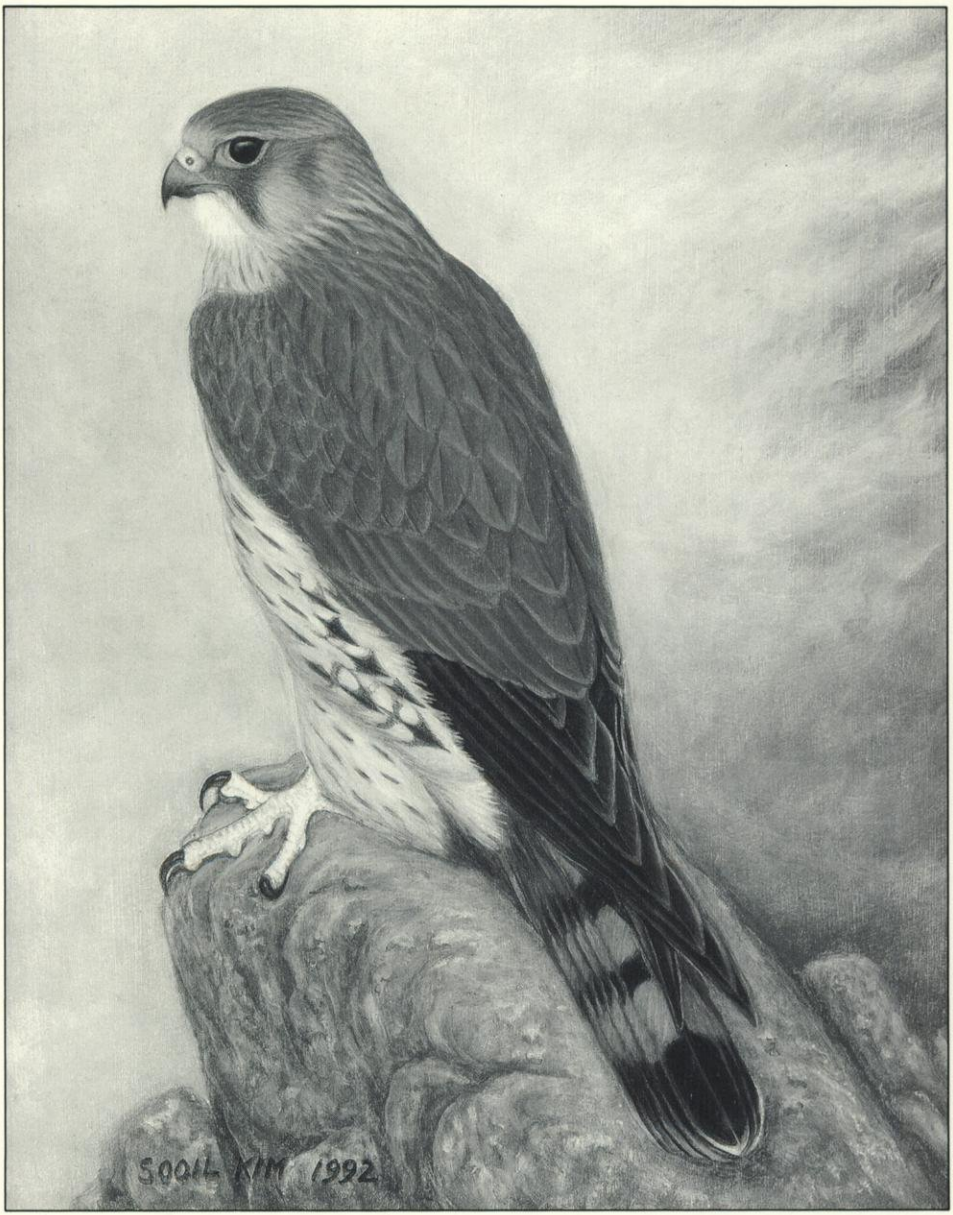
The passenger pigeon. Vol. 54, No. 2 Summer 1992

Madison, Wis.: Wisconsin Society for Ornithology, Summer 1992

THE PASSENGER PIGEON
Vol. 54 No. 2
Summer 1992

JOURNAL OF THE WISCONSIN SOCIETY FOR ORNITHOLOGY



THE PASSENGER PIGEON Vol. 54 No. 2 Summer 1992

The Passenger Pigeon (ISSN 0031-2703) is published quarterly (Spring, Summer, Fall, and Winter) by The Wisconsin Society for Ornithology, W330 N8275 West Shore Drive, Hartland, WI 53029. Subscription rates are: Individual, $12 per year; Family, $15 per year; Sustaining, $25 per year; Library, $18 per year; Life, $200; and Patron, $750. Back issues may be obtained from the Supply Department for $5.00 each. Send change of address requests to Memberships, W330 N8275 West Shore Drive, Hartland, WI 53029.

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.

WSO's Response to Crow Hunting Proposal

While I am aware that there is some sensitivity within the membership regarding WSO's role in politics, recent events surrounding the issue of crow hunting are alarming enough to me that I risk the following commentary.

WSO's mission, in part, is "to encourage the study of Wisconsin's birds" through programs in research, education, *conservation*, and publication (emphasis added). As members of WSO, I believe we generally should stick to the above cited goal and leave environmental lobbying to other more broader-based environmental organizations. However, when policy decisions being considered by our elected or appointed officials pose a danger to conservation gains that WSO has had a hand in attaining, I believe WSO has the responsibility to provide input to the decision-making process. Furthermore, I would suggest that each of us as individual members of WSO should also make our opinions known to these officials as well.

The case in point is the recent decision by the Natural Resources Board to approve a hunting season for American Crows in Wisconsin. WSO provided testimony to the Natural Resources Board during the debate on this issue, to no avail. The issue is far from over, however. The Legislature could reverse this controversial decision by passing a law prohibiting crow hunting or by denying approval of any administrative rules developed by the Department of Natural Resources regulating the crow hunt. Will the Legislature take these actions? Probably not, unless the voice of (at least some) the people are heard. And in the arena of bird conservation, that means you and me.

Why be concerned about hunting of this noisy, abundant and sometimes nuisance species? As our Conservation Chair Noel Cutright's testimony excellently described, one concern is the potential impact crow hunting might have on raptors and ravens. Conservation organizations such as WSO have taken decades to make strides in the protection and conservation of raptors. Several of the species that were once in serious trouble have made steady, but slow come-backs. With a crow hunting season, there is an increased likelihood that non-target species like raptors and ravens will be mistaken for crows? How many hunters will make this mistake? Probably few, but why open a hunting season on a new species after years of educational efforts have succeeded in making bird conservation an accepted societal goal?

Will proposals for new hunting bird-hunting seasons in Wisconsin's be limited to crows? Not likely. Proposals to establish a season on Mourning Doves have been introduced on a re-occurring basis. During hearings this past spring held by the Wisconsin Conservation Congress, the topic of a hunting season for

Sandhill Cranes came up. WSO members should consider sending a strong message to our elected and appointed officials *now*, before such proposals become a reality.

President

50 Years Ago in *The Passenger Pigeon*
Excerpt from Volume 4 (1942)

OLD ABE

"Probably the most noted mascot in American military annals was 'Old Abe,' Wisconsin's famous Civil War Eagle.

The bird was captured in 1861, when but a few weeks old, by a young Indian brave of the Lake Flambeau tribe on the upper waters of the Chippewa River. It was trained and raised by him and sold at Eau Claire to the Eau Claire Badgers, a newly organized company of the Eighth Wisconsin Infantry. Captain John E. Perkins named the bird in favor of President Lincoln.

Old Abe had a special perch near the regimental colors and the regiment soon became known as the Eagle Regiment. To the Confederates he became known as 'The Yankee Buzzard' and it is said that they would rather have killed him than the entire regiment itself. Old Abe served in seventeen battles and was twice touched by bullets. After the war he had a special room at the State Capitol making public appearances on special occasions. The sale of his picture alone netted over $80,000 for civic enterprises. He died in 1881 and was mounted for exhibition at the State Capitol as seen in this front cover picture loaned to us through the courtesy of the Wisconsin Historical Society. When the State Capitol burned in 1904, Old Abe was destroyed, but his memory shall live forever."

Research Opportunities for Part-Time Ornithologists

Here are 13 programs that rely on the activities of birders to collect data for ornithological research: WSO Seasonal Field-notes, Christmas Bird Counts, Breeding Bird Surveys, Breeding Bird Census, Winter Bird Population Studies, Nest-Record Card Program, DNR Breeding Bird Surveys, Wisconsin Checklist Project, Nicolet National Forest Bird Survey, Project FeederWatch, Annual Crane Count, Project LoonWatch, Big Day Counts, National Science Experiment.

by Robert W. Howe

Two years ago I was appointed Research Chair of Wisconsin Society for Ornithology. Although the duties of this position are not strictly prescribed, the general goal is to facilitate and encourage studies of Wisconsin birds. I hope to address this responsibility by writing a series of articles about current ornithological research activities and opportunities in Wisconsin. Perhaps the best place to start is by providing information about existing research programs that are available to anyone who has an interest in birds. Many of these programs have been described in recent issues of *The Passenger Pigeon,* and most WSO members are familiar with some or all of them. The purpose of this article is to bring together information for readers who might be unaware of the many worthwhile opportunities for research by non-professional birders. Many of the programs welcome participants at all levels of expertise, from novices to highly-skilled field observers.

Studies of birds are interesting in their own right. Yet ornithology has a rich tradition of contributions to broader fields of science, including molecular biology, physiology, aerodynamics, behavior, population dynamics, and ecology (Konishi et al. 1989). Perhaps more than in any other biological discipline, ornithological non-professionals have played a major role in the development of new ideas and insights. Margaret Nice (1941), for example, pioneered the study of life histories and behavior by observing Song Sparrows in her Ohio backyard. Crawford Greenwalt, a professional

engineer, contributed major works on the aerodynamics of bird flight (Greenwalt 1975). Collectively, thousands of dedicated birders continue to provide baseline information used by endangered species biologists, biogeographers, and professional land managers. Wisconsin has been a leader in supporting and even developing research programs for the non-professional birder.

If you are not already a part of this ornithological heritage, the projects described below provide opportunities for you to become involved. I hope that one or more of them sparks your interest.

WSO Seasonal Field-Notes

Each issue of *The Passenger Pigeon* includes a summary of significant bird sightings from Wisconsin during the upcoming season of the previous year (e.g., the summer issue contains records for the previous autumn). These records provide important historical data that have contributed significantly to major ornithological publications, including Robbins' (1990) *Wisconsin Birdlife: Population and Distribution, Past and Present.* Participants document their observations from a specific county on pre-printed forms that can be obtained from Associate Editor Daryl Tessen (2 Pioneer Park Place, Elgin, IL 60123). Records from the spring season (March 1–May 31) must be returned to Tessen by June 10, summer (June 1–July 31) records are due August 10, autumn (August 1–November 30) records are due December 10, and winter (December 1–February 28) records are due March 10. Observations of unusual species or species at unusual dates must be documented on separate forms; a committee of experts evaluates these records before acceptable records are published in the "Seasonal Field-Notes."

Christmas Bird Counts

Perhaps the most widely known tradition of American ornithology is the Christmas Bird Count, organized each year by local volunteers under the auspices of the National Audubon Society. The first Christmas Bird Count in 1900 was conducted by 27 people at 26 localities in the U.S. and Canada. Today, approximately 40,000 people cover more than 1500 counts annually throughout the U.S., across most of Canada, and at several places in Central and South America (Root 1988). Results are published annually in a special expanded issue of American Birds, and a recent work by Root (1988) summarizes the large-scale results from 1962–1972. During 1990 seventy-nine counts were recorded in Wisconsin (Hilsenhoff 1991). Guidelines require that the counts are conducted during a single day within a circular area 15 miles in diameter. Date of the count must fall within a two week period around Christmas (Root 1988). Observers must spend at least eight hours in the field, although there is no limit to the number of participants or the total effort expended.

Address of local Christmas Bird Count compilers are given in *The Passenger Pigeon* (Hilsenhoff 1990). If you wish to participate, contact the compiler in your area, or if there is none, obtain instructions for initiating your own count from Dr. William Hilsenhoff, Department of Entomology, University of Wisconsin, Madison, WI

53706. Volunteers with any level of expertise are welcome to participate.

Breeding Bird Survey

An important project involving expert birders is the Breeding Bird Survey sponsored jointly by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service. Initiated in 1965, a time when concern was growing rapidly over the effects of pesticides on bird populations, the Breeding Bird Survey provides large scale information about bird population trends. Participants are assigned one or more roadside routes consisting of 50 3-minute stops 0.5 mile apart, run once each year during the height of the breeding season (Robbins et al. 1986). At each stop the observer stands near his/her car and records all birds heard or seen within .25 mile. Data, recorded on preprinted forms, are sent in special return envelopes to the U.S. Fish and Wildlife Service headquarters in Laurel, Maryland.

Randomly distributed roadside routes have been selected within each 1 degree block of latitude and longitude in the United States and southern Canada (Robbins et al. 1986). A coordinator for each state or province solicits experienced birders to carry out Breeding Bird Surveys at as many of these routes as possible. Again, Wisconsin has contributed significantly to this effort. During the first 15 years of the program, the number of routes covered in Wisconsin (67) was exceeded by only 5 other states or provinces (California, Texas, New York, Pennsylvania, Ontario). Wisconsin's Coordinator for the Breeding Bird Survey is Rev. Samuel D. Robbins, Jr., 14 South Roby Rd., Madison, WI 53705.

Breeding Bird Census & Winter Population Study

Although similar in name, the Breeding Bird Census program differs from the Breeding Bird Survey in methods, administration, and nature of participants. Anyone is eligible to participate who is willing to invest hours of time documenting the birds at a specific locality. This is an ideal project for someone who wishes to "get to know" the birds in a favorite park, wildlife refuge, or even private habitat tract. Participants choose an area of approximately 10–20 hectares (27–54 acres). In 1990 these areas ranged from 4.0–42 hectares for forests and 4.7–77 hectares for grasslands and other open habitats. The site must be visited at least 8 (recommended = 12) times during the period of nesting for most resident species. All parts of the plot are visited during each visit (recommended duration = 10–12 minutes/ha in forested habitats, 4–5 minutes/ha in open habitats). Detections of birds are mapped and used to estimate the total number of territories for each species. Results are submitted to the Cornell Laboratory of Ornithology, where they are prepared for publication in an annual *Supplement to the Journal of Field Ornithology.* (Formerly, results were published in *American Birds.*) During 1991 data were reported from 126 Breeding Bird Census localities, none from Wisconsin.

A companion program, the Winter Bird Population Studies, uses the same methods as the Breeding Bird Census program except that visits are made after the end of fall migration. During

1991, 39 sites were evaluated by volunteers, again none in Wisconsin.

Information about both of these programs, including a detailed description of methods, may be obtained from the Cornell Laboratory of Ornithology, Resident Bird Counts, 159 Sapsucker Woods Road, Ithaca, New York, 14850.

Nest-Record Card Program

What should you do if you find a bird nest, particularly one of an uncommon species or away from an urban environment? Don't disturb it, of course, but by taking a few notes you can contribute to a long-term data bank that has served many important purposes. The Cornell Laboratory of Ornithology (address in previous section) keeps files of standardized "nest record cards," used widely by researchers, wildlife officers, and authors of ornithological publications. If you haven't sent for blank cards, several critical (but simple) observations should be noted. How many eggs or young are in the nest? What color are they (is there a cowbird egg present)? What materials were used to make the nest? Where is the nest located (height, type of tree, etc.)? If you are able to follow the nest, record dates when changes occur, such as hatching, fledging, or other significant events.

WSO has its own program for contributing nesting records, including localities where "suggestive behavior" indicates probable nesting. Forms are available from Daryl Tessen at the address given above (WSO Seasonal Field Reports).

DNR Breeding Bird Surveys

Wisconsin DNR's Bureau of Endangered Resources organizes systematic surveys of breeding birds in Wisconsin's State Natural Areas. During the past 21 years, all but 8 of these areas have been covered (mainly new additions to the natural areas system), and many areas have been visited every year. Methods are simple: cooperators are asked to plan a route (transect) within the natural area, along which they alternate 5 minutes of walking with 5 minutes of stopping. All birds seen or heard are recorded unless they are flying far overhead. The number of walk/stand intervals is recorded to facilitate comparisons between sites. Up to four visits are made between June 1 and July 4.

Sixty-two volunteers participated during 1991, covering 115 natural areas (including 82 officially designated State Natural Areas). Because these are some of the state's best natural habitats, some of Wisconsin's most interesting species show up in these surveys, including Acadian Flycatcher, Cerulean Warbler, Hooded Warbler, Worm-eating Warbler, Red-necked Grebe, Yellow-crowned Night-heron, and Bell's Vireo.

Information and forms can be obtained from Randy Hoffman, Natural Areas Preservation Council, Wisconsin Department of Natural Resources, Box 7921, Madison, WI 53707.

Wisconsin Checklist Project

Perhaps the easiest project for birders to become involved with is the Wisconsin Checklist Project, first described in 1982 by then WSO Research Committee Chair Dr. Stanley Temple (Temple 1982). Volunteers are provided with computerized forms, on which they are asked to record all species of birds observed during a single

week in a single Wisconsin county. Many birders keep such checklists anyway; the Wisconsin Checklist Project provides a way to contribute this information to a larger scale record. The strength of the program lies in numbers: the more checklists contributed, the more accurate will be the collective geographic and seasonal patterns. Response to the first five years of the project was nothing short of impressive. Overall, 431 birders contributed checklists, 257 of these on a regular basis, in many cases weekly over the 5-year period. Results have been compiled and published in a volume that is not only scientifically and historically valuable but also useful to birders themselves (Temple and Cary 1987). The project is being continued by the Wisconsin DNR's Bureau of Research, where blank forms can be obtained by writing to Wisconsin Checklist Project, DNR, 1350 Femrite Road, Madison, WI 53716.

Nicolet National Forest Bird Survey

The Nicolet National Forest Bird Survey is a cooperative project initiated in 1986 by the Northeastern Wisconsin Audubon Society and Nicolet National Forest biologists. Its goal is to systematically monitor birds across the 670,000 acre forest; results are applicable to conservation planning and public evaluation of forest management policies. The project takes place during a single weekend of mid–June. Birders from across Wisconsin and elsewhere gather in a central location (usually a youth camp), usually in conjunction with the WSO summer campout. Participants are assigned to groups of 3–7, including at least one "expert" and others with varying levels of expertise. Each group selects a set of sites (usually 5–6 per day) which are visited between dawn and approximately 9:00 A.M. A 10 minute count of all birds seen or heard is conducted at each site. Results, recorded on standardized forms, are eventually entered into the Nicolet National Forest's computerized geographic information system and are summarized each year for participants. A picnic and program (with birding "contests," etc.) is held on Saturday afternoon. The project attracts about 100 participants annually, altogether covering more than 300 census points. (Only half of the forest is covered each year.) A summery of the first 5 years' data is scheduled for 1992. For information and registration forms contact Robert Howe, Department of Natural and Applied Sciences, University of Wisconsin-Green Bay, Green Bay, WI 54311–7001.

Project FeederWatch

Another project sponsored by the Cornell Laboratory of Ornithology, Project FeederWatch is an easy way to participate in scientific research. Volunteers are asked to count birds at feeders that can be seen all at once from a single window. Careful records are kept for one or two consecutive days during ten 2-week periods between November and March. Standardized forms are provided for recording the maximum number of birds for each species seen at one time. A more complete description of methods is given by Temple (1989), who reports that 109 volunteers took part in Wisconsin during 1988–89. A newsletter is published twice each year fea-

turing feeder tips, natural history notes, and results from the FeederWatch program. To join the 3000+ contributors to Project FeederWatch, write to the Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14853.

Annual Crane Count

One of the most dramatic examples of species recovery has been illustrated by North American populations of the Sandhill Crane (*Grus canadensis*). According to Hunt et al. (1976), only 25 pairs were estimated to breed in Wisconsin during 1936; by 1990, the 10th Annual Crane Count in Wisconsin yielded well over 500 pairs. The Crane Count grew out of a 1975 high school project in Columbia County (Windsor 1990). Since 1981, the event has been sponsored by the International Crane Foundation (ICF) in Baraboo. Over 2000 volunteers participate during a singe date each spring, typically during the third week in April. Sites are selected by staff at the ICF and county coordinators, who recruit volunteers and provide training materials and data forms. Observers record all cranes seen or heard between 5:30 and 7:30 A.M. Locations of birds are sketched on a map of the site. Results suggest that cranes in Wisconsin are increasing slowly, with periodic variation due to weather, participation, and other factors (Windsor 1990). This project is excellent for volunteers who are unable to commit an extended period of time to a research effort; all observations take place during a single morning each year. Expertise is relatively simple to achieve since a single species is the target of censuses. Further information can be obtained from the International Crane Foundation, E 11376 Shady Lane Rd., Baraboo, WI 53913.

Project LoonWatch

Residents and visitors to northern Wisconsin can participate in Project Loonwatch, a program sponsored by the Sigurd Olson Institute located in Ashland.

Big Day Counts

Popular recent activities with perhaps unforeseen value for long-term research are so-called "Big Day Counts," where observers record as many birds as possible during a single day, usually in mid to late May. These endeavors are usually designed as fundraisers, with sponsors pledging a fixed amount (e.g., 10 cents) per species recorded. Big Day Counts have raised thousands of dollars nationwide for environmental education, nature centers, and other worthy projects. The New Jersey Audubon Society sponsors a "World Series of Birding" each spring, challenging teams from elsewhere to compete for a well-publicized championship. Results from "Big Day Counts" and "May Day Counts" in Wisconsin are summarized annually in *The Passenger Pigeon* (Frank 1991). Results from local counts can be sent to Jim Frank, 4339 W. Laverna Ave., Mequon, WI 53092.

National Science Experiment

With funding from the National Science Foundation and other sources, the Cornell Labortory of Ornithology has embarked on an exciting new program to introduce birdwatchers and

others to the nature of science. Three specific projects are designed to provide opportunities for a broad range of people. In conjunction with Project Feederwatch, experiments are being designed to evaluate preferences of different birds for different seed types. Although individuals might already have a sense of the best types, this experiment will help thousands of participants answer a practical question with a rigorous scientific method. A second project is designed to involve youth groups and other residents of inner cities. By systematically watching the behavior of the common rock dove or domestic pigeon, participants will find out that event he most familiar species are beautiful, fascinating and surprisingly poorly known by science. Finally, an advanced project is designed to document the effects of habitat fragmentation on North American tanagers, a group that has shown signs of decline in human-dominated landscapes. Based on its high rate of participation in other projects, Wisconsin birdwatchers will be expected to play a key role in the implementation of all three projects. Look for more information during the coming months; the National Science Experiment is expected to be in full operation by 1993 and 1994.

Conclusion

The projects described here provide opportunities for long-term or short-term commitments, backyard or remote localities, and expert or novice skill levels. In other words, nearly everyone with an interest in birds can contribute to the tradition of ornithological science. This list of projects is not even complete, and organizations like the Cornell Laboratory of Ornithology are planning exciting new projects for public participation. For those looking for independently designed studies, articles from *The Passenger Pigeon* and other state ornithological journals give a long series of models. Sam Robbins (1988) articulated some "unanswered questions" about Wisconsin's birds which provide excellent starting points. Recent articles in the excellent periodical *Living Bird Quarterly* (Bonney 1992) and books like Thomas Grubb Jr.'s *Beyond Birding: Field Projects for Inquisitive Birders* (Pacific Grove: Boxwood Press, 1986) provide further guidance.

In this rapidly changing world, where nature is under endless threats on local and global scales, systematic observations by enthusiastic birdwatchers play a central role in environmental monitoring. In return for this important service, even the most casual "part-time ornithologist" can be rewarded with a sense of focus and personal satisfaction. Perhaps better than anyone else, today's birders are proving that science can be fun, inexpensive, and eminently useful at the same time.

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American Goldfinch *by Cary Hunkel.*

Pre-Migratory Territorial Activities of Common Loons on Single-Pair Lakes

Limited aggressive behavior was required by Common Loons to maintain territories on single-pair lakes. Loons on single-pair lakes interacted with nonresident loons less frequently and displayed less aggression towards conspecifics than did loons on multiple-pair lakes reported in another study.

by Jerrold L. Belant

Although extensive literature exists regarding Common Loon behavior (Munro 1945, Olson and Marshall 1952, McIntyre 1978, 1988, Reimchen and Douglas 1980, McIntyre and Barr 1983, Croskery 1988) there is limited quantified information on the territorial activities of Common Loons (*Gavia immer*). Strong and Bissonette (1988) reported territorial activities of Common Loons on multiple-pair lakes. They noted the need for quantified data of Common Loon territorial activities on single-pair lakes. My objective is to present information on Common Loon territorial activities on single-pair lakes during the pre-migratory period.

Study Area and Methods

All Common Loon observations were witnessed in Iron County, Wisconsin from 18 May through 15 July 1985 on small (≤80 ha), single-territory lakes. Observations were conducted from shore or boat using 7 × 35 binoculars and/or a 15–60× spotting scope. Only observations prior to 15 July were considered to be unassociated with migratory behavior (Croskery 1988). At least initially, loons during this time were incubating eggs or attending chicks and were generally territorial.

Results

Resident breeding loon pairs were present on Deer, Mirror, North Bass, and Plunkett lakes. Pairs on Mirror, North Bass, and Plunkett lakes did not successfully hatch young. A pair of loons was observed on Lavina Lake until mid–June; however no nesting attempt was observed. Hewitt Lake was used as a feeding area and was actively defended by a pair of loons that nested on an adjacent lake (Belant 1991).

Fifteen instances of Common Loon

pre-migratory groups were observed (Table 1). Of these, 7 (47%) involved aggressive behavior. In 5 of 7 (71%) occurrences, single loons entering the territory of another loon pair were not threatened. Nesting loons and pairs with chicks were generally more territorial than nonbreeding loons. Loons that failed to hatch young appeared more territorial during the incubation period than during encounters after the clutch had failed. Duration and intensity of territorial behavior appeared to decrease during the study period.

Table 1. Observations of Common Loon pre-migratory social interactions, Iron County, Wisconsin, 18 May–15 July 1985.

Date	Lake	Number of loons observed	Duration (min)	Comments
23 May	Lavina	3	23	Initially 1 loon on lake. Pair flew in during call broadcasting. Single loon departed without interaction.
31 May	Mirror	3	30	Unpaired loon was driven off by resident loon after circling and bill-dipping.
1 June	North Bass	5	78	Four loons swam in a tight group, the 5th separated by 100 m. Two birds departed with no aggression displayed.
3 June	Hewitt	3	67	Loons are members of 2 distinct pairs. They fed together until 1 was forced off lake. Hewitt is a feeding lake with no nesting activity.
4 June	Mirror	3	51	Radio-tagged loon was attacked by nonresident. Nonresident forced off lake by mate of radio-tagged loon.
14 June	North Bass	4	66	Aggressive behavior displayed but no loons departed lake during observations.
15 June	North Bass	3	61	No apparent reaction between resident pair and single loon.
20 June	North Bass	3	59	No aggressive interaction on lake. Pair yodeled twice when single loon departed.
26 June	North Bass	5	11	Yodel chorus, surface rushes, and penguin dances occurred before 3 loons departed lake.
30 June	North Bass	4	36	One loon separated from group while remaining 3 fed together.
2 July	Deer	7[1]	16	Three of 5 adults departed after swimming erratically in a tight group. No vocalizations were given.
3 July	Plunkett	5	64	Loons dove together repeatedly then all departed lake. Four returned and separated into pairs. One pair was attacked and forced off lake.
4 July	North Bass	3	20	No aggressive behavior observed.
4 July	Plunkett	4	22	No aggressive behavior observed; however, 2 loons departed during broadcasting vocalizations.
5 July	North Bass	3	75	No aggressive behavior observed. Loons swam as a group.

[1]Includes 2 resident chicks.

Loons spent a small proportion of time exhibiting territorial behavior in defense of territory or young (0.3%; Table 2). Overall, resident loons interacted with nonresidents during 11.7% of observations. Less than 3% of these interactions involved territorial behavior.

Discussion

Common Loons during this study interacted less (11.7%) than did those on multiple-pair lakes (17.3%) reported by Strong and Bissonette (1988). There are two probable primary explanations for this disparity. First, loons on single-pair lakes do not have the potential to interact with other loons unless they fly to other lakes or other loons fly to their lake. Second, single-pair lakes are generally smaller than multiple-pair lakes and are likely less desirable as foraging or resting areas by nonresident loons. Common Loons during this study also exhibited less territorial behavior during interactions with conspecifics than did loons on multiple-pair lakes reported by Strong and Bissonette (1988). This is contrary to popular belief but may be an artifact of sampling duration; loons were observed by Strong and Bissonette (1988) beyond the pre-migratory period.

Table 2. Duration (minutes) of aggressive and non-aggressive interactions for 6 resident Common Loon pairs on single territory lakes, Iron County, Wisconsin, 18 May–15 July 1985. Numbers in parentheses are the percentage of total observations of all activities during the same period.

	Interactions with other loons	
Pair (Lake)	Aggressive	Non-aggressive
Deer	0 (0.0)	20 (3.9)
Hewitt	1 (0.5)	67 (31.5)
Lavina	0 (0.0)	12 (16.4)
Mirror	4 (0.2)	61 (3.4)
North Bass	7 (0.4)	398 (23.9)
Plunkett	4 (0.3)	82 (6.6)
6-lake total	16 (0.3)	640 (11.7)

My data supports Rummel and Goetzinger's (1975) statement that except in core nesting areas of territorial pairs, single nonresident loons have relatively free passage through all waters during the territorial season. The two occasions where resident loons interacted aggressively with an intruder were by the same pair.

One hypothesis that has been stated regarding non-aggressive interactions of Common Loons entering the territory of another suggests that the intruding loon may be related, perhaps progeny of the resident pair. Although there is no direct evidence to support this statement, territorial affinity does occur in Common Loons, including juveniles (McIntyre 1974, Eberhardt 1985, Belant et al. 1991).

Territorial behavior is probably advantageous on single-pair lakes. Advantages include excluding nonresident from limited feeding areas and also away from young. Frequency of encounters with conspecifics on single-pair lakes would be expected to be less than that occurring on multiple-pair lakes. Therefore, aggressive behavior would likely be more energy efficient in relation to protecting foraging or brood areas. Additional research is needed to more fully understand the extent of, and mechanisms which cause, territorial behavior exhibited by Common Loons on single-pair lakes.

Acknowledgements

These observations were made coincident to a larger study of Common

Loon ecology (Belant 1989) initiated by R. K. Anderson. Funding was provided by the University of Wisconsin-Stevens Point, Wisconsin Project Loon Watch, and the Swartz-Hart Foundation. Partial logistical support was provided by the Wisconsin Department of Natural Resources, Mercer Station. Hewitt Lake Company kindly allowed access to their property. I thank R. K. Anderson, J. F. Olson, and J. M. Wilson for their support. M. V. Gies provided valuable field assistance. M.-K. W. Belant provided comments for manuscript improvement.

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Public Attitudes Toward Park Mallards in Stevens Point, Wisconsin

A random sample of 100 Stevens Point area residents was surveyed by telephone to see if they visited areas within Stevens Point to view Mallard ducks. Fifty people indicated they went to areas specifically to view ducks. Of those who purchased food, they spent an average of $2.90 a month. The most popular place to view Mallards was McDill pond. Most respondents thought it was good to have ducks in Stevens Point to view. The main reasons they gave were: aesthetics, enjoyment, entertaining for the children, and education.

by Gabrielle V. Barrett

A park Mallard is defined as "a duck that spent at least part of the day in close company with humans and with access to artificial food" (Heusmann and Burrell 1974). Urban settings play an important role as migration stopovers, feeding sites, wintering sites, and refuges during the hunting season (Figley and VanDruff 1982).

The values of park Mallards include aesthetics, recreational experiences and environmental education. There are also some negative effects associated with urban Mallards. Adult mortality of ducks in urban settings can be caused by man-made hazards such as telephone wires and cars. Artificial feeding of ducks may cause unnaturally dense populations, which may lead to: an increase in drownings caused by rape attacks, hens being killed by other hens and easy disease transmission (Figley and VanDruff 1982). In addition, large populations of ducks in urban settings may have a negative effect on water quality (Oplinger 1977).

In Stevens Point, Wisconsin many of the parks have Mallard ducks visiting them. The objectives of this study were: to determine the percentage of Stevens Point residents that visit local areas to view ducks, and to get information about their visit, to obtain a general demographic profile of those surveyed, and to determine public attitudes toward ducks in Stevens Point.

Study Area

Stevens Point, population 23,600, is located in central Wisconsin (Fig. 1). The surrounding municipalities including Park Ridge (546), Plover (10,399), and Whiting (1,838) account for the total population of 36,383. Of this, 22,222 have a listed telephone number in the Stevens Point telephone directory.

There are many parks in Stevens Point that are located next to water with the potential to have ducks in them, including McDill Pond, Iverson Park, Bukolt Park and Pfiffner Park (Fig. 1).

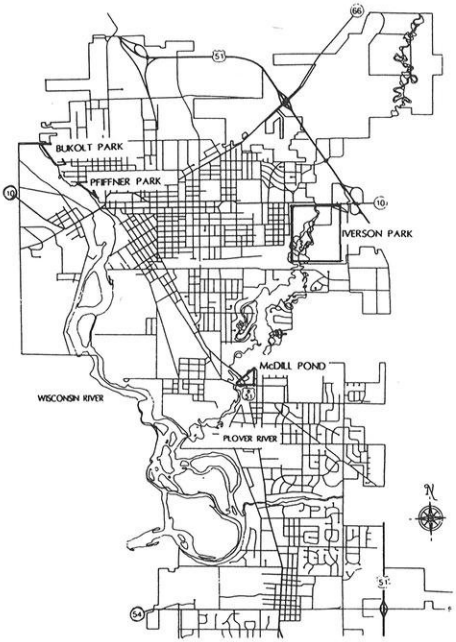

Figure 1. Map of Stevens Point, WI showing the public parks located next to water with the potential to have ducks in them.

Methods

A random sample of 100 people was selected from the Stevens Point telephone directory, representing 0.4% of the households in the area with listed telephone numbers. The sample was judged to be sufficient because this is an exploratory study and the final data will not be used for decision making. A random numbers table was used to select three names to call on each page. If the name chosen was a business, or not from Stevens Point or one of the neighboring municipalities, the first name below it that was an individual in the desired area was called. The next time this occurred the first name above it that was an individual was called. If the person called declined to participate in the study this was noted and the same selection process was used to get a substitute. This sample was slightly biased because not everybody owns a telephone and not everybody has a listed telephone number.

Telephone calls were made during the month of October, 1991. People were called Monday through Friday from 6:30 P.M. to 8:00 P.M. This time period was found to have the highest success for people answering.

The telephone interview followed a prepared script. The question with the highest interest level was asked first to determine if the person visited areas with ducks. If they answered yes to the first question, various open ended questions were asked about their visit, followed by some basic background questions. If the person answered no to the first question, mainly background questions were asked.

Comparisons were made between the people that viewed the ducks and those that did not. Variables of interest were recorded that might explain the difference: marital status, hunters liv-

ing in the household, age, and attitude towards the ducks. Comparisons of attributes were tested with the appropriate statistics (χ^2 or *t*-test).

Results/Discussion

Of the 100 surveyed, 50 said they went to areas within Stevens Point in the last 12 months specifically to view ducks. There was an average of 8.42 visits per household.

Different attributes of those that indicated they viewed the ducks are shown in Table 1.

Married people were more likely to visit the ducks than unmarried people ($\chi^2 = 5.19$, $P = 0.02$). It may be more likely for married people to have children than unmarried people. Going to parks to view the ducks may be an inexpensive way for families to spend time together.

Viewing the ducks was not related to whether or not there were hunters living in the household. A Chi-square analysis revealed hunting households were as likely to view ducks as non-hunting households ($\chi^2 = 0.04$, $P = 0.84$).

The most popular seasons to view ducks were summer and fall receiving 42% and 34% respectively of the annual visits. At these times there seems to be the highest population of ducks around. The weather is also most agreeable during these seasons.

McDill pond was the most popular area visited, with 68% ($n = 34$) of the people going there (Table 2). Using a 2×5 chi-square, not all areas were visited equally ($\chi^2 < 0.001$, $P < 0.001$). Of the total number of times the different areas were visited, McDill pond was visited 55% of the time (Table 2). McDill pond may have been chosen over other areas because the pond and the ducks using it are visible from a major road. The other areas that have ducks in Stevens Point are not visible from main roads.

Of the 50 people who said they didn't go to areas specifically to look at the ducks, 43% said they were aware that there are ducks in Stevens Point and were able to list various places with ducks.

Most of the people who went to areas to look at the ducks ($n = 43$) and most of the people who didn't ($n = 35$) thought it was a good idea to have ducks in Stevens Point. Seven people who viewed the ducks and 13 who did not were neutral in their attitudes to-

Table 1. Various attributes of surveyed people from Stevens Point, WI, October 1991.

Attribute	Viewed ducks ($n = 50$)	Did not view ducks ($n = 50$)
Married	74%	52%[1]
Hunters living in household	36%	38%
Waterfowl hunters living in household	10%	14%
Average age	39.7	44.1
Average number of children living in house	0.9	0.5
Average number of people from each household that viewed ducks at a time	2.34	
Feed the ducks (<1 loaf of bread and <1 lb of corn)	64%	
Purchase food specifically for ducks	16%	

[1]Significantly different ($\chi^2 = 5.19$, $P = 0.02$)

Table 2. Places residents of Stevens Point, WI, visited to view ducks and number of times each place was visited as surveyed in October 1991.

Place	Number of people	Number of times
Bukolt Park	8	62
Iverson Park	2	5
McDill Pond	34	234
Pfiffner Park	5	32
Other	14	88

ward the ducks. There was no significant difference between these two groups ($\chi^2 = 4.26$, $P = 0.10$). The chi-square may have been obscured by a small sample size. Some of the reasons the respondents thought it was good to have ducks were: aesthetics, enjoyment, education, and good for the kids to see. Two respondents were concerned that the ducks would never leave to go where they belonged. People seem to like the ducks possibly because it is an easily accessible form of wildlife for those who don't get out of the city much.

A similar study done in New Jersey by Figley and VanDruff (1982) found that 66.6% of park visitors came to feed ducks. They usually fed them bread and spent less than 5 dollars a month on the food. "The availability of artificial food underlies the primary reason for waterfowl use of these [urban] habitats" (Figley and VanDruff 1982). A study conducted by Figley and VanDruff (1982) found that 95% ($n = 221$) of the people surveyed considered the ducks a benefit and a pleasure. Gilbert (1982) conducted a study on the attitudes towards urban wildlife in Guelph, Ontario and found that people felt "the city should be doing more to encourage wildlife conservation." He also found that 46 percent of the respondents were willing to pay a special municipal tax to help support wildlife conservation.

With 50% of the sample in Stevens Point saying they viewed the ducks and of that, 64% said they fed the ducks, there is the possibility of 7,111 Stevens Point residents feeding the ducks. This many people feeding the ducks causes the potential for the Stevens Point duck population to be very large. If there is a desire to control the population, some possible management recommendations are: prohibit feeding, haze to encourage the birds to leave, relocate the birds from high density areas to less concentrated areas, and live trap and place in other refuges in the state. Before a management decision is made a more thorough study to determine the effects of these ducks should be performed. If the effects are negative and if these negative effects outweigh the benefits of the urban mallards, then management of the urban mallard population should begin.

Acknowledgements

I thank K. H. Beattie for his recommendations in writing the script for the survey, K. Rice for making the map of Stevens Point and E. M. Anderson for his guidance throughout the research and the writing of this report.

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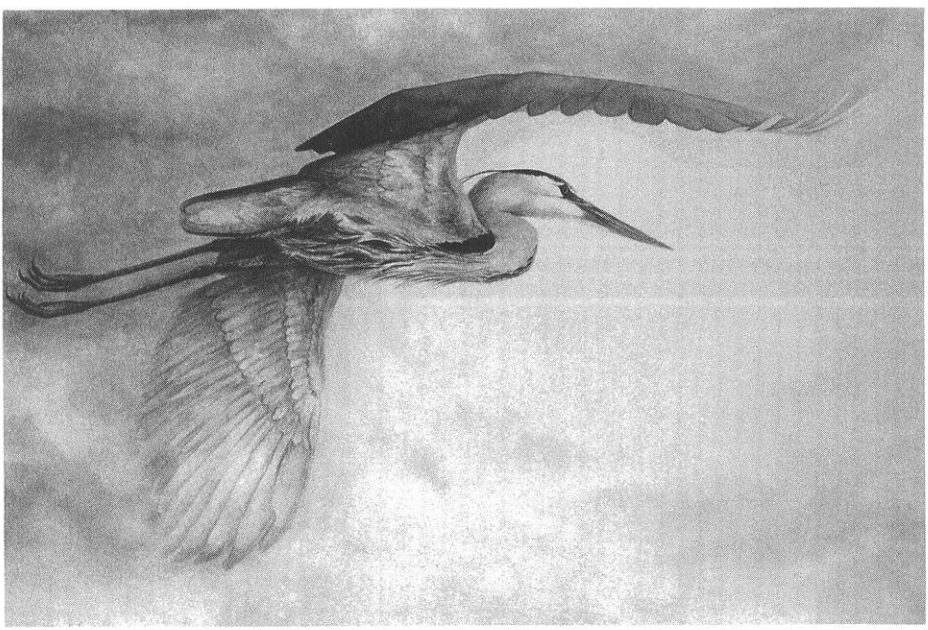
Northern Oriole *by Cary Hunkel*



"Carpe Diem" *by Cary Hunkel*

Some Effects of Land Use on Avian Diversity in a Wisconsin's Oak-Pine Savanna and Riparian Forest

The birds of McDill Pond, central Wisconsin, have been observed for 16 years and surveyed almost daily for one year (1990). Generally, there have been adverse effects on the diversity from land use. It is our objective to investigate some of these effects.

by Charles A Long and Claudine F. Long

Central Wisconsin is bisected roughly by the so-called "tension zone" of Curtis (1959), which is an ecotone dividing several prairie/savanna communities in the southern and western parts of Wisconsin from boreal forest communities northward. The study area is sited about 15 miles north of the Buena Vista Marsh, now drained to grassland. The avifauna shows both northern and southern affinities. Many northern forest, lacustrine and boreal species pass through during migration.

The climate is considered temperate, but in central Wisconsin it is severe. Zimmerman (1991) points out that the soil frost may be deep (see also Long 1973); some summer frosts occur in the low places, and hot dry spells are accentuated by the sandy soil. That is the reason the oak and jack pine thrive, being adapted to dry, sandy soils and capable of regrowth after fire or frost.

The study area was once savanna-like, the dominant trees Hill's oak (*Quercus ellipsoidalis*) and pine, especially *Pinus banksiana*. Zimmerman (1991) might refer to the region as sandy pine-oak barrens and dry sandy forest, depending whether the sand was exceptionally exposed or the tree cover extensive. The uplands are sand lying over bedrock and measure 11 meters depth or less at the study area. Thin, acidic soil has developed over the sand which supports tall-grass and short-grass communities (even big bluestem, butterfly weed, sweet fern, forbs, cherry and plum trees, and thickets of service berry, thornapple, and hazelnut, and in low, moist areas orchids, swamp milkweed, ferns, mushrooms, alders, elderberry, dogwoods and so on). The woods were cleared to some extent and the land planted to corn and other crops, to red pine plantations, and left to pasture.

After the Plover River was impounded in 1853 (forming McDill Pond, see Fig. 1), paper birch (*Betula papyrifera*), red oak (*Q. rubra*), bur oak (*Q. macrocarpa*) and red maple (*Acer rubrum*) began to grow along the new shore. Thus, the area is a transition of mixed hardwood with some white pine and an occasional fir tree, and the grassy and dry savanna. The impoundment is a shallow water wetland with some areas of cattails, water lilies, and alder thickets fringing the shallow bays.

Recent development (about 175 new dwellings) led to effects of urbanization, increased phosphates and nitrogen, silting, and increased weediness in the lake. The shallow water accelerated the aging of the Pond. The chain saw hastened deforestation. Oak wilt swept along the shore. People practically removed the understory that facilitated movements of animals and provided cover for nests and protection from

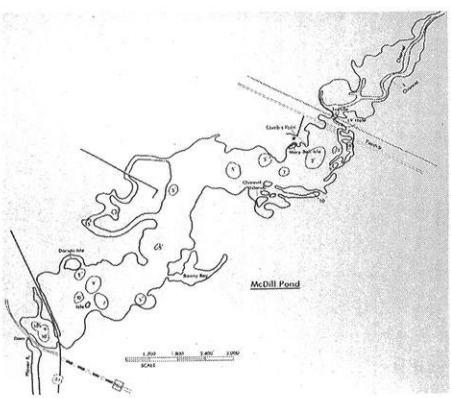


Fig. 1. McDill Pond in Stevens Point, Wisconsin. The lake is an impoundment (see Dam at Hwy 51). Depths are indicated by contour lines, but muck and sand partially filled the holes. The cat-tail marsh is above the railroad trestle. Conservation land is the east shore southward of Patch Street as far as the 10′ depth mark. Straight lines are roads.

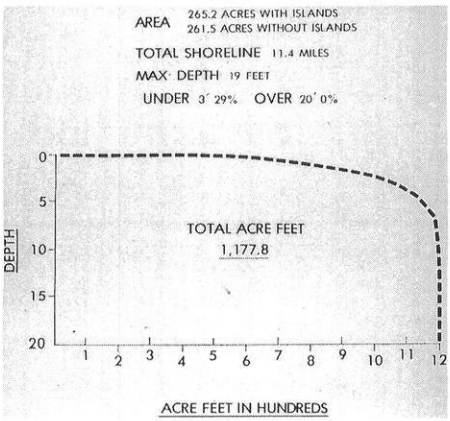


Fig. 2. Depth plotted against area for McDill Pond before muck sedimentation made the pond more shallow.

weather. Agricultural use for the land came to an end. Recreation became increasingly important, and the area was designed as a nature preserve along the north shore with signs posted regularly. The lake has been drained on several occasions, and about 30 years ago was left drained for several years. At that time some dredging and reshaping of the shoreline occurred. In recent years, the nature reserve signs quietly disappeared, and the city of Stevens Point is poised to complete annexation of the entire shoreline.

McDill Pond (Fig. 1, 2) is about two miles in length (261 acres). Its average depth is only about 20 inches, and a maximal depth of 13 feet is now only about 7–8 feet, in three or four areas. Especially where the waves wash sediments northward in summer, muck accumulates to depths up to 20 inches on the sandy bottom. The introduced plant, the millfoil, is the most serious pest, but algae and densely growing, flowering species of plants add to the problem.

Zoning of the lake shore has been changed repeatedly, whenever some tax benefits were anticipated. Conservation zoning is found today only on the northeast margin. There is a small extent of natural shoreline in a new park on the southwest margin. There is another park at the dam outlet, which is mowed and drastically disturbed. Two ball fields are there. A few occupants of the shoreline dwellings have left natural areas, but these are few and far between. In this community, even stands of tall trees are usually entirely removed from the shore. There are small isles in the lake on which native vegetation persists, including native trees. The dam at the south end of the pond is maintained by the village of Whiting, whereas the city of Stevens Point holds most of the shoreline. The two municipalities are often at odds on such issues as water depth, and the depth varies greatly. Fish nests along the shores are disturbed, turbidity abounds, and histoplasmosis has infected man and beast for several years. The one redeeming ecological benefit provided by the city is sewerage. Recently the city purchased a weed harvester to be operated by a subcommunity called River Woods. Weed growth has been restricted somewhat by this group of landowners by use of poisons and weed harvesting. Amphibians and reptiles have been severely decimated by draining the Pond. Spring peepers, tree frogs, and hog-nosed snakes are no longer found, and toads and other frogs have diminished by thousands to a few. Turtles are abundant. When 27 nests of Cliff Swallows are knocked down at a McDill Pond bridge, when nesting sites of Belted Kingfisher and even the Bank Swallow are destroyed, when a cat kills the last of the Eastern Bluebirds, these effects are obvious and ecologically detrimental.

Here it is possible to document some effects of bulldozing trees and understory on both that land and on adjacent riparian fauna. It is also possible to show a decline in the birds and in local breeding species, as well as influx of some parkland species.

Avian Diversity

The avifauna (175 species) may be categorized as permanent residents (which are approximately the same as the winter residents--except for the Dark-eyed Juncos), visitors and migrants. These are listed in Table 1, for a 16-year study, and Fig. 3 shows permanent residents. They are broken down according to season in Fig. 3, for the weekly surveys taken in the year 1990. Table 2 shows typical birds of savanna, shoreline, lake and marsh and urban areas are shown in and reflect effects of impoundment and settlement.

On two adjacent properties, one left natural (including an island and a narrow peninsula) and the other "developed," there was an observed decline in the typical songbirds (Table 3). On Comb's Point, now cleared and developed with a four home condominium, the number of birds seen (68 sightings per year for 14 common species) dropped to zero. On the adjoining natural property, the number of sightings dropped from 89 to 19, even with the protection of understory and trees. This list does not include any of several breeding species (Belted Kingfisher, Bank Swallow, Northern Rough-Winged Swallow, Green-backed Heron) directly eradicated by the

Table 1. Birds of McDill Pond and their status.

Species	Breeding birds	No longer breeding	Summer visitors	Spring migrants	Fall migrants	Winter visitors	Winter residents
Common Loon				x	x		
Pied-billed Grebe				x	x		
Horned Grebe				x	x		
Red-necked Grebe				x	x		
Double-crested Cormorant				x			
Least Bittern	x	x					
Great Blue Heron			x	x	x		
Green-backed Heron	x	x	x	x	x		
Great Egret			x				
Black-crowned Night-Heron					x		
Tundra Swan				x			
Mute Swan	x		x			x	x
Snow Goose				x			
Canada Goose	x		x	x	x		
Wood Duck	x		x	x	x		
Green-winged Teal				x			
American Black Duck				x		?	
Mallard	x		x	x	x	x	x
Blue-winged Teal	x		x	x	x		
Northern Shoveler	x		x	x	x		
Gadwall				x			
American Wigeon				x	x		
Canvasback				x			
Redhead				x			
Ring-necked Duck				x	x		
Greater Scaup							
Lesser Scaup				x	x		
Common Goldeneye				x			
Bufflehead				x			
Hooded Merganser				x			
Common Merganser				x			
Red-breasted Merganser				x			
Ruddy Duck				x	x		
Osprey	x		x				
Bald Eagle			x	x	x	x	
Northern Harrier			x				
Sharp-shinned Hawk			x	x	x		
Cooper's Hawk	x	x	x	x	x		
Northern Goshawk						x	
Red-shouldered Hawk			x				
Broad-winged Hawk	x		x	x	x		
Red-tailed Hawk			x	x			
Rough-legged Hawk						x	
American Kestrel				x			
Merlin				x			
Ring-necked Pheasant	x	x					
Ruffed Grouse	x	x	x			x	
Bobwhite	x	x					
Sora Rail				x			
American Coot				x	x		
Sandhill Crane			x				
Killdeer	x			x	x		
Greater Yellowlegs				x			
Solitary Sandpiper				x			
Spotted Sandpiper				x			
Sanderling				x			
Least Sandpiper				x			
Pectoral Sandpiper				x			
Bonaparte's Gull					x		
Ring-billed Gull				x			

continued

Table 1. (*Continued*)

Species	Breeding birds	No longer breeding	Summer visitors	Spring migrants	Fall migrants	Winter visitors	Winter residents
Herring Gull			x	x	x		
Glaucous Gull				x			
Caspian Tern				x			
Common Tern				x			
Rock Dove	x		x			x	
Mourning Dove	x		x			x	
Yellow-billed Cuckoo				x			
Great-horned Owl	x	x	x	x		x	
Snowy Owl							
Barred Owl			x				
Northern Saw-whet Owl							
Common Nighthawk	x		x	x	x		
Whip-poor-will				x			
Chimney Swift	x		x	x	x		
Ruby-throated Hummingbird	x		x	x			
Belted Kingfisher	x		x	x	x		
Red-headed Woodpecker	x	x	x	x			
Red-bellied Woodpecker					x		
Downy Woodpecker	x		x			x	
Hairy Woodpecker	x		x			x	
Piliated Woodpecker	?	x	x	x	x	x	
Northern Flicker	x		x	x	x		
Yellow-bellied Sapsucker				x	x		
Olive-sided Flycatcher				x			
Eastern Wood Peewee			x	x			
Least Flycatcher			x	x	x		
Eastern Phoebe			x	x			
Great Crested Flycatcher	x		x	x	x		
Eastern Kingbird	x		x	x	x		
Western Kingbird			x				
Purple Martin	x	x	x	x	x		
Tree Swallow	x		x	x	x		
Northern Rough-winged Swallow	x	x	x	x	x		
Bank Swallow	x	x	x	x	x		
Cliff Swallow	x		x	x	x		
Barn Swallow	x	x	x	x	x		
Blue Jay	x		x				
American Crow	x		x				x
Black-capped Chickadee	x		x				x
Red-breasted Nuthatch	x		x	x	x	x	x
White-breasted Nuthatch	x		x			x	x
Brown Creeper				x	x	x	x
House Wren	x		x	x			
Winter Wren			x	x			
Marsh Wren			x				
Golden-crowned Kinglet				x	x	x	x
Ruby-crowned Kinglet			x	x			
Blue-gray Gnatcatcher				x			
Eastern Bluebird	x	x	x				
Veery				x			
Gray-cheeked Thrush				x			
Swainson's Thrush				x			
Hermit Thrush				x			
Wood Thrush				x			
American Robin	x		x	x		x	
Gray Catbird	x		x	x			
Brown Thrasher	x		x	x			
Cedar Waxwing	x		x	x		x	
European Starling	x		x				x

continued

Table 1. (*Continued*)

Species	Breeding birds	No longer breeding	Summer visitors	Spring migrants	Fall migrants	Winter visitors	Winter residents
Yellow-throated Vireo				x			
Red-eyed Vireo				x			
Tennessee Warbler				x	x		
Nashville Warbler				x	x		
Yellow Warbler	?			x	x		
Chestnut-sided Warbler				x	x		
Magnolia Warbler				x	x		
Cape May Warbler				x	x		
Black-throated Green Warbler					x		
Yellow-rumped Warbler			x	x	x		
Blackburnian Warbler				x			
Pine Warbler				x			
Palm Warbler				x	x		
Blackpoll Warbler				x			
Black-and-White Warbler				x			
American Redstart				x			
Ovenbird				x			
Northern Waterthrush				x			
Mourning Warbler				x			
Common Yellowthroat	x		x	x			
Canada Warbler				x			
Yellow-breasted Chat				x			
Scarlet Tanager				x			
Northern Cardinal	x		x				x
Rose-breasted Grosbeak	x	x	x	x			
Indigo Bunting	x	x	x				
Rufous-sided Towhee				x			
American Tree Sparrow						x	x
Chipping Sparrow	x		x	x			
Field Sparrow	x	x	x				
Vesper Sparrow			x				
Fox Sparrow				x			
Song Sparrow	x		x	x			
Lincoln's Sparrow				x			
Swamp Sparrow				x			
White-throated Sparrow				x			
White-crowned Sparrow				x			
Harris' Sparrow			x				
Dark-eyed Junco							x
Red-winged Blackbird	x		x	x			
Western Meadowlark			x				
Rusty Blackbird			x	x			
Brewer's Blackbird			x	x			
Common Grackle	x		x	x			
Brown-headed Cowbird			x	x			
Northern Oriole	x		x	x			
Pine Grosbeak				x	x		
Purple Finch	?x		x	x	x	x	
Red Crossbill				x			
White-winged Crossbill				x			
Common Redpoll					x	x	
Pine Siskin	x		x			x	
American Goldfinch	x		x				x
Evening Grosbeak						x	x
House Sparrow	x		x			x	x
House Finch			x				
Totals 175	61	17	84	131	57	26	16

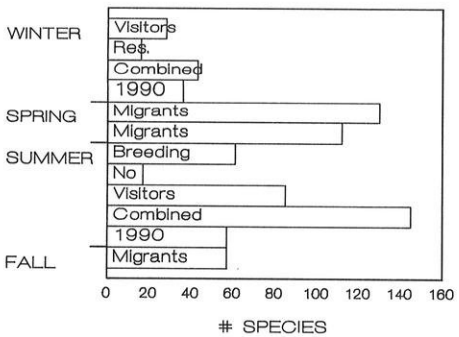


Fig. 3. Avian diversity by season. Cumulative record and 1990 records. No means no longer breeding. 1990 fall migrants not listed.

"progress." The Ruby-throated Hummingbird, another casualty, may have returned recently. Indeed, over the entire savanna community the number of birds, both savanna and riparian, are drastically diminished, except waterfowl and parkland birds. Even the Rock Doves at a nearby railroad are periodically decimated by city programs or opportunistic hunters.

As soon as the ice begins to thaw and the channel in the center of the lake opens up the migrating waterfowl begin to arrive. Early on they are the Common Mergansers and Common Goldeneyes followed by many common migrants and some unusual ones (Gadwalls, American Widgeons, Northern Shovellers). In fields, woods and wetlands, the numbers of migrants, both individuals and species, continue to increase. The peak week in 1990 was 65 species in May. Each week in May, there were at least 50 species observed (Fig. 3).

The number of breeding birds totaled 61 species, but 17 kinds no longer breed in the area because of the

Table 2. The richness of the fauna is associated with several habitats, but urbanization is eradicating some desirable birds.

Habitat	Typical Species
Savannah	American Kestrel[1], Northern Bobwhite[1], Ruffed Grouse[1], Mourning Dove, Ruby-throated Hummingbird[2], Red-headed Woodpecker[1], Downy Woodpecker, Hairy Woodpecker, Northern Flicker, Red-breasted Nuthatch, Eastern Meadowlark[1], Eastern Kingbird, Wood Peewee, Least Flycatcher, Tree Swallow, American Crow, Blue Jay, Black-capped Chickadee, Eastern Bluebird[2], American Robin, Red-winged Blackbird, Brown-headed Cowbird, Common Grackle, American Goldfinch, Vesper Sparrow[1], Field Sparrow[1], Indigo Bunting[1]
Riparian, Marsh, Swamp	Pied-billed Grebe, Double-crested Cormorant, American Bitterns[2], Great Blue Heron, Green-backed Heron[2], Wood Duck, Canada Goose, Cooper's Hawk[2], Belted Kingfisher[2], Cedar Waxwing[2], Common Yellowthroat, Yellow Warbler, Ruby-throated Hummingbird, Red-headed Woodpecker[1], Downy Woodpecker[1], Hairy Woodpecker[1], Northern Flicker, Piliated Woodpecker, Great Crested Flycatcher, White-breasted Nuthatch, Black-capped Chickadee, Eastern Phoebe[2], Tree Swallow, American Crow, Blue Jay, Gray Catbird, Red-Winged Blackbird, Northern Oriole, Common Grackle, Song Sparrow
Lake	Common Loon, Pied-billed Grebe, Ducks, American Coot, Gulls, Terns[2], Great Blue Heron, Canada Goose, Osprey, Bald Eagle, Belted Kingfisher, Swallows
Urban	Mallard, Mute Swan, Mourning Dove, Rock Dove, Blue Jay, House Wren, European Starling, American Robin, Brown Thrasher, Purple Martin, House Sparrow, House Finch

[1]At present, eradicated.
[2]Scarce.

Table 3. Some effects of urbanization on McDill Pond bird species on two adjacent acreages 1986–1990, and before "progress" (1980–1985).

	Annual counts of sightings			
	Unnatural		Natural	
Species	Before progress	After progress	Before progress	After progress
Northern Water Thrush	0	0	3	0
American Redstart	0	0	4	0
Red-headed Woodpecker	1	0	6	0
Pileated Woodpecker	2	0	8	4
Yellow-shafted Flicker	8	0	8	8
Eastern Bluebird	0	0	8	0
Rose-breasted Grosbeak	4	0	10	1
Ruffed Grouse	3	0	2	0
Several thrushes	6	0	6	0
Ruby-throated Hummingbird	6	0	10	2
Belted Kingfisher	10	0	10	2
Cedar Waxwing	20	0	6	2
Indigo Bunting	4	0	2	1
Chipping Sparrow	4	0	6	2
TOTALS	68	0	89	19

effects of urbanization. Bird boxes and nest platforms have been provided to encourage breeding in Osprey, Wood Duck, Purple Martin, House Wren, Tree Swallow, and with little success Eastern Bluebird. Typical breeding birds presently include Mallard, Blue-winged Teal, Northern Cardinal, Downy Woodpecker, White-breasted Nuthatch, Black-capped Chickadee, Gray Catbirds, Brown Thrasher, American Robin, Blue Jay, American Crow, Eastern Kingbird, Mourning Dove, Northern Oriole, Chipping Sparrow, Song Sparrow, and some introduced species (Mute Swan, Rock Dove, House Sparrow, European Starling). Some birds recently eradicated from breeding habitats are the Green-backed Heron, Belted Kingfisher, Bank Swallow, Northern Bobwhite, Ruffed Grouse, Red-headed Woodpecker, Cooper's Hawk, Broad-winged Hawk, Indigo Bunting, Eastern Bluebird, Vesper Sparrow and Field Sparrow.

Owing to the influx of birds migrating southward early (for example, a summer Harris' Sparrow) and probably to dispersal of young-of-the-year as well as to the breeding fauna itself, the cumulative (long-term study) birds seen in summer actually outnumber the spring migrants (Table 1). Occasionally some spring migrants (Pine Siskins) linger into summer. In 1990, some of the summer species present may not have been detected. Trees are leafed out and the birds are more secretive. All these reasons probably account for the difference in summer species in one year (1990) and in the cumulative totals (Table 1, Fig. 3, Fig. 4). The fall migrants are not so numerous as spring or summer frequencies, but the numbers of birds in the flocks are often much greater. The Pond seems a staging area for Common Nighthawks (numbering over a thousand), Canada Geese (thousands in recent years), American Coots (hundreds), swallows, Yellow-rumped War-

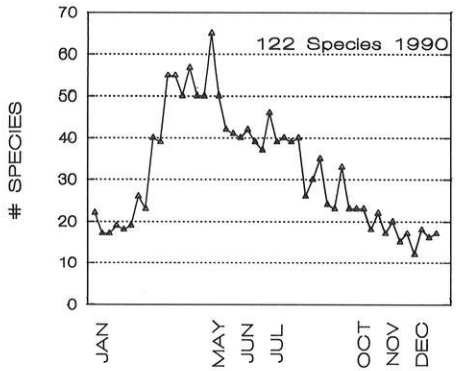


Fig. 4. Weekly surveys of 122 bird species in 1990. The peak is in May and the low is in December. The number of birds in summer may have been more than observed because they are more secretive then and foliage hides them from view.

blers, and others. The number of autumn and winter birds observed per week diminishes until a minimum of 12 observed local species was noted in one week (1990).

Raptors take the stage in autumn although Cooper's Hawks, probably Sharp-shinned Hawks, and Broad-winged Hawks and Osprey have nested regularly. In November, Bald Eagles kill coots and crows almost every year (Long and Long 1987).

Almost 65 percent of the species observed in 16 years were seen in spring and summer. About 35 percent of the total number of birds are waterfowl. Other riparian species include American Crow, various swallows, Red-headed Woodpecker, Northern Yellowthroat, and Song Sparrow, to name a few. Weediness has not discouraged waterfowl, and lowering of the pond has even encouraged such locally rare occurrences as Solitary Sandpipers and Sanderlings.

One way to appraise diversity is to determine the number of species present (Table 1). Another way is to compare residents with visitors and migrants. Another way to appraise local diversity is by Zipf curves, which are log plots describing the proportion between some measure of avian abundance and the rank of that bird's frequency of abundance (Figs. 5, 6). Although it seems obvious that a bird seen often ranks high in sighting frequency, the curve (which, surprisingly, is seldom linear or proportional) illustrates that some faunas are comprised of many birds that are common all the time, and of other birds that enrich the diversity but are seldom seen at all. Another fauna may have fewer birds that are seen often, but many that enrich the diversity by occasional occurrence. This curve tails to the right. In this study the summer fauna was remarkably diverse in the common birds. In winter the rarities slightly outnumbered the common residents. In spring migration, the unusual birds passing through are, of course, quite numerous. A Zipf curve would tail off to the right.

Observed mortality of birds, aside

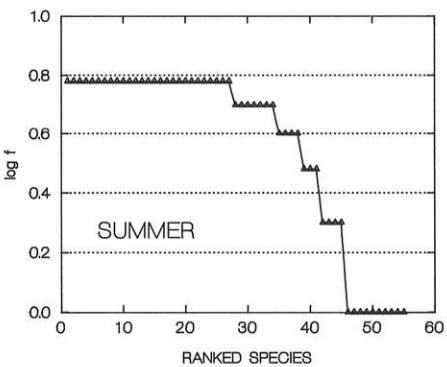


Fig. 5. Zipf curve for summer birds. Many species are ranked high for common occurrence.

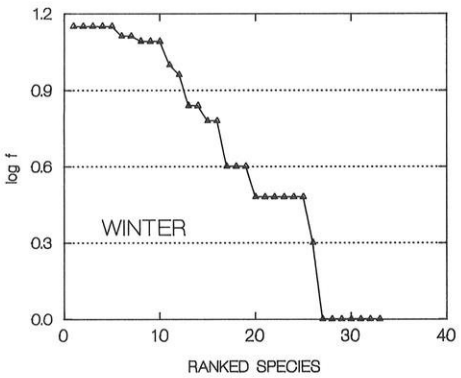


Fig. 6. Zipf curve for winter birds. Not many species are ranked high for weekly occurrence.

from overt destruction of nests and nesting habitat, and destruction of understory and trees, includes predation observed by Cooper's Hawk (Mourning Dove), Sharp-shinned Hawk (warbler), crow, snapping turtle, and mink (Mallard), domestic cat (Indigo Bunting, Eastern Bluebird, Tree Swallow, Dark-eyed Junco), red squirrel and European Starling (Northern Flicker), Common Grackle (young American Robin), Southern flying squirrel (White-breasted Nuthatch), and as mentioned above Bald Eagle (coot and crow). Other problems are Brown-headed Cowbird parasitism (Northern Cardinal), mass destruction of nests by humans (Cliff Swallow, Belted Kingfisher, Bank Swallow, Northern Rough-winged Swallow, Green-backed Heron). Mortality by injury (Great Blue Heron) and striking window panes (many warblers, Mourning Dove, other small birds) was noted.

Discussion

Aside from the land-use effects considered here, there are several historical trends that doubtless influence the local diversity (Zimmerman 1991). After declines caused by DDT in Wisconsin, the Cooper's Hawk, Osprey, and Bald Eagle increased following the 1969 ban. Other birds that have increased include Killdeer, American Crow, American Robin, Common Grackle, Northern Flicker and Eastern Bluebird. Prairie species such as Eastern Meadowlarks, Dickcissel, and Vesper Sparrow declined as a result of unknown reasons. Due to a regional drought ducks recently declined, but their numbers are regulated by hunting harvests controlled by federal and state wildlife agencies. Ring-billed Gull, Double-crested Cormorant and, reportedly, the Common Loon have increased in recent years, whereas the Yellow-breasted Chat is now rare (Zimmerman 1991). Of course, timber operations in Latin America may also affect the numbers of migrants. It is beyond the scope of this study to relate these regional factors to McDill Pond.

The strongest ecological resemblance to other Wisconsin faunas seemingly is to northern forest communities and the lake community, of course depending greatly on migrant species from those northern communities. The McDill Pond fauna along the tension zone has its southern affinity (Red-bellied Woodpecker, etc.) but the northern affinity is greatly expanded by the migrants of northern communities. The boreal assemblage was least represented (Table 4). Prairie species today are poorly represented. In the list of 41 bird species from conifer plantations the only bird we have not seen in this study is the Acadian Flycatcher.

The great importance of the study area, with its rich fauna of birdlife, is as staging and security areas for nu-

Table 4. Ecological Resemblance to other Wisconsin habitats, usually including the nesting species. The McDill Pond fauna showed strongest resemblance to northern mesic forest, and a strong resemblance (including migrant waterfowl) to the lake community. After Hoffman 1989; 1990; Hoffman and Mossman 1990; Mossman et al. 1990; Mossman and Hoffman 1989.

Habitat	Proportion of species found at McDill Pond	Percent resemblance
Northern Mesic Forest	82/86	95
Lake	72/78	92
Northern Pine Forest	58/65	89
Southern Upland Forest	59/68	87
Sedge Marsh	52/68	76
Marsh	27/38	71
Boreal Forest[1]	4/20	20

[1]This small assemblage is probably a select group of birds usually endemic to boreal forest.

merous migrating birds, especially in the spring. A total of 131 species were observed in spring (Table 1), and 110 spring species (Fig. 3, 4) were observed in one year (85 percent of the total spring birds observed). Apparently this particular area is less important for autumn migrants which may overshoot the Pond on their way to more southern destinations, may leave or pass through in late summer, or may migrate southward by a different route. The McDill Pond area seems important to some large flocks of birds staging in autumn for the southward migration. The entire migration flyway is very important to avian diversity, so that alternate places to rest and feed are always available to the streams of birdlife wending their way south in autumn or north in spring borne on the turbulent winds of fate and weather.

After 1853, the avifauna doubtless was enriched by impoundment with the addition of waterfowl and riparian species. Recent land development has diminished the avian diversity severely, except for waterfowl, parkland species, possibly migrants, and many visitors. Grassy and shrubby openings have few residents now. Rich avifauna along migration routes and in urban areas is well worth preserving. If every homeowner living on McDill Pond left or replanted a small copse of trees, and especially understory along the shore, these diversified and natural habitats comprising a "green belt" for the birds would go a long way toward protecting and attracting avian diversity. The homes and lawns might even look better for it, landscaped more harmoniously with the nature of scenic lakeshore property.

As Randy Hoffman (personal correspondence) puts it in his appreciated review of this manuscript, citizens must be responsible for our local environment. "We can't change events in the tropics or the prairie potholes to a large extent, but we surely can change [improve or preserve] our local environments." Continuous (understory) habitat around the pond and connecting savanna and lakes, while maintaining as much ecological diversity as possible, will be necessary to maintain a diversity of birds. If natural habitats are destroyed, some large fractions of diversity will entirely vanish.

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Survey of the Birds of the Northern Kettle Moraine Region

The avifauna of the Northern Unit of the Kettle Moraine State Forest and surrounding sites was surveyed over the past 15 years (1977 through 1990). More than 1,400 field days included random daily observations, survey routes, winter counts, breeding birds surveys and bird banding data from 1982 to 1991. In all, 238 bird species were recorded. An annotated checklist has been developed for the area with notes on average spring arrival date, nesting status, distribution and changes in population size that have occurred over the survey period.

by William K. Volkert

No accurate or complete list of the birds of the Northern Kettle Moraine has been produced to date. The area is the most extensive block of forest in southeastern Wisconsin, and outside of the Baraboo Hills the largest in the southern part of the state. It remains vital to a large proportion of nesting birds in that region of Wisconsin, especially to forest-interior species.

The Kettle Moraine State Forest consists of 27,768 acres, stretching from south of Kewaskum north to Glenbulah (Figure 1). It is an interlobate, morainic complex of parallel glacial moraines (Alden 1924, Black 1974) with kames, eskers, kettles, inwash and outwash plains, and of generally rolling to hilly landscape. The land patterns provide the basis for a variety of plant communities, including southern forest, cultivated lands, old fields, prairie remnants, bogs and a variety of other wetland communities. This in turn provides a variety of wildlife habitats and is a nesting area for birds both at the northern and southern edges of their breeding ranges in Wisconsin.

Methods

The birds of the Northern Kettle Moraine were censused through surveys and observations with daily checklists kept for much of the past 15 years. These were conducted as breed-

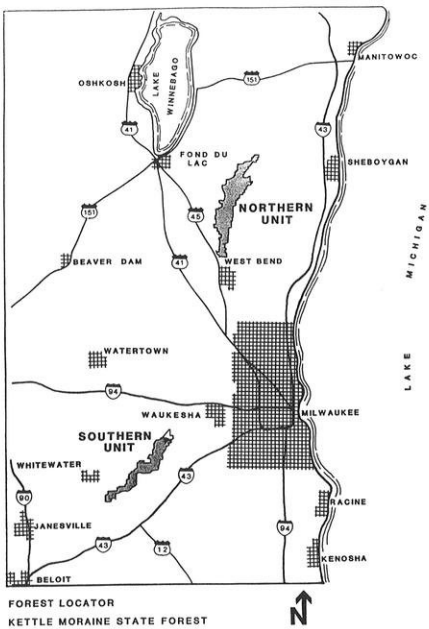

Figure 1. Location of the Northern Kettle Moraine.

ing bird surveys in both State Natural Areas and at Jersey Flats (DNR 1990; Volkert, in press), winter bird surveys, Christmas Bird Counts, spring migration surveys, "May Day" counts, and random bird-watching activities throughout the year. Summer records of nesting species were kept daily in 1983 and 1984 in association with a habitat inventory of the entire state forest. Bird-banding records provided additional information on the occurrence and status of particular species. From 1982 through 1990, more than 4,000 birds of 85 species were captured in the area.

The observation records came from random birding activities conducted in favored areas and in a variety of sites throughout the area. Since the records were not gathered through systematic field work throughout the forest or throughout the year, there are some biases in the data. The data were subject to my personal interpretations, reflecting not the population size of all species, but rather their likelihood of being observed in the area for any particular week throughout the year. Graphs were produced to reflect the relative abundance of each species for each week of the year. Sight records were divided into four weeks for each month. Data will be published in a separate publication on the birds of the area (Volkert, in preparation).

Results and Discussion

The following checklist and relative seasonal abundance is a brief summary of information on birds of the Northern Kettle Moraine. The seasons are represented as follows: Sp (spring, March 1 to May 30); Su (summer, June 1 to Aug. 30); F (fall, Sept. 1 to Oct. 30); W (winter, Nov. 1 to Feb. 28).

The frequency of occurrence, for each species observed in each week in the area, can be an indicator of relative abundance (Temple and Cary 1987). For each bird species, this was determined from the observational data. For each week of the year sightings were catalogued for the 15-year period. The abundance codes given in Table 1 indicate how often, on average, each species was sighted for each week, during the 15-year period, for the seasons listed above.

The 15-year survey produced records for 238 species of birds known to occur in the area. Several southern species were found near the northern edge of their range during the breeding season, while several northern species were found near the southern

Table 1. Birds of the Northern Kettle Moraine

Species	Abundance[1] in Indicated Season: Sp	Su	F	W
Common Loon	c	r	u	
Pied-billed Grebe	c	u	c	
Horned Grebe	u		r	
Double-crested Cormorant	r		u	
American Bittern	r			
Least Bittern		vr		
Great Blue Heron	c	u	c	r
Great Egret	r	r		
Little Blue Heron	vr			
Green-backed Heron	c	c	u	
Black-crowned Night-Heron	r		r	
Glossy Ibis	vr			
Tundra Swan	c		c	
Mute Swan	vr		vr	
Snow Goose	r		r	
Canada Goose	a	u	a	
Wood Duck	c	c	c	
Green-winged Teal	r		r	
American Black Duck	u		r	vr
Mallard	c	u	u	
Northern Pintail	u			
Blue-winged Teal	c	u	u	
Cinnamon Teal			vr	
Northern Shoveler	u		r	
Gadwall	r		r	
American Wigeon	u		r	
Canvasback	u		r	
Redhead	u		r	
Ring-necked Duck	c	vr	c	
Lesser Scaup	c		c	
Greater Scaup	vr			
Black Scoter	vr			
Surf Scoter	vr			
Common Goldeneye	c		u	
Bufflehead	u		vr	
Hooded Merganser	u	r	u	
Common Merganser	u			
Red-breasted Merganser	u		r	
Ruddy Duck	u		r	
Turkey Vulture	c	c	c	
Osprey	u	r	u	vr
Bald Eagle	r		r	vr
Northern Harrier	u	u	u	r
Sharp-shinned Hawk	u	u	u	u
Cooper's Hawk	u	u	u	u
Goshawk	r			u
Red-shouldered Hawk	c	c	c	
Broad-winged Hawk	u	r	c	
Red-tailed Hawk	c	c	c	c
Rough-legged Hawk	r			u
American Kestrel	u	u	u	u
Merlin	vr			vr
Peregrine Falcon	r		vr	

continued

Table 1. (*Continued*)

Species	Abundance[1] in Indicated Season: Sp	Su	F	W
Gyrfalcon	vr			
Gray Partridge	r	r	r	r
Ring-necked Pheasant	u	u	u	u
Ruffed Grouse	u	u	u	u
Wild Turkey	u	u	u	u
Northern Bobwhite			vr	
King Rail	vr			
Virginia Rail	u	u	r	vr
Sora Rail	u	u	r	
American Coot	u		u	
Sandhill Crane	c	u	u	
Semi-palmated Plover			vr	
Killdeer	c	c	c	
Greater Yellowlegs	u		u	
Lesser Yellowlegs	u		u	
Solitary Sandpiper	u		r	
Willet	vr			
Spotted Sandpiper	u	u	r	
Ruddy Turnstone	vr			
Semi-palmated Sandpiper	r		r	
Least Sandpiper	r		r	
Baird's Sandpiper	vr			
Pectoral Sandpiper	r		r	
Stilt Sandpiper	vr			
Short-billed Dowitcher	vr			
Common Snipe	c	r	u	
American Woodcock	c	u	u	
Bonaparte's Gull	r		r	
Ring-billed Gull	c	u	c	r
Herring Gull	u		u	r
Forster's Tern	r	vr		
Caspian Tern	vr			
Black Tern	u	r		
Rock Dove	u	u	u	u
Mourning Dove	c	c	c	c
Black-billed Cuckoo	u	u		
Yellow-billed Cuckoo	r	r		
Eastern Screech-Owl	r	r	r	r
Great Horned Owl	c	u	u	u
Barred Owl	c	u	u	u
Long-eared Owl	r	r	r	r
Short-eared Owl	vr			vr
Northern Saw-whet Owl	vr			vr
Common Nighthawk	c	u	c	
Whip-poor-will	u	u	r	
Chimney Swift	u	u	r	
Ruby-throated Hummingbird	u	u	r	
Belted Kingfisher	c	c	u	r
Red-headed Woodpecker	u	u	u	
Red-bellied Woodpecker	c	c	c	c
Yellow-bellied Sapsucker	u		u	
Downy Woodpecker	c	c	c	c
Hairy Woodpecker	c	c	c	c

continued

Table 1. (*Continued*)

Species	Abundance[1] in Indicated Season: Sp	Su	F	W
Northern Flicker	c	c	c	c
Pileated Woodpecker	u	u	u	u
Olive-sided Flycatcher	u		r	
Eastern Wood Pewee	c	c	u	
Yellow-bellied Flycatcher	r			
Acadian Flycatcher	u	u		
Alder Flycatcher	u	u		
Willow Flycatcher	u	u		
Least Flycatcher	c	u		
Eastern Phoebe	c	u		
Great-crested Flycatcher	c	c		
Eastern Kingbird	u	u		
Horned Lark	u	r	r	r
Purple Martin	c	u		
Tree Swallow	a	c	a	
Northern Rough-winged Swallow	u	u	u	
Bank Swallow	u	u	u	
Cliff Swallow	r	r		
Barn Swallow	c	c	c	
Blue Jay	c	c	c	c
American Crow	c	c	c	c
Black-capped Chickadee	a	a	a	a
Red-breasted Nuthatch	c	r	c	u
White-breasted Nuthatch	c	c	c	c
Brown Creeper	u	vr	u	r
House Wren	c	c	c	
Winter Wren	u	vr	u	vr
Sedge Wren	u	u		
Marsh Wren	r	r		
Golden-crowned Kinglet	c		c	u
Ruby-crowned Kinglet	c		c	
Blue-gray Gnatcatcher	u	u	u	
Eastern Bluebird	u	u	u	
Veery	u	u		
Gray-cheeked Thrush	u		r	
Swainson's Thrush	u		r	
Hermit Thrush	u		r	
Wood Thrush	u	u	u	
American Robin	a	a	a	r
Varied Thrush				vr
Gray Catbird	c	c	c	
Northern Mockingbird	vr	vr		
Brown Thrasher	u	u	u	
Water Pipit	vr			
Bohemian Waxwing				r
Cedar Waxwing	c	c	c	r
Northern Shrike				u
European Starling	u	u	u	u
White-eyed Vireo		vr		
Bell's Vireo		vr		
Solitary Vireo	u		vr	
Yellow-throated Vireo	c	u	u	
Warbling Vireo	u	u	r	

continued

Table 1. (*Continued*)

Species	Abundance[1] in Indicated Season: Sp	Su	F	W
Philadelphia Vireo	r		vr	
Red-eyed Vireo	c	c	c	
Blue-winged Warbler	u	u		
Golden-winged Warbler	u	r		
Tennessee Warbler	c		u	
Orange-crowned Warbler	u		r	
Nashville Warbler	c	vr	u	
Northern Parula	r		vr	
Yellow Warbler	c	c		
Chestnut-sided Warbler	c	r		
Magnolia Warbler	c		u	
Cape May Warbler	u		r	
Black-throated Blue Warbler	r			
Yellow-rumped Warbler	a		a	
Black-throated Green Warbler	c	vr	u	
Blackburnian Warbler	u		r	
Pine Warbler	vr		r	
Prairie Warbler	vr			
Palm Warbler	c		u	
Bay-breasted Warbler	u		vr	
Blackpoll Warbler	u		r	
Cerulean Warbler	u	u		
Black-and-White Warbler	c	r	u	
American Redstart	c	u	u	
Prothonotary Warbler	vr			
Ovenbird	c	c	u	
Northern Waterthrush	c	u	r	
Louisiana Waterthrush	u	r		
Kentucky Warbler	vr		vr	
Connecticut Warbler	r		vr	
Mourning Warbler	u	u		
Common Yellowthroat	c	u	u	
Hooded Warbler	r	r		
Wilson's Warbler	u			
Canada Warbler	u	vr		
Scarlet Tanager	u	u		
Northern Cardinal	c	c	c	c
Rose-breasted Grosbeak	c	u		
Blue Grosbeak	vr			
Indigo Bunting	c	c	u	
Dickcissel	r	r		
Rufous-sided Towhee	c	u	u	
American Tree Sparrow				c
Chipping Sparrow	c	c	u	
Clay-colored Sparrow	vr	vr		
Field Sparrow	c	c	u	vr
Vesper Sparrow	u	u	r	
Lark Bunting	vr			
Savannah Sparrow	u	u	r	
Grasshopper Sparrow	r	r		
Henslow's Sparrow	r	r		
Fox Sparrow	c		u	
Song Sparrow	c	c	c	r

continued

Table 1. (*Continued*)

Species	Abundance[1] in Indicated Season: Sp	Su	F	W
Lincoln's Sparrow	r		r	
Swamp Sparrow	u	u	u	
White-throated Sparrow	c	r	c	
White-crowned Sparrow	u		r	
Dark-eyed Junco	r		u	a
Lapland Longspur				vr
Snow Bunting				vr
Bobolink	u	u		
Red-winged Blackbird	a	c	a	r
Eastern Meadowlark	u	u	u	
Western Meadowlark	vr			vr
Yellow-headed Blackbird	vr			
Rusty Blackbird	c		c	vr
Brewer's Blackbird	r		r	
Common Grackle	a	c	a	r
Brown-headed Cowbird	c	u	u	r
Northern Oriole	c	u		
Pine Grosbeak				r
Purple Finch	u	vr	u	c
House Finch	r	r	r	r
Red Crossbill	r			u
White-winged Crossbill				r
Common Redpoll				r
Pine Siskin	r		r	u
American Goldfinch	c	c	c	c
Evening Grosbeak	r			u
House Sparrow	u	u	u	u

[1]A = abundant, sighted commonly in large numbers; C = common, sighted more than 5 times; U = uncommon, sighted 3 to 5 times; R = rare, sighted 2 to 5 times; VR = very rare, 3 or less total records.

edge of their range during summer months. These include the following:

Southern Species
Blue-gray Gnatcatcher
Northern Mockingbird
White-eyed Vireo
Bell's Vireo
Cerulean Warbler
Louisiana Waterthrush
Kentucky Warbler
Hooded Warbler
Blue Grosbeak
Dickcissel

Northern Species
Ring-necked Duck
Hooded Merganser
Red-breasted Nuthatch
Brown Creeper
Winter Wren
Nashville Warbler
Chestnut-sided Warbler
Black-throated Green Warbler
Mourning Warbler
Canada Warbler
White-throated Sparrow

The forest provides essential habitat for several State listed endangered and threatened species. These include: Great Egret, Peregrine Falcon, Osprey, Bald Eagle, Red-shouldered Hawk, Forster's Tern, Acadian Flycatcher, Cerulean Warbler, and Hooded Warbler.

A number of species listed as special concern (watch status) also nest in the area. These include: Northern Harrier, Cooper's Hawk, Black Tern, Eastern Bluebird, Yellow-throated Vireo, Black-and-White Warbler, Field Sparrow, Savannah Sparrow, Vesper Sparrow, Grasshopper Sparrow, Henslow's Sparrow, Bobolink, and Dickcissel.

Also, interior forest habitat, in a portion of the state that was at one time dominated by forest cover and has been severely fragmented throughout the region, is available in this large tract. Bird species commonly cited as dependant on this habitat include: Red-shouldered Hawk, Pileated Woodpecker, Acadian Flycatcher, Wood Thrush, American Redstart, Cerulean Warbler, and Hooded Warbler.

Grassland species of special concern occur in certain areas of suitable habitat, particularly Jersey Flats Prairie Development Project=ma prairie planting project (Volkert, in preparation). These are: Northern Harrier, Bobolink, Grasshopper Sparrow, Dickcissel, Henslow's Sparrow, Field Sparrow, and Savannah Sparrow.

Several rare species have been sighted in the Northern Kettle Moraine area which are uncommon statewide or in this part of the state. These include: Little Blue Heron, Least Bittern, Glossy Ibis, Surf Scoter, Black Scoters, Cinnamon Teal, Gyrfalcon, King Rail, Willet, Caspian Tern, Varied Thrush, Water Pipit, Northern Mockingbird, White-eyed Vireo, Bell's Vireo, Yellow-headed Blackbird, Lark Bunting, and Blue Grosbeak.

Finally, there are several species of birds that would be expected to have occurred in the study area but have not yet been recorded. These are species that should be watched for in the future: Summer Tanager, Orchard Oriole, Worm-eating Warbler, Yellow-breasted Chat, and Harris' Sparrow.

Biases in the Data

As indicated above, the frequency of occurrence can be an indicator of the relative abundance of a species. However, since these records were compiled primarily from field observations there is a bias; some birds appear to be less common in summer and fall migration than in spring. This is a period when birds are concealed by dense foliage compared to early spring. Yet, populations are at their annual peak following nesting. Also, nocturnal birds appear to be rare to uncommon in comparison to other species. They may also seem more abundant in late winter and early spring when vocalizations increase, making them easier to locate.

Conclusion

The Northern Kettle Moraine State Forest provides significant habitat for a tremendous variety of birds. The 238 species recorded so far indicate the importance of the forest to a large portion of Wisconsin's bird species, including several rare, threatened and endangered species. It is also unique in providing nesting habitat for both northern and southern species at the edges of their ranges.

The future quantity and quality of the available habitat in this area is influenced by human activities in the State Forest and by land-use on the surrounding private lands. Comprehensive land-use planning in and around the state forest would be ideal. We should recognize the important

wildlife habitat available in the area at present, which is reflected in the variety of birds. It will be essential to balance the needs of wildlife with the demands from recreationists and the general public who use the area in a multitude of ways, particularly during the summer nesting season.

Acknowledgements

I would like to thank Bill Wheeler, WDNR Bureau of Research and Jeff Baughman for reviewing the manuscript and providing valuable comments on earlier drafts.

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"Fishing" *by Cary Hunkel*

Most Frequently Asked Questions About Birds

by Scott R. Craven

Several years ago, Noel Cutwright and Bill Volkert compiled a list of the most frequently asked questions about birds from their experience with WS0 exhibits and presentations. The list of questions precipitated the "At Home with Birds" series over the past 5 years. I have been able to address most of the major questions, but there are many others. This final "At Home with Birds" contains the entire original list of questions and an answer or reference for each one. However, new questions and variations of common ones will always arise. If you need information beyond the references I am about to suggest, you can always reach me at the University of Wisconsin-Madison in the Department of Wildlife Ecology.

The questions are grouped under "bird feeding," "birdhouses," and "general" and are not presented in any particular order.

Bird Feeding

Which kind of sunflower seed is best?—The small, black, "oil-type" sunflower seed has almost completely displaced the traditional large striped sunflower seed in the bird feeding marketplace. The small black seeds are readily available, inexpensive, and preferred by more bird species than the striped seeds. Also, the black oil seeds are 70% kernel, by weight, vs. 57% for striped seeds, and they have a higher fat content and thus greater food value.

What kind of feeder should I use?—Not too many years ago, feeders were primarily variations of wooden shelf or hopper feeders. Today, there are dozens of shapes and sizes of feeders and a wide variation in price and quality. Use a feeder that meets your needs! One basic "house"-style wooden feeder is all anyone needs to get started. Additional feeders can be used to feed specific foods (e.g., a small seed port tube feeder for thistle seed), combat pests (e.g., a squirrel-proof feeder), or add variety or interest to your feeding station (e.g., a hanging satellite feeder, fruit or nectar feeder, or suet bag). In general, all feeders will be used by birds. Better quality feeders (usually higher priced) will give years

of service. Some feeders may simply be attractive to you or offer other attributes such as large seed capacity, easy to fill, armored ports to deter pests, or easy to clean.

Most basic questions about bird feeding are covered in detail in *Bird Feeding—Tips for Beginners and Veterans,* University of Wisconsin Extension publication G3176, available from your County Extension Office.

What should I feed to attract certain birds?—The food preferences of various birds were studied by Alred Geis of the U.S. Fish and Wildlife Service in the 1970s. His report *Relative Attractiveness of Different Foods at Wild Bird Feeders* is still the primary reference on the subject. A short version of his findings is given in Table 1.

My neighbors have birds at their feeders. Why don't I?—As with many things, patience is a virtue. It may take time to attract birds in a neighborhood with many active feeders. A few troubleshooting ideas:

- Consider feeder placement. Is it visible? Is it near a disturbance?
- Consider foods being offered. Perhaps the neighbors are using a preferred seed rather than a "bargain" mix.
- Is there a dog, cat, or some other threat present?
- Is your feeder clean?
- Is the timing good? During mild, snow-free winters birds may be difficult to attract to any feeder.

Do I need to put out water?—No, but it is an additional attraction that may mean a few more birds or a new species or two. Water is a critical habitat component, but it is not usually in short supply in Wisconsin.

How do I get rid of English (House) Sparrows?—It's not easy! Variations in the food provided or the feeders used may help. Habitat modification, such as eliminating sparrow nesting sites, may also help. In some cases, lethal control by trapping or shooting may be warranted. At my feeders, House Sparrows have been displaced by

Table 1. Food preferences of common birds.

Species	Preferred foods
American Goldfinch	thistle seeds, hulled sunflower seeds
Blue Jay	whole peanut kernels, large striped sunflower seeds
Northern Cardinal	oil-type sunflower seeds, large striped sunflower seeds, safflower seeds
Black-capped Chickadee	oil-type sunflower seeds, large striped sunflower seeds, hulled sunflower seeds
Dark-eyed Junco	red and white proso millet, canary seeds, fine cracked corn
Common Grackle	hulled sunflower seeds, cracked corn
Evening Grosbeak	oil-type sunflower seeds, large striped sunflower seeds
House Sparrow	white proso millet, most small seeds
Mourning Dove	oil-type sunflower seeds, white and red proso millet
Purple Finch	oil-type sunflower seeds, large sunflower seeds, millets
Song Sparrow	white proso millet, red proso millet
European Starling	peanut hearts and hulled oats, table scraps
Tree Sparrow	red proso millet, white proso millet, fine cracked corn
Tufted Titmouse	peanut kernels, all types of sunflower
White-crowned Sparrow	oil-type sunflower, white proso millet
Woodpeckers	suet

House Finches, a change that so far seems to be for the better. Please refer to "Uninvited Guests at the Feeding Station," (*Passenger Pigeon* 50:339–342).

How do I keep squirrels from eating me out of house and home?—Squirrels are even more difficult to deal with than sparrows. Detailed advise can be found in the UWEX Bird Feeding bulletin, the *Passenger Pigeon* article on Uninvited Guests . . . and University Extension Bulletin G3523, *Tree Squirrels in Wisconsin: Benefits and Problems.*" "Outwitting Squirrels" by William Adler (Chicago Review Press) is very entertaining reading.

What can I plant around my house to attract birds?—Numerous annuals, perennials, trees and shrubs that provide food or shelter, or both, can be incorporated into your home landscape design. Gardening for wildlife has become very popular and there are excellent reference materials available. I suggest "Improving Backyard Habitat for Birds" in the *Passenger Pigeon* 50:53- 59, and University of Wisconsin Extension Bulletin G1609, *Landscape Plants That Attract Birds.* These references will suggest others such as the National Wildlife Federation's *Gardening with Wildlife Program* and Minnesota DNR's *Landscaping for Wildlife.*

When should I start feeding and when should I stop? Should I feed all year?—The standard bird feeding season was always fall (September–October) through spring (late April–early May). However, more and more people are feeding all year. Since the most common motivation for feeding is to have birds around to see and enjoy, there is no reason why you cannot feed all year if you recognize the additional risk of disease transmission at a feeder during warm summer weather. Feeder sanitation is always important, but is especially so during the summer. Summer feeding will allow you to see juveniles of many species as well as some different species and bird behaviors.

How can I attract hummingbirds?—There are two basic strategies for attracting Ruby-throated Hummingbirds, and both relate to providing food, either directly in nectar (sugar water) feeders or indirectly in the form of many attractive flowering plants. In general, nectar feeders are readily available and easy to use with an excellent chance of success. Powdered "nectar" mixes are available, but expensive. Most feeders use a 4:1 (water to sugar) solution and add red food coloring. The red color is not essential, as most feeders include red plastic components. Although red flowers with a tubular shape are often recommended and are attractive, hummingbirds visit flowers of many shapes and colors. Some popular choices include bee balm, cardinal flower, morning glory, trumpet creeper vine, scarlet runner bean, and petunias. There are many wonderful references on hummingbirds, including *Passenger Pigeon* 50:139–142.

How should I deal with predators around my feeders?—Please refer to "Predation and the Backyard Birds," (*Passenger Pigeon* 53:331–334).

What is thistle seed?—The name thistle conjures up an image of a large, prickly plant with a weedy growth habit and a lovely purple flower. The thistle

seeds used by bird feeders are not related at all to our common weedy thistles. Thus, there is no grounds for concern over the spread of noxious weeds via bird feeders. Thistle seeds (often called *Niger* thistle) actually come from a flower head similar to a daisy. Niger thistle plants are native to Africa and Asia. Our supplies are all imported, which is part of the reason for thistles' high cost relative to other seeds. It can germinate in Wisconsin's climate but the growing season may not be long enough for it to flower.

Last year I had lots of birds and this year very few; why?—The abundance and species diversity of birds at a feeder varies with many factors. Although many bird feeding enthusiasts fear some environmental catastrophe when birds fail to show up, this is rarely the case. Most often, weather patterns are to blame for the presence (or absence) of birds at the feeder. Cold, snowy winters tend to drive birds to feeders whereas mild, relatively snow-free winters allow birds more opportunity to forage on their own. Weather well to the north may be very different from what you observe at your feeder. This may keep typical "northern" species like Pine Siskins, Common Redpolls, crossbills, or Evening Grosbeaks from moving into southern Wisconsin in significant numbers.

Besides weather, the quality of the seeds you offer, the activity of other feeders nearby, the presence of predators, or the regularity with which you fill your feeders, may affect visitation rates.

Birdhouses

How can I attract Purple Martins to my martin house?—There are no guarantees for the establishment of a martin colony. After all, as more and more people erect martin houses, there might not be enough martins to go around! To maximize your chances be sure to consider the following:

- Have your martin house in place in time for the arrival of the first martin "scouts" in the spring (varies with location but usually April).
- Use a commercial martin house or one built to proper specifications.
- Place it properly; 12–15′ high, a little higher near buildings, or in an open area at least 30′ from trees, but near shrubbery, water or utility wires if possible.
- Keep competitors (House Sparrows, European Starlings, etc.) out of the house.

Which birds will use nest boxes?—Most nest boxes are built to specifications for Eastern Bluebirds, Purple Martins, House Wrens, Tree Swallows, American Kestrels, Eastern Screech-Owls, Wood Ducks, Black-capped Chickadees, and White-breasted Nuthatches. Robins and Eastern Phoebes will use an open platform. And don't forget mammal houses for bats and squirrels.

What size should a birdhouse and the hole in it be?—The answer to this question varies with the species of bird you wish to attract. Proper dimensions are critical to your success in attracting the birds and the birds' success in raising young. For details refer to University of Wisconsin- Extension Bulletin NCR-338, *Shelves, Houses and Feeders for Birds and Mammals,* and "Building Houses and Feeders for Backyard Birds," (*Passenger Pigeon* 52:169–174).

Where should I put my birdhouses?—As with building specifications, proper

placement is critical. Placement recommendations are provided for each house design in UWEX Bulletin NCR 338.

What should I look for when I buy or build a birdhouse?—Here are a few tips:

- If building, start with good plans specific to the species you intend to attract.
- Use or buy quality materials. Avoid treated lumber.
- Artistic designs or elaborate decoration may look nice to you, but mean little to the prospective occupants.
- Make sure drainage holes, predator guards, perches, and other features are present if necessary.
- Construction guidelines are presented in UWEX NCR 338.

General

Which are the best bird books for Wisconsin?—With the following books you have all the information on Wisconsin birds you will need!

- *Wisconsin Birdlife* by Samuel D. Robbins, Jr. (University of Wisconsin Press).
- *Wisconsin Birds: A Seasonal and Geographical Guide* by Stanley A. Temple and John R. Cary (University of Wisconsin Press).

Why don't I see [xxx] any more? I used to see them all the time!—The presence or absence of a given animal—bird or mammal—is influenced by many factors as we have already discussed for weather. In some cases, populations of certain birds have actually declined—e.g., grassland species, some so-called neotropical migrants, and even a few larger species like the Ring-necked Pheasant. Land use also affects animals. Development, timber harvest, or farm practices change habitat and hence change the bird communities present in a given area. It's quite possible that your observations do reflect real changes in a bird's distribution or abundance. However, changes go in both directions. Species like the House Finch have become common in areas where they were not found only a few years ago. For more details refer to "Your Backyard as a Barometer of Bird Populations," *Passenger Pigeon* 53:164–168.

How can I keep birds from crashing into my windows?—Birds perceive large windows with reflected sky or vegetation or a clear line of sight to windows on the other side of the house as suitable flight paths. Unfortunately, the glass is unforgiving and bird mortality or injury is common. To prevent the problem, pull blinds or drapes during vulnerable periods. A dark silhouette of a flying raptor taped to the window may also help. Pre-made silhouettes are sold at many nature centers or you can simply cut one out of dark construction paper. If these methods fail, a large sheet of plastic bird netting can be suspended outside of, and a few inches away from, the window. The netting is durable, surprisingly unobtrusive, and available at most garden centers.

Why does my (cardinal, robin, etc.) keep flying into and pecking at my window? How can I stop this behavior?—Regular attacking of windows is almost always a spring and early summer behavior associated with the nesting season. American Robins are the most frequent offenders, but I've had calls about Northern Cardinals, Northern Orioles, and even a Red-winged Blackbird. The explanation is rather simple;

the male bird sees his reflection in the window and perceives it as another male intruding in his territory. This elicits an attack and when the intruder seems to be "hanging around," repeated attacks. It can be very disturbing and may result in injury to the frustrated male bird and a mess on the window. One option is to tolerate the nuisance until the relatively short nesting period is over. If you are not inclined to tolerance, try the following:

- Cover the window or soap it to eliminate the reflection.
- Try a hawk or owl silhouette in the window.
- Cover the window with bird netting as described in the previous question.

Why are woodpeckers drumming on my house? How can I stop it?—Woodpecker damage can be very serious on various wood siding materials. The damage is usually associated with food seeking behavior (insects) but may also involve nesting or roosting chambers or simply territorial display. Regardless of the cause, it can be disturbing, costly, and extremely frustrating to deal with. I suggest reference to University of Wisconsin-Extension Bulletin G 3117, *Controlling Woodpecker Damage.* As noted earlier, these bulletins are available from you County UW Extension office.

What should I do with a baby bird?—For a very young nestling, return it to the nest if at all possible. Human scent will NOT cause the young bird to be rejected. For a well-feathered nestling at or near fledging, leave it alone! It probably left the nest on its own and, although it may not seem like it, the parents have the situation under control. It is usually best not to interfere unless a cat, traffic, humans or other threat puts the young bird in immediate danger. An attempt to raise a young bird is difficult, ill-advised, and illegal without necessary training and permits. If human care is necessary, seek out the help of a licensed rehabilitator (check with a local DNR office or nature center).

Good luck with your backyard birding!

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The Fall Season: 1991

by Mark S. Peterson

What began as a more or less typical fall season ended on a very memorable last month of the season, especially for those in the northwestern corner of the state. August, September, and October were mostly uneventful although several observers complained of too much rain. Frost and freezing temperature on September 18th and 19th also brought the first measurable snowfall in the northwestern part of the state. The first measurable snow in the southern part of the state occurred on October 18th. Noticeable warbler waves occurred with 20 species in Shawano County on August 15th and 20th, 22 species in Portage County on August 30th, 16 species on Picnic Point in Madison on September 14th, and a large warbler movement in Barron County on September 15th.

Winter arrived on Halloween in the northwestern part of the state and in the rest of the state 1–2 days later. By the time the snow stopped falling on November 2nd, 20–40″ of snow had fallen in Bayfield, Burnett, Douglas, and Polk Counties. Record lows as cold as −10° in Baldwin were recorded on the 7th and 8th. After a brief warmup and return to fall in the middle of the month, winter returned on the 23rd for the northwestern [bu23] of the state and stayed for the remainder of the fall season. An incredible 91″ of snow was reported in November at Pattison State Park and the Brule DNR station.

290 species were found during the fall season of 1991 by 76 observers. Rarities were seen frequently during the season by many observers, but most of these did not stay for more than a day or two. As the newest member of the Records Committee, I have the added chore of deciding which of those records that must be documented are to be accepted as valid records. Perhaps the most difficult are those where less than a handful of descriptive points are mentioned. With some species, this may be ample information to accept a record. In others, this may narrow it down to 2 or 3 species, but without further documentation, the record may have to be rejected. When a call or song is heard, what was heard must be described in as much detail as possible. A statement

of "I heard it calling for over an hour" or "I have heard its call many times before" is not enough to accept a record. Even if an observer knows for sure what the identity of a bird is, write down as much detail as possible so that we on the Records Committee know for sure also.

Rarities observed during the fall of 1991 included: Eared Grebes in Green Lake, Milwaukee, Ozaukee, and Sauk Counties, American White Pelicans in Trempealeau, and Vernon Counties, Snowy Egrets in Brown, Dodge, and Oconto Counties, Trumpeter Swans in Bayfield, Eau Claire, Marathon, Polk, and St. Croix Counties, Greater White-fronted Geese in Dane County, Brant in Racine County, Harlequin Ducks in Manitowoc and Sheboygan Counties, Golden Eagles in Monroe, Ozaukee, Price, and Sheboygan Counties, a Yellow Rail in Milwaukee County, a King Rail in Shawano County, a Black-necked Stilt in Milwaukee County, American Avocets in Manitowoc and Milwaukee Counties, Whimbrels in Milwaukee County, Western Sandpipers in Manitowoc, Milwaukee, and Sheboygan Counties, Purple Sandpipers in Racine and Sheboygan Counties, Buff-breasted Sandpipers in Bayfield, Dane, Douglas, Milwaukee, Portage, Racine, and St. Croix Counties. Red-necked Phalaropes in Dane and Dodge Counties, a Red Phalarope in Racine County, Parasitic Jaegers in Ozaukee County, Laughing Gulls in Milwaukee County, Little Gulls in Manitowoc and Milwaukee Counties, a California Gull in Sheboygan County, an Iceland Gull in Columbia and Sauk Counties, Great Black-backed Gulls in Door and Milwaukee Counties, Black-legged Kittiwakes in Milwaukee County, a Sabine's Gull in Douglas County, an Ivory Gull in Milwaukee County, a Common Barn-Owl in Bayfield County, Northern Hawk-owls in Douglas and Iron Counties, Black-backed Woodpeckers in Bayfield, Douglas, and Vilas Counties, Carolina Wrens in Crawford, Dane, Milwaukee, Ozaukee, Portage, Richland, and Sauk Counties, a Townsend's Solitaire in Sheboygan County, a Varied Thrush in Columbia County, Loggerhead Shrikes in Oconto County, Sharp-tailed Sparrows in Marinette and Milwaukee Counties, and Harris' Sparrows in Ashland, Bayfield, Douglas, Milwaukee, Shawano, and Taylor Counties.

Reports (August 1–November 30, 1991)

Red-throated Loon.—Reported by Ziebell in Winnebago County on November 9.

Common Loon.—Found at the beginning of the period south to Juneau and Monroe Counties. The Sheas found 59 in Dane County on November 10. Reported at the end of the period in Dane County by Ashman, Burcar, and Cederstrom.

Pied-billed Grebe.—Found in scattered areas of the state at the beginning of the period. Hoefler found 80 in Burnett County on September 21. Reported at the end of the period in Dane, Green Lake, and Marinette Counties.

Horned Grebe.—First reported by Sontag in Manitowoc County on September 18. Verch found 306 in Ashland and Bayfield Counties on October 8. Last reported by Hansen in Dane County on November 30.

Red-necked Grebe.—Found at the beginning of the period in Green Lake County by Schultz. Last reported by Hansen in Dane County on November 30. Also reported during the period in Marathon and Ozaukee Counties.

Eared Grebe.—First reported by Burcar in

Ozaukee County on September 30. Burcar found 3 in Sauk County on November 11. Last reported by Burcar in Sauk County on November 25. Also found during the period in Green Lake and Milwaukee Counties.

American White Pelican.—Dankert found as many as 12 in Vernon County between September 9 and 16. Also reported by Hunter in Trempealeau County on October 1.

Double-crested Cormorant.—Reported in scattered areas throughout the state at the beginning of the period. Nussbaum found 359 in Winnebago County on September 6. Found at the end of the period in Dane, Milwaukee, and Winnebago Counties.

American Bittern.—Found at the beginning of the period in Burnett, Douglas, Monroe, Price, Shawano, Taylor, and Winnebago Counties. Nussbaum found 4 in Waushara County on August 28. Last reported by Thiessen in Dane County on November 9.

Least Bittern.—Reported at the beginning of the period in Dodge and Taylor Counties. Last reported by Haseleu in Dodge County on September 13.

Great Blue Heron.—Found throughout the state at the beginning of the period. Belter found 65 in Marathon County on August 4. Found at the end of the period in Brown, Dane, Dodge, Douglas, and Milwaukee Counties.

Great Egret.—Reported at the beginning of the period north to Burnett, Barron, and Shawano Counties. Burcar found 137 in Dodge County on September 8. Last reported by Burcar in Marquette County on October 30.

Snowy Egret.—Reported by Mead in Brown County on August 6 and 25, by the Smiths in Oconto County on August 12, by Peterson in Brown County on August 25, and by Domagalski in Dodge County on August 17 and 21.

Cattle Egret.—Peterson found 31 in Brown County on August 25. Last reported on October 29 by Peterson in Shawano County and by Domagalski in Washington County. Also found during the period in Dodge, Door, and Price Counties.

Green-backed Heron.—Found throughout the state at the beginning of the period. Nussbaum found 100 in Waushara County on August 23. Last reported by Nussbaum in Dodge County on October 25.

Black-crowned Night-Heron.—Reported at the beginning of the period in Dodge, Manitowoc, Marinette, Milwaukee, and Winnebago Counties. Nussbaum found 37 in Winnebago County on October 3. Last reported by Burcar and Domagalski in Dodge County on November 10.

Tundra Swan.—First reported by Martin in Columbia County on September 19. Dankert found 950 in Vernon County on November 3. Found at the end of the period in Dodge, Oconto and Walworth Counties.

Trumpeter Swan.—Reported at the beginning of the period in Polk County by Hudick. Belter reported 9 in Marathon County on October 20. This was reduced to 7 on October 25 after 2 were shot. Last reported on November 20 in Eau Claire County by Polk. Also reported during the period in Bayfield, Burnett, and St. Croix Counties.

Mute Swan.—Found at the beginning of the period in Ashland, Bayfield, Dane, Douglas, Milwaukee, Ozaukee, and Portage Counties. Verch found 8 in Ashland and Bayfield Counties on October 15. Reported at the end of the period in Dane, Douglas, Milwaukee, Portage, Shawano, Sheboygan, and Walworth Counties.

Greater White-fronted Goose.—Reported by Burcar in Dane County on November 9 and 16.

Snow Goose.—First reported on September 18 in Burnett County by Hoefler and in Ozaukee County by Cowart and Woodmansee. Martin found 1200 in Columbia County on November 2. Reported at the end of the period in Dodge, Milwaukee, Walworth, and Winnebago Counties.

Brant.—Found in Racine County on November 5 by Boldt and Burcar, on November 11 by Cowart, and on November 14 by Frank. These reports were accepted by the Records Committee. See "By the Wayside."

Canada Goose.—Found throughout the

state at the beginning of the period. 689,650 were reported in Wisconsin on November 4. Of these, 237,800 were in Horicon Marsh and 150,000 were in Grand River Marsh. Reported at the end of the period north to Burnett, Douglas, Taylor, Shawano, and Door Counties.

Wood Duck.—Found throughout the state at the beginning of the period. The refuge staff found 15,000 in Horicon National Wildlife Refuge on August 29. Reported at the end of the period in Burnett, Chippewa, Dane, and Milwaukee Counties.

Green-winged Teal.—Found at the beginning of the period in Ashland, Barron, Bayfield, Burnett, Dodge, Douglas, Manitowoc, and Taylor Counties. The refuge staff found 10,000 in Horicon National Wildlife Refuge on October 5. Last reported by Burcar in Dane County on November 26.

American Black Duck.—Found at the beginning of the period south to Sauk and Manitowoc Counties. The refuge staff found 1500 in Horicon National Wildlife Refuge on September 11. Reported at the end of the period north to Ashland and Bayfield Counties.

Mallard.—Found throughout the state during the period. The refuge staff found 75,000 in Horicon National Wildlife Refuge on September 11.

Northern Pintail.—Reported at the beginning of the period in Winnebago County by Ziebell. The refuge staff found 1000 in Horicon National Wildlife Refuge on October 5. Last reported by Belter in Marathon County on November 24.

Blue-winged Teal.—Found throughout the state at the beginning of the period. The refuge staff found 75,000 in Horicon National Wildlife Refuge on September 11. Last reported by Parsons in Walworth County on November 2.

Northern Shoveler.—Reported at the beginning of the period in Barron, Dane, and Taylor Counties. The refuge staff found 4000 in Horicon National Wildlife Refuge on October 30. Reported at the end of the period in Dane County by Ashman, Burcar, and Evanson.

Gadwall.—Found at the beginning of the period in Burnett County by Hoefler. The refuge staff found 1500 in Horicon National Wildlife Refuge on October 30. Reported at the end of the period in Dane and Milwaukee County.

American Wigeon.—Reported at the beginning of the period in Douglas County by Semo. The refuge staff found 30,000 in Horicon National Wildlife Refuge on October 5. Found at the end of the period in Dane, Green Lake, and Milwaukee Counties.

Canvasback.—First reported by the Brassers in Sheboygan County on September 13. The refuge staff found 400 in Horicon National Wildlife Refuge on October 30. Found at the end of the period in Walworth and Winnebago Counties.

Redhead.—Found at the beginning of the period in Dodge, Juneau, Winnebago and Wood Counties. The refuge staff found 3000 in Horicon National Wildlife Refuge on October 14. Found at the end of the period in Milwaukee County by Bontly and Domagalski.

Ring-necked Duck.—Reported at the beginning of the period in Barron, Burnett, Douglas, Monroe, and Polk Counties. The refuge staff found 1200 in Horicon National Wildlife Refuge on October 30. Found at the end of the period in Dane, Milwaukee, and Walworth Counties.

Greater Scaup.—First reported by Boldt in Milwaukee County on August 30. Tessen found 800 in Ozaukee County on October 19. Reported at the end of the period in Door, Milwaukee, Ozaukee, and Sheboygan Counties.

Lesser Scaup.—Found at the beginning of the period in Manitowoc and Milwaukee Counties. Verch found over 5000 in Ashland and Bayfield Counties on October 22. Reported at the end of the period in Dane, Green Lake, Manitowoc, Milwaukee, Walworth, and Winnebago Counties.

Harlequin Duck.—Sontag found 5 in Manitowoc County on September 14 and also reported by Burcar in Sheboygan County on November 4.

Oldsquaw.—First reported by Tessen in Ozaukee County on October 14. Domagalski found 76 in Milwaukee County on November

26. Found at the end of the period in Dane and Milwaukee Counties.

Black Scoter.—First reported by Tessen in Ozaukee County on September 21. Tessen found 26 in Ozaukee County on October 5. Last reported by Tessen in Milwaukee County on November 11.

Surf Scoter.—First reported on September 21 in Ozaukee County by Tessen and Domagalski and in Milwaukee County by Boldt. Tessen found 177 in Ozaukee County on October 5. Last reported by Tessen in Ozaukee County on November 11.

White-winged Scoter.—First reported on October 5 in Ozaukee County by Tessen. Belter found 20 in Marathon County on November 3. Reported at the end of the period in Milwaukee County by Domagalski.

Common Goldeneye.—First reported by Kuecherer in Ashland County on September 27. Parsons found 400 in Walworth County on November 10. Found throughout the state at the end of the period.

Bufflehead.—First reported by Ashman in Dane County on September 22. Frank found 131 in Racine County on November 14. Found in scattered areas throughout the state at the end of the period.

Hooded Merganser.—Found at the beginning of the period in Barron, Douglas, Polk, and Taylor Counties. Ashman found 230 in Dane County on November 6. Reported at the end of the period in Dane, Dodge, Milwaukee, and Sauk Counties.

Common Merganser.—Reported at the beginning of the period in Douglas, Monroe, and Taylor Counties. Verch found 68 in Ashland and Bayfield Counties on November 24. Found in scattered areas throughout the state at the end of the period.

Red-breasted Merganser.—Found at the beginning of the period in Ashland, Bayfield, Door, and Oneida Counties. Woodmansee found 350 in Milwaukee County on October 15. Reported at the end of the period in Dane, Door, Manitowoc, Milwaukee, and Walworth Counties.

Ruddy Duck.—Reported at the beginning of the period in Columbia, Dane, Dodge, Green Lake, Sheboygan, and Winnebago Counties. The refuge staff found 1500 in Horicon National Wildlife Refuge on October 30. Found at the end of the period in Dane, Green Lake, Manitowoc, and Milwaukee Counties.

Turkey Vulture.—Found at the beginning of the period north to Burnett, Douglas, Price, and Door Counties. Burcar found 51 in Sauk County on October 8. Last reported by Berger in Sheboygan County on November 17.

Osprey.—Reported at the beginning of the period south to Trempealeau, Monroe, Dane, Winnebago, and Manitowoc Counties. Cowart found 42 in Ozaukee County on September 18. Last reported by Cowart in Ozaukee County on November 9.

Bald Eagle.—Reported at the beginning of the period south to Trempealeau, Juneau, and Outagamie Counties. Hudick found 67 in Polk County on November 27. Found at the end of the period south to La Crosse, Sauk and Dane Counties.

Northern Harrier.—Found at the beginning of the period south to Monroe and Dodge Counties. Berger found 63 in Sheboygan County on November 6. Found at the end of the period in Columbia, Dodge, Green Lake, Sheboygan, Taylor, Walworth, and Winnebago Counties.

Sharp-shinned Hawk.—Reported at the beginning of the period south to Polk, Wood, and Door Counties. Berger found 405 in Sheboygan County on September 26. Found at the end of the period in Barron, Dane, Sheboygan, Trempealeau, and Walworth Counties.

Cooper's Hawk.—Found at the beginning of the period south to Richland, Dane, and Ozaukee Counties. Found at the end of the period in Dane, Green Lake, Marathon, Milwaukee, Monroe, Oconto, and Richland Counties.

Northern Goshawk.—Reported at the beginning of the period in Door, Douglas, and Marinette Counties. The LaValleys found 3 in Douglas County on October 17 and Cowart found 3 in Ozaukee County on November 7. Found at the end of the period in Dane, Door, Douglas, Langlade, Milwaukee, Ozaukee, Sheboygan, and Winnebago Counties.

Red-shouldered Hawk.—Reported at the beginning of the period in Milwaukee, Monroe, Outagamie, Polk, Portage, and Taylor Counties. Berger found 58 in Sheboygan County on November 7. Found at the end of the period in Sheboygan County by Berger.

Broad-winged Hawk.—Found at the beginning of the period south to Monroe and Dane Counties. Cowart found 3500 in Ozaukee County on September 23. Last reported by Hoefler in Burnett County on November 18.

Red-tailed Hawk.—Found throughout the state at the beginning of the period. Berger found 227 in Sheboygan County on November 6. Found at the end of the period north to Burnett, Douglas, Taylor, Marathon, and Oconto Counties.

Rough-legged Hawk.—First reported by Hoefler in Burnett County on September 21. Berger found 33 in Sheboygan County on November 24. Found at the end of the period north to Burnett, Douglas, Taylor, Marathon, Oconto, and Door Counties.

Golden Eagle.—First reported on October 13 in Price County by Risch. Reported at the end of the period in Monroe County by Epstein and Kuecherer. Also found during the period in Ozaukee and Sheboygan Counties.

American Kestrel.—Found throughout the state at the beginning of the period. Berger found 33 in Sheboygan County on September 26. Found at the end of the period north to Polk, Barron, Taylor, Marathon, Oconto, and Marinette Counties.

Merlin.—Reported at the beginning of the period in Ashland, Bayfield, and Douglas Counties. Cowart found 123 in Ozaukee County on October 5. Last reported by Berger in Sheboygan County on November 21.

Peregrine Falcon.—Reported at the beginning of the period in Milwaukee County by Domagalski. Berger found 23 in Sheboygan County on September 23. Last reported by Ashman in Dane County on November 20.

Gray Partridge.—Found during the period in Brown, Oconto, St. Croix, Shawano, and Washington Counties. Peterson found 10 in Shawano County on August 10 and Domagalski found 10 in Washington County on October 29.

Ring-necked Pheasant.—Found during the period north to Burnett, Douglas, Taylor, Oconto, Marinette, and Door Counties. The LaValleys found 7 in Douglas County on October 29.

Ruffed Grouse.—Reported during the period south to La Crosse, Richland, Iowa, Dane, and Manitowoc Counties. The Smiths found 6 in Oconto County on November 18.

Greater Prairie-Chicken.—Found during the period in Burnett, Marathon, and Taylor Counties. Belter found 16 in Marathon County on September 29.

Sharp-tailed Grouse.—Reported during the period in Burnett, Douglas, and Taylor Counties. Hansen found 10 in Burnett Bounty on September 24.

Wild Turkey.—Reported during the period north to Burnett and Marinette Counties. Burcar found 26 in Dane County on October 14.

Northern Bobwhite.—Found during the period in Dane, Green, Kenosha, Monroe, Richland, and Sauk Counties. Duerksen found 10 in Richland County on August 13.

Yellow Rail.—Diehl reported one in an underground parking garage in Milwaukee County on September 10. It was taken to the humane society, banded, and released.

King Rail.—Peterson heard one at the Navarino Wildlife Area in Shawano County on August 4.

Virginia Rail.—Found at the beginning of the period in Dane, Dodge, Manitowoc, Winnebago, and Wood Counties. Diehl reported one that was injured in Milwaukee County on November 5.

Sora.—Found in scattered areas throughout the state at the beginning of the period. Ziebell found 10 in Winnebago County on September 21. Last reported in Milwaukee County on November 3 by Burcar and Domagalski.

Common Moorhen.—Reported at the beginning of the period in Dodge County by Burcar and Domagalski. Domagalski found 22 in Dodge County on August 3. Last reported on October 13 in Dodge County by Burcar and Domagalski. Also reported during the period in Marathon and Oconto Counties.

American Coot.—Found in scattered areas throughout the state at the beginning of the period. The refuge staff found 15,000 in Horicon National Wildlife Refuge on September 11. Found at the end of the period in Dane, Dodge, Green Lake, Jefferson, and Walworth Counties.

Sandhill Crane.—Reported at the beginning of the period in scattered areas throughout the state. Hoefler found 1490 in Burnett County on October 26. Last reported on November 10 in Price County by Hardy and in Waushara County by Nussbaum.

Black-bellied Plover.—Reported at the beginning of the period in Milwaukee County by Boldt, Domagalski, Hanbury, and Korducki. Boldt found 11 in Milwaukee County on August 26 and 29. Last reported by Domagalski in Milwaukee County on November 16.

Lesser Golden-Plover.—First reported on August 2 in Milwaukee County by Boldt and in Shawano County by Peterson. Berner found 67 in Portage County on October 9. Last reported by Burcar in Columbia County on October 22.

Semipalmated Plover.—Found at the beginning of the period in Dane, Manitowoc, Milwaukee, and Taylor Counties. Boldt found 20 in Milwaukee County on September 3. Last reported by Sontag in Manitowoc County on October 23.

Killdeer.—Found throughout the state at the beginning of the period. Burcar found 295 in Dodge County on August 25. Last reported by Boldt in Milwaukee County on November 24. Berner reported an albinistic individual in St. Croix County on August 2 and 3.

Black-necked Stilt.—One was found at the Coast Guard impoundment in Milwaukee County on October 10 and 11 by Boldt, Burcar, Cowart, Domagalski, and Frank. These sightings were accepted by the Records Committee. See "By the Wayside."

American Avocet.—Reported in Milwaukee County on August 30 by Boldt, Diehl, and Domagalski, on October 4 in Milwaukee County by Boldt, and on November 2 in Manitowoc County by Sontag.

Greater Yellowlegs.—Found at the beginning of the period in Ashland, Barron, Bayfield, Burnett, Milwaukee, St. Croix, Taylor, and Winnebago Counties. Berner found 23 in Marathon County on August 3. Last reported by the Brassers in Sheboygan County on November 16.

Lesser Yellowlegs.—Reported at the beginning of the period in Barron, Burnett, Dane, Dodge, Manitowoc, Milwaukee, St. Croix, and Taylor Counties. Berner found 141 in Marathon County on September 3. Last reported by DeBoer in Racine County on November 10.

Solitary Sandpiper.—Found at the beginning of the period in Barron, Dane, Dodge, Marathon, St. Croix, Shawano, Taylor, and Trempealeau Counties. Berner found 21 in Marathon County on August 13. Last reported by Sontag in Marathon County on September 30.

Spotted Sandpiper.—Reported in scattered areas throughout the state at the beginning of the period. Sontag found 9 in Manitowoc County on August 30. Last reported by Sontag in Manitowoc County on October 18.

Upland Sandpiper.—Found at the beginning of the period in Langlade and Taylor Counties. Last reported by Boldt in Racine County on August 24.

Whimbrel.—Reported in Milwaukee County on August 11 by Boldt and Domagalski and on August 22 by Domagalski and Korducki.

Hudsonian Godwit.—Reported by Sontag in Manitowoc County on October 22 and 23.

Ruddy Turnstone.—First reported by Domagalski in Milwaukee County on August 11. Last reported by the Brassers in Sheboygan County on November 16.

Red Knot.—First reported by Tessen in Sheboygan County on August 31. Domagalski found 3 in Milwaukee County on September 10.

Sanderling.—First reported by Korducki in

Milwaukee County on August 3. Burcar found 12 in Douglas County on September 1, Evanson found 12 in Sheboygan County on September 8, and Sontag found 12 in Manitowoc County on September 18. Last reported by the Brassers in Sheboygan County on November 22.

Semipalmated Sandpiper.—Reported at the beginning of the period in Dane, Dodge, Manitowoc, Milwaukee, St. Croix, Sheboygan, and Taylor Counties. Berner found 130 in Marathon County on August 27. Last reported by Tessen in Sheboygan County on November 11.

Western Sandpiper.—Reported at the beginning of the period in Milwaukee County by Boldt and Domagalski. Last reported on September 15 in Manitowoc County by Sontag. Also found during the period in Sheboygan County.

Least Sandpiper.—Found at the beginning of the period in Dane, Dodge, Douglas, Manitowoc, Milwaukee, St. Croix, Shawano, and Sheboygan Counties. Berner found 125 in St. Croix County on August 2. Last reported on October 29 in Columbia County by Burcar.

White-rumped Sandpiper.—First reported on August 10 in Milwaukee County by Boldt. Last reported on November 22 in Sheboygan County by the Brassers.

Baird's Sandpiper.—Reported at the beginning of the period in Milwaukee and St. Croix Counties. Berner found 21 in Marathon County on August 27. Last reported by the Smiths in Oconto County on October 13. Risch reported a leucistic individual in Clark County on September 12.

Pectoral Sandpiper.—Found at the beginning of the period in Dane, Dodge, Milwaukee, St. Croix, and Taylor Counties. Berner found 293 in St. Croix County on August 1. Last reported on November 19 in Ashland and Bayfield Counties by Verch.

Purple Sandpiper.—Reported in Sheboygan County from November 2 to the end of the period by the Brassers, on November 4 by Burcar, on November 11 by Tessen, and on November 30 by Polk; and in Racine County on November 24 by DeBoer and on November 29 by Korducki. See "By the Wayside."

Dunlin.—First reported by Boldt in Milwaukee County on September 13. Burcar found 155 in Columbia County on October 22. Last reported on November 16 by Domagalski in Milwaukee County, by DeBoer in Racine County, and by the Brassers in Sheboygan County.

Stilt Sandpiper.—Found at the beginning of the period in Dane, Milwaukee, and St. Croix Counties. Berner found 21 in Marathon County on August 16. Last reported by Ashman in Dane County on September 22.

Buff-breasted Sandpiper.—There were many reports this fall. First reported by Berner in St. Croix County on August 2. Tessen found 22 in Racine County on September 7. Last reported by Boldt in Milwaukee County on September 18. Also found in Bayfield, Dane, Douglas, and Portage Counties.

Short-billed Dowitcher.—Found at the beginning of the period in Dane, Dodge, Manitowoc, Milwaukee, and St. Croix Counties. Boldt found 20 in Milwaukee County on August 15. Last reported by Sontag in Manitowoc County on October 17.

Long-billed Dowitcher.—First reported by Domagalski in Dodge County on August 17. Burcar found 41 in Crawford County on October 17. Last reported by Burcar in Columbia County on October 29.

Common Snipe.—Reported at the beginning of the period south to Trempealeau, Monroe, Portage, and Winnebago Counties. Berger found 340 in Sheboygan County on November 4. Reported at the end of the period in Monroe County by Kuecherer.

American Woodcock.—Found at the beginning of the period south to Trempealeau, Monroe, and Dodge Counties. Hardy found 300 in Price County on September 29. Diehl reported an injured individual in Milwaukee County on November 12.

Wilson's Phalarope.—Reported at the beginning of the period in Dane and Burnett Counties. Belter found 3 in Marathon County on August 10 and Berner found 3 in Marathon County on August 13. Last reported by Hoefler in Burnett County on October 2.

Red-necked Phalarope.—Burcar and Domagalski found 4 in Dodge County on Sep-

tember 8, Ashman found 5 in Dane County on September, and Burcar found one in Dodge County on October 11.

Red Phalarope.—One was found in Racine County on November 4 by Cowart and DeBoer. The record was accepted by the Records Committee. See "By the Wayside."

Parasitic Jaeger.—Reported in Ozaukee County on October 19 by Cowart, Domagalski, and Korducki, and on October 20 by Cowart. See "By the Wayside."

Laughing Gull.—Reported in Milwaukee County on August 1 by Boldt, Domagalski, and Korducki, on August 16 by Korducki, and on October 11 by Burcar and Domagalski. See "By the Wayside."

Franklin's Gull.—Reported at the beginning of the period in Milwaukee County by Domagalski and Korducki. Berner found 125 in St. Croix County on October 3. Last reported by Burcar in Dane County on November 2. Also reported during the period in Ashland, Bayfield, Chippewa, and Douglas Counties.

Little Gull.—Reported at the beginning of the period in Manitowoc County by Sontag. Tessen found 3 in Manitowoc County on August 10. Last reported by Tessen in Milwaukee County on September 7.

Bonaparte's Gull.—Found at the beginning of the period in Douglas, Manitowoc, Milwaukee, Shawano, and Sheboygan Counties. Belter found 35 in Marathon County on October 30. Reported at the end of the period in Milwaukee County by Burcar, Bontly, and Domagalski.

Ring-billed Gull.—Reported at the beginning of the period throughout the state. Woodmansee found 2500 in Milwaukee County on October 15. Reported at the end of the period north to Douglas, Ashland, Bayfield, and Door Counties.

California Gull.—Reported in Sheboygan County on November 29 by Hughes and on November 30 by Boldt, Korducki, and Polk. These reports were accepted by the Records Committee. See "By the Wayside."

Herring Gull.—Found at the beginning of the period south to Barron, Dodge, and Kenosha Counties. Sontag found 730 in Manitowoc County on October 9. Reported in scattered areas throughout the state at the end of the period.

Iceland Gull.—Reported on November 28 in Columbia and Sauk Counties near the Sauk-Prairie Dam by Burcar. The report was accepted by the Records Committee. See "By the Wayside."

Glaucous Gull.—Reported on November 10 in Winnebago County by Ziebell, from November 23 to the end of the period in Douglas County by Johnson, and in Columbia and Sauk Counties on November 30 by Burcar.

Great Black-backed Gull.—Reported on August 5 at Ellison Bay in Door County by Glueckert, in Milwaukee County on October 22 by Boldt, and in Milwaukee County on October 26 by Tessen. See "By the Wayside."

Black-legged Kittiwake.—Cowart found 4 immatures in Milwaukee County on November 1. This report was accepted by the Records Committee. See "By the Wayside."

Sabine's Gull.—Johnson found an immature in Douglas County on September 21. This report was accepted by the Records Committee. See "By the Wayside."

Ivory Gull.—One was found in Milwaukee County on November 28 by Boldt, Cowart, and Frank. These reports were accepted by the Records Committee. See "By the Wayside."

Caspian Tern.—Found at the beginning of the period in Ashland, Bayfield, Door, Manitowoc, Milwaukee, Ozaukee, Sheboygan, and Winnebago Counties. Zehner found 41 in Milwaukee County on August 18. Last reported by Ziebell in Winnebago County on September 30.

Common Tern.—Reported at the beginning of the period in scattered areas throughout the state. Sontag found 8 in Manitowoc County on August 16. Last reported by Burcar in Milwaukee County on October 11.

Forster's Tern.—Reported at the beginning of the period north to St. Croix and Shawano Counties. The Smiths found 28 in Oconto

County on August 18. Last reported by Domagalski in Milwaukee County on October 12.

Black Tern.—Found at the beginning of the period north to Burnett, Douglas, and Langlade Counties. Pickering found 13 in Langlade County on September 3. Last reported by Burcar in Dane County on September 15.

Rock Dove.—Reported throughout the state during the period. The LaValleys found over 100 in Douglas County on November 29.

Mourning Dove.—Found throughout the state during the period. Ziebell found 300 in Winnebago County on August 28.

Black-billed Cuckoo.—Reported at the beginning of the period south to Trempealeau, Monroe, Dane, Dodge, and Milwaukee Counties. Last reported by Hoefler in Burnett County on October 21.

Yellow-billed Cuckoo.—Found at the beginning of the period in Columbia, Dane, Langlade, Milwaukee, and Monroe Counties. Last reported by Burcar and Domagalski in Dodge County on September 29.

Common Barn Owl.—Semo reported that one was found flopping around in a barn near Washburn in Bayfield County on November 4. It died a short time later.

Eastern Screech-Owl.—Reported during the period north to Burnett and Taylor Counties. Ziebell found 6 in Winnebago County on September 19.

Great Horned Owl.—Found throughout the state during the period. Parsons found 4 in Walworth County on August 31, the Smiths found 4 in Oconto County on September 29, and Belter found 4 in Marathon County on November 10.

Snowy Owl.—First reported on November 5 in Ashland and Bayfield Counties by Verch and in Douglas County by Semo. Verch found 5 in Ashland and Bayfield Counties on November 30. Reported at the end of the period in Ashland, Bayfield, Door, Douglas, Manitowoc, and Sheboygan Counties.

Northern Hawk-Owl.—Reported from November 17 to the end of the period in Douglas County by Johnson and on November 29 in Iron County by Verch. These reports were accepted by the Records Committee. See "By the Wayside."

Barred Owl.—Reported during the period south to La Crosse, Rock, and Sheboygan Counties.

Long-eared Owl.—Reported at the beginning of the period in Taylor County by Armbrust and Risch. Found at the end of the period in Taylor County by Armbrust. Also reported during the period in Douglas, Oconto, Portage, and Sheboygan Counties.

Short-eared Owl.—First reported on October 2 in Milwaukee County by Domagalski. Verch found 3 in Ashland and Bayfield Counties on November 9. Reported at the end of the period in Milwaukee County by Domagalski. Also reported during the period in Dodge and Sheboygan Counties.

Northern Saw-whet Owl.—Reported at the beginning of the period in Douglas, Monroe, and Taylor Counties. Jacobs found 38 in Portage County on October 8 and October 30. Reported at the end of the period in Monroe County by Kuecherer.

Common Nighthawk.—Found throughout the state at the beginning of the period. Berger found over 1000 in Sheboygan County on August 30. Last reported by Berger in Sheboygan County on October 23.

Whip-poor-will.—Reported at the beginning of the period in Burnett, Columbia, Door, Marinette, Price, Shawano, Taylor, and Trempealeau Counties. Last reported by Hoefler in Burnett County on September 23.

Chimney Swift.—Found throughout the state at the beginning of the period. Belter found 80 in Marathon County on August 24 and Ziebell found 80 in Winnebago County on September 20. Last reported on November 2 in Ozaukee County by Cowart and Domagalski.

Ruby-throated Hummingbird.—Reported at the beginning of the period south to Richland, Dane, and Dodge Counties. Cowart found 91 in Ozaukee County on September 15.

Last reported by the Brassers in Sheboygan County on November 3.

Belted Kingfisher.—Reported throughout the state at the beginning of the period. Parsons found 6 in Walworth County on August 20. Found at the end of the period in Dane, Milwaukee, Monroe, and Trempealeau Counties.

Red-headed Woodpecker.—Found at the beginning of the period north to Burnett, Barron, Taylor, Langlade, Oconto, and Door Counties. Epstein found 34 in Monroe County on September 16. Reported at the end of the period in Dane, Dodge, Monroe, and Taylor Counties.

Red-bellied Woodpecker.—Reported during the period north to Polk, Barron, Taylor, Langlade, Marinette, and Door Counties. Burcar found 25 in Grant County on October 25.

Yellow-bellied Sapsucker.—Reported at the beginning of the period south to La Crosse and Monroe Counties. Epstein found over 100 in Ashland County on September 24. Found at the end of the period in Marinette and Milwaukee Counties.

Downy Woodpecker.—Found throughout the state during the period. The Smiths found 17 in Oconto County on August 17.

Hairy Woodpecker.—Reported throughout the state during the period. Burcar found 12 in Grant County on October 16.

Black-backed Woodpecker.—Reported in Vilas County by Green on September 27, in Bayfield County by Johnson on October 12, and in Douglas County by Semo on October 30.

Northern Flicker.—Found throughout the state at the beginning of the period. The Lukes reported hundreds in Door County on September 18. Found at the end of the period in Dane, Dunn, Marinette, Oconto, Sauk, and Shawano Counties.

Pileated Woodpecker.—Reported during the period south to Grant, Iowa, Dane, Walworth, and Waukesha Counties. Burcar found 5 in Grant County on October 16.

Olive-sided Flycatcher.—First reported by the Smiths in Oconto County on August 4. Berner found 6 in St. Croix County on August 22. Last reported on September 7 in Ozaukee County by Cowart, Domagalski, and Tessen, and in Trempealeau County by Dankert.

Eastern Wood-Pewee.—Found throughout the state at the beginning of the period. Berner found 16 in St. Croix County on August 22. Last reported by Tessen in Ozaukee County on October 5.

Yellow-bellied Flycatcher.—Reported at the beginning of the period in Barron and Manitowoc Counties. Last reported by Sontag in Manitowoc County on September 26.

Acadian Flycatcher.—Reported from the beginning of the period to August 14 in Dane County by Burcar, on August 9 in Vernon County by Burcar, on September 9 in Sauk County by Burcar, and on September 22 in Chippewa County by Kemper.

Alder Flycatcher.—Found at the beginning of the period in Douglas, Marathon, Oconto, Portage, Shawano, Taylor, and Wood Counties. The Smiths found 5 in Oconto County on August 5. Last reported by Kemper in Chippewa County on September 26.

Willow Flycatcher.—Reported at the beginning of the period in Columbia, Dane, Dodge, Monroe, Oconto, and St. Croix Counties. Ashman found 4 in Columbia County and 4 in Dane County on August 3. Last reported by Ashman in Dane County on September 21.

Least Flycatcher.—Found at the beginning of the period in Barron, Dodge, Marathon, Monroe, Portage, and Taylor Counties. Berner found 6 in Portage County on August 9. Last reported on September 28 in Dane County by Ashman and in Milwaukee County by Burcar.

Eastern Phoebe.—Reported throughout the state at the beginning of the period. Burcar found 9 in Sauk County on October 8. Last reported by Hansen in Dane County on November 18.

Great Crested Flycatcher.—Found throughout the state at the beginning of the period. Berner found 5 in Marathon County on August 3. Last reported by Woodmansee in Milwaukee County on November 7.

Eastern Kingbird.—Reported throughout the state at the beginning of the period. The Smiths found 45 in Oconto County on August 11. Last reported by Tessen in Ozaukee County on September 21.

Horned Lark.—Reported at the beginning of the period north to Burnett, Barron, Taylor, Langlade, and Door Counties. The LaValleys found 100 in Douglas County on September 29. Reported at the end of the period north to Burnett, Taylor, and Marathon Counties.

Purple Martin.—Found throughout the state at the beginning of the period. Sontag found 250 in Manitowoc County on August 15 and Diehl found 250 in Milwaukee County on August 30. Last reported by Woodmansee in Milwaukee County on October 23.

Tree Swallow.—Reported throughout the state at the beginning of the period. Schultz found over 5000 in Green Lake County on October 1. Last reported by Domagalski in Ozaukee County on November 2.

Northern Rough-winged Swallow.—Found at the beginning of the period south to La Crosse, Dane, and Ozaukee Counties. Burcar found 12 in La Crosse County on September 18. Last reported by Dankert in Trempealeau County on September 21.

Bank Swallow.—Reported at the beginning of the period south to Trempealeau, Monroe, Dane, and Milwaukee Counties. Belter found 130 in Marathon County on August 10. Last reported by Hanbury in Ozaukee County on September 18.

Cliff Swallow.—Reported at the beginning of the period south to Richland, Dodge, and Milwaukee Counties. Cowart found over 3000 in Ozaukee County on September 18. Last reported by Tessen in Ozaukee County on October 5.

Barn Swallow.—Reported throughout the state at the beginning of the period. Peterson found over 2000 in Shawano County on August 4. Last reported by Domagalski in Milwaukee County on November 2.

Gray Jay.—Reported during the period in Ashland, Douglas, Forest, Oneida, Price, Taylor, and Vilas Counties. Peterson found 24 in Forest County on November 16.

Blue Jay.—Found throughout the state during the period. Epstein found 60 in Ashland County on September 29.

American Crow.—Found throughout the state during the period. Risch reported over 600 in Taylor County on November 27.

Common Raven.—Reported during the period south to Monroe, Juneau, and Sheboygan Counties. The LaValleys found 43 in Douglas County on November 27.

Black-capped Chickadee.—Found throughout the state during the period. Belter found 60 in Marathon County on November 16.

Boreal Chickadee.—Reported only in Forest County during the period. Peterson found 10 in Forest County on November 16.

Tufted Titmouse.—Found during the period in Chippewa, Dane, Rock, Green Lake, La Crosse, Rock, and St. Croix Counties. Burcar found 4 in Dane County on August 15.

Red-breasted Nuthatch.—Reported at the beginning of the period south to Monroe and Dane Counties. Peterson found 40 in Forest County on November 16. Found at the end of the period south to Dane and Milwaukee Counties.

White-breasted Nuthatch.—Found throughout the state during the period. Burcar found 33 in Grant County on October 16.

Brown Creeper.—Reported at the beginning of the period south to Pierce, Dunn, and Outagamie Counties. Kuecherer found 40 in Ashland County on September 27. Found in scattered areas throughout the state at the end of the period.

Carolina Wren.—This species seems to be increasing in numbers in the state. Reported during the period in Crawford, Dane, Milwaukee, Ozaukee, Portage, Richland, and Sauk Counties.

House Wren.—Reported at the beginning

of the period north to Douglas, Price, Langlade, and Marinette Counties. Berner found 14 in Portage County on August 30. Last reported on November 10 by Diehl in Milwaukee County in a garage.

Winter Wren.—Reported at the beginning of the period in Douglas, Marathon, Marinette, Portage, and Taylor Counties. Domagalski found 9 in Milwaukee County on October 5. Reported at the end of the period in Dane County by Burcar.

Sedge Wren.—Found in scattered areas throughout the state at the beginning of the period. The Smiths found 22 in Oconto County on August 4. Last reported by Burcar in Dane County on October 10.

Marsh Wren.—Reported at the beginning of the period north to Douglas, Taylor, and Oconto Counties. The Smiths found 12 in Oconto County on August 11. Last reported by Burcar in Dodge County on November 22.

Golden-crowned Kinglet.—Reported at the beginning of the period in Douglas and Taylor Counties. Kuecherer found over 200 in Ashland County on September 25. Found at the end of the period in Dane, Green Lake, Jefferson, Manitowoc, Milwaukee, Portage, Sauk, and Taylor Counties.

Ruby-crowned Kinglet.—Found at the beginning of the period by Semo in Douglas County. Kuecherer found over 100 in Ashland County on September 26. Last reported by Domagalski in Milwaukee County on November 16.

Blue-gray Gnatcatcher.—Reported at the beginning of the period north to Polk and Portage Counties. Berner found 13 in St. Croix County on August 22. Last reported by Burcar in Walworth County on September 25.

Eastern Bluebird.—Found at the beginning of the period north to Burnett, Douglas, Price, Langlade, Marinette, and Door Counties. The Sheas found 203 in Burnett County on September 20 and 21. Last reported by Burcar in Dane County on November 18.

Townsend's Solitaire.—Berger saw one in Sheboygan County on November 10.

Veery.—Reported at the beginning of the period south to Dane and Dodge Counties. Last reported by Berger in Sheboygan County on November 25.

Gray-cheeked Thrush.—First reported by Woodmansee in Milwaukee County on August 23. Tessen found 15 in Ozaukee County on September 21. Last reported on October 7 in Chippewa County by Kemper and in Milwaukee County by Zehner.

Swainson's Thrush.—Reported at the beginning of the period in Langlade County by Pickering. Epstein found 50 in Ashland County on September 24. Last reported by Burcar in Iowa County on October 15.

Hermit Thrush.—Reported at the beginning of the period in Ashland, Bayfield, Douglas, Langlade, Marathon, Price, and Taylor Counties. Epstein found 50 in Ashland County on September 24. Reported at the end of the period in Milwaukee County by Bontly and Domagalski.

Wood Thrush.—Found in scattered areas throughout the state at the beginning of the period. Belter found 6 in Marathon County on August 4. Last reported by Tessen in Ozaukee County on October 5.

American Robin.—Reported throughout the state at the beginning of the period. Epstein found 1546 in Ashland County on September 28. Found at the end of the period in Chippewa, Dane, Green Lake, Kenosha, Milwaukee, Oconto, Taylor, and Winnebago Counties.

Varied Thrush.—Bremer reported a male at his feeder in Columbia County from November 20 to the end of the period.

Gray Catbird.—Found throughout the state at the beginning of the period. Ashman found 30 in Dane County on September 13. Last reported by Burcar in Dane County on October 24.

Brown Thrasher.—Reported throughout the state at the beginning of the period. Ashman found 9 in Dane County on September 21. Last reported on November 7 in Columbia County by Ashman and in Racine County by Burcar.

Water Pipit.—First reported by Sontag in

Manitowoc County on September 14. Epstein found 12 in Ashland County on September 26. Last reported on November 11 in Sauk County by Burcar and in Sheboygan County by Tessen.

Bohemian Waxwing.—First reported on October 21 in Ashland and Bayfield Counties by Verch. Belter found 50 in Marathon County on November 10. Found at the end of the period in Ashland, Bayfield, and Douglas Counties.

Cedar Waxwing.—Found throughout the state at the beginning of the period. Berger found 2955 in Sheboygan County on August 26. Reported at the end of the period north to Polk, Barron, Taylor, and Langlade Counties.

Northern Shrike.—First reported by Risch in Taylor County on October 1. Belter found 5 in Marathon County on November 24. Found at the end of the period south to Pierce, Monroe, Dodge, and Manitowoc Counties.

Loggerhead Shrike.—The Smiths reported a maximum of 5 in Oconto County between August 1 and 11.

European Starling.—Found throughout the state during the period. Burcar found 2000 in Dane County on October 15.

Bell's Vireo.—Reported by Burcar at Blackhawk Lake in Iowa County on August 10, by Thompson at Tamarack Bog State Natural Area in Trempealeau County on September 1, and by Burcar at Governor Dodge State Park in Iowa County on September 5.

Solitary Vireo.—Found at the beginning of the period in Ashland, Barron, Bayfield, and Douglas Counties. Peterson found 5 in Shawano County on September 7. Last reported by Burcar in Dane County on November 15.

Yellow-throated Vireo.—Reported at the beginning of the period north to Polk, Barron, Wood, and Portage Counties. Burcar found 5 in Dane County on September 14. Last reported on November 3 in Milwaukee County by Burcar and Domagalski.

Warbling Vireo.—Found at the beginning of the period north to Douglas, Taylor, and Marinette Counties. Belter found 7 in Marathon County on August 28. Last reported by Domagalski in Milwaukee County on September 28.

Philadelphia Vireo.—First reported by the Smiths in Oconto County on August 4. Berner found 7 in Manitowoc County on September 11. Last reported by Richter in Monroe County on October 16.

Red-eyed Vireo.—Found throughout the state at the beginning of the period. Tessen found 20 in Ozaukee County on August 31. Last reported by Burcar in Dane County on October 10.

Blue-winged Warbler.—Found at the beginning of the period in Juneau, Monroe, and Richland Counties. Berner found 7 in St. Croix County on August 22. Last reported by Burcar in Racine County on September 23.

Golden-winged Warbler.—Reported at the beginning of the period in Barron, Douglas, Juneau, Monroe, Polk, Price, and Wood Counties. Mayer found 8 in Clark County on August 9. Last reported by Ashman in Dane County on September 21.

Brewster's Warbler.—A male of this hybrid was found by Berger in Sheboygan County on August 29.

Tennessee Warbler.—Reported at the beginning of the period in Price and Taylor Counties. Kemper found 36 in Chippewa County on September 11. Last reported by Ashman in Dane County on October 19.

Orange-crowned Warbler.—First reported by Burcar in Dane County on August 13. Domagalski found 6 in Milwaukee County on November 3. Last reported by Bontly in Milwaukee County on November 9.

Nashville Warbler.—Found at the beginning of the period in Barron, Door, Douglas, Juneau, Price, and Wood Counties. Ashman found 7 in Dane County on September 14. Last reported by Burcar in Racine County on November 7.

Northern Parula.—Reported at the beginning of the period in Door and Douglas Counties. Berner found 5 in Portage County on

August 30. Last reported by Ashman in Dane County on September 28.

Yellow Warbler.—Found at the beginning of the period north to Douglas, Price, Marathon, Oconto, and Door Counties. Ashman found 8 in Dane County on August 4. Last reported by the LaValleys in Douglas County on September 27.

Chestnut-sided Warbler.—Reported at the beginning of the period in Barron, Door, Douglas, Portage, Price, and Taylor Counties. Berner found 35 in St. Croix County on August 22. Last reported by Berner in Portage County on October 12.

Magnolia Warbler.—Reported at the beginning of the period in Douglas County by Johnson and Semo. Kemper found 50 in Chippewa County on September 11. Last reported by Bontly in Milwaukee County on October 18.

Cape May Warbler.—First reported by Semo in Douglas County on August 15. Belter found 6 in Marathon County on August 25. Last reported by Thiessen in Dane County on November 9.

Black-throated Blue Warbler.—First reported by Peterson in Shawano County on August 15. Bontly found 3 in Milwaukee County on September 15. Last reported by Domagalski in Ozaukee County on October 5.

Yellow-rumped Warbler.—Found at the beginning of the period south to Pierce, Marathon, and Door Counties. Epstein found over 1000 in Ashland County on September 25. Reported at the end of the period in Dane and Milwaukee Counties.

Black-throated Green Warbler.—Reported at the beginning of the period in Barron, Door, and Douglas Counties. Peterson found 11 in Shawano County on August 20. Last reported by Berner in Portage County on November 12.

Blackburnian Warbler.—Reported at the beginning of the period in Douglas County by Semo. Peterson found 8 in Shawano County on August 20. Last reported by the Brassers in Sheboygan County on September 27.

Pine Warbler.—Reported at the beginning of the period in Door, Douglas, and Portage Counties. Berner found 3 in Portage County on August 14 and the Sheas found 3 in Oneida County on September 25. Last reported by Peterson in Shawano County on October 1.

Palm Warbler.—Found at the beginning of the period in Douglas County by Johnson and the LaValleys. Kuecherer found over 200 in Ashland County on September 25. Last reported by Thiessen in Dane County on November 9.

Bay-breasted Warbler.—Reported at the beginning of the period in Taylor County by Armbrust. Berner found 17 in St. Croix County on August 22. Last reported by Burcar in Manitowoc County on November 3.

Blackpoll Warbler.—First reported by Sontag in Manitowoc County on August 15. Berner found 20 in Manitowoc County on September 11. Last reported by Burcar in Milwaukee County on October 7.

Cerulean Warbler.—Reported by Burcar in Sauk County on August 15 and in Dane County on September 4.

Black-and-White Warbler.—Found at the beginning of the period in Door, Douglas, Juneau, Marquette, Portage, Price, Taylor, and Wood Counties. Peterson found 12 in Shawano County on August 20. Last reported by Burcar in Dane County on November 13.

American Redstart.—Found in scattered areas throughout the state at the beginning of the period. Sontag found 26 in Manitowoc County on August 30. Last reported by Goff in Barron County on October 8.

Prothonotary Warbler.—Reported at the beginning of the period in Monroe County by Kuecherer, on August 4 in La Crosse County by Dankert, on August 22 in St. Croix County by Berger, and on September 14 in Sheboygan County by the Kuhns.

Ovenbird.—Found at the beginning of the period north to Douglas, Price, Langlade, and Door Counties. Kemper found 32 in Chippewa County on September 11. Last reported by Burcar in Sauk County on October 22.

Northern Waterthrush.—Found at the

beginning of the period in Douglas, Oconto, and Taylor Counties. Burcar found 6 in Milwaukee County on September 29. Last reported by Domagalski in Dodge County on October 24.

Louisiana Waterthrush.—Reported by Burcar in Sauk County on August 22 and by Sontag in Manitowoc County on September 11, and October 4.

Connecticut Warbler.—Found at the beginning of the period in Douglas and Price Counties. Berner found 3 in St. Croix County on August 22. Last reported by Kemper in Chippewa County on September 24.

Mourning Warbler.—Reported at the beginning of the period in Douglas and Taylor Counties. Belter found 4 in Marathon County on August 18 and Peterson found 4 in Shawano County on August 20. Last reported by Sontag in Manitowoc County on October 3.

Common Yellowthroat.—Found throughout the state at the beginning of the period. Domagalski found 47 in Dodge County on September 15. Last reported by Bontly in Milwaukee County on November 2.

Wilson's Warbler.—First reported by Peterson in Shawano County on August 15. 3 were found by Peterson in Shawano County on August 20, by Berner in Portage County on August 24, by Belter in Marathon County on September 7, and by Kuecherer in Ashland County on September 26, which was also the latest report.

Canada Warbler.—Reported at the beginning of the season in Douglas County by Semo. Peterson found 3 in Shawano County on August 20. Last reported by Bontly in Milwaukee County on September 15.

Scarlet Tanager.—Found in scattered areas throughout the state at the beginning of the period. Berner found 6 in Portage County on August 14. Last reported by Domagalski in Milwaukee County on October 5.

Northern Cardinal.—Reported during the period north to Polk, Barron, Bayfield, Ashland, Langlade, Marinette, and Door Counties. Burcar found 35 in Dane County on September 26.

Rose-breasted Grosbeak.—Found throughout the state at the beginning of the period. Ashman found 21 in Dane County on September 13. Last reported by Verch in Ashland/Bayfield Counties on November 24.

Indigo Bunting.—Found throughout the state at the beginning of the period. Peterson found 33 in Shawano County on August 1. Last reported by Burcar in Jefferson County on October 21.

Dickcissel.—Reported at the beginning of the period in Columbia, Dane, Dodge, Marathon, Polk, and Winnebago Counties. Belter found 4 in Marathon County on August 3. Last reported by Belter in Marathon County on August 13.

Rufous-sided Towhee.—Found in scattered areas throughout the state at the beginning of the period. Burcar found 8 in Dane County on October 10. Last reported by Zehner in Milwaukee County on November 13.

American Tree Sparrow.—First reported by Kuecherer in Monroe County on September 20. Ziebell found 200 in Winnebago County on November 23. Found at the end of the period north to Polk, Barron, Price, Langlade, Oconto, and Door Counties.

Chipping Sparrow.—Found throughout the state at the beginning of the period. Burcar found 60 in Green County on September 12. Reported at the end of the period in Dane County by Burcar.

Clay-colored Sparrow.—Reported at the beginning of the period in Columbia, Douglas, Langlade, Monroe, Polk, St. Croix, Shawano, and Taylor Counties. Belter found 5 in Marathon County on August 24. Last reported by Hansen in Dane County on November 12.

Field Sparrow.—Found at the beginning of the period north to Douglas, Taylor, Langlade, and Door Counties. Burcar found 15 in Dane County on October 7. Last reported by Frank in Ozaukee County on November 14.

Vesper Sparrow.—Reported at the beginning of the period north to Douglas, Taylor, Langlade, Oconto, and Door Counties. The Smiths found 6 in Oconto County on August 4.

Last reported by Hansen in Dane County on November 15.

Lark Sparrow.—Reported by Hunter at the beginning of the period in Trempealeau County.

Savannah Sparrow.—Found throughout the state at the beginning of the period. The Smiths found 40 in Oconto County on August 4. Last reported by DeBoer in Racine County on November 10.

Grasshopper Sparrow.—Reported at the beginning of the period in Columbia, Monroe, Polk, Portage, and Trempealeau Counties. Hudick found the last one in Polk County on September 1.

Henslow's Sparrow.—Reported by Burcar in Dane County on August 14 and by Korducki in Milwaukee County on September 21.

LeConte's Sparrow.—First reported by Hanbury in Milwaukee County on September 13. Last reported by Hansen in Dane County on November 15. Also reported in Manitowoc, Ozaukee, and St. Croix Counties.

Sharp-tailed Sparrow.—First reported on September 10 in Milwaukee County by Boldt. Last reported on October 11 in Marinette County by Lindberg and in Milwaukee County by Burcar.

Fox Sparrow.—First reported on September 21 in Ashland and Bayfield Counties by Verch. Kuecherer found over 100 in Ashland County on September 26. Reported at the end of the period in Door County by the Lukes.

Song Sparrow.—Found throughout the state at the beginning of the period. The Smiths found 67 in Oconto County on August 4. Reported at the end of the period in Dane, Milwaukee, and Winnebago Counties.

Lincoln's Sparrow.—Reported at the beginning of the period in Douglas and Juneau Counties. Epstein found 10 in Ashland County on September 27. Last reported by Hansen in Dane County on November 12.

Swamp Sparrow.—Found throughout the state at the beginning of the period. Ashman found 50 in Dane County on September 28. Reported at the end of the period in Dane, Dodge, and Milwaukee Counties.

White-throated Sparrow.—Reported at the beginning of the period south to Taylor, Marathon, Shawano, and Door Counties. The Lukes found hundreds in Door County on October 11. Found at the end of the period in Dane, Milwaukee, Outagamie, and Taylor Counties.

White-crowned Sparrow.—First reported by Hardy in Price County on September 11. Kuecherer found over 100 in Ashland County on September 25. Reported at the end of the period in Milwaukee County by Domagalski.

Harris' Sparrow.—First reported by Verch in Ashland and Bayfield Counties on September 23. Kuecherer found 3 in Ashland County on September 24 and the LaValleys found 3 in Douglas County on October 14. Last reported by Bontly in Milwaukee County on October 18.

Dark-eyed Junco.—Reported at the beginning of the period in Douglas and Price Counties. Hardy found over 1000 in Price County on October 1. Reported at the end of the period north to Polk, Barron, Price, Langlade, Marinette, and Door Counties. The Oregon race was reported during the period in Marathon, Monroe, Portage, and Shawano Counties.

Lapland Longspur.—First reported by Pickering in Langlade County on September 10. Ziebell found 400 in Winnebago County on October 27. Found at the end of the period in Dodge, Taylor, and Winnebago Counties.

Snow Bunting.—First reported by Hoefler in Burnett County on September 18. The Smiths found 102 in Oconto County on October 27. Reported at the end of the period south to Monroe and Dodge Counties.

Bobolink.—Found at the beginning of the period in Barron, Dodge, Douglas, Monroe, Polk, and Taylor Counties. The Smiths found 35 in Oconto County on August 4. Last reported by Berner in St. Croix County on October 3.

Red-winged Blackbird.—Found

throughout the state at the beginning of the period. Domagalski found over 45,000 in Dodge County on October 24. Reported at the end of the period in Dodge County by Burcar and Domagalski.

Eastern Meadowlark.—Reported throughout the state at the beginning of the period. Burcar found 32 in Kenosha County on September 23. Reported at the end of the period in Dunn County by Raile.

Western Meadowlark.—Found at the beginning of the period east to Marinette and Dodge Counties. Berner found 7 in Portage County on September 15. Last reported on October 20 in Columbia County by the Sheas and in Taylor County by Armbrust.

Meadowlark (sp?).—Reported at the end of the period in Pierce County by Carlsen and in Taylor County by Risch.

Yellow-headed Blackbird.—Found at the beginning of the period in Columbia, Dane, Dodge, Polk, St. Croix, Taylor, and Trempealeau Counties. Domagalski found 256 in Dodge County on August 17. Reported at the end of the period in Dodge County by Burcar.

Rusty Blackbird.—First reported by the LaValleys in Douglas County on September 15. Domagalski found 322 in Dodge County on November 5. Reported at the end of the period in Dodge County by Burcar and Domagalski.

Brewer's Blackbird.—Reported at the beginning of the period south to Portage and Door Counties. Domagalski found over 2000 in Dodge County on October 24. Last reported by Burcar in Dodge County on November 22.

Common Grackle.—Found throughout the state at the beginning of the period. Ashman found 2000 in Dane County on September 14. Reported at the end of the period in Dane, Dodge, Dunn, Monroe, Taylor, Trempeleau, and Winnebago Counties.

Brown-headed Cowbird.—Reported in scattered areas throughout the state at the beginning of the period. Domagalski found 640 in Dodge County on October 20. Found at the end of the period in Dane, Dodge, and Winnebago Counties.

Orchard Oriole.—Reported by Hunter at the beginning of the period in Trempealeau County and by Parsons in Walworth County on August 7.

Northern Oriole.—Found throughout the state at the beginning of the period. Ashman found 7 in Dane County on August 5. Last reported by Burcar in Green County on September 12.

Pine Grosbeak.—First reported by Hanbury in Milwaukee County on October 17. Nussbaum found 8 in Ashland County on November 28. Reported at the end of the period in Ashland, Bayfield, Burnett, Douglas, and Vilas Counties.

Purple Finch.—Reported at the beginning of the period south to Barron, Taylor, Langlade, Oconto, and Door Counties. The Lukes found 35 in Door County on November 6. Found in scattered areas throughout the state at the end of the period.

House Finch.—Found during the period north to Bayfield, Ashland, Marinette, and Door Counties. Berner found 50 in Portage County on August 29 and Ashman found 50 in Dane County on September 14.

Red Crossbill.—First reported by Pickering in Langlade County on August 10. Pickering found 11 in Langlade County on August 12. Found at the end of the period in Ashland, Bayfield, and Douglas Counties.

White-winged Crossbill.—First reported by Pickering in Langlade County on September 9. Peterson found 45 in Forest County on November 16. Reported at the end of the period in Douglas and Langlade Counties.

Common Redpoll.—First reported on October 19 in Dane County by Ashman, in Barron County by Goff, and in Douglas County by Semo. Cowart reported 200–250 in Ozaukee County on November 13. Reported in scattered areas throughout the state at the end of the period.

Pine Siskin.—Reported at the beginning of the period in Ashland, Barron, Bayfield, Douglas, and Price Counties. Epstein found 396 in Ashland County on September 28. Found throughout the state at the end of the period.

American Goldfinch.—Found throughout the state during the period. Burcar found 250 in Dane County on September 26.

Evening Grosbeak.—Reported at the beginning of the period in Ashland, Bayfield, Douglas, Price, and Vilas Counties. Hardy found 50 in Price County on November 30. Reported at the end of the period south to Monroe County.

House Sparrow.—Reported throughout the state during the period. Ashman found 80 in Dane County on August 18.

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"Ever Watchful" *by Cary Hunkel*

"By the Wayside"

Records of Brant, Black-necked Stilt, Purple Sandpiper, Red Phalarope, Parasitic Jaeger, California Gull, Laughing Gull, Iceland Gull, Great Black-backed Gull, Black-legged Kittiwake, Sabine's Gull, Ivory Gull, and Northern Hawk-Owl

BRANT (*Branta bernicla*)

5 November 1991, Racine County, Near Wind Point—I arrived at Wind Point at 12:45 P.M. to search for the Red Phalarope that had been reported the day before. I met Kay Burcar there, who informed me that the bird seemed to have disappeared, but that there were two Brant nearby. She led me across the golf course across the road from the point onto some property owned by Johnson Wax. We could not locate them on first arriving. As we attempted to move closer to the river, the large flock of Canada Geese, Black Ducks, and Mallards present flushed. I thought I noticed a smaller bird among the geese with a fast wingbeat, but I lost track of it. In a few minutes, however, the flock returned and this time I noticed 2 birds that were decidedly smaller than the Canadas, but also slightly bigger than the ducks, again with a faster wingbeat. They landed on a patch of grass near the river and it was now obvious they were Brant. By my estimation, they were the Atlantic race; the breast was black, as shown in my field guide, and was distinctly separated from the belly, which was light gray-brown. The light gray belly showed darker scallops like on a White-fronted Goose or a Canada Goose at close range. The entire neck and head were black, save for a white line at the junction of the two, again as in the field guide. The dark bill was small and stubby, perhaps suggesting an American Wigeon. The legs were black, and the underparts were white. The back was noticeably darker than a Canada's back, and when viewed from behind it was striking how the color changed to a very dark black toward the rear of the bird. I would like to have viewed the bird longer, but I was completely satisfied in the identification, and as it was, my hour lunch break turned into 2½ hours.—*Brian Boldt, 1832 Jeffery La., Waukesha, WI 53186.*

5 November 1991, Racine County, near Wind Point—I observed two Brants of the eastern subspecies *hrota,* which were resting and feeding with about 150 Canada Geese on a mowed lawn. Some of the geese were tagged

with orange and white bands, and some were tagged with white and black bands. The two birds appeared about one-third smaller than many of the geese, but about the same size as some of the smaller geese. The two birds had black heads, neck, and upper breast. A distinct line separated the dark upper breast from a gray-brown belly. The white marks on the necks of both birds were indistinct lines, more like white blotches. One bird had much less white on the neck than the other, however, these neck patches didn't join under the chin on either individual. The bird had white undertail coverts, but a small amount of black was noted on the tail. The black bill was short and had a conical shape, while the legs were black. At 12:45 P.M. when Brian Boldt and I viewed the birds, they were flushed so we had an opportunity to see the birds flying. I noticed the stout body shape and shorter wing beat than that of the Canada Geese. When they landed about 100 yards from us we immediately saw the smaller short black neck and head with the small white patches on the neck.—*Kay Burcar, 5136 Enchanted Valley Road, Cross Plains, WI 53528.*

11 November 1991, Racine County, near Wind Point—One bird, of 2 known to be present, was seen standing on grass on the far shore of a pond near some Canada Geese. It was a small, chunky goose with a very dark back and a black "stocking" over its head and neck and extending onto the breast. It had very light undersides. In flight, straight away from us, much white was seen on rump on 2 birds. Standing next to Canada Geese, it had a much darker back, totally black head and neck (no white chin, as in Canada), black extending onto breast with a clean demarkation at the light belly, and a small size.—*Bill Cowart, 3518 N. Murray Ave., Milwaukee, WI 53211.*

14 November 1991, Racine County near Wind Point—The 2 Brant were quickly located grazing with Canada Geese on the school soccer field. They were smaller than even the smallest of the Canadas and decidedly darker in overall coloration, particularly the back and wings. Like the Canadas, the flanks were barred with lighter brown, but became almost white and devoid of bars on the central breast. The undertail coverts and belly were white, the tail tipped in black, and the rump white. The legs were black. The head and neck were black, but instead of stopping on the lower neck, the black extended down onto the upper breast. The bill was small and black. Instead of a cheek/throat patch of white, the brant had an upper neck patch of black and white barring.—*James C. Frank, 4339 W. Laverna Ave., Mequon, WI 53092.*

BLACK-NECKED STILT (*Himantopus mexicanus*)

10 October 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—My initial naked-eye impression was of a large female Wilson's Phalarope, because of the dark neck stripe. As soon as I got it in my scope, however, its true identity was obvious. It was an active feeder, very much like an avocet or a phalarope. It fed in the vicinity of a Great Blue Heron, and was even seen to catch a small fish. At other times, it swept its thin bill rapidly back and forth across the water's surface. The top of the head and the back of

the neck were jet-black, the back and wings being a browner black. The face showed a white patch above and behind the eye, and there was a hint of an eyering. The bill was thin, black, and slightly upturned. The border between black and white was smooth except for the base of the neck and about halfway down the wing where the white went a little further up. The legs were bright pink. In flight it showed a completely white tail, with a white triangle going up the rump like a dowitcher. It called in flight, a loud whit-whit-whit-whit, which to me suggested a flicker. The bird was quite approachable, allowing me to get within 30 feet of it. Overall, the bird was slightly smaller and much less chunky than an avocet. It also bobbed like I have seen avocets do. The bird was again observed on October 11, when it was harassed by a flock of gulls which chased it around the impoundment.—*Brian Boldt, 1832 Jeffery La., Waukesha, WI 53186.*

10 October 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—The stilt was first seen in the extreme northwest corner of the impoundment. It was feeding actively in shallow water. It was a single, long-legged, slender bird only now and then in company of Black-bellied Plovers. The legs were long and of a bright pinkish-red color. The bill was about 2× head length, black in color and very thin, with the appearance of a slight upturn. Body color was a strong contrast of black and white; pure white below and black above, except for white above the bill and a white patch above the eye and extending to the eye. The top of the head and back of the neck seemed the very slightest shade darker in color than the back of the bird. Several times the bird flew a short distance along the edge of the impoundment. At such times it showed a pure white tail with the white extending to the rump area as a wedge going into the lower back. When feeding, the stilt sometimes moved its bill quickly from side to side, much like an American Avocet. While doing this movement, it caught a small minnow, which it ate.—*Robert C. Domagalski, W140 N8508 Lilly Rd., Menomonee Falls, WI 53051.*

10 October 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—Racing rush hour traffic and diminishing light, I arrived to find the stilt just 50 feet from the parking lot in the NW corner of the impoundment in shallow water. The long pink legs of this avocet-like bird were obvious. The body was delineated black dorsally and white ventrally. White extended from the base of the straight, long black bill, down the chin, throat, ventral neck, breast, belly, to the undertail coverts. The only other white area was a small spot above and behind the dark eye. In an otherwise half and half black and white bird, the white made only slight inroads into the black dorsal half in the throat, in front of the folded wing (carpus), and base of the folded primaries on the flank area. It walked and picked at the water in yellowlegs-like fashion, slowly moving away from me.—*James C. Frank, 4339 W. Laverna Ave., Mequon, WI 53092.*

11 October 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—Jim Hackett and I observed a black and white shorebird which had exceptionally long legs feeding next to the fence on the west end

of the impoundment. The bird had an upturned long, black bill which it probed into the mud as it fed. The white forehead, cheek, throat, neck, and belly contrasted sharply with the black crown, back of the neck, and back of the bird. The pinkish legs seemed at least half the height of the bird. After the initial viewing time of ten minutes, we explored the area for another two hours occasionally watching the bird which remained in the general location. It flew only short distances of twenty yards as it continued to feed. We saw the bird many times during this period. When the bird flew it held its long pink legs straight out behind it making it appear about 18 inches long. The legs were about one half the total length of the bird. When compared to the Black-bellied Plovers that fed in the same area, the bird appeared about one third again larger than the plovers. Several times the bird called five or six loud peeps as it flew. The weather was slightly overcast with occasional sunshine, which provided excellent light for viewing.—*Kay Burcar, 5136 Enchanted Valley Road, Cross Plains, WI 53528.*

Purple Sandpiper (*Calidris maritima*)

4 November 1991, Sheboygan County, Northpoint Park in Sheboygan—Among about fifty Dunlins, several Pectoral Sandpipers, several Sanderlings, a Ruddy Turnstone, and a White-rumped Sandpiper this bird appeared from behind a rock along the shoreline. This bird was stockier in build than the Dunlins and about the size of the pectoral. It had a smudgy gray breast with speckling directly below the upper breast. This speckling or streaking continued along the sides of the breast to the thighs and up into the undertail coverts with only a small area of white showing under the tail. Its black slightly down-curved bill was about the size of the pectoral's but the basal quarter inch or approximately one-third of the bill was yellowish. It had bright yellow legs. A slightly lighter gray surrounded the eye and an eyeline extended approximately the length of the eye toward the back of the neck. The smoky-gray crown and head blended into a slightly scaled dark back. A whitish wingbar was noticed as well as very dark primaries. The bird flushed several times, so I noticed a dark rump with the white of the undertail coverts visible. The bird fed among the rocks with the Dunlins with a probing motion, sometimes immersing its entire head under water. I watched the bird from a distance of fifty feet as it moved about thirty feet along the shore in open view most of the time.—*Kay Burcar, 5136 Enchanted Valley Road, Cross Plains, WI 53528.*

29 November 1991, Racine County, at Myers Park—While searching a large flock of gulls that were resting on the beach in Myers Park, I came across a shorebird that was feeding on the algae that had washed up on the shore. Immediately I recognized this bird as a Purple Sandpiper, a new bird for my state list. This turnstone-sized sandpiper was squat and had rather short legs. The legs were bright orange as was the base of an otherwise black bill. The bill was fairly long and slightly decurved, but not the extent of a Dunlin. I would describe the color of the back feathers as steely gray with a slight bluish tint. This gray continued into the

breast and diffused as streaks along the flanks. A faint white eyering was noted.

Although the light was poor, this bird was very tame and I observed it at leisure from as close as ten feet. I watched this winter plumage Purple Sandpiper at close range until a downpour forced me to leave.—*Mark Korducki, 4410 S. 21st Street, Milwaukee, WI 53221.*

Red Phalarope (*Phalaropus fulicaria*)

4 November 1991, Racine County, at Wind Point—A medium-sized shorebird was seen with an initial appearance of a half-sized Bonaparte's Gull. It was seen swimming out in the lake. It sat very high in the water in a typical phalarope look. It had solid, bright white underparts with no discernable pattern, a pale gray mantle extending in a narrow, darker stripe up the back of an otherwise white neck. The stripe split or forked at the crown. It had a dark, isolated eye patch. The rest of the head, including the forecrown and throat was white. In flight, a prominent wing stripe was seen. The bill was very dark, black, and very thick, for medium length, for a shorebird.—*Bill Cowart, 3518 N. Murray, Milwaukee, WI 53211.*

Parasitic Jaeger (*Stercorarius parasiticus*)

19 October 1991, Ozaukee County, at Concordia College—I arrived at Concordia College in Ozaukee County to watch hawks at about 11:00 A.M. on October 19, 1991. I was told by Bill Cowart that I had missed a distant sighting of a jaeger by just a few minutes. Only a minute or two after he spoke, I noticed a think, dark-brown, falcon-like bird flying low over Lake Michigan and quickly approaching us from the southeast. It came to about 200 yards of us before moving directly north to harass a gathering of gulls. As the bird moved north, I carefully watched it through my Swift Telemaster Zoom as it chased a first year Herring Gull. Although I looked for flashes of white in the primaries, I was not able to notice any on the top side of the bird. Only on the undersides of the primaries did I see paleness. This paleness was distinct. The top side of the bird appeared a rather uniform warm dark brown color. The undersides, except for the paleness in the primaries, was also darkish. The wings were narrow and angular with what appeared as an even width from angle of wing to the base. Flight was quick and falcon-like. Wing strokes were quick. The jaeger was much slimmer and smaller than the Herring Gull. Wing span was much less than the Herring Gull, and when seen with and compared next to Ring-billed Gulls (at a greater distance over the lake), wing span was less than that of the Ring-billed Gulls, I was not able to notice an extension from the central tail feathers. I had excellent back lighting during this sighting and from my vantage point at Concordia, had a nice look at the upper parts of the bird as it flew low over the lake.—*Robert C. Domagalski, W140 N8508 Lilly Rd., Menomonee Falls, WI 53051.*

19 October 1991, Ozaukee County, at Concordia College—As Brian Boldt and I approached the area on the bluff where Bill Cowart counts raptors, we heard Bill cry out, "Hurry up guys! A jaeger just flew by!" I rushed to the point and got my scope in position.

Almost immediately, I had the bird in view as it harassed a flock of Ring-billed Gulls hading north along the bluff. Its powerful flight and narrow wings bent at the joint gave it a falcon-like appearance but it was much more streamlined. I would compare its proportions to that of a Royal Tern. At this rather great distance, I wasn't able to observe any details on the shape of the tail.

This jaeger flew with very rapid wing strokes and had rather narrow wings. Since it was pursuing Ring-billed Gulls, a direct size comparison could be made. The jaeger was just smaller than the gulls (about 1 inch) and the wings were much narrower. It was a very dark bird both on the dorsal as well as the ventral side. I would describe the color of the back as chocolate brown with the ventral side slightly lighter brown. A faint white wing flash was noted on the underside of the wing. Due to the size, coloration, and proportions of this jaeger, I feel sure that it was a dark phase juvenile Parasitic Jaeger.—*Mark Korducki, 4410 So. 21st Street, Milwaukee, WI 53221.*

California Gull (*Larus californicus*)

29 November 1991, Sheboygan County, at Sheboygan—This bird was intermediate in size between a Ring-billed Gull and a Herring Gull, lacking the heavy build and structure of the latter species. The gray mantle was darker than the mantles of Herring Gulls it was with, and the underparts were white. The black on the primaries was more extensive than a Herring Gull's, appearing to be cut straight across the wing. The head, nape, neck, and sides of the upper breast were streaked and mottled. The head itself was very round, appearing at times high-domed. The yellowish bill was rather long, but slim, lacking the terminal swelling of the large larids, with a red and black spot on the gonys, the black extending to a comma on the upper mandible. The legs were a dull yellow with a hint of green and the eyes were dark.—*Robert Hughes, 696 Irving Park Rd., Chicago, IL 60613.*

30 November 1991, Sheboygan County, in Sheboygan—I arrived in Sheboygan at about 11:30 A.M., and after finding the resident Purple Sandpiper and looking over the gulls by the YMCA parking lot, I decided to drive to a short dead-end road just to the south to get a better look at the gulls lined up on the breakwater south of the river inlet. These proved to be mostly Herring Gulls, but one adult gull caught my attention. It was sitting with its head tucked in and appeared to be slightly smaller than the Herring Gulls sitting around it. Its mantle was a little bit darker gray, approximately the shade of a dark adult Thayer's Gull or a hair darker. The bird's head had heavy brown streaking which extended a bit onto the sides, and to a lesser extent, the front of the breast. I waited quite a while for the bird to stand up and begin moving around, and when it finally did, I was able to see that the legs were a grayish-greenish-yellowish color, quite unlike the pink or grayish-pink of the Herring Gulls. The bill appeared to be a bit smaller (shorter and slimmer) than the Herring Gull's bills, and was about the same color as the legs, with a small dark subterminal patch. The underparts were white, except for the brown breast streaking, the upperside of the closed wingtip was

black with a row of white apical spots, and the underside of the wingtip was black with a large, white "mirror." Overall, the gull looked a little smaller, darker, shorter-legged, and rounder-headed than the Herring Gulls.

At this point I decided to get out of the car and set up my Questar (I had been using a scope attached to a window mount), but once that was done I couldn't refind the bird. After a few minutes of fruitless searching I went back to the YMCA parking lot, and found the California Gull floating just offshore with a large flock of mostly Ring-billed Gulls. At this closer range I noted the following field marks using both scopes: size intermediate between Ring-billed and Herring Gulls; mantle color slightly darker than either species (appearing even faintly bluish); brown streaking on head and breast as observed earlier; dark eye (I could see this quite well and had a good comparison with the obviously pale irises of other adult gulls nearby); head smaller and more rounded than Herring Gulls; bill roughly intermediate in size between Herring and Ring-billed Gulls, greenish-yellowish in color, with a dark smudge subterminally on lower mandible mostly covering red spot—bill appeared banded, with a thorn-shaped dark mark on upper mandible just above smudge on lower mandible; prominent white spots on tips of black outer primaries (indicating fully adult bird); white tertail cresddnts that seemed somewhat more obvious than those on the other gulls. The gull took flight after a few minutes and I lost sight of it, but not before I caught a quick glimpse of seemingly more extensive black in the wing tips than shown by the Herring and Ring-billed Gulls.—*Janine Polk, 1407 Frederic St., Eau Claire, WI 54701.*

Laughing Gull (*Larus atricilla*)

3 August 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—A sub-adult Laughing Gull with bill and legs black, breast gray, head a mottled gray, tail and rump white, mantle a dark slate-color becoming black at the primaries was seen. No sign of white spotting on the wings was seen in flight. Many secondaries were missing, giving the bird a ragged look in flight. When it was on the mud flats, it stood near an immature Franklin's Gull, plus Bonaparte's Gull and Ring-billed Gulls. It was noticeably larger than the Franklin's Gull and the white crescents by the eye were not as distinct as in the Franklin's. In resting position, the tips of the primaries were all black with none of the white spotting, as seen on the Franklin's. The bill was longer and bulkier than the Franklin's, with a definite thickened appearance near the tip.—*Robert C. Domagalski, W140 N8508 Lilly Rd., Menomonee Falls, WI 53051.*

2 October 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—The head was a mottled gray, the mantle a dark slate color becoming black at the primaries, with no hint of white spotting near the wingtips. There was a white trailing edge to the secondaries. The tail was white, except for one complete black band near the terminal end. The bird was seen only in flight over the impoundment. Flying near the Laughing Gull was one Franklin's Gull (present all season), and several Ring-billed Gulls. The Franklin's Gull was noticeably smaller,

while the Ring-billed Gulls were approximately the same size as the Laughing Gull. There were nice size comparisons with both the Franklin's Gull and the Ring-billed Gull. The Laughing Gull was very noticeably larger than the Franklin's and the white spotting near the wingtips of the Franklin's clearly showed in comparison to the lack of spotting on the Laughing Gull. Laughing Gulls had been seen on nearly a daily basis at the impoundment from May until mid–August. This was the first Laughing Gull seen since August 18th, and is a different individual from the one subadult seen here in August.—*Robert C. Domagalski, W140 N8508 Lilly Rd., Menomonee Falls, WI 53051.*

Iceland Gull (*Larus glaucoides*)

28 November 1991, Sauk County, at the Sauk-Prairie Dam and Lake Wisconsin—I first spotted the gull flying and feeding near the Sauk-Prairie dam. It was among about 500 Herring Gulls and Ring-billed Gulls, and one Glaucous Gull. I watched the bird for about ten minutes as it flew and dove twice to catch at least two fish. At times I was no more than fifty yards from it. I noted the all black bill which was more delicate than that of Herring Gulls which were flying nearby for comparison. The size of the bird seemed just a slight bit smaller than the Herring Gulls. The bird appeared to be a uniform blondish plumage with no dark wingtips. The underside primaries were almost white, while the upperside seemed to be a uniform color with the mantle. Then it disappeared, so I left the dam area and drove to the Lake Wisconsin golf course on the other side of the river where about 1500 gulls were resting on the ice. First I picked out the Glaucous Gull with the pinkish bill and black tip on the distal end. Then I spotted the other gull which seemed somewhat darker in plumage compared to that of the glaucous. The plumage of both birds was what I would call blondish overall. Around the dark eye of the bird was a dark grayish smudge which extended about one quarter inch toward the nape. Otherwise the plumage was an overall white with beige markings. As the bird preened, I noticed that the tail seemed somewhat speckled with these beige markings and no apparent evidence of a band. The whitish wingtips extended past the tail for a distance greater than the bill length of the bird. The primaries were definitely lighter or perhaps the same color as the mantle. This characteristic seemed to eliminate the Thayer's race.—*Kay Burcar, 5136 Enchanted Valley Road, Cross Plains, WI 53528.*

Great Black-backed Gull (*Larus marinus*)

22 October 1991, Milwaukee County, near the Milwaukee Coast Guard Impoundment—Due to my relative inexperience with gulls, I am listing this as a probable record. The size is what first struck me; it was swimming near the lake, near a flock of American Coots. It was fully twice as long as the coots. It was rather lethargic, and did not appear to disturb the coots. The head was white with a little brown streaking. The back was mottled brown, distinctly separate in color from the head. The back color became increasingly dark toward the level of the wing at the waterline. I did not see the tail. Though there was no direct comparison, the head

seemed large than a herring's. The bill too was heavy, and was singularly patterned; it was yellow, with a distinct black tip and conspicuous black lips running back all the way to the base.—*Brian Boldt, 1832 Jeffery La., Waukesha, WI 53186.*

5 August 1991, Door County, at Newport State Park—While walking Lynd Point trail's north end in Newport State Park, I decided to glass the shoreline for potential shorebirds. Stepping off the trail towards the rocky shore, I noticed a large gull pulling apart a fish. About 25 yards away, I could conclude it was a Great Black-backed Gull with a naked eye. The slaty-black back and dominating size were marked. With my binoculars I focused a bit closer on the bird. Its large yellow bill containing an orangish spot at the tip basically confirmed the sighting.

Its mannerisms were particularly interesting. Several smaller immature Herring Gulls stayed close by (5–15 feet), hoping to scavenge a bit of the fish. On one occasion, it moved away from the fish enough for an immature Herring Gull to get a nibble. This was when I made my presence known by attempting to get closer to the bird. I got within 15 yards. When I backed off, it went back to consuming the fish, not even using aggression to drive the Herring Gull away, as both understood who was in charge. The bird then continued its feast; looking up about every 5 seconds, and moving to a different position every few minutes. It flipped the fish, estimated to be 5–7 lb., several times while I watched. It gave several 2–3 note calls that were low and quiet. I never saw it in flight and didn't get a close look at the legs, as the bird was standing in water.—*Kevin Glueckert, P.O. Box 119, Ellison Bay, WI 54210.*

Black-legged Kittiwakes (*Rissa tridactyla*)

1 November 1991, Milwaukee County, along the Lake Michigan Shoreline in the Milwaukee Harbor—I was watching many Bonaparte's Gulls moving south along the shore (between the shore and breakwater), from the vantage of the bluff, just south of the South Shore Yacht Club. I first noted 2 kittiwakes together, in with Bonaparte's, then one a few minutes later. These birds were Bony-style gulls, but substantially larger (ring-bill size), basically light gulls with a very dark inverted W-pattern on the upper wing surface. A clear black tail band and distinct dark collar, or yoke, on the hind-neck was seen on all 3 birds.

Another similar-appearing bird was observed from the parking lot where North Avenue meets the lake, as it flew south approximately 200 feet off shore with the still many Bony's. Nearly all the Bonaparte's Gulls were basic-plumaged adults. Immature-plumaged birds were scarce.—*Bill Cowart, 3518 N. Murray Ave., Milwaukee, WI 53211.*

Sabine's Gull (*Xema sabini*)

21 September 1991, Douglas County, at Wisconsin Point—As I was birding Wisconsin Point I glanced up to see what I first thought to be a Black-bellied Plover flying over about 25 feet up. I instantly realized that it had no black axillaries and was in fact a small Bonaparte's-sized gull with black wingtips. The all white underside gave me no clue as to species and I had almost no look at the head, neck, or tail. The

gull continued in unwavering, straight-away flight to mid-bay before it finally turned slightly sideways—enough for me to catch a glimpse of the upper wing pattern. The black "tips" on the primaries formed a large triangle. The upper inner wing was a greenish-brown. I have only seen once before—on the inner wing of an immature Sabine's Gull. Between these colors was a triangle of white. Both triangles pointed tip to the leading edge of the wing, and bases along the trailing edge of the primaries and secondaries. Although the wing pattern and size of the bird convinced me that it was a Sabine's Gull, this was a disappointing look at a good bird. It never landed and paid no attention to the many other gulls in the bay, but kept flying until out of sight in the west.—*Robbye J. Johnson, 2602 N. 28th St., Superior, WI 54880.*

Ivory Gull (*Pagophila eburnea*)

28 November 1991, Milwaukee County, at the Milwaukee Coast Guard Impoundment—With 9× binoculars, I identified the gull at approximately 200 yards as it sat on the ice off to the side of ring-billeds. Even with an overcast sky, the bright white of the entire bird ruled out even Iceland Gulls or Glaucous Gulls. I set up my 20× scope and could easily see the very black legs and black tips and markings on the snow white flight feathers. When it untucked its head, a very dark area could be seen in front of the eye and base of the bill (which appeared dark at this distance). This gull appeared about the same size as the Ring-billed Gulls, but seemed to sit lower and more squat. I observed the bird for about 15 minutes like this, then left to make phone calls. I returned with John Idzikowski and together we watched the bird sitting and then in flight. Thus, the black-tipped rear edge of the wing was observed. The markings on the tail in flight were not noted.—*Bill Cowart, 3518 N. Murray Ave., Milwaukee, WI 53211.*

28 November 1991, Milwaukee County, at the Coast Guard Station in Milwaukee—I was on the phone with Mark Korducki when Bill's son called me informing me of this bird. I met Mark at the impoundment, but we could not locate the bird. Our short drive to south shore was cut short on finding a group of rapt birders in the driveway of the Coast Guard Station. The bird was perched on a concrete breakwater out in the lake. It remained motionless, more or less, for the hour I viewed it. The bill and legs were black. The black waxwing-like mask was also seen. It required some effort and eyestrain, but black spots were apparent on the tips of the primaries, and on the tail. Black spots were scant or lacking. The back and the upper part of the mantle, excluding the flight feathers, appeared especially clean white. Overall, the bird appeared to have less spotting than in most pictures I've seen. The bird also struck me as plump, compared to the dainty, tern-like bird pictured in my Golden Guide. The distance prevented a very accurate estimation of size, but I would say approaching ring-billed size is a fair guess. It may have appeared large due to puffed out body feathers.—*Brian Boldt, 1832 Jeffery La., Waukesha, WI 53186.*

28 November 1991, Milwaukee County, at South Shore Park in Mil-

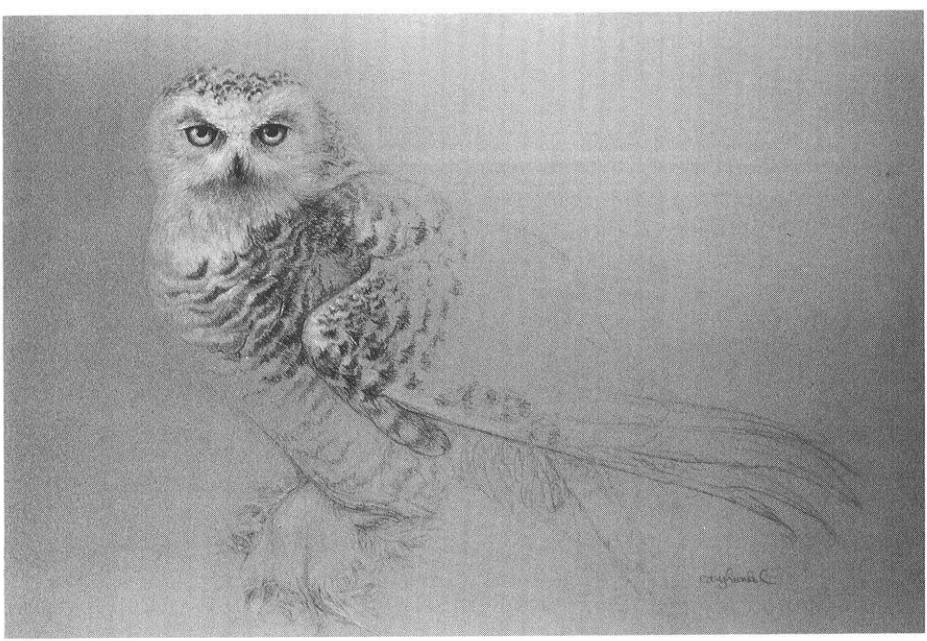
waukee Harbor—Arriving at the Coast Guard Impoundment, I failed to see any odd-looking gulls. Bill Cowart came down the road in his truck honking to signal us to follow him to the other side of the Coast Guard buildings near South Shore Park. He and John Idzikowski had the bird in a scope, sitting out on the cement breakwater by itself. Direct size comparison was not possible, but Herring Gulls and pigeons were 30 feet and perhaps 70 feet away on the rock breakwater to suggest a size in between these two species for the gull in question. It was starkly white with black legs and a black bill (no different coloration at the tip was discernable). A black eye sat outside, but right at the edge of black smudging that occupied the area between the eye and bill. The bill seemed disproportionately short for a gull. Another odd feature was the profile of the head. The forehead was more vertical and less-sloped than other gulls. This made the bill seem to sit lower on the face in profile than expected. Black was also noted on both surfaces of the primaries at the tips of the primaries. In certain angles, a terminal black band was detected on the upper tail. In an hour of observation the bird did not spread its wings or fly. Another comment should be made on how forward the position of the legs seemed to be on profile looks.—*James C. Frank, 4339 W. Laverna Ave., Mequon, WI 53092.*

Northern Hawk-Owl (*Surnia ulula*)

17 November 1991, Douglas County, at Wisconsin Point—Since Minnesota was having a record year for hawk owls, I had planned on looking in Douglas County late in the winter for a possible "spill over" of birds. However, I didn't expect to find one on Wisconsin Point. As I rounded the corner by the old landfill on November 17, I spotted a small raptor in the top of a balsam fir right at the road. After spending so much time watching the four corners bird last year, I knew it was a hawk owl and stopped for a better look. It was smaller than a Barred Owl with heavy black edges around the facial discs. The tail was proportionately very long. The wings looked long and pointed and flight was fast and falcon-like. The head and back had small whitish spots. A larger light patch just behind the side edge of each disc looked like white ears. Narrow brown bars covered the breast and belly. In flight the whole upper side of the bird looked uniformly dark brown. The bird was actively hunting, moving from tree to tree and went down twice for prey. It virtually ignored me. I took two photos and watched it for about five minutes, then went on down the point to look for gulls.—*Robbye Johnson, 2602 N. 28th St., Superior, WI 54880.*

29 November 1991, Iron County, along US Highway 2—When I first saw the bird (slightly smaller than a crow) it was only as a profile. Its long tail and large head caused me to suspect it might be a hawk owl so I turned around and went back to investigate it. When I stopped near the area where the bird was perched I could distinctly see the strong barring on the underparts and the black border surrounding the sides of its face. Also apparent was a white throat. All these marks were visible without binoculars (which was good because I didn't have any with me). I put a 500 mm lens on my

camera and got out of the truck. The owl watched me for a short time and then flew to a nearby spruce where I had a chance to confirm the barring, facial disks, and throat color. Dorsal color was a brown with light (white) spots of varying size. Face was light-colored and the beak was yellowish. Small white spots on the forehead and crown were visible as were the yellow eyes. The light wasn't good, but I did take several pictures. I was able to walk under the tree where the owl perched without causing it to fly. I looked for the owl six hours later when I was returning to Ashland, but couldn't relocate it.—*Richard L. Verch, Biology Dept., Northland College, Ashland, WI 54806.*



"Tundra Ghost" *by Cary Hunkel*

About the Authors and Artists

Gabrielle V. Barrett is a student at the University of Wisconsin-Stevens Point where she worked on park Mallards with Professor Eric Anderson.

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Scott R. Craven is a Professor of Wildlife Ecology at UW-Madison, where he is Wildlife Extension Specialist; his regular feature "At Home with Birds" ends with this issue.

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

Cary Hunkel has her Masters of Fine Arts degree from the University of Wisconsin-Madison; her work has been shown at "Birds in Art" in Wausau.

Sooil Kim, a native of Korea, is pursuing his Ph.D. in Land Resources in UW-Madison's Institute for Environmental Studies.

Charles A. Long is a Professor of Biology at UW-Stevens Point.

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Mark S. Peterson, the fall field-note compiler, has his B.S. in Biology from UW-Stevens Point.

Thomas R. Schultz, who co-chairs WSO's Field Trip Committee, is one of Wisconsin's most accomplished wildlife artists.

Allen K. Shea, WSO's President, works for the Wisconsin DNR; he has a M.S. in Water Resource Management from UW-Madison's Institute for Environmental Studies.

William K. Volkert is a wildlife educator with the Wisconsin DNR at Horicon Marsh; he chairs WSO's Education Committee.

NOTICES AND ADVERTISEMENTS

Minutes of the Annual Meeting (May 30, 1992, Ashland, Wisconsin)

The 53rd annual business meeting of the Wisconsin Society for Ornithology was called to order at 1:18 P.M. at Northland College, Ashland, Wisconsin by President Allen Shea with approximately 95 people present. The convention was hosted by the Sigurd Olson Environmental Institute.

President Hoffman opened the meeting welcoming back former conservation chairman Sam Robbins who has recovered from the illness that prevented his attendance at last year's convention.

Minutes of last year's annual meeting at Green Bay were published in the Fall 1991 issue of the *Passenger Pigeon.* Daryl Tessen moved, seconded by Bob Adams, that the minutes be approved as published. Motion passed.

President Shea thanked Dick Verch, organizer of this convention, and all the people of the Sigurd Olson Institute who helped him. Attendance at this convention was thirty or forty more than last year.

Vice-president Charles Sontag reported that the Oshkosh Bird Club has offered to host the 1993 convention. On motion by Al Shea, seconded by Randy Hoffman and duly passed, the offer was accepted. Bettie Harriman will be the chairman. She has also joined the WSO board as publicity chair.

Treasurer Alex Kailing distributed copies of his 1992 Convention Treasurer's Report consisting of a statement of 1991 revenue and expenses and the balance sheet as of 1991 year end.

The balance sheet showed total assets of $151,170. This breaks down as follows:

	1991	*1992*
Cash	$ 2,707	$ 638
Savings		
General	11,829	21,702
Endowment	9,672	13,306
Investments		
Endowment	20,000	20,000
Scholarship	14,340	14,578
Inventories		
Slides	2,679	3,165
Slides cash	2,788	2,603
Book Store	41,200	38,998
Cash	3,259	3,667
Equipment	687	675
Land and Buildings		
Prairie Chicken land	1,491	1,491
Honey Creek land	21,476	21,476
Nature Center	8,929	8,929
Total	$141,055	$151,170

This total compares with $79,226 eleven years ago.

A copy of the complete treasurer's report is attached to the original copy of these minutes and becomes an integral part thereof.

Membership—Copies of Alex Kailing's report were distributed. The report showed total membership as of May 1, 1992 as 1292. This is down from 1991 probably because of the increase in dues. There were 189 non renewals compared to 130 last year.

New membership brochures have been printed and are available in the book store and from the treasurer.

A copy of the membership report is attached to the original copy of these minutes and becomes an integral part thereof.

Passenger Pigeon—Editor Stan Temple distributed copies of the editor's report. As noted last year, his term as editor will cease after the winter 1992 (vol. 54, no. 4) issue. Becky Isenring of Sauk City will take over with Volume 55, 1993. Stan said she is highly qualified for the position. She has a zoological degree from the UW-Madison and is computer competent, a talent needed for the position.

A copy of the report is attached to the original copy of these minutes and becomes an integral part thereof.

Badger Birder—Editor Randy Hoffman said that he would welcome articles for the *Birder*, especially from and about local bird clubs. He said he tries not to do much editing on the local bird club articles. Unusual bird sightings or short articles on birding experiences are also welcomed. Deadline for articles is the second day of the month. Issues come out on the fifteenth.

Grants and Awards—Nine applications for support of research on Wisconsin birds were reviewed by myself, Noel Cutright, Senior Ecologist, WEPCO and Edward Burkett, Assistant Prof. of Biological Sciences, UW-Superior. A total of 16 inquiries for scholarship and grant information was also received due in great part to the high visibility given Grants in the new format of the "Birder." Because of an increase given the Grants fund by the WSO Board we were able to fund 8 requests for 1992. For 1993 I feel that more attention should be given to attracting applicants for the Steenbock Award—funding research of amateurs and unsponsored projects and scholarships.

Steenbock Awards for 1992

Lisa M. Hartman. Establishment of a Monitoring Program for Yellow Rails in Wisconsin.

Neal D. Niemuth and Keith J. Merkel. Tracking of Microtine Rodent Populations by Breeding Northern Saw-Whet Owls.

WSO Awards for 1992

Doug Anderson, Jim Gangl and Scott Mayer. Correlation Between Concentrated Raptor Migrations and Weather Conditions in NW Wisconsin during the Spring Migration.

Cheryl Dykstra. Factors Controlling Lake Superior Bald Eagle Productivity.

Mike Grimm. Survey of Breeding Birds of the Nicolet National Forest.

Carolyn Pytte. Colonization and Dispersal Patterns of House Finch in Southeastern Wisconsin and the Development of Song Patterns.

Tamara M. Ryan. Snag Use by Birds in North Central Wisconsin.

Sherrie L. Zenk. Evaluation of Willow Encroachment in a Navarino Wildlife Area Sedge-Meadow.

Supply Department—Chuck Gilmore was complimented by President Shea for his work as head of the supply department which he has handled since

1977. He received a round of applause from the members.

Conservation—Noel Cutright has succeeded Sam Robbins as Conservation Chair. Noel thanked Sam for the work he did during the last four years. A membership survey of a few years ago indicated that WSO members want the society to become more active in conservation matters. Noel will work in that direction.

The Bird-a-thon/Band-a-thon was successful again this year. 91 species were seen and 27 banded. Over $2000 was raised.

Publicity—Bettie Harriman has been sending short articles about pending field trips to the local papers near where the field trips will be held. She will try to get other publicity to local papers.

Bettie asked members to let her know where some of the membership brochure display stands are.

The carrying case for the WSO information booth display has been repaired but the display itself is in need of refurbishing. Any member wishing to use the display for a meeting, conference, etc. should contact Bettie.

Records—Jim Frank of Mequon is the new Records Committee chair.

Nominating Committee—Daryl Tessen presented the following slate in nomination for 1992–93:

President: Allen Shea
Vice president: Charles Sontag
Secretary: Carl Hayssen
Treasurer: Alex Kailing
Editor: Stan Temple to be followed by Becky Isenring at the end of 1992

Charlotte Lukes moved that the nominations be closed and that the secretary be instructed to cast a unanimous ballot in favor of the slate presented. Motion seconded Eleanor Kratzat and passed.

The meeting was adjourned at 1:52 P.M.

Respectfully submitted,
Carl G. Hayssen, Jr., Secretary

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.

OFFICERS (1991–92)

President*: Allen K. Shea, 2202 Manor Green Drive, Madison, WI 53711 (608-274-8380)

Vice President*: Charles Sontag, 801 North 4th Street, Manitowoc, WI 54220 (414-682-8988)

Secretary*: Carl G. Hayssen, Jr., 6855 North Highway 83, Hartland, WI 53029 (414-966-2839)

Treasurer*: Alex F. Kailing, W330 N8275 West Shore Drive, Hartland, WI 53029 (414-966-1072)

Editor*: Stanley A. Temple, Department of Wildlife Ecology, University of Wisconsin, Madison, WI 53706 (home, 608-795-4226; office, 608-263-6827)

COMMITTEE CHAIRS (1992–93)

Annual Convention (1993): Bettie R. Harriman, 5188 Bittersweet Lane, Oshkosh, WI 54901 (414-233-1973)

Associate Editor*: Daryl D. Tessen, 2 Pioneer Park Place, Elgin, IL 60123 (708-695-2464)

Awards*: Mary F. Donald, 6918 North Belmont Lane, Milwaukee, WI 53217 (414-352-8940)

Badger Birder*: Randolph Hoffman, 305 5th Street, Waunakee, WI 53597 (608-849-4502)

Conservation*: Noel J. Cutright, 3352 Knollwood Road, West Bend, WI 53095 (414-675-2443)

Education*: William K. Volkert, W996 Birchwood Drive, Campbellsport, WI 53010 (414–485–3018)

Field Trips*: Thomas R. Schultz, N6104 Honeysuckle Lane, Green Lake, WI 54941 (414-294-3021) and Jeffrey L. Baughman, RR 1, Box 219, Adell, WI 53001 (414-626-4713)

File Keeper: Raymond Anderson, 7420 County MM, Amherst Jct, WI 54407 (715–824–2866)

Hotline (414-352-3857): William Cowart, 4604 N. Woodruff Avenue, Milwaukee, WI 53211

Lands: Gordon F. Cox, S8097 Alder Drive, Loganville, WI 53943 (608-544-5081)

Legal Counsel*: Carlo A. Balistrieri, 106 Collins Street, Oconomowoc, WI 53066 (office, 414-567-8600)

Loan of Slides: Stephen J. Lang, 5613 Commanche Way, Madison, WI 53704 (608-249-5684)

Membership*: Alex F. Kailing, W330 N8275 West Shore Drive, Hartland, WI 53029 (414-966-1072)

Publicity*: Bettie R. Harriman, 5188 Bittersweet Lane, Oshkosh, WI 54901 (414-233-1973)

Records*: Jim Frank, 4339 West Laverna Avenue, Mequon, WI 53092 (414-242-2443)

Research*: Robert W. Howe, Department of Natural and Applied Sciences, University of Wisconsin, Green Bay, WI 54311 (414–465–8263/2272)

Scholarships and Grants*: John H. Idzikowski, 418 East Plainfield Avenue, Milwaukee, WI 53207 (414-481-6840)

Supply Department*: Chuck Gilmore, 115 Meadow Wood Drive, Randolph, WI 53956 (414-326-3221)

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*Members of the Board of Directors

CONTENTS

Volume 54 Summer 1992 Number 2