convention Report—Alex Kailing, Treasurer—Statement of Revenue & Expenses:

	1994 TOTAL	1995 TOTAL	1996 TOTAL
REVENUE			
BOOKSTORE	5,476.25	3,755.06	3,320.89
SLIDES			55.00
DIVIDENDS			
INTEREST	1,991.24	1,814.69	1,098.24
INVESTMENTS		476.19	
CONVENTION	2,421.84	2,625.09	1,058.61
PIGEON			
ADVERTISING			
BACK COPIES	5.00	30.00	36.00
SUBSCRIP	538.00	835.00	789.00
MEMBERSHIP			
DUES	22,132.03	20,770.50	22,470.50
LIFE	1,050.00	1,850.00	1,910.00
MBR LIST	13.00	15.00	
CONTRIBUTIONS			
ENDOWMENT	932.00	359.50	1,067.50
SCHOLARSHIP	3,304.35	639.00	2,600.79
HONEY CREEK	2,024.00	2,045.45	1,772.50
BIRDATHON	2,618.03	2,094.31	2,876.86
MEMORIALS	100.00		4,000.00
BEQUESTS	100.00		
SPECIAL PROJECTS			2,190.00
ANIV. PRINT	60.00		
TOURS	200.00	25.00	
WEEB GRANT	20,000.00		
BIRDERS DIGEST	122.91	64.86	
SEMINAR	190.00	2,726.00	2,125.00
ATLAS	6,807.58	26,272.91	67,433.41
TOTAL REVENUE	**$ 70,086.23**	**$ 68,568.56**	**$ 115,165.80**

	1994 TOTAL	1995 TOTAL	1996 TOTAL
EXPENSES			
ADMINISTRATION	30.00	261.91	594.03
ASSOC. EDITOR	462.75	343.36	598.45
AWARDS	327.32		189.95
BADGER BIRDER			
PRINTING	4,232.59	5,322.00	6,009.07
MAILING	1,708.11	1,870.91	1,984.33
MISC		34.67	64.53
CONVENTION			
1994	3,034.88	1,085.59	
1995/96		724.96	677.48
BOOKSTORE			
INSURANCE	192.00	266.00	277.00
MISC	2,325.20	300.00	300.00
SLIDES			
EDUCATION	597.74		
FIELD TRIPS	502.69	459.30	
HONEY CREEK			
TAXES	3,226.42	3,403.98	1,269.90
INSURANCE	1,072.00	1,050.00	1,382.00
UPKEEP	228.15	1,341.82	635.29
HOT LINE	120.23		229.88
MEMBERSHIP			
MISC	1,891.72	2,435.77	3,453.98
PIGEON			
PRINTING	12,647.07	14,755.48	17,170.37
MAILING	1,268.14	1,771.36	1,884.88
MISC.	349.48	797.24	374.98
PRESIDENT		65.03	
V PRESIDENT		36.37	
PUBLICITY	737.61	168.61	200.00
BIRDATHON	116.79	178.28	177.15
RECORDS	115.51	74.56	186.40
GRANTS	1650.00	2,550.00	2,000.00
SPECIAL PROJ.	285.00		1,465.00
SEMINARS		2,619.27	227.26
SECRETARY	50.00	20.40	
PRINTING	893.45	135.63	4,425.95
TREASURER	73.26	232.80	290.51
CLUB LIST		145.68	
HABITAT	20,014.16		
HABITAT-NFWF		1,615.00	
ATLAS	4,388.92	29,152.06	48,716.65
TOTAL	**62,764.89**	**73,218.04**	**97,626.82**

Balance Sheet—As of 12/31

	1994	1995	1996
LIQUID ASSETS			
CASH	3,460.01	1,760.33	1,788.93
SAVINGS ACCOUNTS			
GENERAL SAVINGS	38,794.76	21,877.35	16,883.58
ENDOWMENT	15,140.27	7,897.71	11,045.49
ATLAS	6,807.58	9,650.05	4,006.42
INVESTMENTS			
ATLAS			25,000.00
ENDOWMENT	25,002.25	25,002.25	35,021.06
SAVINGS	6000.00	6,000.00	957.38
GRANTS		15,300.00	15,300.00
INVENTORIES			
BOOKSTORE			
CASH	3,134.56	2,576.78	2,672.63
INVENTORY	31,124.11	29,418.07	22,118.81
SLIDES			
CASH	3,895.13	4,264.22	4,728.11
INVENTORY	3,017.80	2,445.42	2,312.98
MEMBERSHIP			
CASH			
INVENTORY			
FIXED ASSETS			
EQUIPMENT	379.98	4,544.97	7,131.82
LAND & BUILDING			

PRAIRIE CHICKEN	1,491.39	1,491.39	1,491.39
HONEY CREEK			
LAND	21,475.86	21,475.86	21,475.86
BUILDINGS	8,927.88	8,927.88	8,927.88
TOTAL ASSETS	$ 166,253.52	$ 167,680.33	$ 180,862.34

Historic Asset Growth:

1993	$ 164,632	1986	$ 107,333
1992	159,690	1985	100,838
1991	151,170	1984	98,773
1990	142,721	1983	103,132
1989	128,226	1982	95,806
1988	125,697	1981	82,176
1987	121,107		

Special Fund Totals [As of 12/31]

	1994	1995	1996
ENDOWMENT	40,642.52	42,918.77	46,238.55
GRANT	36,168.80	36,201.08	38,021.94
HONEY CREEK	1,051.24	-[491.59]	870.58
BARABOO HILLS	129.40	276.60	367.80
ATLAS	9,918.66	9,650.05	29,025.42
HABITAT-NFWF	-	545.00	545.00

Additional Comments:

Atlas: Due to the magnitude of the WBBA [Wisconsin Breeding Bird Atlas] it is maintained as a separate profit/loss financial center and a separate monthly financial report is prepared. A summary from its start in late 1994 thru 1996 follows.

Income:		Expense	
WSO	$ 10,500	Data Center	$13,890
Foundations	$ 32,800	Coordinator	$ 4,000
Governmental	$ 25,000	Field Specialists	$30,000
Matching grant	$ 17,110	Maps	$ 4,480
Individuals	$ 12,100	Publicity materials	$ 9,570
WSO members	$ 6,100	Data collection	$ 2,340
Clubs	$ 3,940	Phone & postage	$ 3,990
Business's	$ 1,880	Computer equip.	$ 7,810
Interest	$ 680	Data center equip	$ 4,400
Sales	$ 400		
TOTAL	**$110,510**	**TOTAL**	**$81,480**

The WBBA has received significant financial assistance commitments from the following in addition to the many individuals, organizations, and businesses who are supporting the project. 31 species have been adopted.

Wisconsin Department of Natural Resources
National Fish & Wildlife Foundation
Zoological Society of Milwaukee County
Tympanuchus Cupido Pinnatus
Kaytee Avian Foundation
Bureau of Land Management
US Forest Service

Special Grants: During 1996 the Society made special grants awards and commitments as following: Partial grant for youth to attend ABA Convention; Eagle Valley research assistance grant; Prairie Chicken Informational Sign [Jointly with Consolidated Paper Foundation]; 1 Bird 2 Habitats program; UW-Extension Rehabilitation publication

Honey Creek: Our preserve lands property tax exemption became effective in 1996 with the payment of 1995 taxes. The Society has elected to temporarily award an equivalency grant to the Town of Honey Creek in recognition of the services provided by the Town.

Membership Expenses: Due to increasing paper, printing & postal costs, the membership approved a Board recommended membership rate increase at the 1996 Convention. The rate increases were effective with the 1997 renewals.

UNITED STATES POSTAL SERVICE™

Statement of Ownership, Management, and Circulation

(Required by 39 U.S.C. 3685)

1. Publication Title	2. Publication No.	3. Filing Date
THE PASSENGER PIGEON	4 2 - 2 8 2 0	9/22/97
4. Issue Frequency	**5. No. of Issues Published Annually**	**6. Annual Subscription Price**
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☒ Has Not Changed During Preceding 12 Months

☐ Has Changed During Preceding 12 Months *(If changed, publisher must submit explanation of change with this statement)*

PS Form **3526**, October 1994 *(See Instructions on Reverse)*

13. Publication Name	14. Issue Date for Circulation Data Below
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15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total No. Copies *(Net Press Run)*	1598	1600
b. Paid and/or Requested Circulation (1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales *(Not Mailed)*	0	0
(2) Paid or Requested Mail Subscriptions *(Include Advertisers' Proof Copies/Exchange Copies)*	1430	1439
c. Total Paid and/or Requested Circulation *(Sum of 15b(1) and 15b(2))*	1430	1439
d. Free Distribution by Mail *(Samples, Complimentary, and Other Free)*	21	21
e. Free Distribution Outside the Mail *(Carriers or Other Means)*	35	17
f. Total Free Distribution *(Sum of 15d and 15e)*	56	38
g. Total Distribution *(Sum of 15c and 15f)*	1486	1477
h. Copies Not Distributed (1) Office Use, Leftovers, Spoiled	112	123
(2) Return from News Agents	0	0
i. Total *(Sum of 15g, 15h(1), and 15h(2))*	1598	1600
Percent Paid and/or Requested Circulation *(15c / 15g x 100)*	96.2%	97.4%

16. This Statement of Ownership will be printed in the VOL 59-2 **issue of this publication.** ☐ Check box if not required to publish.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner — TREASURER — **Date** — 9/22/97

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3. Be sure to furnish all information called for in item 15, regarding circulation. Free circulation must be shown in items 15d, e, and f.
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5. In item 16, indicate date of the issue in which this Statement of Ownership will be printed.
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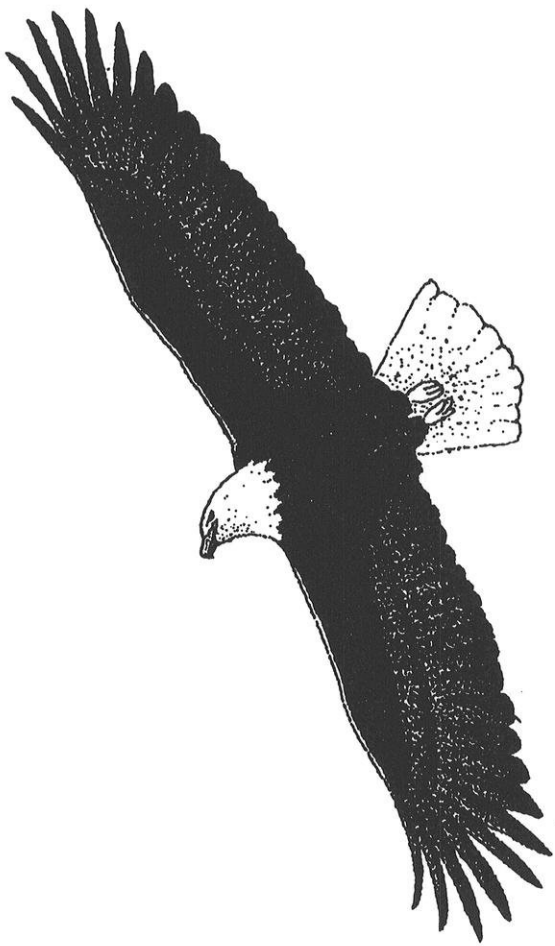
PS Form **3526**, October 1994 *(Reverse)*



Bald Eagle *by Jim Frank*

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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