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

WISCONSIN BIRDLIFE NEARS PUBLICATION

The long-awaited definitive book, *Wisconsin Birdlife*, is at the printers and should be available in the spring of 1991.

I recently had an opportunity to chat with Sam Robbins, who most of you should know is the author of this book. Sam led me through a progression of events that started in 1969 and is now nearing an end as the publication date approaches. While Sam and I talked, I seemed to sense several feelings he had about his work. First was a sense of accomplishment; he thinks this book helps fill a gap in the knowledge and understanding of the birds of Wisconsin. This, I believe, is due to Sam's lifelong passion for birds, because it seems the more a person knows, the more there is to be known.

Secondly, Sam feels strongly that the book has been produced by everyone that has made an recorded observation in Wisconsin. He emphasized to me the long rigorous searches of file and data to make the book as complete as possible.

Records of all kinds went into the development of this book, not only those from the active WSO members, but also casual observations such as backyard notes, letters, news articles, and magazine articles. The usual and the common place went into the book. So, when you read or hear from our field-note editors that all records are important, this book proves they are important.

Thirdly, the book can be used as a permanent historical reference. Future events and great throngs of knowledgeable future birders will steadily render the book out-of-date. Sam recognized this early on and wanted to make his book an historical reference, whatever should transpire in the future. He spent countless hours scouring old records of all types to make sure all of the knowns were there. He especially noted the work of Owen Gromme and his assistants who assembled a rather complete library of bird-related articles prior to the incorporation of WSO.

Finally, I think Sam feels he has let some people down. He mentioned to me he had some uneasy feelings about having what was at first thought to be a five-year project turn into a twenty-year project. Being the kind man I know, he refused to fault anyone or anything, other than his own naivete about the magnitude of the task his friends at the Milwaukee Public Museum had given him.

The project started in 1969 when Owen Gromme asked Sam to write the complimentary book to his *Birds of Wisconsin* book. Sam agreed to do it, as soon as he finished his masters degree. So in 1971, Sam began work on the project, and he was granted a research associateship by the Milwaukee Public Museum. The Museum sponsored the project through the years and will receive remittance upon sales. It was understood that Sam would only work on this project as a second job, and his primary duties would be to his chosen profession.

During the next several years, Sam spent most of his time gathering data. He

began writing in earnest in the mid 1970's. As he finished sections, he would refer them to experts in the field for peer review. By the early 1980's Sam had finished much of the text, and his son Rick had finished the maps. Unforeseen events kept delaying publication, so Sam updated the book through 1985, then again through 1987, and now, finally, the last addition will be the Fulvous Whistling-Duck recorded in Columbia County in 1989.

At the time of publication, the long travail should be at an end for Sam. When I asked him what he felt being so near to the end of the project, he said "RELIEVED, in capital letters" not only for himself, but for all of his faithful friends, who have stuck by his side and supported him all these years.

The birders of Wisconsin and the world will soon be able to appreciate Sam's efforts. Sam's relief is our gain. Thanks, Sam. I've got a place on my bookshelf reserved for *Wisconsin Birdlife.*

Randy Hoffman

President

Status of the Sandhill Crane in Wisconsin: Results of Annual Crane Counts, 1983–90

Changes in the size of the Sandhill Crane population in Wisconsin were examined for the period from 1983 to 1990 using data obtained through the annual crane count of the International Crane Foundation. Population size peaked in 1988 but declined in 1989 and 1990, coincident with two years of severe drought beginning in 1988. The long term trend shows a 6% annual increase in the number of breeding pairs.

by W. Vernon Windsor

Cranes can serve as excellent indicators of the health of the wetland ecosystems that provide their habitat. Their numbers and distribution are assumed to be influenced strongly by the quantity and quality of the wetlands in a region. In addition, cranes are sensitive to human activities, and their slow reproductive rates render them especially vulnerable to overkill. The Sandhill Crane (*Grus canadensis*) was originally abundant as a migrant and common as a breeding species in Wisconsin. Initial declines in Wisconsin's crane populations, caused primarily by excessive hunting, had occurred by 1900. Only 25 pairs were estimated surviving in the state in 1936 (Hunt et al. 1976). Since then cranes have been recovering because of strict protection and habitat changes. Significant increases early in the 1960's were attributed to the state's acquisition and management of large areas of wetland habitat for waterfowl. Cranberry bog development was also beneficial to cranes, in that the farmers changed wetlands and managed water levels in ways that favored cranes (Hamilton 1971). The Greater Sandhill Crane was removed from the "Rare and Endangered List" of the U. S. Fish and Wildlife Service in 1973, and the increasing trend in the Wisconsin population has reduced the need for a specific management program for cranes (Hunt et al. 1976).

Until 1975, there were no coordinated efforts to census the Wisconsin crane population. Annual crane counts began as a high school study project in 1975 in Columbia County.

For several years, the Wisconsin Wetlands Association sponsored the event. The International Crane Foundation has organized the counts since 1981. The counts involve thousands of volunteers who count cranes in designated areas on a single day statewide. These crane counts provide data that can be used to reveal changes in the state's crane population. Harris and Knoop (1988) made the first attempt at analyzing the data from these counts. In this paper, I have used the annual crane count data from 1983–90 to show how the size of the crane population has changed over time, and I speculate on why these changes have occurred.

Materials and Methods

The annual crane count has taken place on a single date each spring from 1981 to the present. Timing of the count greatly influences results: there is only a brief period of time between spring migration, when Wisconsin is visited by many migrant cranes headed for more northerly breeding areas, and the establishment of local breeding pairs. Since 1982, the count has occurred during the third week in April. By that time, most migrants have passed through Wisconsin, but territorial pairs are still highly vocal while defending their marshes and courting. By early May, the cranes are on eggs and become secretive and difficult to count (Harris and Knoop 1988).

Participants in the count include a state coordinator, county coordinators, and counters. An International Crane Foundation staff person serves as state coordinator, doing planning, selecting sites, recruiting participants, arranging publicity, and developing training materials. The state coordinator also meets with county coordinators to compile the data county by county and checks the reports filed by the county coordinators for accuracy and completeness.

County coordinators recruit local counters, identify count sites, do local publicity, collect data sheets from counters, and complete a summary sheet for the county. All maps, summary sheets and a list of counters' names and addresses are compiled by the International Crane Foundation.

Counters at each site fill out a data sheet during their sunrise watch on count day. Observers arrive at their assigned site at 0530 hours and remain until 0730 hours. On a standard data form, they record the site identification number, landowner, condition of the wetland, adjacent land-use, other wildlife observed, and all crane observations, by ear or eye, together with the time. At the end of the watch, they estimate the number of cranes and the number of breeding pairs (these being identified by the unison calls given only by mated pairs). A sketch map of the site, with the locations of cranes is also prepared. Further details on the count procedures are provided by Harris and Knoop (1988).

Up to 1547 sites have been surveyed each year in as many as 70 counties. As many as 2867 counters have participated on count day. Because not every site is surveyed each year, 219 sites from 26 counties with continuous records from 1983 to 1990 were used to analyze crane population trends.

The Wisconsin Department of Natural Resources surveys wetlands and waterfowl populations each year (Andryk et al. 1990). Fluctuations in the size of breeding duck populations and

the number of wetlands per square mile were compared with changes in the number of cranes counted over time.

Results

Over the period 1983–90, the average number of cranes per site peaked in 1988 and was lowest in 1990. The average number of counted breeding pairs per site peaked in 1989 and was lowest in 1986. A regression analysis ($y = 1.55 + 0.0627x$) shows that the number of breeding pairs per site has been increasing, on average by 6% each year (Fig. 1). From 1987 to 1988, the number of cranes per site increased by 31% at the 219 selected sites and by 24% at all sites. The average number of cranes and pairs per site has been consistently greater at the 219 selected sites than at all sites (Fig. 2). There was much more variation within and between years in the average number of cranes per site than in the average number of pairs per site (Fig. 1 and 2). The total number of counted cranes and the total number of ducks counted on spring waterfowl counts were not well correlated ($r = 0.32$, $P > 0.1$) because of major discrepancies in 1988 when ducks declined while cranes increased and in 1990 when ducks declined slightly while cranes declined markedly. Between 1983–90 the number of pairs of cranes per site was significantly correlated ($r = 0.92$, $P < 0.01$) with the total number of nonlinear wetlands per square mile (Fig 3).

Discussion

If the number of breeding pairs per site is used as an indictor of the status of breeding Sandhill Cranes in the state, the population appears to be increasing slowly. Despite low numbers of cranes counted in 1986 and 1990, cranes are more likely to be seen now in Wisconsin than at any time in the past fifty years. The average number of cranes per site is almost certainly more variable between years than the actual size of the natural population. There are several factors which cause this variability in bird counts, particularly when the counts are confined to a single day each year (Engstrom and James 1984). The date of count with respect to migration and breeding, weather conditions (Falk 1979), the hearing ability (Cyr 1981) and experience (Faanes and Bystrak 1981) of observers, and plot size (Engstrom and James 1981) are all known to affect the results. The crane counts are held on a single day; there are year-to-year variations in the timing of migration; spring weather is highly variable; the volunteer counters have variable skills, and the size of the area surveyed at each site is variable. The precipitous drop in cranes counted in 1990 can probably be attributed to the weather conditions during the count; the southern two-thirds of the state was covered by heavy fog. The increase in total cranes in 1988 was probably due to migrants lingering in Wisconsin during a late spring.

The effect of the 1988 drought on the water resources in Wisconsin almost certainly had an effect locally on cranes. Annual runoff during the 1988 water year (October 1, 1987 to September 30, 1988) was below the long term average in the entire state, except for a few basins in south-central and southeastern Wisconsin, where runoff

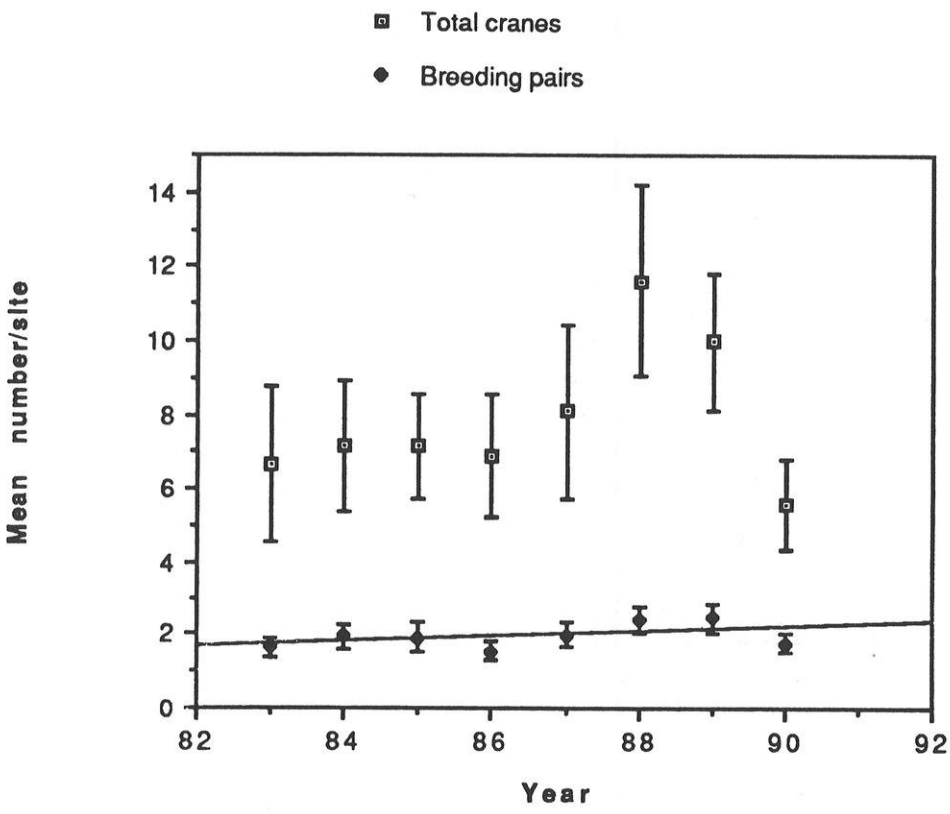

Figure 1. Mean number of cranes and breeding pairs at selected sites.

was near normal (Holmstrom and Ellefson 1990). The water quality of many eutrophic lakes improved because of reduced nutrient loadings. The peak number of cranes counted coincides with this drought period. The peak number of breeding pairs was recorded the following year though precipitation remained below normal. Rotenberry and Wiens (1980) noted no significant differences in breeding bird community composition between years that differed considerably in environmental conditions. Perhaps cranes that formerly nested in smaller—and not previously surveyed—wetlands that deteriorated in the 1988 drought moved to larger wetlands in 1989 where they were included in the crane count.

The poor correlation between crane numbers and duck numbers over the years probably reflects differences in the types of wetlands they prefer. Ducks declined in the 1988 drought when many of the small ponds they

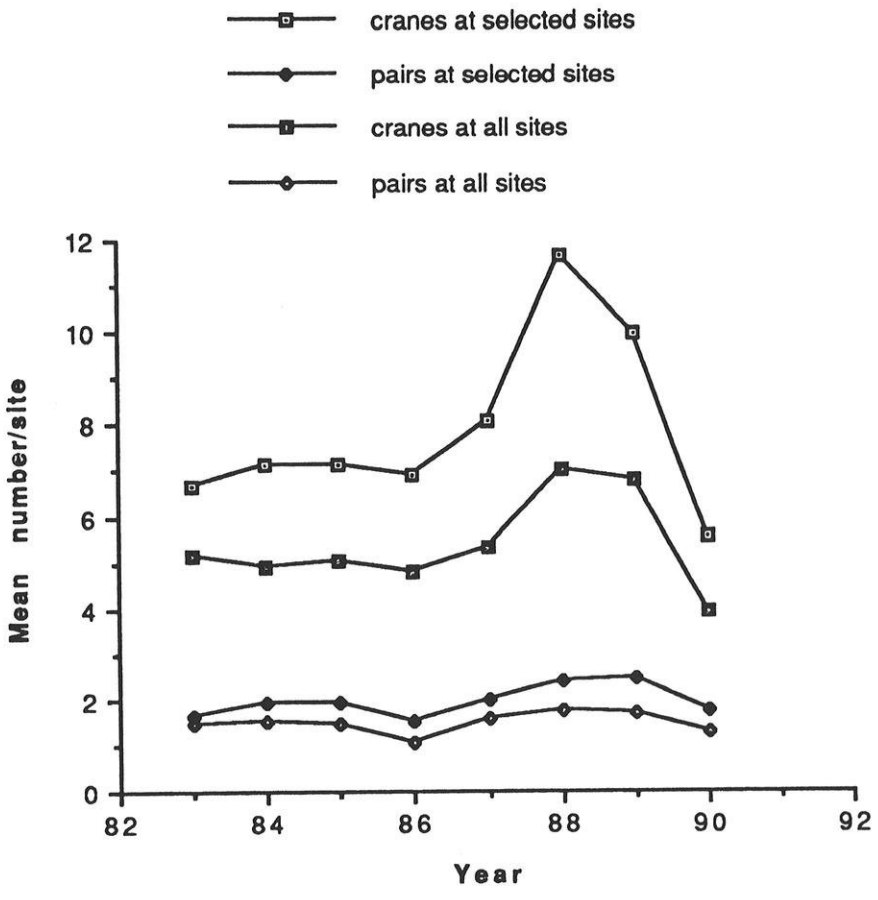

Figure 2. Mean number of cranes and pairs at selected and all sites.

used for nesting dried up. On the larger wetlands used by cranes, the drought had less impact.

The crane count serves as a valuable education tool, bringing thousands of volunteers in contact with cranes and their environment. Many volunteers continue to monitor wetlands throughout the year, becoming advocates for cranes and their habitat. The use of volunteers can, of course, be problematic. As a research tool, its usefulness is dependant upon the meticulousness of the volunteers, particularly at the county coordinator level. The most valuable information in assessing long-term trends is the number of breeding pairs. Specific criteria for estimating the number of breeding pairs should be standardized across counties, and these criteria must be followed explicitly by the counters. The educational aspects of the crane count will not be diminished by more stringent standards in the collecting and reporting of data.

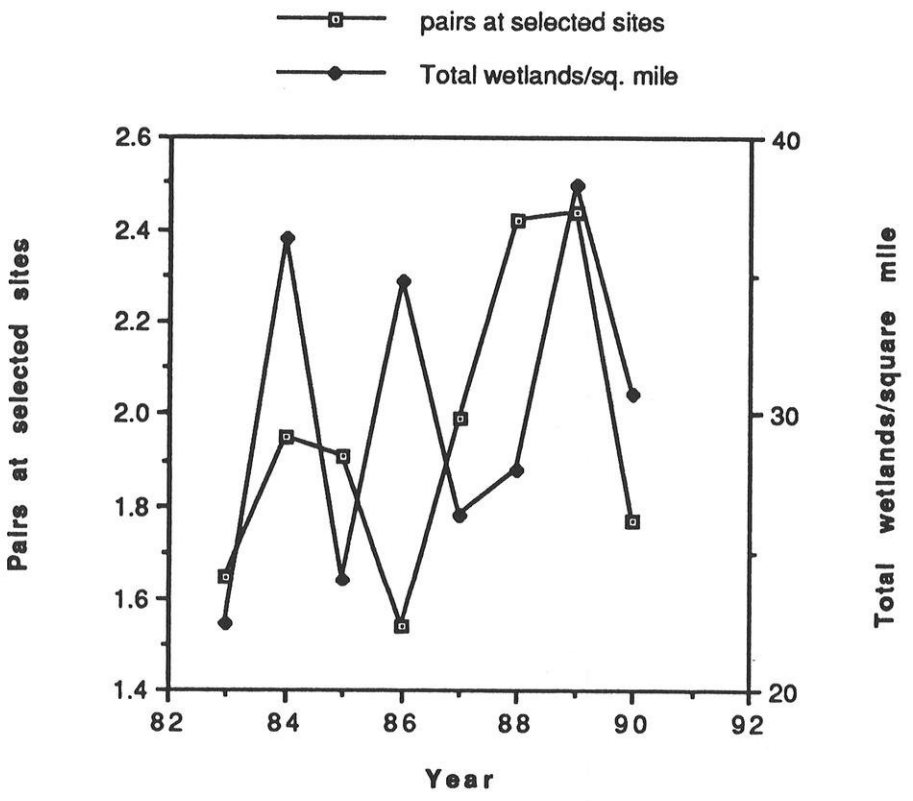

Figure 3. Mean number of pairs compared with wetland density.

Acknowledgments

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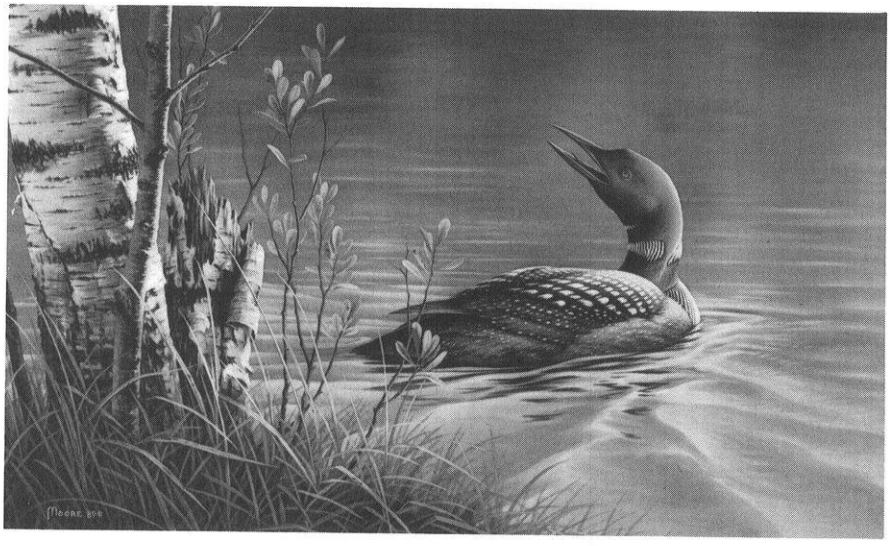
50 Years Ago in *The Passenger Pigeon*

"A Feeding Observation on the Crow" by Carl Strelitzer. Excerpted from *Passenger Pigeon* Vol. 2 No. 10, 1940.

"On October 3 Miss Audrey Pribbanow and I witnessed an unusual procedure concerning the feeding habits of the eastern crow. We were observing birds in Lake Park (Milwaukee) and had seen crows several times, when we came to an open, grassy plot with one large tree growing in the open. One crow was in the tree, feeding among the branches. The other two were on the ground. At intervals they would spring into the air and grasp the lower branches of the tree, which were about three feet from the ground. Sometimes one would jump and cling to a branch, using only the beak. Other times own would grasp the branch with his feet and hang upside down, looking for all the world like a giant, black chickadee. The tree was a Norway maple and the crows were evidently had been feeding on the seeds because after scaring the birds away, the wings of the samaras were lying under the tree with the seed part missing. It seemed that when the crows used only the beak, they were trying to pull the seeds off with the weight of their bodies; while they clung with their feet, they pulled the seeds off with their bills and ate them from the ground."



"Summer Solo" *by Don Moore* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

Environmental Contaminants in Common Loons from Northern Wisconsin

Pesticide concentrations do not appear high enough to have a negative impact on Common Loons. However, mercury levels may negatively affect loons on some lakes. More intensive monitoring is recommended to better document the effects of contamination in Common Loons from Wisconsin.

by Jerrold L. Belant and Raymond K. Anderson

Several studies of environmental contamination in Common Loons have been conducted (Fimreite 1974, Ream 1976, Sutcliffe 1978, Fox et al. 1980, Frank et al. 1983, Haseltine et al. 1983, Barr 1986). However, nothing has been published about contamination levels in Common Loons from Wisconsin. We report on pesticide and mercury contamination levels that we found in Common Loons from northern Wisconsin. Data were collected as part of a larger study on Common Loon productivity and brood habitat use (Belant 1989).

Methods

Breast feather samples were collected from loons captured by nightlighting (Bishop and Barratt 1969) and samples of brain, breast muscle, and liver tissue were collected from Common Loons found dead. Addled eggs were collected from abandoned nests. All samples were collected between 1984–87; primarily from the Turtle-Flambeau Flowage (TFF), Iron County, Wisconsin.

Egg, brain, breast muscle, and liver tissue was analyzed for polychlorinated biphenyls (PCB's), dieldrin, p,p-DDE, p,p,-DDD, p,p-DDT, cis-Chlordane, trans-Chlordane, cis-Nonachlor, trans-Nonochlor, hexachlorobenzene, alpha BHC, gamma BHC, methoxychlor, and toxaphene. Eggs, livers, and breast feathers were analyzed for mercury. All contaminants were measured in parts per million (ppm), wet weight. Analyses were conducted by Wisconsin Department of Natural Resources personnel at the Wisconsin State Lab of Hygiene, Madison, WI.

Results and Discussion

Concentrations of p,p-DDD, p,p-DDT, cis-Chlordane, trans-Chlordane, cis-Nonachlor, trans-Nonochlor, hex-

achlorobenzene, alpha BHC, gamma BHC, methoxychlor, and toxaphene were below or slightly above detectable levels (0.05 or 0.005 ppm) and are not included in tables.

PCB (mean = 4.04 ppm), and DDE (mean = 1.22 ppm) in Common Loon eggs from Wisconsin were at lower levels than reported by Fox et al. (1980) (Table 1). Fox et al. (1980) concluded that these levels were not high enough to adversely affect productivity. Slightly higher dieldrin levels (mean = 0.47 ppm) were observed than those reported by Fox et al. (1980) and Sutcliffe (1983).

Dieldrin and DDE levels in muscle and brain tissue approximated levels reported by Ream (1976) with the exception of 1 loon reported by Ream that contained >1000 ppm DDE and >18 ppm dieldrin (Table 2). PCB, dieldrin, and DDE levels found in brain tissue from Wisconsin loons are within the range reported by Frank et al. (1983) for healthy birds, with the exception of 1 loon from Iron County which had 29 ppm PCB, 2.20 ppm dieldrin, and 7.70 ppm DDE.

Mercury levels in eggs (mean = 0.64 ppm) from the TFF were below the 2–3 ppm level in eggs reported by Barr (1986) to cause reductions in egg laying by adult loons. Mercury concentrations in liver tissue of adult common loons from Wisconsin (mean = 40.9 ppm) were approximately the same or higher than levels reported by Barr (1986) for loons using Class 1 lakes (Table 3). Barr (1986) found that loons with mercury levels of this magnitude fledged fewer young per territorial pair and were significantly lighter in weight than loons with lower mercury levels. The high mercury level in liver tissue found in the loon from Iron County (90 ppm) may be attributed to abnormally high mercury levels found in fish from that lake. This lake is currently on Wisconsin's mercury advisory health list, which advises caution when consuming fish captured from

Table 1. Contaminants in common loon eggs, Turtle-Flambeau Flowage, Iron County, Wisconsin, 1986–87.

Year and egg	ppm, wet weight			
	PCB	Dieldrin	DDE	Mercury
1986–1	6.9	0.27	1.8	0.40
2	7.7	0.68	2.2	1.1
3	8.2	0.75	2.4	0.84
4	4.1	0.81	1.4	0.40
1987–1	3.2	0.78	0.91	0.48
2	2.1	0.09	0.44	0.61
3	7.7	0.42	2.2	0.51
4	7.3	0.98	1.8	0.56
5	3.0	0.58	0.96	—
6	2.8	0.54	0.86	0.80
7	1.1	0.11	0.43	0.94
8	0.82	0.06	0.37	0.76
9	0.95	0.06	0.45	0.75
10	2.8	0.13	0.58	0.40
11	4.0	1.0	2.0	0.42
12	1.9	0.33	0.67	0.56
Mean	4.04	0.47	1.22	0.64

Table 2. Contaminants in tissues of individual Common Loons from northern Wisconsin, 1984–1987.

				ppm, wet weight		
Location	Tissue	Age	% Fat	PCB	Dieldrin	DDE
AINL[1]	Muscle	Adult	21.0	3.30	0.19	0.98
	Brain		5.2	0.59	0.03	0.16
AINL	Muscle	Adult	21.0	3.40	0.06	0.61
	Brain		4.5	0.49	<0.02	0.07
AINL	Muscle	Adult	27.0	3.20	0.22	0.77
	Brain		6.2	0.30	0.03	0.06
Portage Co.	Muscle	Juv.	8.2	2.20	0.07	0.43
	Brain		6.3	0.46	0.02	0.09
Iron Co.	Muscle	Adult	0.9	18.00	0.88	4.70
	Brain		6.6	29.00	2.20	7.70
Vilas Co.	Muscle	Adult	1.1	26.00	2.0	7.00

[1]Apostle Islands National Lakeshore, Bayfield County.

bodies of water with high mercury concentrations. Additional sources of possible contamination would include wintering areas or water bodies along migration routes.

Mercury levels in loons from the Turtle-Flambeau Flowage (Table 3) are probably lower than levels reported by Frank et al. (1983). Frank et al. (1983) reported that back and belly feathers contained 5–6 times the mercury levels found in breast muscle of the same loon. If we assume breast feathers contain five times the mercury level of associated breast muscle, then adult loons from the Turtle-Flambeau Flowage would contain approximately 3.0 ppm mercury in breast muscle. These levels are similar to levels reported by Barr (1986) for Class 2 lakes. Barr (1986) suggested that mercury concentrations of this level may influence reproductive performance. However, Belant and Anderson (1991) determined a fledging success of 0.73 young per territorial pair during an intensive productivity study on the Tuttle-Flambeau Flowage during 1986 and 1987

Table 3. Mercury in tissues of individual Common Loons from northern Wisconsin, 1985–87.

Location	Tissue	Age	Hg (ppm, wet weight)
Portage Co.	Liver	Adult	9.5
Iron Co.	Liver	Adult	33.0
Iron Co.	Liver	Adult	90.0
Vilas Co.	Liver	Adult	31.0
Turtle-Flambeau Flowage	Breast Feather	Adult	11.0
Turtle-Flambeau Flowage	Breast Feather	Adult	18.0
Turtle-Flambeau Flowage	Breast Feather	Adult	12.0
Turtle-Flambeau Flowage	Breast Feather	Adult	18.0
Turtle-Flambeau Flowage	Breast Feather	Juv.	5.3
Turtle-Flambeau Flowage	Breast Feather	Juv.	5.0
Turtle-Flambeau Flowage	Breast Feather	Juv.	3.7
Turtle-Flambeau Flowage	Breast Feather	Juv.	2.0

which is higher than fledging success reported in most North American studies.

Pesticides do not appear to be at concentrations high enough to have a negative impact on common loons. However, mercury levels may be negatively affecting loons on specific lakes through direct mortality or reduced reproductive performance. More intensive monitoring is required to better document the effects of contamination of Common Loons in Wisconsin.

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We thank S. Marcquenski for coordinating the collection of contaminant samples. M. Gies, J. Olson, A. Ramminger, A. Sabatke, W. Seybold, J. Wilson, and D. Winters assisted in collection of samples. Special thanks to D. Degenhardt, S. Marcquenski, A. Schachte, and A. Zusi-Cobb for conducting contaminant analyses. J. Wilson provided lodging during the study. M-K. W. Belant provided comments on the manuscript. Partial logistical support was provided by the Wisconsin Department of Natural Resources, Mercer Station. This study was partially funded by the University of Wisconsin-Stevens Point, Wisconsin Society for Ornithology, and North American Loon Fund.

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How Birds use Conspicuous Plumage to Elude Predators

by Erik S. Munson

Cryptic or drab coloration is often considered the best plumage for a bird trying to avoid predators that hunt by sight. Still, brilliant and flashy plumage is very widespread in birds, even where predation is a major selective force. Darwin (1871) believed that conspicuousness was promoted by strong sexual selection and tempered by predatory selection; he saw sexual selection and predatory selection as directly opposing influences on a bird's plumage color.

Biologists today know this generalization to be oversimplified. Just as drab plumage benefits prey in some circumstances, conspicuous plumage coloration is an advantage for eluding predators in many other circumstances. Within one species, both sexual selection and predatory selection can favor bright colors. Birds use conspicuous coloration to elude predators in two main ways: to avoid being pursued and to escape pursuit. To avoid being pursued, a bird can communicate one of two messages to a potential predator. It can advertise unpalatability, or it can advertise that it is difficult to catch.

Birds Can Avoid Being Pursued

Unpalatability is more common in insects and salamanders (Guilford 1988), but it has been recorded in birds. When Cott (1946) offered hundreds of variously colored bird specimens to house cats and hornets, drab specimens were the preferred food. Some of the conspicuous birds were probably unpalatable, and they as well as any mimics benefitted from advertising distastefulness. Nevertheless, unpalatability is probably uncommon in birds.

A more common way for a bird to avoid being pursued is to signal that it is unprofitable prey. When a predator hunts, it is sorting through many prey items and deciding which is profitable and which is unprofitable to pursue (Caldwell 1986). Usually, inexperienced young birds are drab and to pursue them is very profitable. A predator quickly learns to pursue colorful birds less often than drab ones. This model, set forth by Baker and Parker (1979), is known as the unprofitable prey hypothesis.

A review of 5700 band recoveries in

the family Fringillidae seems to support the hypothesis. Baker and Hounsome (1983) showed that the finches are characterized by strong sexual dimorphism. In each dimorphic finch species, conspicuous males had significantly lower annual mortality than drab females, and the suggestion was made that the disparity holds for other bird families as well. Mead (1985) found that males of sexually dimorphic species such as the Northern Cardinal experienced significantly less predation by house cats than did females, possibly because males signal that they are difficult to catch.

For the unprofitable prey hypothesis to function, it is important that a predator is reinforced for its selection. A conspicuous bird must be able to escape. For this reason, bright coloration is more common in the open than in dense forests (Baker and Parker 1979). A Winter Wren in its normal habitat of dense vegetation would be at a disadvantage if it was brilliantly colored, because in dense vegetation, predation is done by surprise. Even a healthy adult cannot easily escape a predator, so no bird is distinctly more profitable than the next.

On shores (Page and Whitacre 1975) and in grasslands (Baker and Parker 1979) surprise is rarely possible for most predators. Predator and prey see each other from a distance, and it is beneficial for some prey to advertise that they are unprofitable. Bobolinks have plumage that is very flashy from a distance, a pattern nearly the opposite of typical counter-shading (V. Heig, personal communication). Killdeer, Lark Buntings, and longspurs are additional open country birds of brilliant coloration. In these species, adults may be signalling that they are difficult to catch (Baker and Parker 1979). Warblers range in coloration from the drab Worm-eating Warblers and Ovenbirds of large, deep forests, to the flashy Yellow Warblers and Common Yellowthroats of open country.

Use of showy plumage varies between dimorphic sexes just as it varies between habitats. Most males spend considerable time on exposed perches, where they are often able to detect predators. Thus, males are unprofitable and brilliantly colored. Females are more likely to be surprised on the nest while incubating, so they are profitable prey and take on cryptic plumage (Reid 1984).

In addition to advertising that it is healthy, a bird can add to its display of unprofitability by communicating alertness. This is called perception advertisement (Baker and Parker 1979, and Reid 1984). The most conspicuous part of most birds is the head, and a bird's first reaction upon perceiving a predator is to move its head. Thus, birds with flashy bills, cheek patches, eye lines, or eye rings are more effective in signalling that they have seen a predator and are alert (Baker and Parker 1979). Black-capped Chickadees probably use their conspicuous face pattern for perception advertisement.

Birds Can Escape The Pursuit

Birds also use conspicuous coloration to escape pursuit by a predator. Flashy patches of iridescence or of light colors on a dark background are helpful to a prey species. Flash coloration can serve as a stimulus for the predator to flee or as an erratic change in appearance that distracts a preda-

tor. Humphries and Driver (1970) have termed such actions protean displays.

While hunting, predators usually have a narrowed, well-developed search image, which is formed through reinforcement shortly after initial contact with prey (Tinbergen et al. 1967). That search image is for prey at rest. However, birds, as prey, can quickly alter their appearance into one that is outside the predator's search image. By suddenly displaying bright patches of plumage, birds confront the predator with something unexpected (Humphries and Driver 1970). So, at a key moment during an attack, prey increases its chances of eluding a predator. The tactic does not need to work for every case or even for a majority of cases to be favored by natural selection.

Birds have evolved a great variety of colorations for use in protean displays. Many species from open habitats have developed iridescence, which appears dark under normal circumstances, but shines with a sharp glare under proper light. Iridescent upper surfaces may aid Barn Swallows and Tree Swallows in escaping aerial predators. When pursued, the swallows dart erratically, occasionally causing instantaneous glare to reflect back at the predator. According to Walsberg (1982), iridescence has one important advantage over other flash coloration. It is visible under sunny, open conditions and dull when its bearer is in the shade or resting.

More common are the non-iridescent patches that birds use in protean displays (Humphries and Driver 1970). White outer tail feathers are very common among longspurs, wood warblers, and others. Sandpipers and woodpeckers commonly have white rump patches set on an otherwise dark background. Light or flashy wing linings are widespread, as in the Willet, Least Bittern, and Northern Mockingbird. Bold wing bars are prevalent in flycatchers, finches, and many other bird groups.

Summary and Comments

As we have seen, conspicuous plumage can be used not only to attract a mate, as Darwin believed, but also to avoid being pursued by predators and to escape their pursuit. However, these causes of conspicuous plumage should not be left as the only explanations for plumage markings. Some traits developed not because they were selected for, but because nothing selected against them (Leahy 1982). In addition, pleiotrophy, or the development of multiple unrelated traits from one gene, can affect plumage coloration. A trait that is selected for may be attached through a single gene to the occurrence of up to 15 other unrelated traits (J. Post, personal communication). Thus, a certain trait that is expressed consistently and boldly is not necessarily the result of any direct natural selection.

It is important to note that many of the conspicuous patterns discussed in this paper serve more than one function. Often a marking is used in both eluding predators and in social communication such as courtship. Mourning Doves, for example, seem to use white tail feathers both as a protean display and in courtship.

For such dual-purposed markings, the question of which use evolved first has been debated. Darwin (1871) and Lyon and Montgomerie (1985) believe

sexual selection was the primary cause. On the other hand, Baker and Parker (1979) believe predatory selection first promoted conspicuousness. If predatory selection was the primary cause, then it follows that a marking would acquire over the centuries a second purpose. Any species that develops a conspicuous marking would benefit by incorporating that marking into species recognition. Species that are distinct from close relatives are less likely to hybridize.

In conclusion, while it was originally believed that all brilliant feathers were the result of sexual selection, biologists today know the generalization to be over-simplified. Birds also use conspicuous plumage to elude predators, and thus selection by predators can favor conspicuousness.

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Crows Around the Home

by Scott R. Craven

Few birds are as easily recognized by sight or sound as the crow. Sometimes referred to as the common or American Crow, *Corvus brachyrhynchos* is a common sight in the eastern United States and can be found coast to coast, although in the central plains crows are restricted to wooded riparian habitat and areas of human development. In Wisconsin crows are common throughout the state and in all seasons, although a few northern crows may shift southward during the winter months. In fact, The Wisconsin Checklist Project, sponsored by WSO, identified the American Crow as the most frequently reported species in the state.

Crows are not the only large black birds on the landscape. In northern Wisconsin Common Ravens are quite common, and an occasional raven might stray south as far as Adams, Juneau, or Marquette County. However, ravens are larger than crows, have a more massive bill, a distinctive throaty call, and are less prone to frequent areas of human activity. Along the Atlantic and Gulf coasts fish crows overlap with the common crow but they are smaller and not found in Wisconsin. A large grackle might be mistaken for a crow by the novice birder, but the call, size, iridescence, and behavior are quite different.

Taxonomically crows are passerines—perching birds—just like our favorite songbirds. However, they are seldom thought of with the same feelings of pleasure and excitement. Crows are much more likely to stimulate feelings of suspicion and dislike. Why? Perhaps this is because they are large, boisterous, very wary, or victimized by the same poor public relations that conjures up images of horror stories and Halloween nights when we discuss bats or ravens. Perhaps it is because of the many real or perceived problems caused by crows in farm fields, urban areas, and right in your own backyard. Even the collective name for a group of crows—a "murder"—does little to inspire a positive feeling. No matter what the reasons, crows are not high on most people's list of favorite birds—except on mine.

It's important to discuss a little about the crow before I can attempt to improve the birds' public image. A

physical profile is simple. The crow is jet black, with a slight metallic gloss, from bill to tail and back to toe. The only non-black coloration is the brown eyes of adults and the blue eyes of young crows. There are also numerous records of albino crows. There is little sexual dimorphism. A typical adult bird is 17–21 inches long, weighs about one pound, give or take several ounces, and has a wingspread of about 3 feet. Crows are excellent flyers, generally territorial during nesting, but roost and feed in large flocks, and will eat virtually anything.

Crows nest high in a tree in April and May. The nest is solidly constructed of branches and twigs with a comfortable nest bowl lined with whatever soft debris or plant material the crow can find. A typical clutch of 4–6 bluish-green, variably splotched eggs is incubated for 18 days. Young crows fledge at 4–5 weeks of age.

Except during the nesting season, crows generally gather in large communal night roosts, often in groves of mature evergreens. At dusk the crows from a particular roost will assemble from all directions, often at one or more staging areas near the roost. Just about dark they proceed to settle into the roost. A huge swirling flock of roosting crows can be a spectacular sight. At first light in the morning the crows disperse across the countryside or city to feed. Feeding crows can turn up just about anywhere many miles from their night roost. However roosting or nesting crows require large trees. Thus, neighborhoods with mature trees, or homes near parks, greenways, cemeteries, or undeveloped woodlots are most likely to support crows.

Crows gather in large flocks to roost or feed, but also to mob a mortal enemy, like a Great Horned Owl. A congregation of swooping, diving, raucous crows usually has a hapless owl or hawk as its focal point. The function of mobbing is poorly understood, but it certainly serves to mobilize and alert all the crows in the area and to temporarily neutralize the predator. This mobbing behavior was well known to crow hunters. Owl decoys and crow calls were standard equipment used to cause wary crows to throw caution to the wind and join the attack.

Although a crow's best known vocalization is the "caw-caw" call or note, their voice is remarkably versatile. They are excellent mimics and records cite crows that learned to mimic sounds made humans, pets and other birds. This is probably the basis for the popular belief that pet crows can be taught to talk, much like a parrot. There is no basis to the idea that a captured nestling crow should have its tongue split to improve its ability to "talk." Such a practice would be inhumane and illegal as well!

From a population standpoint crows are doing very well, indeed, considering almost a century of persecution. Much like coyotes, crow have survived mass shooting, roost destruction, habitat change, and poisons. Both crow and coyote have been able to exploit their marvelous adaptability to thrive in the face of adversity. Crows were not abundant in Wisconsin at the time of settlement. They increased in step with human population and are now among the "top 10" most abundant Wisconsin birds. However, the fact that crows are so conspicuous tends to distort our perspective of their abundance. Crows have not only become more abundant,

they have also become more urbanized and less inclined to migrate.

This does not seem to be the portrait of an evil pest, yet crows are the cause of numerous calls to my office. Complaints fall into several categories. First on the list are concerns over the destruction of songbird eggs and nestlings by marauding crows. There is no question that crows do eat the eggs and young of other birds. There is also no doubt that the sight of a crow escaping with a helpless fledging clamped in its beak can be traumatic for a backyard birder. The real question is what effect this predation has on songbird populations. Most ornithologists agree that it is minimal. Local impacts aside, there is little or no evidence to support the claim that crows are reducing songbird populations. Habitat changes, pesticides, and even the family cat are more worthy causes of concern.

The second complaint deals with crows foraging around trash dumpsters or ripping open plastic garbage bags. Human refuse is a major food source for urban crows, and they will pick open trash bags. However, the crows are often merely taking advantage of the damage dogs or raccoons have done overnight. A little sanitation and common sense can eliminate this problem. Simply keep dumpsters or cans tightly closed, don't let trash accumulate on the ground, and don't put trash out for collection until just before pickup.

The third type of complaint is related to the noise and disruption created by a crow roost, a nesting pair, or even feeding crows. They are noisy. This is the most difficult problem to address, and it's perceived importance is defined only by individual tolerance of noise. A homeowner can minimize problems by maintaining a "clean" yard—no garden surplus, no trash bags, no open pet food dishes, etc. Prospective nesting pairs can be discouraged by scaring them or pruning potential nest trees. Beyond those simple steps taken by individuals, a nearby roost or staging area is more of a neighborhood or municipal problem that requires coordinated action. If enough individuals support the need for action against the crows, techniques for roost dispersal are available. Extension Specialists, USDA Animal Damage Control offices, and local DNR staff can provide advice on how to proceed.

The final complaint against crows is damage to farm crops. Crows will feed on a variety of crops, but they are especially fond of newly sprouted corn. Obviously this does little to enhance their image with farmers. This problem is usually addressed with scare devices, chemical seed treatments, or shooting.

Shooting crows was once a very common form of recreational hunting. It not only provided "sport" but helped solve problems—or did it? Those days are gone. Crows are now protected as migratory birds. A passage in the Wisconsin DNR hunting regulations booklet reads "Crows, grackles, red-winged blackbirds and cowbirds may not be hunted for recreation purposes. They may be killed without a federal permit ONLY IF they are causing damage or are *about to cause damage* to trees, crops, livestock, or wildlife or unless they are concentrated in large numbers that may constitute a health hazard or other nuisance." While this does provide crows with some protection, the "about to cause damage" phrase clearly opens the door to substantial latitude in crow control.

What of the other side of the coin. Crows eat tremendous numbers of insects, and their fondness for road-flattened carcasses makes them perhaps our best natural sanitarians. Road kills are a major food source, yet the wary crows rarely meet the fate of thousands of opossums and other scavengers drawn to the roadside by an easy meal. Crows are superb acrobats in flight and skilled vocalists. I find them rather attractive in their stark black plumage and bold demeanor. Perhaps beauty really is in the eye of the beholder.

Regardless of which side of the crow story you align with, the crow is here to stay as a viable resident of, or visitor to, our yards. We will have to learn to live with them. For a more detailed historical and cultural perspective on crows, refer to an excellent article entitled "Murder" by Inga Brynildson in the November–December 1989 *Wisconsin Trails* magazine.

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"Autumn Aristocrats" *by Don Moore* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

Owen J. Gromme: An Interview

In their recent book, Birds in Art: The Masters, *Inga Brynildson and Woody Hagge interviewed Owen J. Gromme. Their version of Owen Gromme's story is reprinted here.*

by Owen J. Gromme (as told to Inga Brynildson and Woody Hagge)

Bird art is man's highest expression in color and form of his appreciation of one of God's most beautiful creatures. In the various mediums it portrays those feathered marvels without whose help the delicate biological balance of all living things on our planet would indeed make the fragile human tenure short lived or impossible.

I love to paint and I am fascinated by the beauty of nature. My favorite subject is wildlife—birds, mammals and their environment. Emerson stated, "If eyes were made for seeing, then beauty is its own excuse for being." I try to put on canvas some of the lovely things I see in nature. I paint for pleasure and the pleasure of others, and I am very happy if what I paint causes them to relate to some happy experience they have had or something they have seen, such as a leaping deer or the majestic flight of an eagle.

I like birds. They are so special that without them life wouldn't be possible on earth. They are an important part of our existence—the way they keep insects in check. So, because I admire birds, I wanted to paint them.

My emphasis is to depict something pleasing to the eye. To me, nature is pleasing, even in its most violent aspects. I want to do paintings that are uplifting. I want to tell a story, stir the imagination, trigger an emotion, spark a memory.

I want to show people the beauty of a bird or a mammal in an ecological setting, but I also want them to learn something abut what they are enjoying. From that I hope they gain a greater appreciation of that particular bird or animal's place in the scheme of things.

If a naturalist doesn't *do* something with the knowledge he acquires out in the woods, what the hell good is he? To punch and punch and punch on behalf of the environment is *applied science*, the *job* of the naturalist.

I spent forty-three years with the Milwaukee Public Museum, and we strove for absolute scientific perfection. When we created an environmental group, we wanted to show that

Owen J. Gromme, Master Wildlife Artist, resides in Portage, Wisconsin.

bird in its environment for that particular season. I'm trying to do with paint what I used to do with mounted birds and mammals. I try to create a moment in time, with the idea that it will do some good for humanity.

To do the kind of work we did back then, you'd have to be a jack-of-all-trades and damned near a master of them all. A good museum man must have a solid background as an all-around scientist, artist, carver, sculptor, lecturer, writer, photographer, cinematographer, bookkeeper, taxidermist, and hunter.

We have to preserve the past to create the future. A museum, in my opinion, should serve as a storehouse of references to the past. It should link the past to the present. . . . That's how we make progress. It's the same in every field of endeavor. We are standing on the shoulders of the giants who have come before us.

I don't say Audubon was the greatest bird artist, but let me put it this way:

He did more with what he had than many of the living artists are doing with what they've got now. His gun didn't go off half the time, he had no transportation, he didn't have any binoculars, the brushes he had were questionable, and he simple did a wonderful job with what he had. And Fuertes, in my opinion, was one of the finest watercolor artists who ever lived.

[When I was growing up] I found sketching wildlife subjects to be so enjoyable that I often did it at the expense of my homework. Now, as I look back on my life, I would say that egg collection, pencil sketching, and some early trial and error taxidermy were the influences that led to my museum work. That, in turn, eventually led me to become a wildlife artist.

I'm a hell of a lot different than most other artists. I'm not motivated by what other artists have done before me. I think one main reason that I am different is the simple fact that I didn't have formal art lessons and all that sort of thing. I paint because I love it. It's as simple as that. I figure my paintings speak for themselves.

You know, it's a funny thing. I read about what all these artists try to put into a painting and into people's minds. I can reduce the whole thing to a very simple common denominator. I don't worry about the "blue period" or the "green period" or the post-impressionists or the pre-impressionists. That's all more or less hogwash. I paint because I like to paint, and I want to produce something of beauty and at the same time something that will, I hope, teach a lesson: That everything in life is connected, that we're made of the same stuff the stars are. I try to teach a lesson in conservation.

I paint what I want, when I want, on my own time. I never tire of painting. I've always got ideas for scenes I want to paint. It's always a challenge for me to start out with a wooden frame, stretch a piece of canvas over it, and begin painting.

I study the material in my file and then begin making progressive sketches until I get my final sketch for the picture I want to paint. I begin drawing with a pencil on paper and then transfer the final sketch to the canvas before painting with watercolor or oils.

An old printer from Munich, Germany, told me that the great nature painters used three primary colors—pale cadmium, ultramarine blue, and alizarin crimson. That's what I wanted to do too. It's hard, but you can mix everything with these three colors.

I never know exactly how a painting will look once I begin. I have a fairly good idea because I make a pencil sketch and draw in my reference points, but a lot of things can change between the time I start and the time the painting is completed.

You have to be careful when you'd working hard on a painting that it doesn't take control. A lot of people don't believe this, but I know it's true—a painting can hypnotize an artist. You have to get back from a painting once in a while and look it over.

When I am creating a painting which will eventually belong to someone, I approach it differently than a painting for reference only. If I am depicting canvasbacks, for example, it might be interesting to show them in a setting that stirs the emotions, one that moves the person viewing the painting to experience something special. I might want to show these canvasbacks bucking a storm and depict the fury of the

storm as well as the bitter cold and the force of nature—things an outdoorsman can relate to.

Before I'm done with a painting, I call in people to look at it and to see what they think. I try to call in children because they give you a real, honest opinion.

I've been criticized for putting in too much detail. But to me, if the detail isn't there, then the picture has very little scientific value, and I'm always striving for scientific accuracy.

I try to improve my technique, to do a better job with fewer brush strokes. I don't paint into a picture microscopic things anymore, because they're not necessary. I don't try to put into a picture what you can't see at a distance of six feet. There's just no sense in it. The average person doesn't go up to a painting and look at the barbs in the feathers. If you want to do that, you can use a photograph. You could call it an experiment, but it pleases me to do it that way, and after all, the artist has himself to please as well as the people who view his paintings.

A lot of these duck stamps are little more than traced photographs. I can almost tell if they used a telephoto or a wide-angle lens. They have no experience in the field. A lot of them have been doing commercial art, and now that there's money in wildlife art, they're trying to climb on the bandwagon.

When I paint . . . I call on the experiences of a lifetime. . . . When I look back, it seems to me that my concern for the environment came about as part of my job at the museum. I was always interested in birds, animals, and the outdoors because I was a hunter and a taxidermist. But I could see how it all fit together once I started working at the museum.

The old high school in Fond du Lac was a four-story building, and, when I was fifteen or so, it was as high a point as there was from there to Lake Winnebago. From the assembly room, you could see the steam-powered log boats coming down the western shore from Oshkosh. The steamers were all coal burners and belched out thick black smoke. The ducks on the lake would part and take flight, and there would be so many of them that you couldn't tell the clouds of ducks from the clouds of smoke.

One afternoon, I saw a line of ducks three miles long and a hundred yards through. I figured that I was looking at three quarters of a million canvasbacks and redheads in one flock. I went home and told my dad about it. He said, "You should have seen the ducks on this lake forty years ago, before they built the dams up by Neenah-Menasha." I'd seen all those birds, and he was saying that was nothing!

We suddenly wake up to the fact that, in building our present day culture, we have seriously upset a delicately adjusted natural balance. . . . We owe a great deal to those who came before us, and it is our duty to pass on to posterity a world morally and physically as good or better than the one we live in.

I'd like to be remembered for having made a contribution to the environmental movement. Everything we eat and everything we use is a product of the soil, and if we don't have fresh air to breathe and fresh water to drink, and if we don't conserve our soil, what will be left for our children and grandchildren? I feel that my ability, to the limited degree it is, to paint will enable

me to get that message across to future generations. I try to demonstrate in paint what Also Leopold so beautifully demonstrated in words. That just about says it.

In my ninth decade, I have found reason to hope, and my hope is fully embodied in my painting. There will always be new beginnings as long as we are sensitive to nature's ways and needs.

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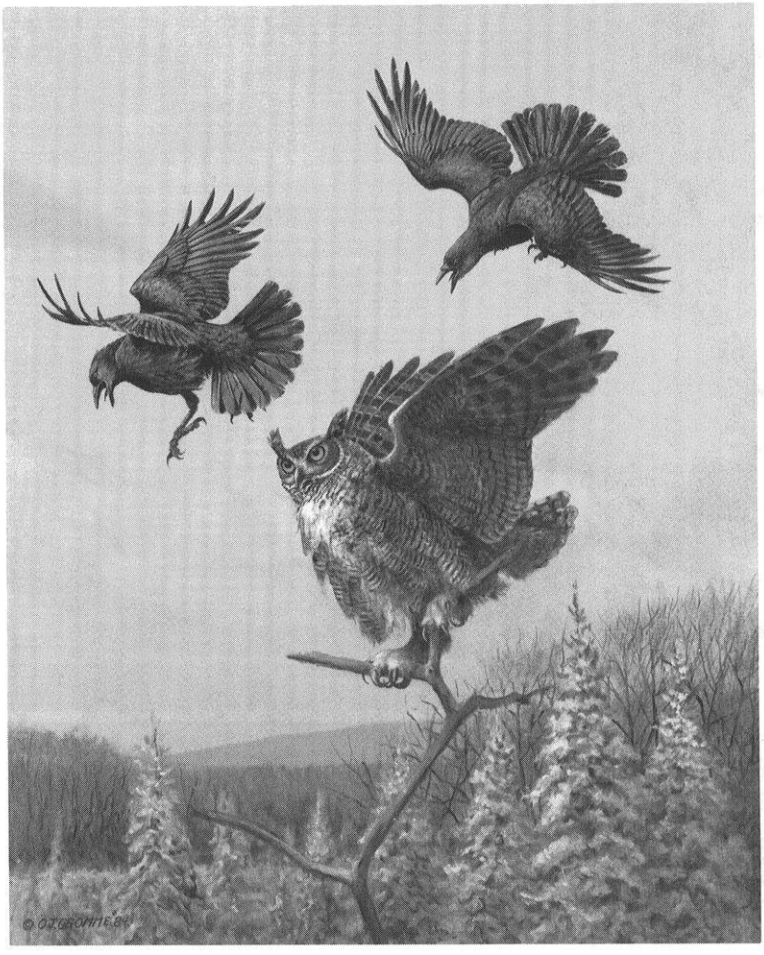
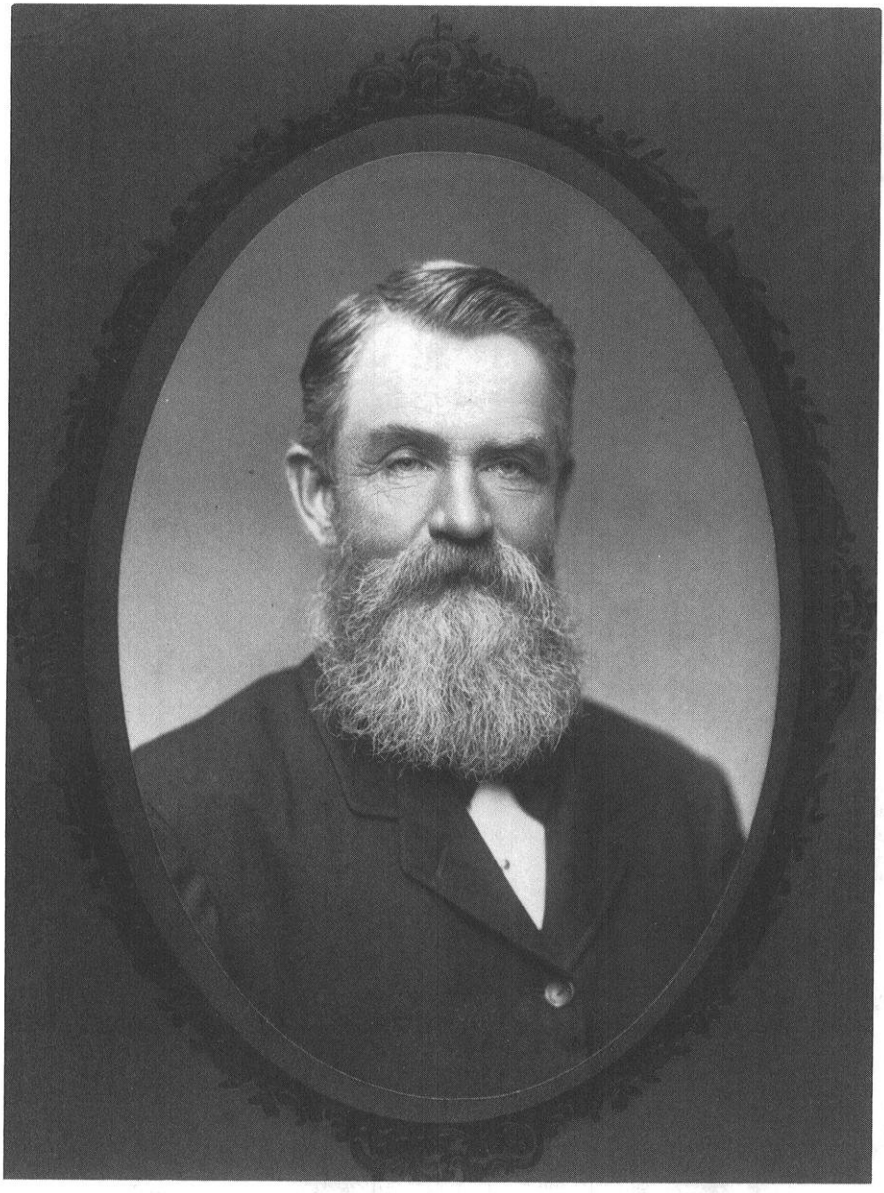


"Getting Even" *by Owen J. Gromme* (Reproduced from *Birds in Art: The Masters*).



Halvor Skavlem at the age of about 59, ca 1905 (*photograph courtesy of the State Historical Society of Wisconsin*).

In the Words of Ornithologists Past . . .

Halvor Skavlem, the "John Burroughs of Wisconsin"

by Michael J. Mossman

"I am one of the last of the old-time naturalists who knew a little of most everything, and not much of any one thing."

So spoke Halvor L. Skavlem (1846–1939), early Wisconsin student of nature, history, and archeology (Usher 1914). Born to pioneering, Norwegian immigrants on the prairie near Beloit, he lived nearly all of his 92 years in Rock and Jefferson counties, leaving behind a few writings and his personal influence on unknown numbers of naturalists and casual observers, young and old. Among his legacy to us are: archeological studies, which were preserved mainly in collections and in the writings of others; an insightful documentation of the history and frontier lives of Norwegian immigrants; poetry; some popular articles on birds; and a particular, invaluable reminiscence of the breaking of Wisconsin prairie and its effect on bird life.

Skavlem was a colorful personality, especially in his later years. He was remarkable for his self-styled, intelligent pursuit of knowledge and for his gracious and entertaining ways of sharing it. Much of what we can learn from him today is to be found in what others have written about him.

He received a country school education typical for rural Wisconsin children in the mid 1800's, then moved from his prairie home, now five miles northwest of Beloit, to Fort Dodge, Iowa. Here he taught school during the winter, farmed in the summer, and was involved in a hotel business. In 1873, at the age of 27, he returned to Rock County, purchased a farm adjacent to his parents', and married Gunnil Ommelstad, also from a Rock County frontier family. They were to bear four children. In 1880, they moved to the nearby city of Janesville. Halvor served in various public positions, including county sheriff, county board chairman, county highway commissioner, librarian, and member of the library board of directors. He was also apparently successful at dealing horses and real estate, and he retired from active business endeavors in 1896 at the age of 50. At about the same time he purchased a farm at Carcajou Point, the former site of an Indian village on the northwestern shore at Lake Koshkonong, in adjacent Jef-

ferson County. From thereon the Skavlems spent summers at Koshkonong and winters in Janesville, until his death at the age of 92 in 1939, and her's later the same year.

A Progressive Republican and a Unitarian, he fought for social and economic reform measures that at the time "were sneeringly referred to as socialistic propaganda," for example in the Granger's movement. Even at the age of 68 he was "still on the firing line of progress, and rather likes to be referred to as 'unsafe and dangerous' by the 'mossbacks' " (Usher 1914). He was a member of Wisconsin's State Historical Society, State Archaeological Society, Natural History Society, and Academy of Sciences, Arts and Letters, and helped organize the State Library Association.

Skavlem was locally well-known as a naturalist and he made some significant contributions to the fields of ornithology and botany. He collected mushrooms for a Smithsonian exhibit at the 1893 World's Fair, and his collection of southern Wisconsin plants has been incorporated into the University of Wisconsin-Madison Herbarium. He prepared a collection of bird mounts of nearly 300 Wisconsin species, and donated it to the Janesville Public Library. His Passenger Pigeon is now displayed at the Rock County Historical Society museum in Janesville.

His first ornithological publication, of which I am aware, appeared in one of the many collectors' journals of the late 1800's (Skavlem 1889). He then published a series of three articles in the short-lived *Wisconsin Naturalist* (Skavlem 1890–91), in which he assaulted taxonomists' "splitting" of both the Canada Goose and the Snow Goose into subspecies. Similar tirades by field workers and egg collectors against the oftentimes conflicting dictates of the "museum experts" were common in amateur ornithological publications during this period. Although controversies on taxonomy have by no means ceased, their published expressions lack the unmuzzled vehemence of those early days:

> "If a "Naturalist" worthy of the name you have undoubtedly many a time collided with some "big book authority.". . . . What an unfaltering trust some of us have in authority; with unquestioning faith we often accept the statements of museum naturalists, who from their dried up skin and skeleton specimens proceed to sort out our flora and fauna into convenient genera, specie [sic], or variety, finding constant variations and even specific differentiations in the wrinkles of the shriveled, shrunken, dried up skins, which the honest field naturalist fails to discover, although he may have had opportunity of comparing and studying hundreds of fresh and perfect specimens.
>
> Sometimes it appears as though the more complete and extensive the comparison—the more painstaking and minute your study—the less you know."

In a March 1890 letter to the editor of *Forest and Stream*, Skavlem gave his opinions on waterfowl hunting regulations. By today's standards, waterfowl hunting regulations and enforcement at that time were archaïc, and the hunting public, except for wealthy hunting clubs, was poorly organized. Illinois still allowed spring hunting. Skavlem's egalitarian convictions led him to argue against most conservationists, in favor of reinstating the spring season in Wisconsin, when ducks were widely distributed (in part because of high water), while short-

ening the fall season, when ducks were more concentrated in a few areas such as Lakes Koshkonong and Puckaway. Access to these large, productive marsh-and-lake complexes was often, to varying extents, controlled by hunting clubs, whose members could shoot almost without limit. Also at issue was the shipping of waterfowl to market, which was still legal in-state, and illegal but poorly enforced for shipping out-of-state.

> "With the advent of bluebird and robin comes the revival of the spring shooting controversy, particularly so in this locality, situated as we are near the dividing line between open and closed spring shooting.
>
> Our friends across the line send cheering reports to *Forest and Stream* of glorious sport on the Calumet and Kankakee marshes, and we are entertained by accounts of how some prominent members—in one instance the president of one of our prominent game preserve clubs—is slaughtering the ducks down South during the winter months. Again, we read of clubs organized in Chicago, composed of "way up" sportsmen, who with unlimited command of money, have secured the control of still another of the few remaining good fall shooting grounds of our State. Thus they go, one after the other, and soon the omnivorous greed of these wealthy sportsmen, most of them non-residents at that, will have secured every pond, lake or marsh in the State, where wildfowl stop during their fall migration.
>
> . . . Suppose we should shut out the whole outfit of club house and market-shooters—yes, all shooting entirely—from our wild rice and celery grounds, would there not be many thousands of ducks saved in the fall, which returning in the spring and scattering all over the State, for a few days, would give hundreds of people a little sport at that time of the year when nothing else is available? Instead of this, now we are having them slaughtered in the fall by a few men who, day in and day out, week in and week out, "pound it to 'em" from a blind over a big bunch of decoys, and ship them by the thousands to Eastern markets, assisted it may be by those very men whom the people imagine to be their game protectors."

In 1904 and again in 1905, Skavlem reported to the Wisconsin Natural History Society on the reliance of Canvasbacks on sago pondweed (*Potamogeton pectinatus*) at Lake Koshkonong (Skavlem 1905a,b). At that time, unlike today, this lake was rich in aquatic vegetation and in both breeding and migratory waterfowl.

During 1911–1913 Skavlem published several short articles on Wisconsin bird life in the Wisconsin Audubon Society's journal *By the Wayside*. He contributed a series of articles on birdlife to the *Janesville Gazette*, which was also published in the *Jefferson County Union* (Skavlem 1917). Nine of the ten articles in this series dealt with individual species or species groups, such as House Wren, swallows, Eastern Bluebird, "Golden-winged Woodpecker," American Robin, and woodland thrushes. The first article in the *Union* series was prefaced by the editor's comment "Everybody knows that Mr. H. L. Skavlem is an authority on birds. No one can afford to miss reading this series." These articles and others of their sort in local Wisconsin newspapers of the early 1900's suggest a greater general public interest and familiarity with birdlife, in contrast to today, as well as a greater reliance on the medium of newsprint.

Not being one to pass up an opportunity to comment on matters scien-

tific or political, Skavlem began the first article with a perspective that revealed the irony in newspaper censorship during those years of the Great War: "A plea to the better element of our human nature in behalf of nature's handiwork may pass uncensured, so long as we refrain from any comment on the glorious privilege of destroying our own species." He continued with yet another denunciation of authority, this time against "economic ornithology" (e.g., King 1883, Beal 1911), which argued the value of birds based largely on their roles as destroyers of insect pests and weed seeds.

> " 'A BIT OF OLD PASTURE. A disreputable bit, you say? Well perhaps from a thrifty farmer's point of view. But this particular bit is not selected for utilitarian purposes; but for its color, its wildness and waywardness, for its vagrant beckoning to feet weary with useful plodding.'
>
> This is the introduction to a bit of charming word painting by Frank H. Sweet, in a popular magazine article published several years ago. . . . To any true bird lover and nature student that one little sketch of the 'Old Pasture' is worth more than the price of the magazine for a year. Now understand me: I say, any true bird lover and right here be it understood that I bar from this title all those who everlastingly chatter about the 'utilitarian' and 'economic' value of this, that and the other kind of a bird—now that I have the floor I'm going to 'speak right out in meetin'.
>
> The average utilitarian and economic arguments in favor of bird protection are 50 percent nonsense, 25 percent wild guesses, and perhaps the most of the balance self-evident truths that require no arguments. Isn't it about time that we let up on pickling the stomachs of wrens and swallows, sparrows and woodpeckers—crows, hawks and even owls, that our scientific economic ornithologists may give us crazy-quilt tabulated statements of grasshopper legs and snout-beetle heads—pigeon grass and blackberry seeds with a generous sprinkling of buckwheat, barley, oats, and wheat—if the 'collecting' has been done at that season of the year when these grains have become palatable to the birds.
>
> We have enough silly assertions and half-baked theories on the money value of bird life to last us for generations to come. I would not write a word nor whisper a syllable that I thought would in any way blunt our appreciation of bird life, or tend to a false estimate of their value to man, but this penny valuation of a bird by the supposed—and often glaringly unreliable—estimates of the quantities of various seeds or the number of bugs and creeping things—good, bad or indifferent—that constitutes its daily rations is doing more harm than good.
>
> Our young bird students soon get the idea that our birds must pay for their keep in visible $ marks, or they are 'no good'.
>
> With this $ diplomacy ever uppermost in our discussion of bird life, we educate the young bird student to a standard of bird values as irrelevant as would be the same standard applied to the flower garden or to an oil painting. And those who have learned to value birds according to their penny income I am afraid must lose the very best there is in Mr. Sweet's 'old pasture lot'."

If the above quotations seem to paint Halvor Skavlem as an opinionated old crank, bear in mind that this sort of writing was not uncommon in the ornithological literature of the late 1800s and early 1900s, even by a scientist as well respected as Elliot Coues. Skavlem's arguments stem largely from a skepticism for authority and the conviction that "in order to gain any knowledge of value in the study of na-

ture, the essential qualification is the ability to pursue an accurate, critical habit of observation" (Skavlem 1912a). In fact accounts of Skavlem and his work show him to have been a humble, generous, and articulate lover of nature, more in line with the oft-repeated description of him as the "John Burroughs of Lake Koshkonong" or the "John Burroughs of Wisconsin."

Some of the more revealing and interesting information on this old naturalist come from publications on his archeological work. Skavlem was an expert on Wisconsin Indian mounds, village sites, and artifacts (e.g., Stout and Skavlem 1908, Skavlem 1914a, 1914b, Brown and Skavlem 1914). He was world-renowned as the first contemporary to master the lost art of manufacturing arrowheads and other stone implements using only those tools, such as bone, antlers, and stones, available to prehistoric native Americans. His techniques were thoroughly documented by others, particularly in a monograph by Alonzo Pond (1930), which also contains excellent photographs of Skavlem at work. Following is a selection of excerpts about him:

> "In his boyhood the Indians lingered in his neighborhood. Their artifacts and other evidences of their former occupancy were then numerous. Naturally of an inquisitive mind, young Skavlem began to ask himself how they made these stone utensils. In his later life, after a long study of the matter, he began making Indian tools as he believed they were made originally. He became very skilful and adept in the fashioning of stone.
>
> Since September, 1912, when Mr. Skavlem first started making arrowheads and axes . . . his summer home . . . at Carcajou Point . . . has been a gathering place for hundreds of visitors eager to see how the Indian made his weapons. These visitors have come from all parts of the United States and Canada and many of them have written articles for publication about the 'charming old arrowmaker of Lake Koshkonong.'
>
> In the passing years many members of the Wisconsin Archeological Society have sat on the hospitable porch of the Skavlem home at Carcajou Point. Here in a number of boxes he kept his flint and stone-working tools consisting of stone breaking and flaking hand-hammers, stone and flint pecking hammers, bone and antler flakers and sandstone grinders and other tools required for his experiments. Here also was a supply of flint and other stone, raw material obtained from neighboring stone heaps or sent to him by friends from aboriginal stone quarries and other sources. Here, on request, he was always willing to demonstrate and explain every step in the aboriginal manufacture of an arrowpoint or an axe. Many distinguished American archeologists and ethnologists have been among his visitors.
>
> He has never commercialized the results of his experiments, no one has ever been able to purchase even an arrowpoint from him. In Eastern and Western museums are specimens or series of specimens of his manufacture all of which he has freely donated as contributions to archeological science.
>
> No Wisconsin scientist of the present day has a larger circle of friends who respect him for his scientific knowledge and contributions in various fields of scientific research and investigation than Halvor L. Skavlem of Lake Koshkonong." (Anon. 1929)
>
> "Mr. Skavlem has always had a taste for the study of natural history in which he takes great delight, and which has led him to gather a large and varied collection of birds and animals. . . . He has a fine library of standard historical and scientific works, and has also been a great student in that direction. Gentlemanly and courteous in manner, well informed

on the topics of the day, and an original thinker of the school of Darwin and Huxley, he is always an entertaining companion and pleasant host." (Acme Publishing Company 1889)

"I have never met a man who represented the lover of Nature so purely and so simply, and with no ulterior motive. He is not a writer, nor a speaker, nor anything that reaches out for fame. With him, Nature is her own reward; and she still continues to reward him, in the eighth decade of his life. He knows the birds, the animals, the rocks, and the flowers. Every wren that selects its place for a home becomes his companion for the summer; and he has humorous appreciation of its strong character and little household ways. Along with this love of Nature, he has the strict truth-telling instinct of the pure scientist—all the more so, perhaps, because of this profound simplicity of mind.

He has little inclination to write. The State Historical Society has recently been urging him to write some articles upon the making of stone implements, but so far with no success. The nature-lover in him tells him to write; the pure scientist—whose respect is all for the thoroughgoing and accurate—tells him not to do so. He confided to me that a scientist is on the downward path when he starts writing 'just to please people.' Such is the literary philosophy of Skavlem.

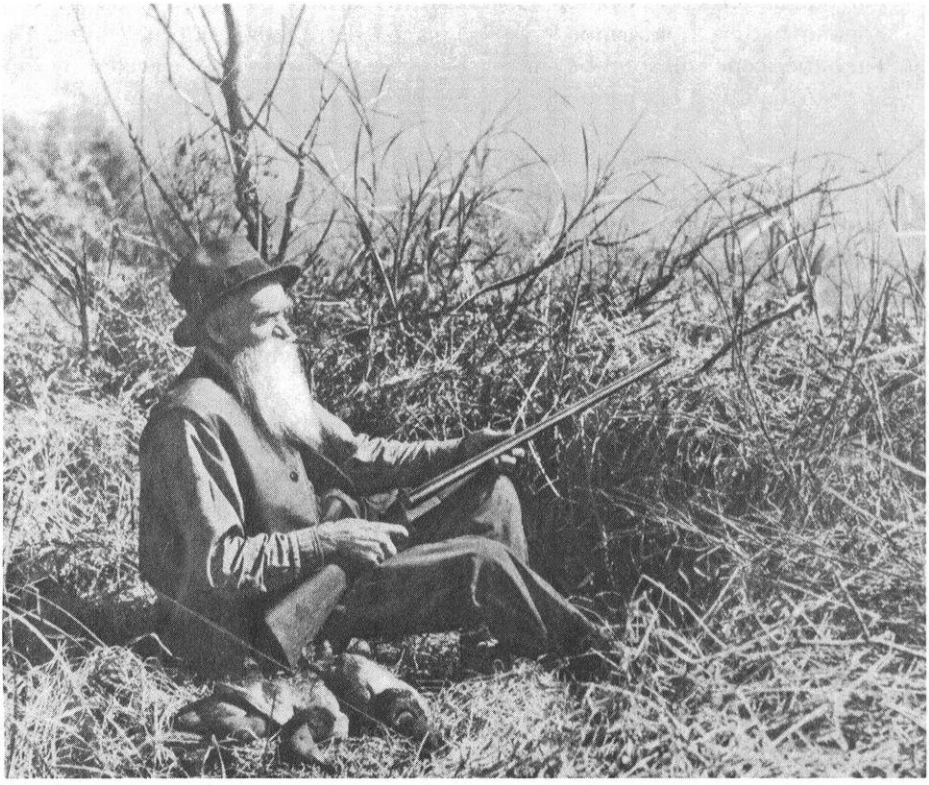
But there is, I think, a deeper reason why he does not write. He takes it out in first-hand contact—the pleasures of talk. His summer seat on the lake has become a Mecca for his friends—bird-lovers, geologists, hunters, and archaeologists. It is the social instinct that drives on your true writer. He is reaching out for people to share the world with. But when a man is so truly in love with Nature that she is her own reward, and when this brings a man just the human contact he needs, he is likely to put off the labors of the pen." (Stewart 1923)

"In [about 1912] the writer and Mr. Skavlem made a visit to the Chippewa river region in Rusk County to conduct some preliminary archeological investigations. In the party was a man of Indian blood who wished to know of the manner in which the Indians of northern Wisconsin had made their flint arrowpoints. He had made inquiries of old Indians whom he knew, but without being able to obtain any reliable information. Some thought that they had been made by a "little bug" that stirred up little whirlwinds of dust in dusty places. This man was astonished when Mr. Skavlem told him that he would himself make an arrowhead for him. When the party reached Flambeau P. O. at the mouth of the Flambeau river, Mr. Skavlem procured a piece of beef bone which he whittled to a blunt point. No flint was available so he broke into pieces with a stone hammer a beer bottle which happened to be lying near by. Seated on the steps of the local tavern boarding house he fashioned glass arrowheads for an interested audience of Indians and half breeds which soon appeared. Later during the progress of the party down the Chippewa, people came for miles across country to meet the arrowmaker. The news of his presence had gone before. In that region the fame of his exploits continues to this day although his name has been forgotten.

Archeologists, historians, museists and biologists throughout Wisconsin mourn the passing of this 'grand old man.' During the years of a long and busy life many young investigators have received help and real inspiration from him." (Brown 1939)

Among these young proteges were Angie Main (Mossman 1989) and Alonzo Pond, who would eventually be renowned as an archeologist and explorer.

Skavlem loved to consider the "old days," "and in his later days his con-



A photograph from the 16 October 1932 Milwaukee Journal (*reproduction courtesy of Rock County Historical Society*).

versation sparkled with anecdotes of the early times. Possessed with a characteristic sense of wit he remembered the little points that go to make a story doubly interesting. Many of his stories he ended with a chuckle in which his audience did not find it difficult to join." (Anon. 1939). His best writings were those that dealt with personal reminiscence and history. At least a few of his poems were written in this vein, under the pseudonym "Carcajou," including the following:

MY OLD CANOE

Yes, I'm old and out of fashion,
And my hand is shaky too,
Yet with Springtime comes a longin'
For my battered old canoe,
Yet with Springtime comes a longin'
For my battered old canoe.

Old time mem'rys cluster round it,
Days and scenes of long ago;
Shades of friends now long departed
Hover round my old canoe;
Hover round my old canoe;
Shades of friends now long departed
Hover round my old canoe.

Down life's stream we're slowly drifting,
Drifting slowly, I and you:
Time the scene will soon be shifting

For our battered old canoe;
For our battered old canoe;
Time the scene will soon be shifting
For our battered old canoe.

Aye, the shadow's growing longer,
Yet the sky is bright and blue,
And I see Nirvana yonder—
For my battered old canoe,
For my battered old canoe;
Yes I see Nirvana yonder—
For my battered old canoe.

Halvor was the historian of the extended Skavlem family, and his efforts culminated in an extraordinary family history (Skavlem 1915), which stands as a thorough and interesting account of Norwegian emigration and early life on the Wisconsin prairies. In his words, "it is hoped that these brief records of the life and conditions in the early formative days of our state may add just a trifle to the permanent history of Wisconsin, and at the same time revive our memories and enlarge our appreciation of what those sturdy pioneers—our fathers and mothers, grand-parents and great-grand-parents have done for us so that we and our descendants are privileged to enjoy the highest type of twentieth century civilization. . . . Long after the finish of my life's work, I hope through the medium of this book to be present at the tales by the firesides of our descendants, and thus help to 'keep green the memories of those who did so little for themselves and so much for us'."

The Skavlems were among the very first Norwegians to settle in Wisconsin. Halvor's father Lars was a pack-peddler in southern Norway until he and three of his brothers emigrated to America in 1839. They traveled via the Erie Canal and Great Lakes to Chicago, where they spent the winter. The following spring they traveled by foot and ox-cart "across the wet and boggy marshes and swampy prairies of northern Illinois" to the prairie west of Beloit where they served as a focal point for further Norwegian-American settlement. He acquired his first 40 acres in T1N R11E S11 nw ne for $1.25 per acre. This was 3 years before naturalist Thure Kumlien arrived at nearby Lake Koshkonong from Sweden, 8 years prior to statehood, and 9 years before young John Muir emigrated with his family from Scotland to settle in central Wisconsin. Wisconsin's population was but 31,000, yet growing rapidly with the influx of Yankees and western Europeans. Norwegian settlement remained centered in Skavlem's general area during the early 1840s, then spread northward.

In 1844, Lars married a neighbor woman, Groe Aae, and they soon moved from his initial log home to a newly built frame house. In 1846 Halvor was born—the first of 12 children, only 5 of which survived to adulthood. Halvor's mother was apparently quite a storyteller, and some of her tales and recollections were recorded by her granddaughter—Halvor's daughter—Hannah. Her interesting accounts of the Aae family's emigration from Norway to Rock County were reproduced in the Skavlem family history, and include some stories about early pioneer life as well:

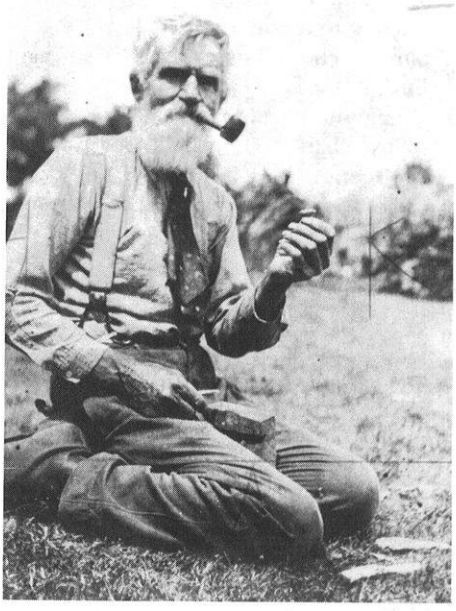
> "The wolves had not yet been frightened away from their favorite haunts. Civilization had no terrors for them. With a most contemptuous disregard of the respect due us in our role of conquering invaders, they held nightly vigils in the woods behind our house with old

time energy and vim. Their unearthly wailing cries were not the most pleasant of serenades. I do not remember of their making any very savage attacks upon the settlers. In those early times the woods and prairies swarmed with foxes and wild game; prairie chickens, quails and wild turkeys were numerous.

I was now married and lived with my husband, Lars Skavlem, in our cabin. We had a chore boy living with us. He had just come over from Norway and belonged to the more ignorant and superstitious class of emigrants. The first Sunday he took his hymn book and strolled off into the woods. Before very long we saw him coming across the opening at a break-neck speed, evidently laboring under some great excitement. When he reached us he was all out of breath.

'What's the matter?' asked my husband, 'I have—have seen the devil,' gasped the terrified boy. 'I was lying on the ground reading my hymn book when I heard a slight noise which caused me to look up, and there he stood, more terrible than I have ever seen his picture. He was green, blue, yellow, black, and a great red thing hung down from his neck, and such claws, I know it was the devil.' And he really did believe he had caught a glimpse of his Satanic Majesty. My husband tried to explain to him that it was undoubtedly a wild turkey gobbler he had seen, but he ever insisted that he had seen the devil in the Skavlem woods."

Based on accounts such as the above, and a sketch by Skavlem in the family history, the homestead was at the juncture of prairie and either oak woods or oak savanna ("oak opening"). Originally covering some 7–8 million acres in southern Wisconsin, the prairie/savanna landscape was rapidly changing to a patchwork of cultivated fields, pasture, and—in oak openings no longer maintained by fire—woodlots. Today very little of this landscape remains, and only in tiny, isolated parcels such as the 20-acre Newark Road Prairie Natural Area, just 1½ miles south of the Skavlem homestead. Today's naturalist may ache to know what it was like in those days, when the prairies and openings, which are today so scarce and vulnerable, extended to the horizons and beyond; when, for example in 1848, western Rock County was "mostly wild uncultivated land [with] no inhabitants scarcely but Norwegians" (Current 1976, p. 7). Consolation comes from today's prairie remnants and the potential to expand them, and in the old accounts of eye-witnesses. One such account has been given us by Havlor Skavlem (1912b), and it is probably his



Halvor L. Skavlem, ca 1922, making stone artifacts (*photo courtesy of State Historical Society of Wisconsin*).

most important writing on natural history. It is a rare account of the actual breaking of the prairie, written by a careful and sensitive observer of nature, though he was less than 10 years old at the time. This passage is especially noteworthy for its description of Long-billed Curlews, which once nested abundantly on the Wisconsin prairies. Breeding populations plummeted "with the disappearance of the original prairie sod" (Kumlien and Hollister 1903) and they were eventually extirpated from the entire Midwest.

"Some of the most lasting and vivid impressions of my boyhood—I may well say childhood days—relate to and recall pictures of bird-life in Southern Wisconsin, somewhat more than half a century ago.

We hark back to the time of the ponderous slow moving, breaking team, consisting of five to seven yoke of oxen, hitched to a long cable of heavy logchains attached to a crudely but strongly built "Breaker," with a beam like a young saw-log and a mould-board made of iron bars that turned over furrows two feet or more in width.

Those great unwieldy breaking teams, consisting of 10 to 14 large oxen, are yet distinctly outlined on memory's page, and reminiscently, I see them crawling like some huge Brobdignagian Caterpillar around and around the doomed 'land'—'land,' in breaking parlance, being that piece of the wild selected for cultivation—leaving a black trail behind, that, day by day, increased in width, bringing certain ruin and destruction—absolute annihilation—to the plant habitants who had held undisputed possession for untold centuries.

The mild-eyed, slow-moving ox teams were not only instruments in the destruction of the centuries-old flower-parks of the wilderness, but with them came tragedies in bird-life, resultant from the inevitable changes from nature's rules of the wild, to man's artificial sway. Often in preparing or planning for the breaking of a new piece of land, the same was guarded from the prairie fires of the fall and early spring, so that it could be 'fired' at the time of breaking. This would commence the latter part of May and continue on through June and July, covering the nesting season of the numerous species of bird-life, that had for untold generations, made this beautiful park region of the Rock River Valley their summer home.

It was in the early fifties that I, then a little tow-headed tot, chased butterflies and gathered armsfull of prairie flowers, at the same time 'spotting' bird nests of many and various kinds, on a piece of land destined to be civilized by the big plow that very season.

I distinctly remember the large eggs of the 'Prairie Snipe' and the still larger ones of the 'Crooked-bill' or 'Big-Snipe.' The former I later learned to know as BARTRAMIA LONGICAUDA [Upland Sandpiper], and the latter, long after they had entirely disappeared, I found had the book name of NUMENIOUS LONGIROSTRA, or LONG BILLED CURLEW. These snipes were so numerous at this particular season, that a bird student might have been misled to the conclusion that they were nesting in colonies. But, undoubtedly, the true explanation was that this protected piece of prairie with its dead grass unburned, was the ideal condition for the ground-nesting prairie birds.

The snipe were not the only birds that appeared in unusual numbers, but all bird-life seemed to regard this particular piece of land as a perfect paradise for a summer home.

Bob-White would mount the top of a dead sumach and call to his mate 'Wheat-most-ripe,' 'Wheat-most-ripe,' while she sat patiently brooding the nest-full of snow-white eggs in the thick bunch of dead grass nearby.

Near the little knoll at the farther side of the prairie, where earlier in the season the Prairie Chicken clan held their camp-meeting when many a lively scrap between the gallants of the company was settled to the entire satisfaction of the coy hens who would always give expression of their approval with a timid 'ye-es,—ye-es—yes, yes, yes,—ye-es,' these same matronly hens were now quietly tending their domestic duties, silently slipping off and on their well-filled nests even so cunningly hidden under the tufts of dead grass. Some of the nests were already far advanced towards that stage when the peeping egg should announce the arrival of the covey of young chicks; indeed, some of the most enterprising ones had already added their quota to the bird census of the season.

The patches of hazelbrush that looked like tiny islands of green set in a field spangled with the many colored gems of Painted-cups, Pinks and Blazing stars, were densely populated with a variety of bush-loving birds. Conspicuous among these were the Brown-thrashers and Cat-birds, who opened the morning services at day-break with bird melody rivaling the over-rated Avian Opera of the old world.

Evening vespers were softly chanted by the Robin and the 'Vesper-bird' [Vesper Sparrow]; 'Cheewinks' [Rufous-sided Towhees] rustled in the dead leaves that mulched the hazel-groves, while untold and unknown varieties of just little 'ground-birds' and 'bush-tits' animated every nook and corner of this bird paradise, during the long June days away back in the early Fifties of the last century.

This is but a repetition of the annual picture of this favored locality—during the preceding years, decades and centuries—when nature's rules were supreme, before the Paleface's Art and greed and their Chief Manito, Mammon had invaded the sacred precincts of this part of the natural world.

A slow-moving monster comes creeping up the trail over the picture of this pleasant June day. It is the great breaking team slowly and solemnly approaching the new-made home of the pioneer settler. The patient-looking oxen are unyoked and the driver with his great long whip playing a snapping tune that sounds like a scattering volley of pistol shots, 'herds the cattle' with many a 'haw' and 'gee' to a nearby part of the common, where there is good 'feed' and restful shade until they are 'rounded-up' the next morning to continue their work of breaking the wilderness.

The time has now come to 'fire the land.' All conditions are favorable for a good 'burn': a clear warm afternoon, a gentle breeze away from the homestead. The dry grass under the flower spangled green and dead leaves that mulch the hazelbrush will burn like powder.

All hands now set to work starting the fire. Pulling up great bundles of dry grass they ignite the outer end of the bundle and then run along the edge of the 'land' scattering the ignited grass as they go, down one side and up the other. The little boy is all excitement helping pa with little bundles of dead grass because he too must act his part in the new order of things; and soon the land is all encircled with flame and great clouds of vapor-like smoke roll upwards and onwards signaling distant neighbors that they are burning 'breaking-land' where new fields are being born.

But what of our bird friends, the old habitants of the land: Bob-White and his interesting family, the Prairie Snipe and their big eggs or their curious, odd-looking long-billed babies, the Brown-thrashers, Cat-bird, Bobolink and Lark, that filled the morning air with their songs of happiness and swelled with bird pride in anticipation of happy little families? What of the hundreds of happy bird homes that the morning sun brightened and warmed? All,—all are gone. A black, scorched and desolate scar profusely

sprinkled with wrecks of nests, scorched eggs and charred bodies of little baby birds, disfigure the face of Mother Earth. Oh, could I but command the language of 'Christopher North' or John Muir in word painting, I would BURN this horrible bird-tragedy into the brains of my readers—young and old—so they would never consent to the burning of grass or bush during the nesting season.

I doubt if anyone of the human agents of this pathetic bird-tragedy gave a single thought to the bird victims of their fire, or even noticed a single distressed and bewildered mother bird hovering over the smoking ruin of her family home.

It was not until the next day that the little boy realized the loss of his flowery play-ground and the many bird-nests that he had 'spotted' with boyish ingenuity. He started for the 'Big Snipe' nest but where was it? All his marks were gone, some of the large green plants were still standing, but scorched, blackened and wilted, DEAD, all DEAD. Here comes the big snipe, with silent but graceful motion she sails a circle around the distracted child, then utters her harsh call, indicating both anger and distress. Soon her fellow sufferers respond from all points of the compass and the air is full of the big long-billed birds angrily screaming and scolding, now and then making threatening dives at the thoroughly scared and crying lad. Grandpa comes to the rescue, and to soothe the troubled child he tells him he may pick all the eggs he wants. With his little home-made cap for basket, he starts his collection with the baked eggs of the big snipe and—though his little bare feet are sorely pricked by the sharp stubs of the burned grass—he soon fills his cap with eggs,—baked and burned,—large and small—spotted, speckled and white. Grandpa now directs the way to the house and in his eagerness to show his treasure the boy starts on the run, stubs his toe and falls. Memory fails to tell what became of the eggs and cap, but I distinctly remember that Grandpa wore a blue peaked knit cap, doubled over on the side with tassel dangling from the tip end—you can see a picture of it in Ross Brown's 'Land of Thor'."

I wish Havlor Skavlem were still around. I would like to hear his stories, watch him use a toothbrush handle to fashion the bottom of a beer bottle into an arrowhead, and ask him questions about bird life in the old days. Yet I wonder—had I been born at the turn of the century, and therefore without the advantage of today's hindsight, would I have recognized the singular value of his knowledge while he was still alive?

Hopefully, such thoughts lead us to consider the special perspectives that today's old timers have to offer their younger counterparts. It was not so very long ago—within the memory of many now living—that there were landscapes of pasture and grass hay full of the songs of meadowlarks and Upland "Plovers" where there are now corn, alfalfa, and industrial parks; extensive marshes and meadows where there are now open lakes; sharptail barrens that have since succeeded to dime-a-dozen forest; and when the sighting of a cardinal in southern Wisconsin was more significant than that of a prairie chicken.

What a tragedy—common though it may be—if the experience of these former worlds are lost forever, even to those still living. This prospect presents a double challenge: to seek out the historical perspectives of our elders, and to be enough aware of our own, contemporary environments that we will have something in turn to offer succeeding generations.

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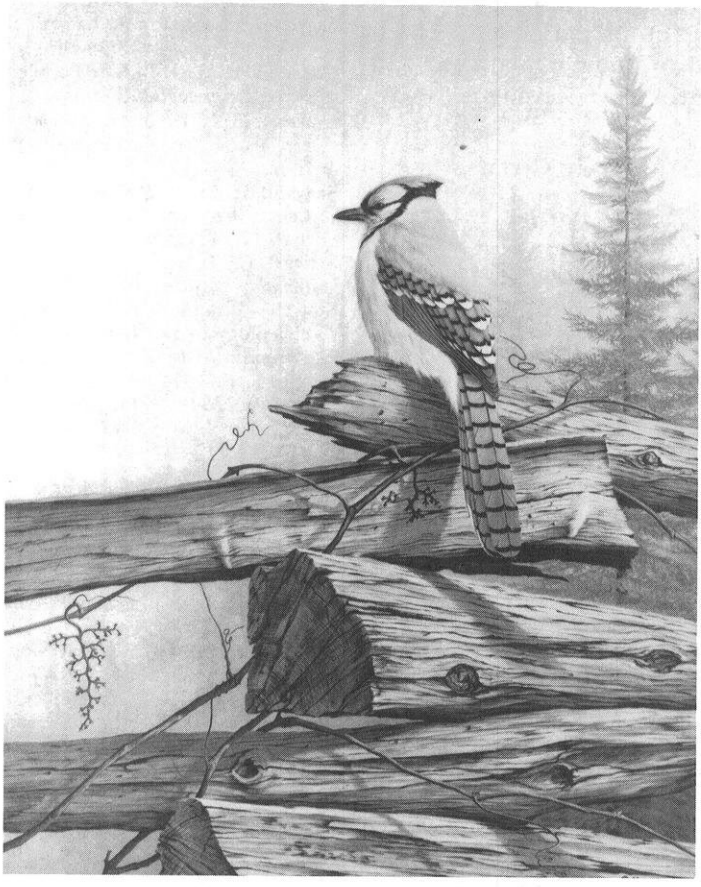

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Birds of Northern Wisconsin Pine Forests

by Randy M. Hoffman and Michael J. Mossman

Travelers bound north through Wisconsin know they are approaching the "northwoods" when they see their first pine. This perception has an ecological significance, for, botanically, pines are important in distinguishing our state's northern, or "mixed hardwood-coniferous" forest from southern, or "eastern deciduous" forest. These two general forest biomes separate themselves along the tension zone, which extends roughly from Polk County on the northwest, to Milwaukee County on the southeast (Curtis 1959). These same travelers, however, may sometimes be fooled by pines growing in southern Wisconsin in the isolated relics of rocky slopes and draws and some Wisconsin River sand terraces, and in artificial pine plantations.

Wisconsin's northwoods actually include several related forest types, the most extensive of which is the hardwood-hemlock forest described by Curtis (1959) as "northern mesic." That forest type and its bird life were discussed by Hoffman (1989). Our present article deals specifically with those northern forests dominated by pines or by pines and hardwoods, particularly oaks. These forests cover a relatively wide range of structures, from the dense young stands of the central and northwestern sand barrens regions, where birdwatchers and biologists search for the elusive Kirtland's Warbler, to mature stands in which Blackburnian and Pine Warblers breed among towering old pines.

Curtis (1959) divided pine forests

An old-growth Red Pine stand (*photo by Robert Read*).

into "northern dry" and "northern dry-mesic" categories (Table 1). Northern dry forest has either jack pine or red pine as a canopy dominant. It occurs on sandy glacial outwash or lake plains and less commonly on sandy ridges. Balsam fir (*Abies balsamea*), red pine, white pine, and spruces often form a sub-canopy. Common shrub species are blueberry (*Vaccinium angustifolium*), dwarf blackberry (*Rubus pubescens*), bush honeysuckle (*Diervilla lonicera*), hazelnut (*Corylus americana*), and beaked hazelnut (*C. cornuta*). The most prevalent groundlayer species are Canada mayflower (*Maianthemum canadense*), bracken fern (*Pteridium aquilinum*), wild sarsaparilla (*Aralia nudicaulis*), false solomon's seal (*Smilacina racemosa*), starflower (*Trientalis borealis*), wintergreen (*Gaultheria procumbens*), pipsissewa (*Chimaphila umbellata*), large-leaved aster (*Aster macrophyllus*), dogbane (*Apocynum androsaemifolium*), and penn sedge (*Carex pennsylvanica*). Northern dry forest dominated by jack pine extends somewhat beyond the tension zone on the bed of extinct Glacial Lake Wisconsin, as far south as northern Sauk County.

Curtis' northern dry-mesic forest occurs principally on glacial outwash, glacial lake plain and thin drift over bedrock. White pine is nearly always present as a dominant, but occasionally red pine or hemlock (*Tsuga canadensis*) are dominant. Common shrub layer species are sapling maples, bush honeysuckle, beaked hazelnut, maple-leaved viburnum (*Vibernum acerifolium*), bunchberry (*Cornus canadensis*), alternate-leaved dogwood (*Cornus alternifolia*), and dogberry (*Ribes cynobasti*). The most prevalent ground layer species are Canada mayflower, wild sarsaparilla, large-leaved aster (*Aster macrophyllus*), bracken fern, starflower, bedstraw (*Galium triflorum*), false solomon's seal, wood anemone (*Anemone quinquefolia*), and bluebead lily (*Clintonia borealis*).

Thinned Red Pine plantation showing the absence of any shrubs or ground layer plants typical of natural stands (*photo by Cliff Germain*).

Hardwood trees associated with northern dry or dry-mesic forests include several oak species, aspens, paper birch, red maple, and on the most mesic sites, sugar maple (Table 1).

In the following discussion of pine forests, we distinguish types based on the dominant species of pine, and consider other important characteristics such as the age of a forest stand, and the extent to which oaks and other hardwoods are intermixed. Let us begin by considering the dominant pine species.

Jack pine is a short-lived, shade-intolerant, pioneer species that grows best in dry sandy and gravelly soils of glacial outwash. However it can also do quite well in moist soils and even in the poorly drained organic soils of bogs

Table 1. Comparison of the 5 most dominant canopy species in Curtis' (1959) pine forest types.

Species	Northern Dry Forest	Northern Dry-Mesic Forest
Jack pine	1	—
Red pine	2	—
White pine	3	1
Hill's oak	4	—
Trembling aspen	5	—
Red maple	—	2
Red oak	—	3
Paper birch	—	4
Sugar Maple	—	5

(Majcen 1980). Jack pines have serotinous cones that release seeds only after exposure to heat. Most naturally occurring jack pines are established after forest fires because the fire exposes a mineral soil seed bed and heats the cones enough to release their seeds. Thus, jack pine stands are usually "even-aged," that is, with all trees having originated at approximately the same time. Many of today's jack pine stands, especially on Glacial Lake Wisconsin sands, originated since settlement on sites where frequent fires previously maintained open, savanna-like "barrens"—a community to be discussed in a forthcoming article of this series. In the continued absence of fire, jack pine forest may in turn be succeeded by red pine, white pine, or oaks, particularly Hill's oak, which is a common associate of jack pine.

Red pine, often mistakenly called Norway pine, occurs in pure stands or mixed with white pine, jack pine, or hardwoods. It grows best on well drained sandy to loamy soils, but is most common on sands (Benzie 1977). This tree is intolerant of shade and is long-lived, and sometimes succeeds less tolerant and shorter-lived species such as jack pine, paper birch, and aspen (*Populus* sp.). Most stands live to about 200 years old; however, some individuals can reach 400 years. Natural regeneration usually depends on wildfire, although red pine is somewhat resistant to ground fires (Curtis, 1959). In the absence of major disturbance, especially on more mesic soils, red pine stands often succeed to hardwoods or white pine.

White pine is by far the largest tree that grows in Wisconsin. It can reach a height of nearly 200 feet, a diameter of twelve feet, and can live for up to 500 years. Ecologically, it is similar to red pine, but prefers more mesic sites, growing best in deep loams or sandy loams (Curtis 1959). It also grows in organic and sandy soils, but on these suboptimal sites it rarely dominates the forest (Wendel 1980). White pine establishes itself best on bare mineral soil. Scattered seeding occurs beneath small canopy openings and dense stands are sometimes established in larger openings, especially after a disturbance such as fire exposes mineral soil. If undisturbed, stands on more mesic sites tend to succeed to Curtis' northern mesic forest, with a canopy dominated by red oak, sugar maple, and hemlock. However because of white pine's longevity, individuals may persist in these mesic forests for decades or centuries as supercanopy giants.

Fire has long been identified as an important factor in the perpetuation of white pine (Maissurow, 1941; Mayall 1941), red pine (Spurr, 1954, Frissell, 1973) and jack pine (Eyre and LeBarron, 1944), and it was critical in producing the extensive pine forests that existed in northern Wisconsin

prior to settlement. During the last five centuries, about 95% of the forest in northern Wisconsin burned (Maissurow 1941). In general, pine forests were initiated when fire removed competing vegetation and prepared the soil for the next generation of forest. The pines then seeded in and grew to maturity, or were thinned and maintained by light disturbances, or were returned to an earlier successional stage by catastrophic disturbance. Hardwoods could also seed in, and species such as oaks and aspens could return as well from root or stump sprouts. While fire and windthrow could set back succession almost instantaneously, the progression to more mesic forest undoubtedly sometimes spanned centuries.

Fire return interval (the average number of years between naturally occurring fires) was very important in determining pine forest structure and composition. This return interval varied between sites due to various factors including soils, landforms, topography, lakes and streams. In the Boundary Waters Canoe Area, the fire return interval was determined to be about fifty years (Van Wagner 1971). Fire *intensity* was also important in determining the structure of pine forest. Red pine forests, for example, seem to do best with alternating light and intense fires (Heinselman, 1973, Bergeron & Brisson, 1990).

Presettlement conditions are rarely present today and the exacting conditions for regeneration by wildfire are rarely met, especially for red and white pine (Ahlgren, 1976). This is due primarily to a much smaller component of seed pine trees because of past logging, the abundance and aggressive nature of aspen, white pine blister rust, the fragmented nature of today's forest, and aggressive fire control practices.

The nature of the forests have changed greatly since settlement. The great pine forests were eagerly sought by the first wave of lumbermen. Logging continued, and by 1930 nearly all of the forest was cut at least once. Since that time large areas of northern Wisconsin have become reforested, due in part to the development of nurseries that supply the state with large numbers of pine seedlings. In a recent inventory (Smith 1986), jack pine and red pine greatly exceeded presettlement acreages (Table 2). However, these figures are misleading in that they include sapling and pole-sized stands, as well as plantations, which in aggregate comprise a large percentage of the pines growing in the state.

Forest resembling the old-growth stands of presettlement time today persists only in small, often isolated stands. To identify these areas of presettlement quality, the Wisconsin Natural Heritage Inventory conducted a county-by-county search for significant natural areas. This survey identified pine forests with a history of little or no human disturbance, especially logging; and stands that appeared to have recovered sufficiently from such past disturbance that forest structure and composition were effected primarily by the forces of natural disturbance and succession. These stands included forest of relatively old growth (generally greater than 100 years for red and white pine), and with a high floristic diversity in the shrub and ground layer. The survey found a drastic reduction in the extent of presettlement-quality pine forest (Table 2).

Table 2. Comparison of presettlement and current pine forest acreages.

Northern forest type[1]	Presettlement acreage	Current acreage[2,3] of presettlement quality
Dry	340,000	2,930
Dry-mesic	1,930,000	13,578
Total	2,270,000	16,508

[1]From Curtis (1959).
[2]Wisconsin Natural Heritage Inventory data.
[3]From Smith (1986).

We have very few data on the bird life of Wisconsin's pine forests prior to the early and extensive logging that changed these forest landscapes so drastically. However, the state's Natural Areas Breeding Bird Survey has provided substantial information on the present avifaunas of both natural and human-influenced stands. As one might expect, breeding-bird communities vary with the general successional changes and moisture regimes described above, but also with a host of other factors such as the relative proportions of pines and hardwoods, the specific sort of understory development and its pattern within the forest, local disturbances or variations in substrate, geographical location, and surrounding land uses.

For all 3 pine forest categories, for example, bird community succession following catastrophic fire or logging begins with open-country and shrub-loving species such as Brown Thrasher, Mourning Warbler, Common Yellowthroat, and the Clay-colored, Vesper, and Field Sparrows. It progresses, eventually, to those species such as Eastern Wood-Pewee, Ovenbird, and Pine Warbler that require relatively mature trees or a well-developed canopy. The historic and site-related factors that determine the prevalence of a stand's hardwood component will influence whether the bird community is dominated by species that prefer hardwoods (e.g., White-breasted Nuthatch, Red-eyed Vireo, Scarlet Tanager) or conifers (e.g., Red-breasted Nuthatch, Chipping Sparrow, and the Nashville Warbler, Blackburnian Warbler, Pine Warbler, and Yellow-rumped Warbler). A number of more generalized species would be expected to be fairly common regardless of the relative proportions of pines and hardwoods, so long as other general structural requirements are met. These include the Eastern Wood-Pewee, Blue Jay, Black-capped Chickadee, and Ovenbird.

At any successional stage bird species diversity within a forest stand may be increased by a high "horizontal diversity," that is, a variety of vertical forest structures among different parts of the stand. The greatest such diversity appears to occur in old-growth stands, which meet the requirements of species that prefer large trees (e.g., Pileated Woodpecker, Blackburnian Warbler, Pine Warbler) or a well developed, shaded, hardwood understory (e.g., Veery, Hermit Thrush, Connecticut Warbler), as well as some other species that require the various structures of earlier successional stages, which develop in gaps where the canopy has been opened by windthrow, disease, or local fire.

Table 3 summarizes the general composition of breeding-bird communities in the 3 types of pine forest. The most common species overall are the Blue Jay, Black-capped Chickadee, Nashville Warbler, Ovenbird, and Brown-headed Cowbird.

The jack pine forest bird community is distinctive in the high importance of Nashville Warbler and the scarcity of species that prefer large trees. Jack pine woods are relatively common in central and northwestern Wisconsin, because of the periodic occurrence of wildfire, which remains difficult to control in these sandy regions, and because of the relative lack of competition from other plants. However, very few stands are taller than about 45 ft., due to fire frequency, the species' value as a source of wood pulp, and its relatively short life span.

Jack pine forest usually begins in a barrens-like situation, often with scattered jack pine and hardwood trees and saplings, and a mixed ground cover of pine seedlings, heath, hazel shrubs, and grass or penn sedge. Common birds include Mourning Dove, Brown Thrasher, Northern Flicker, Eastern Kingbird, Cedar Waxwing, Eastern Bluebird, Brown-headed Cowbird, American Goldfinch, Rufous-sided Towhee, and the Vesper, Field, Chipping, and Clay-colored Sparrow. As pines seed in and then develop into a young woods with trees up to 20 ft tall, most open-country species become relegated to openings, Chipping Sparrows increase, and Blue Jays, chickadees, and Nashvilles appear in numbers. As stands continue to mature to a height of 40 ft, a separate understory layer typically develops, which may be variously dominated by penn sedge, heath, or hardwood shrubs and saplings. At this stage, Nashville Warblers and Ovenbirds are likely to be abundant, Hermit Thrushes may occur in the understory, and pewees and Least Flycatchers may appear among the lower canopy. When stands attain greater heights, Blackburnian Warblers and Pine Warblers may occur, and the flycatchers increase, often along with Red-breasted Nuthatch and Yellow-rumped Warbler. Throughout this progression, sites beneath an open or an especially thin canopy may develop hardwood shrub or sapling growth, therefore providing habitat for Black-billed Cuckoo, Gray Catbird, Veery, Common Yellowthroat, Mourning Warbler, Chestnut-sided Warbler, and Indigo Bunting. Species such as Blue Jay, Black-capped Chickadee, American Robin, and Brown-headed Cowbird generally remain fairly common throughout the life of a jack pine stand.

When Hill's oak becomes co-dominant with jack pine, or supersedes it, Nashvilles and Chipping Sparrows decline noticeably. Eventually, if all pines disappear, the succeeding oak forest is typically dominated by the following: Eastern Wood-Pewee, Least Flycatcher, Great Crested Flycatcher, Blue Jay, Black-capped Chickadee, White-breasted Nuthatch, Yellow-throated Vireo, Red-eyed Vireo, Chestnut-sided Warbler, Ovenbird, Scarlet Tanager, Rose-breasted Grosbeak, and Indigo Bunting. See Mossman and Lange (1982) for an example of changes in bird species along a cline from jack pine barrens and woods to oak forest.

One species that we have yet to discuss, but which is characteristic of a particular sort of jack pine forest, is

Table 3. Comparison of species abundance in 3 types of pine forests. Numbers indicate the ranking of top 9 species within each type.

Species	Forest Type		
	White Pine	Red Pine	Jack Pine
Great Blue Heron		*	
Sharp-shinned Hawk			R
Broad-winged Hawk	U	R	
Ruffed Grouse	U	R	U
Mourning Dove			U
Black-billed Cuckoo			R
Yellow-billed Cuckoo			R
Great-horned Owl		U	
Ruby-throated Hummingbird		U	
Yellow-bellied Sapsucker		FC	
Downy Woodpecker	R	U	U
Hairy Woodpecker	R	U	
Northern Flicker	R		U
Pileated Woodpecker	U		
Olive-sided Flycatcher		U	
Eastern Wood-Pewee		C(8)	U
Least Flycatcher		FC	
Crested Flycatcher	U	FC	C(8)
Tree Swallow			C(9)
Blue Jay	C(4)	C(6)	C(3)
Common Raven	U		
American Crow	U	FC	U
Black-capped Chickadee	C(7)	C(4)	FC
Red-breasted Nuthatch	C(8)	U	
White-breasted Nuthatch	U	U	R
Brown Creeper		U	
Winter Wren		R	
Golden-crowned Kinglet		R	
Eastern Bluebird			U
Veery	C(2)	FC	
Hermit Thrush		U	C(4)
Wood Thrush	R	R	
American Robin	R	U	U
Brown Thrasher		R	
Cedar Waxwing	FC	U	FC
Solitary Vireo		R	
Red-eyed Vireo		C(3)	U
Golden-winged Warbler	R		
Nashville Warbler	C(9)	FC	C(2)
Northern Parula		R	
Yellow Warbler		R	
Chestnut-sided Warbler		R	R
Yellow-rumped Warbler		R	U
Black-throated Green Warbler	U	C(9)	
Blackburnian Warbler	C(5)	C(7)	U
Pine Warbler	C(3)	A(2)	
Black-and-White Warbler	R	U	R
American Redstart		R	
Ovenbird	A(1)	A(1)	A(1)
Connecticut Warbler		U	U
Common Yellowthroat	U	U	U
Canada Warbler	C(6)	U	

(*continued*)

Table 3. *Continued*

Species	Forest Type		
	White Pine	Red Pine	Jack Pine
Scarlet Tanager	FC	U	R
Rose-breasted Grosbeak	R	R	U
Indigo Bunting	R		C(7)
Rufous-sided Towhee		R	U
Chipping Sparrow	R	U	C(6)
Song Sparrow	R	C(5)	U
White-throated Sparrow	R	FC	R
Red-winged Blackbird			R
Brown-headed Cowbird	FC	FC	C(5)
Northern Oriole	R		R
Purple Finch		FC	
Red Crossbill			R
American Goldfinch		R	R

FC = Fairly Common, U = Uncommon, R = Rare.
* = One colony was present on one stand.

the Connecticut Warbler. Bent (1963) states this species is a bird of vast tamarack and black spruce swamps, breeding from Ontario and northern Michigan northwestward to northern British Columbia. Bent also references habitat further west as being on dry, aspen ridges. More recent literature still refers to Connecticut Warbler habitat in the same terms (Terres, 1980, Peterson, 180, Ehrlich, 1988).

The Connecticut Warbler in Wisconsin does indeed occasionally inhabit areas as previously described. However, more often they breed here in an entirely different niche, that is, in areas of sandy or gravelly glacial outwash, among the dense shrub layer that occasionally forms under mid-aged to old-aged jack pine and sometimes red pine. The necessary shrub formation does not occur when tree densities are high enough to form a relatively closed canopy. Likewise, appropriate habitat often becomes unsuitable when a subcanopy layer of hardwood saplings develops.

A species that is even rarer than the Connecticut Warbler, and which occurs only in jack pines is the Kirtland's Warbler. Several territorial males have been found in recent years in dense young stands, but breeding has never been documented.

In general, the bird communities of red and white pine forests undergo similar stages of succession as do the jack pine communities. However, because of the greater lifespan of these latter species, succession more often continues to include birds that prefer larger trees or a more complex forest structure. If succession proceeds to more mesic, hardwood-dominated forest, the breeding avifauna approaches that described by Hoffman (1989).

Distinguishing features between the breeding-bird communities of Wisconsin red and white pine forests correspond with differences in the respective moisture regimes and degree of openness. This is somewhat exaggerated and obscured in Table 3, the white pine stands of which were concentrated in partially damp sites near streams in Jackson County. Neverthe-

less, the greater abundance, in white pine stands, of species such as Veery and Canada Warbler, and the relatively fewer Hermit Thrushes, American Robins, and Song Sparrows, are consistent with one or the other of these differences. The relatively common occurrence of Red-breasted Nuthatch, Blackburnian Warbler, and Pine Warbler reflects the presence of mature pines. However, of these 3 species, the nuthatch and Blackburnian Warbler often breed in other types of forest as well, where they associate with mature conifers such as hemlock, spruce, and fir. Only the Pine Warbler depends entirely on mature and old-growth pines. This species has an unusual geographic distribution. It occurs across the broad pinelands of the south, the pitch pinelands of the Atlantic coastal plain, and across the northern tier of states into Canada, where it utilizes red pine, jack pine and white pine. The species prefers somewhat open pine woods with large trees. It seems to shun dense stands of white pine (Bent, 1963) and most of the younger stands in the Midwest, although it is not uncommon in the scrub pine barrens of the east coast. The Pine Warbler is one of the few warblers that winters in part of its breeding range.

An artificial community that in some ways approximates natural pine forests is the conifer plantation, examples of which are scattered liberally throughout the entire state. Red pine is now by far the most commonly planted, often with the encouragement of state, county, or private foresters, and to the detriment of native or non-native grasslands, natural barrens communities, or naturally regenerating forest. Other plantations are maintained as Christmas tree farms, although these are usually dominated by spruces.

The Natural Areas Breeding Bird Survey includes data from several pine plantations of various ages and types from around the state (Table 4). When these plantations are young they often provide valuable breeding habitat for open-country bird species, especially if they are at least 80 acres in size or are part of a similar-sized tract that includes other appropriate "grassland" habitat. However, this lasts only until trees reach the height of about 8 ft., or until tree cover reaches about 75%. Species typical of this early stage of plantation development include many of those described previously for jack pine barrens-like habitat, especially on xeric sites. However, the community is generally dominated by Chipping Sparrows, Field Sparrows, and Clay-colored Sparrows. In southern Wisconsin, Clay-colored Sparrows are nearly limited to these young pine and, especially, spruce plantations.

Beyond this stage, plantations develop a very simple structure as understory plants are shaded out by the thick canopy. Chipping Sparrows and sometimes a few Black-capped Chickadees or Blue Jays inhabit these "biological deserts." Northern House Wrens may be attracted by piles of branches left behind by trimming operations. Other species such as American Robin, Brown-headed Cowbird, and Cedar Waxwing often occur in low numbers as well, but usually near edges. Like the chickadee and jay, they are often found to be dependent on adjacent forests, edges, or open lands for feeding or nesting.

This sterile condition usually prevails until the stand is harvested at the age of 30–40 years. Exceptions to this

Table 4. Examples of conifer plantation bird communities.

Species	Numbers of birds recorded during surveys in: Young red pine[1]	Closed-canopy red pine[2]	Mature jack pine[3]	Over-mature red/white pine[4]	Mature spruce[5]
Sharp-shinned Hawk	—	—	—	—	1
Mourning Dove	—	—	—	—	2
Northern Flicker	—	—	—	1	—
Acadian Flycatcher	—	—	—	5	—
Least Flycatcher	—	—	—	2	—
Eastern Wood-Pewee	—	—	3	—	—
Tree Swallow	4	—	—	—	—
Barn Swallow	—	—	—	—	2
Purple Martin	2	—	—	—	—
Blue Jay	—	3	5	2	8
American Crow	—	—	1	—	—
Black-capped Chickadee	—	3	2	2	5
White-breasted Nuthatch	—	—	1	—	—
Red-breasted Nuthatch	—	—	2	—	—
Northern House Wren	—	—	4	7	—
Brown Thrasher	—	—	—	—	4
American Robin	—	1	5	3	2
Hermit Thrush	—	—	3	—	—
Eastern Bluebird	1	—	—	—	—
Golden-crowned Kinglet	—	—	—	—	3
Cedar Waxwing	—	3	—	1	4
Solitary Vireo	—	—	2	—	—
Red-eyed Vireo	—	—	—	1	—
Nashville Warbler	—	—	1	—	—
Black-throated Green Warbler	—	—	—	1	—
Chestnut-sided Warbler	—	—	—	2	—
Pine Warbler	—	—	—	2	—
Ovenbird	—	—	—	5	—
Mourning Warbler	—	—	—	2	—
Brown-headed Cowbird	2	2	2	1	3
Northern Cardinal	—	—	—	1	7
Rose-breasted Grosbeak	—	—	2	—	—
Indigo Bunting	—	—	—	4	1
Pine Siskin	—	—	5	—	—
American Goldfinch	2	—	—	2	—
Rufous-sided Towhee	—	—	—	2	—
Vesper Sparrow	15	—	—	—	—
Chipping Sparrow	1	11	12	15	13
Clay-colored Sparrow	27	—	—	—	—
Field Sparrow	14	—	—	—	—
Song Sparrow	1	—	—	—	—

[1]Number recorded during 5 walk-5-minutes-and-stand-5-minutes periods at a 7-foot-tall stand in Adams Co.

[2]Number recorded during 3 walk-5-minutes-and-stand-5-minutes periods at a 45-foot-tall stand in Jackson Co.

[3]Number recorded during 5 walk-5-minutes-stand-5-minute periods at a 40-foot-tall stand in Douglas Co.

[4]Number recorded during 6 walk-5-minutes-stand-5-minutes periods at a 65-foot-tall stand at Waukesha Co.

[5]Number recorded during 10 walk-5-minutes-stand-5-minutes periods at a 40-foot-tall stand in Sauk Co.

scenario occur in situations where more natural conditions develop. For instance, plantations situated in a landscape of coniferous or mixed forests seem to provide some degree of habitat to locally occurring bird species that are adapted to using conifers for feeding or nesting, and which can include plantations within their breeding territories. Plantations within these situations are also more likely to incorporate, from local sources, plant and probably invertebrate species that are adapted to coniferous communities, thus creating less of a "desert" for breeding birds.

Plantations with a thin or broken canopy are also of value, because the penetration of sunlight encourages understory growth and consequently a more diverse structure that may satisfy the breeding requirements of bird species typical of the natural pine forest understory. Jack pine plantations are generally better than others, in that their foliage is naturally sparse, and they are practicably planted only in sandy sites that tend to succeed naturally to jack pine forest.

In those rare cases when a plantation is allowed to develop well beyond the recommended age of final harvest, natural attrition of senescent canopy trees occurs, and understory and subcanopy layers eventually develop. The plantation actually becomes dynamic, with a relatively complex structure, thus more closely approaching a true forest. The Southern Kettle Moraine State Forest has some examples of these old plantations, which provide for an unusual and rich breeding-bird fauna that includes both southern and northern species reliant on mature forests (Table 4).

Plantations of white, blue, and Norway spruce (*Picea glauca, P. pungens, P. abies*) develop through similar stages of structural complexity and bird diversity. However, even when stands are very dense and only 30 ft tall, habitat is often afforded for coniferous forest species such as Sharp-shinned Hawk and Golden-crowned Kinglet. This occurs even well south of the tension zone (Table 4).

The natural landscape in which the northwoods bird community evolved was a mosaic of types and successional stages. To maintain healthy populations of bird species and communities in northern Wisconsin, we should encourage this diverse sort of landscape, while accounting for the minimum habitat size requirements (Temple 1988) of these species. The management of the pine forest component of this mosaic presents a peculiar yet well-recognized problem, because sites protected from fire or certain human manipulations tend to succeed to hardwoods. This illustrates the fallacy of relying solely on the protection of relatively small natural areas in perpetuity, and argues convincingly for a landscape-scale approach that incorporates fire as a management tool. Perhaps only thus can we foster a dynamic mosaic that provides the full range of habitats required by northern forest wildlife.

Sites

The following 4 sites are offered as representative pine forest stands, with ready access to birdwatchers. Breeding-bird communities are summarized in Table 5.

Table 5. Comparison of the breeding birds on four stands of northern pine forests.

Species	Castle Mound	Moquah Barrens	Frog Lake	Brant Brook Pines
Osprey			X	
Cooper's Hawk	X			
Broad-winged Hawk	X		X	
Red-tailed Hawk	X			
American Kestrel	X			
Ruffed Grouse	X	X	X	
Black-billed Cuckoo	X	X		
Great-horned Owl	X			
Ruby-throated Hummingbird	X			
Yellow-breasted Sapsucker		X	X	X
Downy Woodpecker	X		X	
Hairy Woodpecker	X	X		
Northern Flicker	X	X	X	
Pileated Woodpecker	X			
Eastern Wood-Pewee	X	X	X	X
Alder Flycatcher			X	
Least Flycatcher		X	X	X
Eastern Phoebe	X			
Crested Flycatcher	X	X	X	X
Eastern Kingbird		X	X	
Purple Martin	X			
Tree Swallow		X	X	
Blue Jay	X	X	X	X
Northern Raven		X		
American Crow	X	X		X
Black-capped Chickadee	X	X	X	X
Red-breasted Nuthatch	X	X	X	
White-breasted Nuthatch	X	X	X	X
Brown Creeper		X		
House Wren	X	X		
Winter Wren			X	X
Sedge Wren			X	
Eastern Bluebird		X	X	
Veery		X	X	X
Hermit Thrush		X	X	
Wood Thrush		X	X	
American Robin	X	X	X	X
Gray Catbird	X	X		
Brown Thrasher		X		
Cedar Waxwing	X	X	X	
Solitary Vireo	X	X		
Yellow-throated Vireo				X
Red-eyed Vireo	X	X	X	X
Golden-winged Warbler				X
Nashville Warbler	X	X	X	
Northern Parula			X	X
Yellow Warbler		X		X
Chestnut-sided Warbler		X		X
Yellow-rumped Warbler		X	X	
Blue-throated Green Warbler	X	X	X	
Blackburnian Warbler			X	
Pine Warbler	X	X	X	X
Black-and-White Warbler	X	X	X	X
American Redstart	X	X		X
Ovenbird	X	X	X	X

(*continued*)

Table 5. *Continued*

Species	Castle Mound	Moquah Barrens	Frog Lake	Brant Brook Pines
Northern Waterthrush			X	
Connecticut Warbler		X		
Common Yellowthroat		X	X	X
Canada Warbler	X			X
Scarlet Tanager	X	X		X
Rose-breasted Grosbeak	X	X		
Indigo Bunting	X	X		
Rufous-sided Towhee	X	X		
Chipping Sparrow	X	X	X	X
Song Sparrow		X	X	
White-throated Sparrow		X	X	
Dark-eyed Junco		X		
Red-winged Blackbird		X		
Brown-headed Cowbird	X	X		
Northern Oriole		X		
American Goldfinch	X	X		

Castle Mound Pine Forest

Size.—Eighty acres, permanently separated from surrounding forest land by roads.

Location.—Jackson County, just south of the city of Black River Falls. The site is a disjunct part of Black River Falls State Forest. A state park sticker is required to enter.

Access.—Follow U.S. Hwy. 12 south one mile from bridge over the Black River in Black River Falls to Castle Mound Roadside Park.

Description.—Castle Mound is a weathering butte rising about 180 feet above the surrounding sand plain in the Driftless Area. It is composed of Cambrian sandstone about 400 million years old. Exposed and shaded cliff faces up to thirty feet high occur along the central backbone ridge, and sandstone boulders litter the sloping forest floor. The NW-SE trending mound has many different microclimates resulting in contrasting forest communities. The protected northeast slope is forested with a mixed pine forest of white and red pines with Hill's oak, white oak, paper birch, red maple, and large-toothed aspen. Groundlayer species typical of the northern forest—pipsissewa, large-leaved aster, partridge berry, and wintergreen—grow here. The dry southwest face is wooded with jack pine and oak.

Birds.—Most of the avifauna comprises birds that frequent hardwood forests and woodlots statewide, Red-tailed Hawk, Black-billed Cuckoo, Great-horned Owl, Black-capped Chickadee, White-breasted Nuthatch, House Wren, American Robin, Gray Catbird, Cedar Waxwing, Indigo Bunting, Rufous-sided Towhee, and Brown-headed Cowbird, Blue Jay, American Crow, Red-eyed Vireo, and Rose-breasted Grosbeak. Chipping Sparrows are also common. For the bird-watcher, the real significance of the site lies in a number of species regularly nest that usually nest much far-

ther north in Wisconsin: Red-breasted Nuthatch, Solitary Vireo, Nashville Warbler, Black-throated Green Warbler, Pine Warbler, and Canada Warbler.

Moquah Barrens

Size.—The site encompasses 640 acres. Forest road 236 bisects the area. Forest Service management to the south and west is creating an extensive open area for Sharp-tailed Grouse.

Location.—North central Bayfield county, entirely within the boundary of the Chequamegon National Forest.

Access.—From Ashland follow Highway 2 west to the village of Ino, then go north 7 miles on Forest Road 236 which traverses the area.

Description.—Moquah Barrens lies near the eastern edge of an extensive outwash sand plain in northwestern Wisconsin on rolling topography with sandy and sandy loam soils. The designated Natural Area was originally pine barrens, and has been set aside as a research area to study natural succession in the absence of fire. Jack and red pines are associated with red oak, red maple, trembling aspen, large-toothed aspen, and white birch. Protective management has allowed the forest to close in on the barrens openings, in contrast to adjacent fire-restored barrens. The shrub layer is dominated by serviceberry, dewberry, blueberry, sweetfern, hazel, honeysuckle, and sand cherry, and the groundlayer has an abundance of bracken fern, large-leaved aster, Canada mayflower, wintergreen and pearly everlasting. Breeding bird surveys have shown a gradual change from open barrens species through successional forest species to the closed-forest preference species now present.

Birds.—Surveys in the early 1970's indicated several species of open land including Red-tailed Hawk, Vesper Sparrow, Clay-colored Sparrow, and Field Sparrow. These species are rare or absent now. Since then the forest has closed its openings and grown into a mid-aged jack pine, aspen, oak forest. This aging of the forest has allowed appropriate habitat to develop for a new set of species which are now coming into the forest. Foremost among the recent user of the forest is the Connecticut Warbler. It first started showing up several years ago and is now regularly found in June. Other recent additions include Black-and-White Warbler, Black-throated Green Warbler, Yellow-rumped Warbler and Pine Warbler.

Frog Lake and Pines

Size.—There are 192 acres in the State Natural Area, but within the 5,460-acre Manitowish River Wilderness Area of the Northern Highland-American Legion State Forest.

Location.—Southeastern Iron County, just south of Manitowish.

Access.—From Manitowish go south on State Hwy. 47–188 for 0.6 mile to a gated access road, then walk into the site. A sign designating the site is located at the access road.

Description.—Frog Lake and Pines State Natural Area contains a red and white pine forest situated between

Frog Lake and the Manitowish River. The pines are in a medium-age class, the red pines to 2 feet in diameter at breast height and some white pines even larger. Other trees include white birch, aspen, red maple, and balsam fir. The largest pine timber lies south of the east-west woods road and closest to Frog Lake. White pine reproduction is more common southward. Reproduction is most evident where disturbance has occurred or where communities meet. North and east of the lake red pine occurs on soils with 1–3 inches of duff and organics over sandy loam. Frog Lake is a deep, soft, seepage lake with a sandy bottom overlain with muck in many areas. The lake is 45 feet deep with a Secchi disk reading of 8 feet. Submergent aquatics are dense and include bladderwort, Robbin's spike rush, watershield, white and yellow pond lilies, and pondweeds. About 80 percent of the shore is wetland; the remainder, upland pine forest.

Birds.—Frog Lake Pines State Natural Area by virtue of having relatively intact forest and lying within a much larger block of natural vegetation, contains nearly a full compliment of those species preferring older growth red and white pine. A larger area of pines continues west from the State Natural Area Boundary. This may be the largest unbroken tract of relatively large red and white pines anywhere in Wisconsin. In addition to the pines the site contains lakes and several large bogs and marshes which adds to the diversity of the site. Included in these bog areas are records of Palm Warbler and Lincoln's Sparrow.

Brant Brook Pines and Hardwoods

Size.—There are 190 acres surrounded by forest land to the east, north and south. To the west lies the St. Croix River.

Location.—Western Burnett County, within the Governor Knowles State Forest.

Access.—From the intersection of County Hwys. F and D at the north edge of Grantsburg go north on County F 3.25 miles, then west on Pete Nelson Road 2 miles to Gile Road. Proceed north on Gile Road 1.25 miles to the Brant Brook Pines Ski Trail parking lot at a right angle corner. Follow the hiking/ski trail into the area.

Description.—The old-growth northern dry-mesic forest, dominated by red pine, encompasses about 34 acres. Associated species include white pine, jack pine, red maple, red oak, large-toothed aspen, and white birch. A narrow swale of black ash nearly divides the area. The pine stand origin is estimated at 1894. Some wind throw occurred in a 1977 storm. On the level upland terrace above the pines is a dense forest of small oaks; on the low terrace below the pines a more mature swamp hardwood forest of oak, black ash, and red maple occurs. Soils consist of (1) Nymore sand, excessively drained deep sandy soils on the flat uplands; (2) Omega sand and loamy sands, well-drained sandy soils on the river terraces; and (3) rocky and seepage areas in the bottoms. Brant Brook, which contains native brook trout, is a steep gradient, cold water stream, 2–

4 feet wide and only several inches deep. The bottom is primarily sand.

Birds.—Brant Brooks birds are easily reached via hiking/ski trails. These trails enter the older growth red pines, but also go through extensive areas of mid-aged jack pine and oaks. These different habitats add to the diversity of the area. The exciting part of the old pines is the excellent forest structure, with a dense midstory and shrub layer. These lower layers provide habitat for Golden-winged Warbler, Chestnut-sided Warbler, American Redstart and Canada Warbler.

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The Spring Season: 1990

by Allen K. Shea

"This season was neither early nor late, but both. Therefore, it's a little hard to summarize, but let me start by saying: What's a shorebird." After tens of hours gleaning through more than a 100 report forms and struggling with the problem of how to characterize this mass of information, this quote (from one of those many forms) struck me as quite suitable in capturing the essence of what was the 1990 spring migration in Wisconsin.

What were the important weather conditions, statistics, migration patterns, unexplained phenomenon, and interesting sightings of 1990? Read on!

Weather Eye

March's weather was unexceptional, except for a period of above average temperatures and southerly air flow in the second week. The month closed out with seasonable temperatures across the state, scattered rain in the south and light snow in the north and west.

April begin with cloudy, windy and cold conditions statewide. Variable periods of precipitation—rain and drizzle in the south, snow in the north—characterized the first week. Temperatures averaged close to seasonal norms for the entire middle part of April, and again the state experienced variable periods of precipitation. Conditions changed dramatically beginning on the 19th when a change in wind pattern started to move much warmer air into the state. Temperatures rose to the 60's and 70's statewide by the 21st and into the 80's in the south on the 22nd. This flow of warm, moist southerly air continued right into the 27th, setting many high temperature records to the south and east, and setting off thunderstorms to the west and northwest portions of the state.

May began fairly quiet; the first week brought variable cloudiness and a return to normal temperatures. The second week in May started out promising with sunshine and unseasonably warm temperatures. However, starting on the 8th, a sharp dip in the upper jet stream brought down arctic air into Wisconsin resulting in widespread rain and thunderstorms on the 9th and up to 7 inches of wet snow across the eastern portions of the state. The middle

portion of the month was very cool, wet and windy up to the 21st. The last 10 days of the month were generally quiet, cool and devoid of any major weather patterns.

The Migration at a Glance

The general consensus was that the 1990 spring migration had two 'faces.' The first 'face' was that of early arrival dates and good numbers of waterfowl and passerines up to late April. The second 'face' was characterized by the general lack of song bird waves, the extended migration of many species, and many late lingering individuals. The following dates outline dates identified by observers across the state as peak migration periods: March 11–13; April 18–19; April 27–29; April 27–29; May 11–12; and May 19–21. More so than in recent years, the early arrival dates identified within the species accounts below closely correlate to these migration peaks, particularly those through the end of April. Obviously, weather patterns across the eastern half of the nation at certain times in March and April were *very* conducive to extended bird migration.

Below are summaries of the migration of selected groups of species:

Waterfowl.—Above average sightings of Red-throated Loons. Overall, the grebe migration excellent with early arrivals, good numbers and variety of species; Eared Grebes were in above average numbers, and Red-necked Grebes continue to be widespread across the state. The goose and duck migration was universally described as excellent and early; scoters in particular were in above average numbers, with an unusual number of Surf Scoters being seen at inland locations and at late dates.

Raptors

Cooper's Hawks continue to expand in the state. May sightings of this species, presumedly breeding birds, are becoming common place across the entire state, i.e. the author knew of three nesting pairs in Madison alone. Northern Goshawk numbers remain low. Red-shouldered Hawks appeared to be more widespread than normal. Merlins and peregrines were seen in good numbers.

Shorebirds.—The shorebird migration was universally decried as "poor" or "abysmal." Some observers attributed the lack of shorebirds to the unusual abundance of habitat; others conjectured that shorebird "overflight" of the state was responsible. Despite this general sentiment, some shorebird species were unusual widespread, i.e. avocet and both godwits.

Gulls.—A very good spring season for gulls with 12 species being reported. An unusual concentration of 'white-winged' gull species were seen inland at the mouth of the Fox River in Winnebago County.

Flycatchers, Thrushes, Warblers and other Song Birds.—Notable for the almost across-the-board early arrival dates; many of these dates were within 2 to 3 days of each other for numerous species.

Sparrows.—Arrival dates for most species were 'normal.' However, for those species which migrate normally in May—i.e. White-crowned and Har-

ris'—above average numbers and a longer migration 'window' were noted by many observers.

Shameless Supposition & Miscellaneous Observations

1990 provided the 'Spring' of the White Pelican, Northern Mockingbird, White-eyed Vireo, and Summer Tanager with perhaps, unprecedented numbers of sightings for these species.

Miscellaneous.—Who will win the race to [re]colonize the entire state first—Wild Turkey or House Finch? (See the species accounts.) Are Great Gray Owls and Chuck-will's-widows more regular nesting birds in this state than once commonly believed?

Upbeat News.—American Bitterns appear to be holding their own in Wisconsin; several observers found them to be more numerous than in many years. The Conservation Reserve Program may be having some beneficial effect on some grassland birds, as numbers of reports for Northern Bobwhite, Ring-necked Pheasant, Upland Sandpiper, Short-eared Owl, and Grasshopper Sparrow appear to be increasing. Will Henslow's Sparrow populations respond as well?

Downbeat News.—Piping Plover are in serious trouble in this state as a breeding bird. What's happening to the Tufted Titmouse population in this state? Will the soon-to-be colonization of the state by House Finches have an ecological down-side? Loggerhead Shrikes are also in serious trouble in this state as a breeding bird.

Potpourri

Ninety-seven observers submitted 124 separate county field report forms. The number of observers represents the second highest total for the spring season, and well above the ten-year average of 77. A commendable sixty-eight counties received coverage of some extent; this was the best coverage the state has ever received during the spring (any?) season. Reports were not received from only the following four counties: Clark, Iron, Rusk, and Waushara. The counties receiving the most extensive coverage were as follows: Dane with 19 separate reports; Columbia with 13; Milwaukee with 12; Sauk with 11; Dodge with 10; Ozaukee with 9; and Portage with 7.

Despite being a relatively good year for rarities, only a total of 298 species were reported during the period, the same as last year's total and again slightly down from the ten year average of 300. Notable rare birds were: White-faced Ibis, Ross' Goose, Eurasian Widgeon, Barrow's Goldeneye, Mississippi Kite, Laughing Gull, Mew Gull, Thayer's Gull, Iceland Gull, Lesser Black-backed Gull, Great Black-backed Gull, Burrowing Owl, a possible nesting Great Gray Owl, Chuck-will's-widow, Scissor-tailed Flycatcher, Bewick's Wren, Audubon's race of the Yellow-rumped Warbler, Yellow-throated Warbler, and Painted Bunting.

Etcetera

The overall quality of the field reports was again quite good. Many observers were quite conscientious in providing detailed, legible records on dates "first seen" and "last seen" for

most species seen in their areas. This careful record keeping, while tedious, is vital to creating a picture of migration, whether on an individual seasonal basis or in establishing long-term trends.

Of special note were three reports received from Jeff Baughman, Dennis Kuecherer and Robbeye Johnson. Jeff provided an insightful one and one-half page summary of his overall impressions on the weather, migration and birders. Dennis provided a table detailing the waterfowl migration at Lake Tomah, Monroe County; a summary which not only capsulizes the season's waterfowl migration, but also shows the variety of interesting records that can be obtained from daily coverage of one location. Lastly, Robbeye provided three pages of notes on the migration, in addition to a daily log of the weather at Superior, Wisconsin; a location, as many of you know, that can have radically different conditions than the rest of Wisconsin.

The documentation of rare, out-of-range or unseasonal observations was, for the most part, quite good. As with last year, however, I found the lack of documentation prohibited me from including some records in the species accounts. This was again specially true with early arrival records. To alleviate this situation in future spring seasons, I am again requesting observers include documentation, even if brief, in their field report forms for observations of species which seems unusually early for your location.

Finally, the substantial number of observers who took the time to note their perspective on the spring season's weather, migration, species abundance, etc. are to be commended.

Miscellany

Abbreviations used in the following species accounts are: BOP = Beginning of the Period, and EOP = End of the Period. I would be remiss if I failed to extend a special thanks to two individuals: Suzan Shea for her extensive assistance in preparing this report, and Stan Temple for his exceptional patience in receiving this manuscript.

Reports (1 March–31 May, 1990)

Red-throated Loon.—First reported in Milwaukee County, March 31, (S. Diehl). On April 14, 16 birds were sighted in Sheboygan County (Jeff Baughman and T. Schultz). Last reported in Milwaukee County, May 31, (P. Sunby).

Pacific Loon.—A possible sighting of this species was reported in Manitowoc County, April 15. Rejected by the Records Committee due to insufficient detail.

Common Loon.—First reported in Dane County, March 13 (A. & S. Shea). On April 18, 91 birds were sighted in Dane County (A. & S. Shea) a very high count away from the Great Lakes.

Pied-billed Grebe.—First reported in Monroe County, March 12 (D. Kuecherer). On April 8, 26 birds were sighted in Dane County (A. & S. Shea).

Horned Grebe.—First reported in Dane County, March 13, (A. & S. Shea). On May 2, 289 birds were sighted in Manitowoc County (C. Sontag). Last reported in Monroe County, May 26, (E. Epstein) a very late date for this southerly location.

Red-necked Grebe.—First reported in Winnebago County, April 1 by (T. Ziebell). Many observers, however, reported their first observations of this species between April 21 and May 3. Present at the end of the period in Douglas, Green Lake, Taylor and Winnebago Counties.

Eared Grebe.—First reported in Milwau-

kee County, April 29 (P. Sunby). Also reported during the period in Burnett, Dane, Dodge, Douglas, Manitowoc, and St. Croix Counties. Last reported in Dane County, May 26 (P. Ashman).

Western Grebe.—Reported as follows: Monroe County, April 15, (D. Kuecherer); Winnebago County, May 26, (T. Ziebell); and Chippewa County, May 28, (J. Polk).

American White Pelican.—First reported in Burnett County, April 22 (J. Hoefler). On May 23, 25 birds were sighted in Burnett County (J. Hoefler). Last reported in Douglas County, May 26 (R. Johnson) and (L. Semo). Also reported during the period in Ashland, Dane, Green Lake, Taylor, and Trempealeau Counties.

Double-crested Cormorant.—First reported in Sawyer County, April 2 (K. Castelein & D. Lauten). Reported in 22 other Counties during the period.

American Bittern.—First reported in Marathon County, April 12 (J. Hoeft). On May 26, 15 birds were sighted in Burnett County (A. & S. Shea). Reported in 28 other counties during the period.

Least Bittern.—First reported on May 12 in Fond du Lac (Jeff Baughman); Ozaukee (J. Frank); and Winnebago (T. Ziebell) Counties. Reported during the period in Buffalo, Burnett, Columbia, Dane, Dodge, Douglas, Fond du Lac, Green Lake, Manitowoc, Milwaukee, Ozaukee, St. Croix, and Taylor Counties.

Great Blue Heron.—Present at beginning of period in Racine (G. DeBoer) and Trempealeau (T. Hunter) Counties. Many observers, however, reported their first observation of this bird between March 14 and March 25.

Great Egret.—First reported on April 7 in Dane County (B. Hilsenhoff) and (S. Robbins). Reported in 30 other counties during the period. Observations in Douglas and Ashland Counties were further north than normal for this species.

Little Blue Heron.—Reported in Ozaukee County, April 25 (D. Gustafson).

Cattle Egret.—Reported as follows: Brown County, April 22-May 19 (B. Mead); Racine County, April 26–May 12 (G. DeBoer); Ashland County, April 26 (D. Verch); and Dane County, April 29 (A. & S. Shea).

Green-backed Heron.—First reported in Milwaukee County on April 9 (W. Woodmansee). Many observers, however, reported their first observation of this bird between April 24 and April 29.

Black-crowned Night Heron.—First reported in Winnebago County, April 1 (T. Ziebell). On May 27, 21 birds were sighted in Marathon County (D. Belter). Reported in 19 other Counties during the period.

Yellow-crowned Night Heron.—Reported as follows: and Waupaca County, April 23 (J. Anderson & S. Petznick).

White-faced Ibis.—Reported in Dodge County, April 27–29 (T. Schultz), (P. Sunby), and (D. Tessen). Accepted by the Records Committee.

Tundra Swan.—Reported in Polk County at the beginning of the period (J. Hudick) (an over-wintering bird?). Accepted by the Records Committee. The first observations of migrants were on March 18 in Brown (B. Mead); Portage (M. Berner); and Sheboygan (Jeff Baughman) Counties. Late lingering birds were sighted May 28 in Taylor County (M. Berner) and at the end of the period in Ashland County (D. Verch).

Mute Swan.—Reported during the period in Ashland, Burnett, Columbia, Dane, Door, Douglas, Lafayette, Monroe, Portage, Racine, Shawano, Taylor, Walworth and Waukesha Counties.

Greater White-fronted Goose.—First reported on March 22 in Columbia (D. Gustafson) and Florence (L. & S. LaValley) Counties. Last reported in Burnett County, May 28 (D. Tessen). Also reported during the period in Burnett, Columbia, Dane, Dodge, Door, and St. Croix Counties.

Snow Goose.—First reported in Dodge County, March 5 (D. Johnson). On March 14, 320 birds were sighted in Monroe County D. Kuecherer). Last reported in Columbia County, May 27 (M. Martin). Also reported during the

period in Ashland, Burnett, Dane, Door, Marathon, Milwaukee, Outagamie, and St. Croix Counties.

Ross' Goose.—Reported in Columbia County, March 4 (B. Hilsenhoff) and (D. Tessen) and on March 11 (D. Williams). Accepted by the Records Committee.

Canada Goose.—Present at beginning of period in 21 counties. Many observers, however, reported their first observations of this bird between March 10–15.

Wood Duck.—Present at the beginning of period in Monroe (D. Kuecherer) and Trempealeau (T. Hunter) Counties. Many observers, however, reported their first observation of this bird between March 13–22.

Green-winged Teal.—First reported in Winnebago County, March 12 (T. Ziebell). On March 23, 102 birds were sighted in Racine County (G. DeBoer).

American Black Duck.—Present at the beginning of period in Ashland, Brown, Dane, Door, Fond du Lac, Manitowoc, Marathon, Milwaukee, Portage, Sheboygan and Winnebago Counties. On March 27, 75 birds were sighted in Dodge County (D. Johnson).

Mallard.—Present at the beginning of the period.

Northern Pintail.—Present at the beginning of period in Dane (P. Ashman) and (B. Hilsenhoff) and Waupaca (D. Tessen) Counties. Many observers, however, reported their first observation of this bird between March 12–21.

Blue-winged Teal.—First reported in Door County, March 11 (C. & R. Lukes).

Cinnamon Teal.—Reported in Dane County, April 21 (S. Thiessen) and Kenosha County May 12–13 *fide* (G. DeBoer).

Northern Shoveler.—Present at the beginning of period in Dane County (several observers).

Gadwall.—Present at the beginning of period in Dane County (several observers).

Eurasian Widgeon.—Reported as follows: Columbia County, March 26–April 2 (P. Ashman), (M. Martin), (T. Schultz) and (D. Tessen); and Chippewa County, April 4–9 (J. Polk).

American Widgeon.—Present at the beginning of period in Dane County (several observers). On April 10, 380 birds were sighted in Monroe County D. Kuecherer).

Canvasback.—First reported in Winnebago County, March 9 (T. Ziebell). On March 25, 200 birds were sighted in Dodge County (D. Johnson). Last reported in Bayfield County, May 27 (D. Tessen).

Redhead.—First reported on March 2 in Dane (P. Ashman); and Milwaukee (P. Sunby) Counties.

Ring-necked Duck.—First reported in Shawano County, March 2 (M. Peterson).

Greater Scaup.—Present at beginning of period in Door, and Milwaukee Counties. On April 3, 2,600 birds were sighted in Milwaukee County (P. Sunby). Present at the end of the period in Douglas County (R. Johnson).

Lesser Scaup.—Present at the beginning of period in Dane, Milwaukee, and Sheboygan Counties. On March 21, 3,000 birds were sighted in Winnebago County (T. Ziebell). Present at the end of the period in the following counties: Ashland, Columbia, Douglas, Green Lake, Manitowoc, Milwaukee, and Portage.

Harlequin Duck.—On April 18–May 5, 2 birds were sighted in Ozaukee County (D. Gustafson), also reported by (P. Sunby) on May 5.

Oldsquaw.—Last reported in Door County, April 30 (C. & R. Lukes).

Black Scoter.—Reported as follows: Sheboygan County, April 14 (Jeff Baughman); Ozaukee County, April 14 (T. Schultz) and April 19 (D. Gustafson); Manitowoc County, May 18 (D. Tessen); and Ozaukee County, May 24 (J. Frank).

Surf Scoter.—First reported in Manitowoc County, April 2 (C. Sontag). Also reported during the period in Ashland, Milwaukee, Ozaukee,

and Sheboygan Counties. Last reported in Douglas County, May 27 (D. Tessen).

White-winged Scoter.—Reported as follows: Racine County, March 23 (G. DeBoer); Ozaukee County, April 19 (D. Gustafson) and April 21 (T. Soulen); Ashland County, May 11–21 (D. Verch); and Manitowoc County, May 18 (D. Tessen).

Common Goldeneye.—Present at the beginning of period in Ashland, Brown, Dane, Door, Manitowoc, Marathon, Marinette, Milwaukee, Polk, Portage, Shawano, Sheboygan, Trempealeau and Winnebago Counties.

Barrow's Goldeneye.—Reported in Taylor County, April 13 (P. Risch). Accepted by the Records Committee.

Bufflehead.—Present at the beginning of period in Dane, Door, Milwaukee, and Sheboygan Counties. On March 23, 75 birds were sighted in Racine County (G. DeBoer).

Hooded Merganser.—Present at the beginning of period in Milwaukee, Portage and Waupaca Counties.

Common Merganser.—Present at the beginning of period in Dane, Door, Milwaukee, Polk, Shawano, Sheboygan, and Winnebago Counties.

Red-breasted Merganser.—Present at the beginning of period in Dane, Manitowoc, Milwaukee, and Sheboygan Counties.

Ruddy Duck.—First reported in Milwaukee County, March 15 (D. Gustafson). On April 30, 100's of birds were sighted in Dunn County (J. Polk). This species was reported unusually far north in Douglas County on April 28 (R. Johnson).

Turkey Vulture.—First reported in Walworth County, March 12 (P. Parsons). On April 10, 29 birds were sighted in Sheboygan County (Jeff Baughman). Last reported in these northern counties: Ashland, Douglas, Florence, and Vilas.

Osprey.—First reported on April 1 in Ashland (D. Verch) and Winnebago (T. Ziebell). Reported in 24 other counties during the period.

Mississippi Kite.—Reported in Portage County, April 26 (R. Hunt); Milwaukee County May 23 (D. Gustafson); and Brown County May 25 (T. Schultz).

Bald Eagle.—Present at beginning of period throughout the state.

Northern Harrier.—Present at the beginning of period in Fond du Lac, Marinette, Monroe, Sheboygan, and Winnebago Counties.

Sharp-shinned Hawk.—Present at the beginning of period in Calumet, Dane, Door, Dunn, Green Lake, Marathon, Marinette, Sawyer, Sheboygan, Taylor, Trempealeau, Walworth, and Winnebago Counties. Reported in 14 other Counties during the period.

Cooper's Hawk.—Present at the beginning of period in Brown, Calumet, Dane, Green Lake, Jefferson, Milwaukee, Monroe, Portage, Walworth, and Winnebago Counties. Reported in 28 other Counties during the period.

Northern Goshawk.—Present at the beginning of the period in Ashland, Door, and Florence Counties. Reported during the period in Brown, Burnett, Fond du Lac, Monroe, Portage, Sawyer, and Washburn Counties. Present at the end of the period in Ashland, Door, Douglas, Florence, and Marathon Counties.

Red-shouldered Hawk.—Present at the beginning of period in Dane, Polk, and Taylor Counties. Reported in 19 other counties during the period. On May 24, 4 birds were sighted in Polk County (A. & S. Shea).

Broad-winged Hawk.—First reported in Walworth County, March 12 (P. Parsons).

Swainson's Hawk.—Reported as follows: Sawyer County, May 7 (J. Robinson).

Red-tailed Hawk.—Present during the period throughout the state.

Rough-legged Hawk.—Last reported in Taylor County, May 16 (P. Risch).

Golden Eagle.—Reported as follows: Monroe County, March 3–17 (D. Kuecherer); Juneau County, March 24 (T. Soulen); and Forest County, April 12 (D. Tessen).

American Kestrel.—Present during the period throughout the state.

Merlin.—First reported in Dane County, March 22 (B. Hilsenhoff). Reported during the period in Ashland, Dodge, Douglas, Fond du Lac, Grant, Jackson, Manitowoc, Milwaukee, Racine, Sawyer, and Taylor Counties.

Peregrine Falcon.—Reported as follows: Milwaukee County, March 1 (R. Gutschow); and Dane County, March 6 (B. Isenring). Reported during the period in Ashland, Burnett, Dodge, Douglas, Grant, Marathon, Monroe, Portage, Price, Rock, St. Croix, and Winnebago Counties.

Gray Partridge.—Reported during the period in Brown, Calumet, Columbia, Dane, Door, Monroe, Outagamie, Ozaukee, St. Croix, Shawano, and Washington Counties.

Ring-necked Pheasant.—Reported in 31 Counties during the period.

Spruce Grouse.—Reported as follows: Oneida County, April 12 (D. Tessen); and Sawyer County, April 18 (K. Castelein & D. Lauten).

Ruffed Grouse.—Present during the period throughout the state.

Greater Prairie-Chicken.—Reported during the period in Burnett, Marathon, Portage, and Taylor Counties.

Sharp-tailed Grouse.—Reported during the period in Bayfield, Burnett, Douglas, Florence (!), Jackson, Taylor, and Wood Counties.

Wild Turkey.—Reported in 19 Counties during the period. This species continues to expand its range in the state. Reported as far north as Burnett and Florence Counties. On March 30, 250 birds were sighted in Marinette County (L. & S. LaValley).

Northern Bobwhite.—Reported during the period in Brown, Buffalo, Columbia, Dane, Dodge, Door, Dunn, Kenosha, Marquette, Monroe, Ozaukee, Pepin, Rock, Sauk, and Trempealeau Counties.

Yellow Rail.—Reported as follows: 3 birds in Dodge County, May 12 (D. Gustafson); Dodge County, May 21 (M. Peterson); Bayfield County, May 22 (D. Verch); 2 birds in Burnett County, May 25 (A. & S. Shea); Oconto County, May 25 (I. & T. Baugmann); Vilas County, May 26 (Jim Baughman, Jeff Baughman and G. De Boer); and Burnett County, May 28 (D. Tessen).

King Rail.—Reported as follows: Dane County, May 15 (R. Hoffman and A. Shea); Dane County, May 19 (D. Tessen); Columbia County, May 21 (Jeff Baughman); Dane County, May 21 (S. Robbins); Dunn County, May 26 (R. Hoffman); and Waukesha County, May 27 (S. Diehl).

Virginia Rail.—Present at beginning of period in Green Lake County (T. Schultz). Many observers, however, reported their first observation of this bird between April 21 and April 28.

Sora.—First reported in Dane County, April 20 (E. Hansen).

Common Moorhen.—First reported in Winnebago County, April 21 (T. Ziebell). Also reported during the period in Columbia, Dane, Dodge, Ozaukee, St. Croix Counties.

American Coot.—Present at beginning of period in Dane, Milwaukee, and Winnebago Counties. Many observers, however, reported their first observation of this bird between March 10 and March 17.

Sandhill Crane.—First reported in Winnebago County, March 6 (T. Ziebell). On March 23, 405 birds were sighted in Racine County (G. DeBoer).

Black-bellied Plover.—First reported in Milwaukee County, May 5 (D. Gustafson). On May 26, 35 birds were sighted in St. Croix County (J. Smith). Reported at the end of the period in Ashland and Milwaukee Counties.

Lesser Golden Plover.—First reported in Eau Claire County, April 21 (J. Polk). On April 28, 160 birds were sighted in Rock County (D. Tessen).

Semipalmated Plover.—First reported in Milwaukee County, April 24 (P. Sunby). Late reports of this bird were in Dodge County, May 28 (P. Sunby) and Manitowoc County, May 30 (C. Sontag).

Piping Plover.—Only one sighting again for this species: 2 birds seen in suitable breeding habitat in Ashland County, May 14 (E. Epstein). This species is in serious trouble in Wisconsin.

Killdeer.—First reported March 4 in Dane County (P. Ashman) and Trempealeau County (T. Hunter). Many observers, however, reported their first observation of this bird between March 9 and March 13.

American Avocet.—First reported on April 19 in Chippewa (J. Polk); Eau Claire (J. Polk); and Monroe (E. Epstein and D. Kuecherer) Counties. Reported during the period in Bayfield, Brown, Dane, Ozaukee, Polk, Price, St. and Croix Counties.

Greater Yellowlegs.—First reported in Ashland County, March 15 (D. Verch). Last reported on May 26 in Eau Claire County (D. Tessen); Marathon County (J. Hoeft); and Monroe County (D. Kuecherer).

Lesser Yellowlegs.—First reported in Dane County, April 14 (P. Ashman and S. Robbins). Present at the end of the period in Burnett County (J. Hoefler).

Solitary Sandpiper.—First reported on April 25 in Dane (B. Hilsenhoff); Monroe (D. Kuecherer); and Taylor (P. Risch) Counties. Last reported May 24 in Door County (C. & R. Lukes) and Ozaukee County (J. Frank). An *April 3* report of this species was undocumented.

Willet.—First reported on April 20 in Ashland (D. Verch); and Dane (A. & S. Shea) Counties. Also reported during the period in Chippewa, Columbia, Eau Claire, Lafayette, Manitowoc, Milwaukee, Outagamie, Pierce, St. Croix and Sawyer Counties.

Spotted Sandpiper.—First reported in St. Croix County, April 22 (J. Smith). An *April 4* report was undocumented.

Upland Sandpiper.—First reported in Portage County, April 20 (M. Berner). Also reported during the period in Ashland, Bayfield, Burnett, Columbia, Dane, Door, Douglas, Iowa, LaCrosse, Milwaukee, Outagamie, Ozaukee, St. Croix, Taylor, and Winnebago Counties.

Whimbrel.—Reported as follows: Manitowoc County, May 15 (C. Sontag); Milwaukee County, May 19, 45–50 birds (G. DeBoer); and an unusual inland sighting in St. Croix County, May 27 (J. Smith).

Hudsonian Godwit.—First reported in Eau Claire County, April 18 (J. Polk). Also reported during the period in Ashland, Barron, Dane, Dodge, Dunn, Milwaukee, and Monroe Counties.

Marbled Godwit.—Reported as follows: Monroe County, April 28 (D. Kuecherer); Milwaukee County, April 29 (S. Diehl); Eau Claire County, April 30–May 12 (J. Polk); Ashland County, May 1 (D. Verch); Ashland County, May 12, 43 birds (E. Epstein); and Dane County, May 20, 31 birds (A. & S. Shea).

Ruddy Turnstone.—First reported in May 4 County, (D. Verch). On May 16, 190 birds were sighted in Winnebago County (T. Ziebell). Present at the end of the period in Door, Manitowoc, Taylor, and Winnebago Counties.

Red Knot.—Reported as follows: Lafayette County, May 5 (T. Schultz); Lafayette County, May 6 (Jeff Baughman); Calumet County, May 6 (C. Rudy); Milwaukee County, May 16 (D. Gustafson); and Manitowoc County, May 21 (M. Peterson).

Sanderling.—First reported in Ashland County, April 23 (D. Verch). Also reported during the period in Dane, Manitowoc, Milwaukee, St. Croix, Walworth, and Winnebago Counties.

Semipalmated Sandpiper.—First reported in Portage County, April 26 (M. Berner). Present at the end of the period in Ashland, Brown, Dane, Manitowoc, St. Croix Counties.

Western Sandpiper.—Reported as follows: Bayfield County, May 27 (D. Tessen).

Least Sandpiper.—First reported in Rock County, April 20 (B. Hilsenhoff). Present at the end of the period in Ashland Counties.

White-rumped Sandpiper.—First reported in Dane County, May 13 (A. & S. Shea). Present at the end of the period in Dane Counties.

Baird's Sandpiper.—First reported in Eau Claire County, April 30 (J. Polk). Also reported during the period in Bayfield, Burnett, Dane, Dodge, Dunn, Fond du Lac, Milwaukee, Ozaukee, and Winnebago Counties.

Pectoral Sandpiper.—First reported in Columbia County, March 23 (S. Robbins). Last reported in Winnebago County, May 28 (T. Ziebell). A *March 12* report was undocumented.

Purple Sandpiper.—A May 21 sighting in Manitowoc County was rejected by the Records Committee; the description provided, while detailed, could support identification of either Red Knot or Reeve.

Dunlin.—First reported in Dane County, April 14 (P. Ashman). Present at the end of the period in Ashland, Bayfield, Brown, Dane, Dodge, Door, Dunn, Manitowoc, Milwaukee, Walworth, Waukesha, and Winnebago Counties.

Stilt Sandpiper.—Reported as follows: Racine County, May 12–19 (G. DeBoer); Brown County, May 13 (D. Tessen); Dane County, May 16 (P. Ashman); and Dodge County, May 17 (J. Frank).

Short-billed Dowitcher.—First reported in Eau Claire County, April 27 (J. Polk).

Long-billed Dowitcher.—There were no reports of this uncommon spring migrant.

Common Snipe.—Present at beginning of period in Dane, Manitowoc and Trempealeau Counties. Many observers, however, reported their first observation of this bird between April 9 and April 15.

American Woodcock.—First reported in Walworth County, March 9 (P. Parsons).

Wilson's Phalarope.—First reported in Burnett County, April 12 (J. Hoefler).

Red-necked Phalarope.—Reported as follows: St. Croix County, May 12 (T. Soulen); Dodge County, May 17 (J. Frank); Chippewa County, May 20–21 (J. Polk); Fond du Lac County, May 21 (Jeff Baughman and T. Schultz); and Dunn County, May 28 (D. Tessen).

Laughing Gull.—Reported in Manitowoc County, May 5 (C. Sontag and P. Sunby) and Milwaukee County, May 23 (D. Gustafson). Accepted by the Records Committee.

Franklin Gull.—First reported in St. Croix County, May 7 (T. Soulen). Also reported during the period in Ashland, Manitowoc, Milwaukee, Racine, and Winnebago Counties.

Little Gull.—Reported as follows: Manitowoc County, May 5 (P. Sunby); and Manitowoc County, May 23–31 (C. Sontag).

Bonaparte's Gull.—First reported in Racine County, March 18 (F. Lesher). On May 3, 6,000 birds were sighted in Racine County (G. DeBoer).

Ring-billed Gull.—Present at beginning of period in only 4 counties: Manitowoc, Milwaukee, Sheboygan, and Winnebago.

Mew Gull.—Reported in Sheboygan County, March 3 (Jeff Baughman) and Manitowoc County, March 18 (P. Sunby). Accepted by the Records Committee. This species is beginning to be a regular visitor to Wisconsin. Is this a change in the bird's habits or birders abilities?

Herring Gull.—Present at beginning of period in Ashland, Brown, Calumet, Door, Manitowoc, Marinette, Milwaukee, Racine, Sheboygan, and Winnebago Counties.

Thayer's Gull.—Reported in Winnebago County, March 5 (D. Tessen) and Ozaukee County, March 11 (P. Sunby).

Iceland Gull.—Reported in Sheboygan County, March 3 (Jeff Baughman); Winnebago County, March 5–6 (A. Carpenter); and Milwaukee County, at the very late date of May 5 (P. Sunby). Accepted by the Records Committee.

Lesser Black-backed Gull.—Reported in Milwaukee County, March 1–10 (V. Aune, H. Leeman, P. Risch, T. Schultz and P. Sunby). Accepted by the Records Committee.

Glaucous Gull.—Late sightings reported as follows: Manitowoc County, May 5 (P. Sunby); Racine County, May 12 (G. DeBoer); Manitowoc County, May 13 (D. Tessen); and Milwaukee County, May 19 (G. DeBoer). On March 5, 12 birds were sighted in Winnebago County (D. Tessen). Reported during the period in Douglas, Marathon, and Sheboygan Counties.

Great Black-backed Gull.—Reported in Ozaukee County, March 11 and Manitowoc County, March 18 (P. Sunby). Accepted by the Records Committee.

Caspian Tern.—First reported in Door County, April 9 (C. Sontag). Also reported during the period in Ashland, Dane, Douglas, LaCrosse, Milwaukee, Ozaukee, Sheboygan, Taylor, Trempealeau, Vernon, and Winnebago. On May 7, 248 birds were sighted in Manitowoc County (C. Sontag).

Common Tern.—First reported in Door County, April 7 (C. & R. Lukes). Also reported during the period in Ashland, Dane, Douglas, Fond du Lac, Kenosha, Manitowoc, Marathon, Milwaukee, Ozaukee, Trempealeau, and Winnebago. On May 15, 858 birds were sighted in Manitowoc County (C. Sontag).

Forster's Tern.—First reported on April 11 in Manitowoc County (C. Sontag) and Winnebago (T. Ziebell). Reported in 20 other counties during the period.

Black Tern.—First reported in Monroe County, April 28 (D. Kuecherer). On May 18, 94 birds were sighted in Dane County (S. Thiessen). Reported in 20 other Counties during the period.

Rock Dove.—Present during the period throughout the state.

Mourning Dove.—Present during the period throughout the state.

Black-billed Cuckoo.—First reported in Green Lake County, May 11 (T. Schultz).

Yellow-billed Cuckoo.—First reported unusually far north in Marinette County, April 30 (L. & S. LaValley). This species was reported as far north as: Burnett, May 25 (A. & S. Shea) and Florence, May 18 (L. & S. LaValley).

Eastern Screech-Owl.—Reported during the period in Calumet, Columbia, Dane, Milwaukee, Monroe, Sauk, Taylor, and Winnebago Counties.

Great Horned Owl.—Present during the period throughout the state.

Snowy Owl.—Following a poor winter for this species, only one report was received this spring: Winnebago County, BOP–April 16 (T. Ziebell).

Burrowing Owl.—Reported in Burnett County, May 26 (R. Hoffman). Accepted by the Records Committee.

Barred Owl.—Present during the period throughout the state.

Great Gray Owl.—The only report, that of a nest with three young on one the Apostle Islands, was not verified (*fide* D. Verch).

Long-eared Owl.—A very good showing for this retiring species. Reported as follows: St. Croix County, April 15–May 16 (nest with young) (J. Robinson); Douglas County, April 21 (L. Semo); Taylor County, April 25 (P. Risch); Ozaukee County, May 18 (D. Tessen); and Columbia County, May 19–21 (Jeff Baughman and T. Schultz).

Short-eared Owl.—Present at beginning of period in Calumet (C. Rudy), and Walworth Counties (P. Parsons). Also reported during the period in Burnett, Dane, Door, Fond du Lac, Milwaukee, Portage, St. Croix, Sawyer, Taylor and Trempealeau Counties. Last reported in Monroe County, EOP (D. Kuecherer).

Northern Saw-whet Owl.— Present at the beginning of the period unusually far north in Ashland and Florence Counties, and also in Portage Counties. Present at the end of the period in the northerly counties of Ashland, and Bayfield, Douglas, Florence, Forest, and Marinette, as well as the southerly counties of Calumet, Monroe and Portage. Also reported during the period in Dane, Sauk, and Sawyer Counties.

Common Nighthawk.—First reported in Dane County, April 15 (B. Isenring).

Chuck-will's-widow.—Reported as follows: Sauk County, May 12 (A. & S. Shea); and Polk County, May 16 (J. Hudick). Neither report was submitted for review by the Records Committee.

Whip-poor-will.—First reported in Dane County, April 15 (B. Isenring).

Chimney Swift.—First reported in Dane County, April 15 (B. Simandl).

Ruby-throated Hummingbird.—First reported in Door County, May 3 (C. & R. Lukes).

Belted Kingfisher.—Present at the beginning of period in Brown, Jefferson, Monroe and Trempealeau Counties.

Red-headed Woodpecker.—Present at beginning of period in Barron, Brown, Calumet, Dane, Door, Dunn, Jackson, Monroe, Taylor, Trempealeau and Walworth Counties.

Red-bellied Woodpecker.—Present at beginning of period in 22 Counties, as far north as Barron, Burnett, Marinette, and Polk Counties.

Yellow-bellied Sapsucker.—First reported in Winnebago County, April 7 (T. Ziebell).

Downy Woodpecker.—Present during the period throughout the state.

Hairy Woodpecker.—Present during the period throughout the state.

Black-backed Woodpecker.—Reported as follows: Vilas County, March 10-EOP, three different locations (Jim Baughman, Jeff Baughman, G. DeBoer and T. Schultz); and Douglas County, March 10–May 28 (R. Johnson, T. Robinson, L. Semo and D. Tessen).

Northern Flicker.—Present at beginning of period in Calumet, Dane, Green Lake, Outagamie, Ozaukee, Racine, and Winnebago Counties.

Pileated Woodpecker.—Present during the period throughout the state.

Olive-sided Flycatcher.—First reported in Portage County, April 27 (E. Munson).

Eastern Wood-Pewee.—First reported in Walworth County, April 10 (M. Peterson). On May 20, 15 birds were sighted in Dane County (P. Ashman).

Yellow-bellied Flycatcher.—First reported in Manitowoc County, May 17 (C. Sontag).

Acadian Flycatcher.—First reported in Walworth County, May 13 (A. Henning & W. Mueller). Also reported during the period in Dane, LaCrosse, Milwaukee, Monroe, Rock, and Sauk Counties.

Alder Flycatcher.—First reported in Milwaukee County, May 9 (W. Woodmansee). Present at the end of the period in Ashland, Bayfield, Douglas, Marathon, Milwaukee, Portage, Taylor, and Vilas Counties.

Willow Flycatcher.—First reported in Milwaukee County, May 11 (N. Zehner).

Least Flycatcher.—First reported in Door County, April 15 (C. & R. Lukes).

Eastern Phoebe.—First reported in Ozaukee County, March 11 (P. Sunby).

Great-crested Flycatcher.—First reported on April 24 in Brown (B. Mead); and Milwaukee (W. Woodmansee) Counties. On May 12, 25 birds were sighted in Portage County (E. Munson).

Western Kingbird.—Reported as follows: Door County, May 25 (C. & R. Lukes); Langlade County, May 26 (T. Soulen); Sauk County, May 26 (D. Tessen); and Taylor County, May 27 (D. Offord).

Eastern Kingbird.—First reported in Door County, April 18 (C. & R. Lukes).

Scissor-tailed Flycatcher.—Reported in Price County, April 24 (M. Hardy). Accepted by the Records Committee.

Horned Lark.—Present during the period throughout the state.

Purple Martin.—First reported in Calumet County, March 30 (C. Rudy).

Tree Swallow.—First reported in Winnebago County, March 12 (T. Ziebell).

Rough-winged Swallow.—First reported in Door County, April 11 (C. & R. Lukes).

Bank Swallow.—First reported in Barron County, April 20 (A. Goff).

Cliff Swallow.—First reported in Portage County, April 10 (M. Korducki).

Barn Swallow.—First reported in Dane County, April 14 (B. Hilsenhoff).

Gray Jay.—Reported as follows: Douglas County, TTP (R. Johnson, L. Semo, A. & S. Shea, and D. Tessen); Price County, TTP (M. Hardy); Taylor County, BOP–March 17 (B. Armbrust); Vilas County, March 22–May 24 (Jim Baughman); Forest County and Langlade County, April 12 (D. Tessen); Oneida County, April 27 (N. Zehner); and 2 adults with 4 young in Forest County, May 7 (K. Rill).

Blue Jay.—Present during the period throughout the state.

American Crow.—Present during the period throughout the state.

Common Raven.—Reported in 22 Counties during the period as far south as Monroe, Portage, St. Croix, and Shawano Counties.

Black-capped Chickadee.—Present during the period throughout the state.

Boreal Chickadee.—Reported in Oneida County from April 12 (D. Tessen)–May 26 (Jeff Baughman, G. DeBoer, and T. Schultz).

Tufted Titmouse.—Despite several consecutive mild winters, this species seems to be declining in Wisconsin. Present at beginning of period only in Dane County. Reported during the period in Columbia, Dunn, Grant, Green Lake, Jefferson, LaCrosse, Rock and St. Croix Counties.

Red-breasted Nuthatch.—Present during the period throughout the state.

White-breasted Nuthatch.—Present during the period throughout the state.

Brown Creeper.—Present during the period throughout the state.

Carolina Wren.—Reported as follows: Dane County, March 3 (S. Robbins); Dane County, April 29–May 12 (P. Ashman); Grant County, May 6 (A. & S. Shea); and Sauk County, May 21 (S. Robbins and T. Schultz).

Bewick's Wren.—First reported in Sauk County, May 12 (A. & S. Shea). This record had not been reviewed by the Records Committee at the time of publication. If accepted, it will represent the first record for this species in several years.

House Wren.—First reported in Door County, April 5 (C. & R. Lukes).

Winter Wren.—First reported in Milwaukee County, March 14 (D. Gustafson). This species was found on territory in Grant County on May 6 (A. & S. Shea), presumedly the most southerly nesting location for this species in the state.

Sedge Wren.—First reported in Columbia County, April 28 (D. Tessen).

Marsh Wren.—First reported in Columbia County, April 28 (D. Tessen).

Golden-crowned Kinglet.—Present at beginning of period in Marathon County. Present at the end of the period in Door, Douglas, Florence, Marinette, Sawyer, Taylor and Vilas Counties.

Ruby-crowned Kinglet.—Present at beginning of period in Marinette County (L. & S. LaValley). Many observers, however, reported their first observation of this bird between April 9 and April 15. Present at the end of the period in Ashland, Florence, Marinette, and Vilas Counties. In addition, this species was found in

Walworth County at the very late date of May 27.

Blue-gray Gnatcatcher.—First reported in Calumet County, April 22 (C. Rudy). This species was reported as far north as Burnett County.

Eastern Bluebird.—Present at beginning of period in Dane, Fond du Lac, Green Lake, Polk, and Sheboygan Counties. These records are not surprising following last winters unusual (unprecedented?) numbers of over-wintering Eastern Bluebirds.

Townsend's Solitaire.—Two reports of one bird in Washington County, April 7–8 (M. Bontly and J. Frank).

Veery.—First reported in Fond du Lac County, April 19 (Jeff Baughman).

Gray-cheeked Thrush.—First reported in Dane County, April 26 (D. Cederstrom).

Swainson's Thrush.—First reported in Dane County, April 26 (E. Hansen).

Hermit Thrush.—First reported in Dane County, April 8 (A. & S. Shea).

Wood Thrush.—First reported in Calumet County, April 22 (C. Rudy).

American Robin.—Present at beginning of period in Ashland(!), Brown, Dane, Green Lake, Milwaukee, Ozaukee, Polk, Portage, Racine, Taylor(!), Trempealeau, Walworth and Winnebago Counties.

Varied Thrush.—Reported as follows: Shawano County, March 1 (M. Peterson); Columbia County, March 1–19 (C. Krause); Shawano County, March 3 (D. Tessen); and Vilas County, March 17 (Jim Baughman).

Gray Catbird.—First reported on April 25 in Dane (B. Hilsenhoff); and Milwaukee (P. Sunby) Counties.

Northern Mockingbird.—Reported as follows: Milwaukee County, March 9–April 13 (D. Gustafson); Door County, April 14–May 18 (C. & R. Lukes); Manitowoc County, April 17–May 2 (C. Sontag); Dunn County, May 3–5 (J. Polk); Walworth County, May 3 (P. Parsons); Burnett County, May 6 (J. Robinson); Taylor County, May 8 (G. DeBoer); Jackson County, May 8 (S. Robbins); and Milwaukee County, May 18 (R. Gutschow).

Brown Thrasher.—Present at beginning of period in Dane County (P. Ashman). Many observers, however, reported their first observation of this bird between April 21 and April 29.

Water Pipit.—First reported in Calumet County, April 15 (C. Rudy). Last reported in Sawyer County, May 21 (K. Castelein & D. Lauten). Also reported during the period in Ashland, Dane, Fond du Lac, Milwaukee, Ozaukee, Racine, Sheboygan, and Taylor Counties.

Bohemian Waxwing.—Present at beginning of period in Ashland, Door, Douglas, and Portage Counties. On March 19, 150 birds were sighted in Marathon County (D. Belter). Last reported in Portage County, April 11 (M. Berner). Also reported during the period in Eau Claire, Outagamie, Polk, and Vilas Counties.

Cedar Waxwing.—Present at beginning of period in Ashland, Dane, Marathon, Milwaukee, Polk, Trempealeau, Washington, and Winnebago Counties. On April 21–22, 1,000's birds were sighted in Dane County (B. Isenring).

Northern Shrike.—Last reported on April 14 in Ashland County (D. Verch) and Taylor (P. Sunby).

Loggerhead Shrike.—After last spring's encouraging six records (three nesting attempts), this spring brought only two records, both of birds obviously transiting the state. Reported as follows: Bayfield County, May 8 (E. Epstein); and Douglas County, May 25 (R. Johnson and L. Semo).

European Starling.—Present during the period throughout the state.

White-eyed Vireo.—First reported in Milwaukee County, April 24 (R. Gutschow), this species was much more widespread than normal. Reported during the period in Dane, Lafayette, Manitowoc, Ozaukee, Portage, Racine, and Waukesha Counties.

Bell's Vireo.—This species continues to be difficult to find. Reported as follows: Sauk County, May 15 (R. Hoffman); Grant County, May 17 (F. Lesher); Dane County, May 18 (D. Gustafson); and Dane County, May 19 (D. Tessen).

Solitary Vireo.—First reported in Waukesha County, April 22 (T. Soulen).

Yellow-throated Vireo.—First reported in Sauk County, April 24 (E. Hansen).

Warbling Vireo.—First reported on April 28 in Brown (B. Mead); Dane (P. Ashman and B. Hilsenhoff); and Walworth (D. Tessen) Counties.

Philadelphia Vireo.—First reported in Dane County, May 9 (B. Hilsenhoff). Reported in 16 other Counties during the period.

Red-eyed Vireo.—First reported in Ashland County, April 19 (D. Verch).

Blue-winged Warbler.—First reported in Dane County, April 27 (E. Hansen).

Golden-winged Warbler.—First reported in Dane County, April 27 (E. Hansen).

Blue-winged × Golden-winged Hybrids.—Two reports of hybrids of these two species were received this spring: a Brewster's Warbler in Trempealeau County, May 10 (T. Hunter); and a Lawrence's Warbler in Portage County, May 26–28 (M. Berner).

Tennessee Warbler.—First reported in Dane County, April 27 (E. Hansen).

Orange-crowned Warbler.—First reported in Dane County, April 25 (S. Robbins). Present in Green Lake County on the late date of May 21 (Jeff Baughman).

Nashville Warbler.—First reported in Dane County, April 25 (S. Robbins).

Northern Parula Warbler.—First reported in Dane County, April 27 (E. Hansen).

Yellow Warbler.—First reported in Portage County, April 23 (M. Berner).

Chestnut-sided Warbler.—First reported in Dane County, April 27 (E. Hansen).

Magnolia Warbler.—First reported in Portage County, April 18 (L. Ayers & C. Sveum).

Cape May Warbler.—First reported in Winnebago County, April 24 (T. Ziebell).

Black-throated Blue Warbler.—First reported in Milwaukee County, April 30 (P. Sunby). Also reported during the period in Barron, Crawford, Dane, Door, Florence, Forest, Ozaukee, Rock, and Vilas.

Yellow-rumped Warbler.—First reported in Green Lake County, March 16 (T. Schultz). On May 14, estimated 7,000+ birds were sighted in Ashland County (E. Epstein). Of note was a record of a bird of the Audubon's race of this species in Sawyer County, May 2 (K. Castelein & D. Lauten). Accepted by the Records Committee.

Black-throated Green Warbler.—First reported in Dane County, April 23 (D. Cederstrom and R. Hoffman).

Blackburnian Warbler.—First reported in Door County, April 26 (C. & R. Lukes).

Yellow-throated Warbler.—Reported in LaCrosse County, April 25 (F. Lesher). Accepted by the Records Committee. Up to 4 individuals of this species were reported at the Sugar River location, Rock County between May 6 and May 28, and 1 individual was reported in Dane County on April 28. Documentation for these sightings was not submitted to the Records Committee.

Pine Warbler.—First reported in Dane County, April 19 (B. Hilsenhoff).

Prairie Warbler.—For the first time in several years, no individuals of this species were observed.

Palm Warbler.—First reported in Portage County, April 20 (M. Berner).

Bay-breasted Warbler.—First reported on May 8 in Florence (L. & S. LaValley) and Milwaukee (W. Woodmansee) Counties.

Blackpoll Warbler.—First reported in Dane County, April 27 (E. Hansen).

Cerulean Warbler.—First reported in Dane County, April 27 (E. Hansen).

Black-and-White Warbler.—First reported in Ashland County, April 22 (D. Verch).

American Redstart.—First reported in Dane County, April 28 (B. Hilsenhoff).

Prothonotary Warbler.—First reported in Iowa County, April 21 (A. & S. Shea). Also reported during the period in Columbia, Crawford, Dane, Grant, LaCrosse, Marathon, Monroe, Ozaukee, Rock, Trempealeau and Waupaca Counties. This species was reported as far north as Pepin County, May 26 (R. Hoffman).

Worm-eating Warbler.—This species was more widespread than normal. Reported as follows: Dane County, April 23 (D. Cederstrom); Walworth County, April 28 (D. Tessen); Milwaukee County, April 29 (D. Hanbury); Rock County, May 6 (G. DeBoer); and Sauk County, May 18–26 (D. Gustafson, M. Peterson, A. & S. Shea, and D. Tessen)

Ovenbird.—First reported in Milwaukee County, April 26 (P. Sunby).

Northern Waterthrush.—First reported on April 23 in Fond du Lac (Jeff Baughman); and Milwaukee (N. Zehner) Counties.

Louisiana Waterthrush.—First reported on April 13 in Dane (P. Lison & J. Ottinger) and Sauk (B. Isenring) Counties. Reported during the period in Crawford, Fond du Lac, Grant, Manitowoc, Milwaukee, St. Croix Counties. This species was reported as far north as Polk County, May 24 (A. & S. Shea).

Kentucky Warbler.—First reported in Grant County, May 6 (A. & S. Shea). Also reported during the period in Crawford, Rock, and Sauk Counties.

Connecticut Warbler.—First reported in Douglas County, May 10 (L. Semo).

Mourning Warbler.—First reported in Trempealeau County, May 10 (T. Hunter).

Common Yellowthroat.—First reported on April 26 in Dane (B. Hilsenhoff) and Milwaukee (W. Woodmansee) Counties.

Hooded Warbler.—First reported in Milwaukee County, April 27 (P. Sunby). Also reported during the period in Dane, Manitowoc, Richland, and Douglas(!!) Counties.

Wilson's Warbler.—First reported on May 1 in Dane (B. Hilsenhoff) and Florence (L. & S. LaValley) Counties.

Canada Warbler.—First reported on May 8 in Door (C. & R. Lukes); and Florence (L. & S. LaValley) Counties.

Yellow-breasted Chat.—First reported in Dane County, April 28 (E. Hansen). Also reported during the period in Brown, Milwaukee, Racine, and Rock Counties.

Summer Tanager.—This normally rare species in Wisconsin was well represented with seven different observers reporting sightings. Reported as follows: Milwaukee County, April 25–May 11 (R. Gutschow, D. Hanbury and P. Sunby); Waukesha County, May 1–5 (B. Armbrust); Dane County, May 5–18 (E. Hansen and S. Robbins); and Rock County, May 18 (D. Tessen).

Scarlet Tanager.—First reported in Ashland County, April 24 (D. Verch).

Northern Cardinal.—This species was reported as far north as: Douglas (!), Marinette(!), Price, and Sawyer Counties.

Rose-breasted Grosbeak.—First reported in Marinette County, April 22 (L. & S. LaValley).

Indigo Bunting.—First reported in Kenosha County, April 26 (H. Bishop).

Painted Bunting.— A male and female

was reported in Ozaukee County, May 23 (T. Bayless). Accepted by the Records Committee, however, the possibility of this pair being escapees was not ruled out.

Dickcissel.—First reported in Rock County, May 11 (D. Cederstrom). Also reported during the period in Bayfield, Dane, Green, and LaCrosse Counties.

Rufous-sided Towhee.—Present at beginning of period in Door County (C. & R. Lukes). Many observers, however, reported their first observation of this bird between April 20 and May 1.

American Tree Sparrow.—Late sightings reported as follows: Dane County, May 13 (P. Lison & J. Ottinger) and Bayfield County, May 18 (B. Armbrust).

Chipping Sparrow.—First reported in Jefferson County, March 3 (S. Robbins).

Clay-colored Sparrow.—First reported in Burnett County, April 25 (J. Hoefler).

Field Sparrow.—First reported on March 13 in Jackson (D. Harmer) and Outagamie (J. Anderson & S. Petznick) Counties.

Vesper Sparrow.—First reported on March 31 in Columbia (D. Gustafson) and Dane (S. Robbins) Counties.

Lark Sparrow.—First reported on May 6 in Dane (P. Lison & J. Ottinger); Grant (A. & S. Shea); and Trempealeau (T. Hunter) Counties. Reported during the period in Burnett, Douglas, Dunn, LaCrosse, Pepin, Rock, and Sauk Counties.

Savannah Sparrow.—First reported in Monroe County, March 30 (E. Epstein).

Grasshopper Sparrow.—First reported in Dane County, April 21 (B. Isenring), this species appeared to be more numerous and widespread than normal. Also reported during the period in Door, Fond du Lac, Green, Lafayette, Monroe, Ozaukee, Polk, Rock, St. Croix, Sauk, Sheboygan, Trempealeau and Walworth Counties.

Henslow's Sparrow.—First reported in Portage County, April 23 (M. Berner). Also reported during the period in Florence(?), Fond du Lac, Green Lake, Rock, St. Croix, Shawano, and Sheboygan Counties.

LeConte's Sparrow.—First reported in Douglas County, May 8 (L. Semo). Also reported during the period in Ashland, Burnett, Marathon, Milwaukee, Oneida, Pepin, Shawano, Taylor, and Vilas Counties.

Sharp-tailed Sparrow.—Reported as follows: Marinette County, April 28 (H. Lindberg); Burnett County, May 25 (A. & S. Shea) and May 27 (D. Tessen).

Fox Sparrow.—First reported on March 13 in Dane (B. Isenring) and Milwaukee (G. DeBoer and W. Woodmansee) Counties. On April 18, 54 birds were sighted in Winnebago County (R. Hoffman).

Song Sparrow.—Present at beginning of period in Calumet, Dane, Trempealeau, and Walworth Counties. Many observers, however, reported their first observation of this bird between March 9 and March 14.

Lincoln's Sparrow.—First reported in Vilas County, April 28 (Jim Baughman).

Swamp Sparrow.—Present at beginning of period in Dane County. Many observers, however, reported their first observation of this bird between April 21 and April 29.

White-throated Sparrow.—Present at beginning of period in Dane, Milwaukee, Outagamie, and Washington Counties. Present at the end of the period in the southerly counties of Dane and Milwaukee.

White-crowned Sparrow.—First reported in Ozaukee County, March 18 (J. Frank).

Harris' Sparrow.—Present at beginning of period in Washington County (J. Haseleu), this species was more widespread than normal. Many observers, however, reported their first observation of this bird between May 8 and May 12. Reported during the period in Ashland, Barron, Bayfield, Calumet, Douglas, Milwaukee, Monroe, Price, St. Croix, Sauk, Sawyer, Taylor, Trempealeau and Winnebago Counties. On May

10, 18 birds were sighted in Pepin County (R. Hoffman).

Dark-eyed Junco.—Present at the end of the period in Ashland, Portage, and Sheboygan Counties. A bird at the EOP in Milwaukee County was extremely late.

Lapland Longspur.—Present at beginning of period in Door, Marinette, Taylor, and Winnebago Counties. Last reported in Sawyer County, May 21 (K. Castelein & D. Lauten).

Snow Bunting.—Present at beginning of period in Ashland, Calumet, Dunn, Florence, Sawyer, and Taylor Counties. Present at the end of the period in Ashland County (D. Verch).

Bobolink.—First reported in Burnett County, April 30 (J. Hoefler).

Red-winged Blackbird.—Present at beginning of period in Brown, Dane, Green Lake, Ozaukee, Walworth, and Winnebago Counties.

Eastern Meadowlark.—Present at beginning of period in Dunn County and Sheboygan Counties. Many observers, however, reported their first observation of this bird between March 11 and March 14.

Western Meadowlark.—First reported in Dane County, March 11 (B. Simandl).

Yellow-headed Blackbird.—First reported on March 20 in Columbia (M. Korducki) and Walworth (P. Parsons) Counties.

Rusty Blackbird.—Present at beginning of period in Dane County. Many observers, however, reported their first observation of this bird between March 12 and March 19.

Brewer's Blackbird.—First reported in Ashland County, March 15 (D. Verch).

Common Grackle.—Present at beginning of period in Barron, Green Lake, and Milwaukee Counties.

Brown-headed Cowbird.—Present at beginning of period in Dane, and Winnebago Counties. On April 7, 100's were seen migrating along the shore of Lake Michigan in Ozaukee County (D. Tessen).

Orchard Oriole.—First reported in Racine County, April 28 (S. Diehl). Also reported during the period in Dane, Door, LaCrosse, Milwaukee, Monroe, Ozaukee, Pepin, Rock, Trempealeau and Walworth Counties.

Northern Oriole.—First reported in Milwaukee County, April 26 (M. Bontly).

Pine Grosbeak.—Reported in 19 counties during the period. This species was reported as far south as: Fond du Lac, Monroe, Sheboygan, Washington, and Winnebago Counties.

Purple Finch.—Present at the end of the period in 14 Counties, as far south as Calumet, Fond du Lac, and Sheboygan Counties.

House Finch.—Reported in 28 counties during the period; eleven more than last spring. This species was reported as far north as: Oneida, Taylor, and Vilas Counties. Only the northwestern portion of the state is apparently without House Finches.

Red Crossbill.—Present at the end of the period in Douglas, Florence, Marinette, Portage, Taylor, Vilas, and Washburn Counties. Also reported during the period in Ashland, Chippewa, Columbia, Fond du Lac, Forest, Juneau, Marathon, Ozaukee, Sawyer and Sheboygan Counties.

White-winged Crossbill.—Present at the end of the period in Douglas, Florence, Forest, Marinette, Oneida, Sawyer, and Vilas Counties. Reported in 21 other Counties during the period. A May 26 sighting in Sauk County (D. Tessen) was extremely late for this southerly location.

Common Redpoll.—Present at beginning of period in 28 counties. Last reported in Ashland County, May 5 (D. Verch).

Hoary Redpoll.—Reported as follows: Monroe County, March 1 (D. Kuecherer); Ashland County, March 2 (D. Verch); Douglas County, March 3–20 (R. Johnson); and Sawyer County, March 22 (K. Castelein & D. Lauten).

Pine Siskin.—Present at end of the period

in 23 counties, as far south as Dane, Milwaukee, Ozaukee, and Washington Counties.

American Goldfinch.—Present during the period throughout the state.

Evening Grosbeak.—Present at the end of the period in Ashland, Bayfield, Douglas, Florence, Forest, Langlade, Marinette, Oneida, Price, Sawyer, Taylor and Vilas Counties.

House Sparrow.—Present during the period throughout the state.

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"Woodland Chickadee" *by Don Moore* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

BIG DAY COUNTS: 1990

by Jim Frank

Interest in Big Day Counts continues to grow in Wisconsin. As a result of improved planning and knowledge of the state's birding areas, this year's lists established new records to marvel at. The northwestern part of the state attracted the most attention this year with 10 of 25 counts originating there (Table 1). An amazing 5 lists surpassed the 170 mark compared to 3 last year. In last year's summary, the possibility of 180 or 185 species was suggested, and this year another 179 was compiled by Shea and Shea in the northwest to match last year's record from the south central part of the state. Several days earlier the record had already been shattered as Baughman, Schultz, Schultz, and Stott ran that south central to northeastern route to achieve the 185 species prediction and a new American Birding Association record for Wisconsin. What no one dared predict, but perhaps all Big Day birders have dreamed about, was the list Randy Hoffman tallied on May 26th, back in that northwestern corner of Wisconsin—194 species. The list was astounding not only in the number of birds seen, but in the "holes" left in it when it was all over. The list turned in had a suggestion that there were 28 other species that were realistic possibilities to one degree or another on this route. I took the liberty of including some of the more surprising misses just to prove that even a birder who finds 194 species goes home wondering, as we all do, "How did I miss. . . ." In addition, it demonstrates we may yet some day see a Big Day list of 200 species in Wisconsin. Entering this year, that had only been achieved in states on the 3 coastlines of the U.S. The only interior 200 plus list comes from Manitoba.

In total, 257 species were seen on this year's counts (252 last year). The best of the best were a Burrowing Owl in Burnett County, a Common Barn-Owl in Dane County, a Western Grebe at Crex Meadows, a Chuck-will's-widow again in the northwest, a Rednecked Phalarope, and a Loggerhead Shrike in Douglas County.

Here are the details of the 25 counts in 1990; species names in italics were unique to the Big Day Counts, groups names in italics were the largest number of that group seen on 1990 counts.

Table 1. The 25 big day counts of 1990.

Observers	Date	Area	Time	Sky	Wind	Temp.	Miles by: Car	Miles by: Foot	Species
Hoffman	5/26/90	NW	0:37–22:14	Rain	NE5	55–68	486	3	194
Baughman, Schultz, Schultz, Stott	5/21/90	SC	0:00–20:30	Fair	NE10	40–58	445	4	185
Shea, Shea	5/25/90	NW	0:50–21:20	Clo.	NW12	48–74	365	2	179
Tessen	5/18/90	SC	5:00–22:00	Fair	NW12	42–68	405	3	177
Hoffman	5/27/90	NW	5:24–21:03	P.Cl	NW5	55–72	390	1	170
Hoffman, Shea	5/15/90	SC	2:00–20:00	Fair	NE15	52–45	229	3	164
Eliot, Foster, Robbins	5/21/90	SC	3:00–21:30	?	?	?	?	?	159
Smith, Smith	5/26/90	NW	3:30–21:30	Clo.	NE5	52–59	485	1	158
Frank	5/24/90	SE	3:50–20:10	Clo.	S5	50–65	335	4	157
Legler, Peterson	5/21/90	NE	1:00–21:30	P.Cl	?	40–65	563	2	157
Tessen	5/27/90	NW	4:00–21:00	Fair	NE5	44–70	320	3	156
Hoeft, Risch, Risch, Risch	5/26/90	NC	0:45–21:10	Rain	W3	54–67	310	2	152
Johnson, Semo	5/25/90	NW	3:00–20:30	P.Cl	E?	42–71	235	2	151
Robbins, Soulen	5/16/90	NW	3:00–21:30	Rain	W12	43–55	?	?	147
Johnson	5/22/90	NW	3:04–18:05	Rain	NE?	?	?	1	143
Donald, Sundell	5/12/90	SE	3:00–20:00	Clo.	?	?	121	7	140
Brouchoud, Rudy	5/18/90	NE	4:00–21:00	P.Cl	W18	47–66	31	11	138
Honetschlager, Hudick	5/16/90	NW	5:00–20:00	Rain	?	?	275	3	138
Woodcock	5/27/90	NE	5:00–23:00	Fair	S10	46–73	266	4	136
Isenring, Whitemarsh	5/20/90	SC	3:00–21:00	Rain	NW12	44–54	165	3	134
Bontly, Frank, Septon, Strelka, Woodmansee	5/12/90	SE	3:30–15:30	Rain	?	?	100	2	132
Isenring, McNamara	5/31/90	NW	3:20–21:20	Fair	S20	45–75	315	2	124
Brasser, Brasser	5/12/90	SE	5:30–21:30	Rain	SE8	40–50	156	4	114
Diehl	5/27/90	SE	6:30–20:30	Clo.	SE?	60–75	120	2	113
Belter	5/27/90	NC	5:00–20:00	Rain	?	?	80	17	113

Northwest

Hoffman, 5/26/90, 194 species.—The areas covered included Eau Galle River Bottoms, Thompson Lake, Arkansaw, Silver Birch Lake, Durand, Buffalo River Delta, Nelson Marsh, Bear Creek, Lima/Albany Wood, Muddy Lake W.A., Old Elk Lake, Rock Falls Gorge, Meridean, Tiffany Bottoms, Nelson-Trevino Bottoms, Rush River, Twin Lakes, Three Lakes, Oakridge Lake, Namekegon Barrens, County A Bogs, Wisconsin Point, Riverside, and Crex Meadows. Interesting species noted were American White Pelican, Sharp-tailed Grouse, King Rail, Baird's Sandpiper, Long-eared Owl, *Burrowing Owl*, Gray Jay, Black-throated Blue Warbler, Prothonotary Warbler, Lark Sparrow, Henslow's Sparrow, Le Conte's Sparrow, Sharp-tailed Sparrow, Dark-eyed Junco, Orchard Oriole, White-winged Crossbill,

6 herons, 16 ducks, 10 hawks, 10 shorebirds, *5 owls, 7 woodpeckers, 10 flycatchers, 7 thrushes, 5 vireos, 28 warblers, 15 sparrows,* and *10 blackbirds.*

Shea and Shea, 5/25/90, 179 species.—Areas covered included Crex Meadows, Lyman Bog, Wisconsin Point, Stone's Bridge, Solon Springs, Fish Lake, Interstate Park, Osceola Fish Hatchery, and Oakridge Lake. Notable sightings included American White Pelican, Mute Swan, Peregrine Falcon, Greater Prairie-Chicken, Wild Turkey, Yellow Rail, Gray Jay, Lark Sparrow, Le Conte's Sparrow, White-winged Crossbill, 4 herons, 13 ducks, 9 hawks, 4 galliformes, 10 shorebirds, 1 owl, *7 woodpeckers,* 8 flycatchers, *7 thrushes,* 4 vireos, 27 warblers, 13 sparrows, 9 blackbirds, and *6 finches.*

Hoffman, 5/27/90, 170 species.—Areas covered included Crex Meadows, County A Bogs, Lyman Lake Bog, Wisconsin Point, Solon Springs, Otter Creek W.A., Wilson's Pond, Elk Lake, Dunnville Bottoms, and Twin Lake. Interesting observations were Red-throated Loon, Common Merganser, Sharp-tailed Grouse, Black-backed Woodpecker, Gray Jay, Connecticut Warbler, Lark Sparrow, Le Conte's Sparrow, Sharp-tailed Sparrow, Orchard Oriole, Whit-winged Crossbill, 5 herons, 14 ducks, 5 hawks, 10 shorebirds, 0 owls, *7 woodpeckers,* 8 flycatchers, 6 thrushes, *5 vireos,* 26 warblers, 13 sparrows, 10 blackbirds, and *6 finches.*

Smith and Smith, 5/26/90, 158 species.—Areas covered were Crex Meadows, Fish Lake, Gordon Flowage, Solon Springs, Stone's Bridge, Wisconsin Point, southern Polk Co., Oakridge Lake, Hammond and Roberts Area, and Trout Brook Road. Notable sightings were American White Pelican, Mute Swan, *Trumpeter Swan,* Common Merganser, Greater Prairie-Chicken, Sharp-tailed Grouse, Tufted Titmouse, Le Conte's Sparrow, 5 herons, 14 ducks, 8 hawks, 4 galliformes, 7 shorebirds, *7 woodpeckers,* 9 flycatchers, 5 thrushes, 4 vireos, 18 warblers, 10 sparrows, and 9 blackbirds.

Tessen, 5/27/90, 156 species.—Covered areas were Wisconsin Point, Stone's Bridge, Winneboujou Bridge, Prentice Park, Bayfield County, Solon Springs, and Crex Meadows. Sightings included American White Pelican, Tundra Swan, Mute Swan, Canvasback, Surf Scoter, Sharp-tailed Grouse, Yellow Rail, *American Avocet, Western Sandpiper,* Baird's Sandpiper, Black-backed Woodpecker, Gray Jay, Connecticut Warbler, Le Conte's Sparrow, Sharp-tailed Sparrow, Dark-eyed Junco, White-winged Crossbill, 3 herons, 14 ducks, 6 hawks, 11 shorebirds, 9 flycatchers, 5 thrushes, 4 vireos, 21 warblers, 11 sparrows, 8 blackbirds, and *6 finches.*

Johnson and Semo, 5/25/90, 151 species.—They birded Douglas County only (Brule River, St. Croix River, and Wisconsin Point). Interesting birds were American White Pelican, Mute Swan, Surf Scoter, Sharp-tailed Grouse, Northern Saw-whet Owl, *Loggerhead Shrike,* Connecticut Warbler, Le Conte's Sparrow, Dark-eyed Junco, White-winged Crossbill, 3 herons, 13 ducks, 7 hawks, 7 shorebirds, 5 woodpeckers, 6 flycatchers, 4 thrushes, *5 vireos,* 22 warblers, 12 sparrows, 9 blackbirds, and 6 finches.

Robbins and Soulen, 5/16/90, 147 species.—The area covered was northwestern St. Croix Co., southern Polk Co., and western Pierce Co. Of interest were Snow Goose, Gray Partridge, *Willet* Tufted Titmouse, Louisiana Waterthrush, Henslow's Sparrow, 10 ducks, 6 hawks, 15 shorebirds, 7 *woodpeckers*, 5 flycatchers, 4 vireos, 21 warblers, 10 sparrows, and 9 blackbirds.

Johnson, 5/22/90, 143 species.—Douglas County only was birded (Brule and St. Croix Rivers, Wisconsin Point). Sightings included American White Pelican, Mute Swan, Merlin, Gray Jay, Connecticut Warbler, *Hooded Warbler*, Dark-eyed Junco, 12 ducks, 6 hawks, 8 shorebirds, 5 flycatchers, *5 vireos*, 25 warblers, 11 sparrows, and 9 blackbirds.

Hudick and Honetschlager, 5/16/90, 138 species.—Areas birded were Wisconsin Point, Brule River, Solon Springs, Crex Meadows, and Interstate Park. Interesting birds seen were American White Pelican, Tundra Swan, Snow Goose, Merlin, Peregrine Falcon, *Chuck-will's-widow*, 12 ducks, *11 hawks*, 8 shorebirds, 6 woodpeckers, 3 flycatchers, 4 thrushes, 3 vireos, 17 warblers, 9 sparrows, and 9 blackbirds.

Isenring and McNamara, 5/31/90, 124 species.—They birded Crex Meadows, Stone's Bridge, and Wisconsin Point observing *Western Grebe*, Yellow Rail, *Glaucous Gull*, Connecticut Warbler, Le Conte's Sparrow, 6 herons, 10 warblers, and 10 sparrows.

North Central

Hoeft, Risch, Risch, and Risch, 5/26/90, 152 species.—Areas covered included Pershing Wildlife Area, Chequamegon National Forest, Stettsonville Sewage Ponds, Sportsman's Lake, and Mead Wildlife Area. Significant observations were Red-throated Loon, Tundra Swan, Common Merganser, Greater Prairie-Chicken, Sharp-tailed Grouse, Northern Saw-whet Owl, Le Conte's Sparrow, 5 herons, 11 ducks, 7 hawks, *5 galliformes*, 7 shorebirds, 4 owls, *7 woodpeckers*, 7 flycatchers, 3 vireos, 17 warblers, 8 sparrows, and 9 blackbirds.

Belter, 5/27/90, 113 species.—Birded areas included Mead Wildlife Area, Big Eau Plaine Park, Wausau Airport, and Fern Island Park. Some of the sightings were Greater Prairie-Chicken, Prothonotary Warbler, 9 ducks, 6 hawks, 5 shorebirds, 5 woodpeckers, 7 flycatchers, 4 vireos, 6 warblers, 5 sparrows, and 9 blackbirds.

Northeast

Legler and Peterson, 5/21/90, 157 species.—The areas covered included Horicon NWR, Manitowoc Harbor, Green Bay, Shawano Co., Goose Pond, and Sauk Co. Birds observed were highlighted by *Cattle Egret*, Gray Partridge, Wild Turkey, Yellow Rail, Louisiana Waterthrush, Lark Sparrow, Henslow's Sparrow, 7 *herons*, 9 ducks, 6 hawks, *5 galliformes*, 12 shorebirds, 3 woodpeckers, 6 flycatchers, 4 vireos, 22 warblers, 12 sparrows, 9 blackbirds, and 5 finches.

Brouchoud and Rudy, 5/18/90, 138 species.—They birded Woodland Dunes only. Sightings of interest were Wild Turkey, Red Knot, Little Gull, *Harris' Sparrows*, 4 herons, 4 ducks, 8 hawks, 14 shorebirds, *4 gulls*, 4 wood-

peckers, 6 flycatchers, 4 thrushes, 4 vireos, 21 warblers, 11 sparrows, and 6 blackbirds.

Woodcock, 5/27/90, 136 species.—Covered spots included Manitowoc Harbor, Woodland Dunes, Collins Marsh, Green Bay, Oconto Marsh, Archibald Lake, and Jones Spring. Interesting birds were Tundra Swan, *Whimbrel*, Little Gull, 4 herons, 9 ducks, 5 hawks, 9 shorebirds, *4 gulls*, 7 flycatchers, 2 vireos, 20 warblers, 9 sparrows, and 9 blackbirds.

South Central

Baughman, Schultz, Schultz, and Stott, 5/21/90, 185 species.—They birded White River Marsh, Mud Lake, Grand River Marsh, Baxter's Hollow, PF Prairies, Mazomanie, Arlington Prairie, Horicon Marsh, Upper Kettle Moraine, Manitowoc Harbor, and Green Bay. Highlights of the day were Red-necked Grebe, Mute Swan, Wild Turkey, King Rail, *Hudsonian Godwit*, *Red-necked Phalarope*, *Laughing Gull*, Long-eared Owl, Tufted Titmouse, Carolina Wren, Louisiana Waterthrush, Connecticut Warbler, Lark Sparrow, Henslow's Sparrow, 6 herons, 13 ducks, 9 hawks, 15 shorebirds, *4 gulls*, 4 owls, 6 woodpeckers, 8 flycatchers, 6 thrushes, *5 vireos*, 27 warblers, 14 sparrows, and 9 blackbirds.

Tessen, 5/18/90, 177 species.—Areas covered included Walworth Co., Rock Co., Natureland Park, Storr's Park, UW Arboretum, Picnic Point, Arlington Prairie, Mud Lake W.A., Grassy Lake, Lake Maria, Horicon NWR, Sheboygan Harbor, Manitowoc Harbor, Cleveland, and Cedarburg Bog. Interesting sightings were Red-throated Loon, Red-necked Grebe, Cattle Egret, Mute Swan, Canvasback, Black Scoter, *White-winged Scoter*, *American Goldeneye*, Gray Partridge, Baird's Sandpiper, Long-eared Owl, *Water Pipit*, Black-throated Blue Warbler, Louisiana Waterthrush, *Summer Tanager*, Orchard Oriole, 6 herons, *19 ducks*, 6 hawks, *16 shorebirds*, 5 woodpeckers, 6 flycatchers, 6 thrushes, *5 vireos*, 25 warblers, 11 sparrows, and *10 blackbirds*.

Hoffman and Shea, 5/15/90, 164 species.—They birded Waunakee Marsh, Dunlap Hollow, Mazomanie, Baxter's Hollow, Devil's Lake, County PF, Fish Lake, Crystal Lake, Arlington Prairie, Mud Lake, Grassy Lake, Lake Maria, and Horicon NWR. Birds of note were Snow Goose, Mute Swan, King Rail, *Common Barn-Owl*, *Bell's Vireo*, Worm-eating Warbler, Louisiana Waterthrush, Orchard Oriole, White-winged Crossbill, 5 herons, 11 ducks, 6 hawks, 4 galliformes, 13 shorebirds, 4 owls, 7 *woodpeckers*, 6 flycatchers, *5 vireos*, 25 warblers, 10 sparrows, and 9 blackbirds.

Eliot, Foster, and Robbins, 5/21/90, 159 species.—Northern Dane Co., Western Columbia Co., and Eastern Sauk Co. were covered. Sightings included Red-necked Grebe, Mute Swan, King Rail, Carolina Wren, Louisiana Waterthrush, White-winged Crossbill, 5 herons, 8 ducks, 6 hawks, 10 shorebirds, 7 *woodpeckers*, 9 flycatchers, *5 wrens*, *5 vireos*, 25 warblers, and 9 sparrows.

Isenring and Whitemarsh, 5/20/90, 134 species.—They birded Mud Lake, Grassy Lake, Arlington Prairie, Steinke Basin, Messenger Creek, Baxter's Hol-

low, PF Prairie, and Mazomanie. Of note were Snow Goose, Prothonotary Warbler, Worm-eating Warbler, Louisiana Waterthrush, 3 herons, 8 ducks, 4 woodpeckers, 7 flycatchers, 6 thrushes, *5 vireos*, 24 warblers, 8 sparrows, and 8 blackbirds.

Southeast

Frank, 5/24/90, 157 species.—Areas covered were Cedarburg Bog, Belgium Pond, Kletzsch Park, Estabrook Park, Schlitz Audubon Center, Virmond Park, Concordia College, Port Washington Harbor, Riveredge Nature Center, Theresa Marsh, Horicon NWR, Lake Maria, and Manitowoc Harbor. Interesting birds included Red-necked Grebe, Black Scoter, White-eyed Vireo, Connecticut Warbler, *Yellow-breasted Chat*, Orchard Oriole, 4 herons, 14 ducks, 4 hawks, *16 shorebirds*, 4 woodpeckers, 7 flycatchers, 6 thrushes, *5 vireos*, 24 warblers, 10 sparrows, and 9 blackbirds.

Donald and Sundell, 5/12/90, 140 species.—Areas birded were Cedarburg Bog, Ehler's Park, Harrington Beach, Port Washington Harbor, Kletzsch Park, Estabrook Park, and Milwaukee Harbor. Notable sightings were Gray Partridge, King Rail, Orchard Oriole, 11 ducks, 5 hawks, 14 shorebirds, 4 flycatchers, 3 vireos, 18 warblers, and 10 sparrows.

Bontly, Frank, Septon, Strelka, and Woodmansee, 5/12/90, 132 species.—They birded Ozaukee Co. only. Birds of interest were Black-throated Blue Warbler, 5 herons, 10 ducks, 3 hawks, 14 shorebirds, 5 woodpeckers, 3 flycatchers, 4 thrushes, 4 vireos, 21 warblers and 9 sparrows.

Brasser and Brasser, 5/12/90, 114 species.—They birded Horicon NWR, Riveredge Nature Center, Belgium Pond, Harrington Beach, Terry Andreae S.P., Sheboygan Lake Front, and Maywood Environmental Center. Interesting sightings included *Brewster's Warbler*, 5 herons, 7 ducks, 4 hawks, 10 shorebirds, 3 flycatchers, 1 vireo, 15 warblers, 7 sparrows, and 8 blackbirds.

Diehl, 5/27/90, 113 species.—Areas covered included Vernon Marsh, Whitnall Park, Milwaukee Harbor, and southern Ozaukee Co. Sightings included King Rail, 8 ducks, 3 hawks, 5 shorebirds, 5 woodpeckers, 6 flycatchers, 14 warblers, and 9 sparrows.

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MAY DAY COUNTS: 1990

by Jim Frank

The 22 May Day Counts conducted this year represented an average number of counts. Of these, 17 counts have reported for at least the eighth consecutive year. Leading the list for participation was Rock County with 26 observers, followed by Waukesha with 24 observers. Total species were generally about average, six counts exceeding 150, but the high counts were off 6–8 species from last year's best. Milwaukee/Ozaukee led the way at 166, Racine/Kenosha followed at 163, with Winnebago County at 162 and Fond du Lac County 158. The total reported species was 245 compared to last year's 244. If there is a common thread in the May Counts for 1990, it is the presence of rain, mentioned on 50% of the counts.

Table 1 has the counts listed alphabetically; however the species lists of Tables 2 and 3 have the counts grouped geographically for comparison purposes. The 53 most unusual species, seen on four or fewer counts, are in Table 4. Of particular note are Trumpeter Swan, in St. Croix County, White-fronted Goose in Burnett County, Cinnamon Teal in Kenosha County, Long-eared Owl in St. Croix County, and Glaucous Gull in Racine/Kenosha.

Species showing marked increases in frequency of occurrence this year over last year were Northern Pintail (5 vs. 0), Rough-legged Hawk (6 vs. 1), American Woodcock (18 vs. 11), Wilson's Phalarope (10 vs. 4), Forster's Tern (14 vs. 7), Olive-sided Flycatcher (9 vs. 3), Sedge Wren (16 vs. 10), Marsh Wren (14 vs. 7), Gray-cheeked Thrush (10 vs. 4), Harris' Sparrow (5 vs. 0), and Pine Siskin (18 vs. 4). Significant decline compared to last year were seen in Redhead (5 vs. 9), Semipalmated Plover (6 vs. 1), Ruddy Turnstone (2 vs. 6), Dunlin (4 vs. 8), Black-billed Cuckoo (8 vs. 14), Yellow-billed Cuckoo (3 vs. 6), Common Nighthawk (9 vs. 16), Alder Flycatcher (1 vs. 8), Willow Flycatcher (5 vs. 9), Brown Creeper (4 vs. 13), Winter Wren (5 vs. 9), Black-throated Blue Warbler (2 vs. 7), Cerulean Warbler (3 vs. 8), and Lincoln's Sparrow (5 vs. 12). Some of the above differences are reflections of the dates on which the counts were conducted. This year 8 of 22 May Counts were taken on May 18

or later; whereas, in 1989 14 of 23 counts were taken May 18 or later. Obviously, the narrow windows of migration passage in spring for some species makes the one day samplings of May Counts less meaningful than the Spring Reports Summary. As you examine the following tables of count lists, last year's challenge still stands. Looking back over the past 16 years of May Count data, I note that the top four list totals range from 190 down to 183. All of these occurred between 1975 and 1980. No May Count has surpassed 175 since 1980.

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Table 1. Details of the 1990 May Day Counts.

Count	Date	Time	Sky	Wind	Temp	Observers	Parties	Species
Ashland/Bayfield	5/21	4:00–16:00	P.Cl.	NW10	34–59	16	5	155
Black River Falls	5/01	12:30–15:30	Fair	S?	80–84	3	1	35
Burnett Co.	5/21	4:22–21:05	P.Cl.	N5	30–65	3	1	135
Calumet Co.	5/19	4:30–20:00	Rain	NE15	43–46	4	2	110
Fond du Lac Co.	5/12	4:00–17:00	Clo.	S15	45–65	16	7	158
Horicon	5/12	5:30–19:00	Clo.	—	45–60	7	—	130
Lake Geneva	5/13	4:30–20:30	Fair	SW3	40–54	3	2	104
Lake Mills	5/11	5:15–18:30	P.Cl.	W8	38–65	2	1	85
Marathon Co.	5/19	4:00–18:00	Rain	E15	40–41	11	6	115
Milwaukee/Ozaukee	5/12	3:00–20:00	Rain	?	40–50	10	5	166
Oconomowoc	5/13	4:30–17:00	Fair	SE8	48–72	16	6	143
Oxbo/Fifield	5/19	6:00–14:00	Rain	NE10	41–48	21	5	106
Plymouth	5/12	6:00–20:00	Clo.	SE15	40–50	21	13	159
Portage Co.	5/12	5:30–14:30	Rain	SE8	45–58	18	7	124
Racine/Kenosha	5/12	0:30–21:00	Rain	?	43–47	11	6	163
Rock Co.	5/12	?	Clo.	SE8	65–68	26	?	78
Shawano Co.	5/19	4:00–12:00	Clo.	?	?	5	3	124
St. Croix Co.	5/12	4:30–21:00	Rain	W1	49–66	4	3	160
Taylor Co.	5/28	4:30–21:15	Fair	SW5	45–72	13	4	122
Waukesha Co.	5/12	1:00–17:00	Rain	?	50–47	24	6	142
Winnebago Co.	5/12	5:00–20:30	Rain	S10	46–58	23	14	162
Woodland Dunes	5/19	5:30–14:00	Rain	NE10	40–45	5	5	113

Table 2. Results of the 1990 May Day Counts in Southern Wisconsin.

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Horicon	Woodland Dunes	Plymouth	Milwaukee/Ozaukee	Racine/Kenosha	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Common Loon	—	—	—	—	—	—	X	—	—	X	—	—	—
Pied-billed Grebe	—	X	X	X	—	X	X	X	X	X	X	—	—
Double-crested Cormorant	—	X	—	X	—	—	—	X	—	—	—	—	—
American Bittern	—	X	X	X	X	X	X	—	X	X	—	—	—
Great Blue Heron	X	X	X	X	X	X	X	X	X	X	X	X	X
Great Egret	—	X	X	X	—	X	X	X	—	X	—	—	X
Green-backed Heron	X	X	X	X	X	X	X	X	X	X	X	X	—
Black-crowned Night-heron	X	X	X	X	X	—	—	—	X	—	—	—	—

(*continued*)

Table 2. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Horicon	Woodland Dunes	Plymouth	Milwaukee/Ozaukee	Racine/Kenosha	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Canada Goose	X	X	X	X	X	X	X	X	X	X	X	X	X
Wood Duck	X	X	X	X	X	X	X	X	X	X	X	X	X
Green-winged Teal	–	X	X	–	–	X	X	X	X	X	–	–	–
American Black Duck	–	X	–	X	–	–	–	–	–	–	–	–	X
Mallard	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern Pintail	–	X	X	X	–	–	X	–	–	X	–	–	–
Blue-winged Teal	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern Shoveler	X	X	X	X	–	X	X	X	X	X	–	–	–
Gadwall	–	X	X	X	–	X	–	–	–	–	–	–	–
American Wigeon	–	X	X	X	–	–	–	X	–	–	–	–	X
Redhead	–	X	X	X	–	–	–	–	–	–	–	–	–
Ring-necked Duck	–	X	–	X	–	–	–	X	–	X	–	–	–
Lesser Scaup Duck	X	X	X	X	–	X	X	X	–	X	–	–	–
Bufflehead	–	X	–	–	–	–	X	–	–	X	–	X	–
Hooded Merganser	–	–	–	–	–	X	X	X	–	–	–	–	–
Red-breasted Merganser	X	–	–	–	–	–	X	X	–	–	X	–	–
Ruddy Duck	–	X	X	X	–	–	X	X	X	–	–	–	–
Turkey Vulture	–	X	X	–	–	X	X	X	X	X	X	X	–
Osprey	–	–	–	X	–	X	–	–	–	–	–	–	–
Bald Eagle	–	–	–	–	–	–	–	–	–	–	–	–	–
Northern Harrier	–	–	X	X	X	X	X	X	X	X	–	–	–
Sharp-shinned Hawk	–	–	X	–	–	X	X	X	X	X	–	–	–
Cooper's Hawk	–	X	X	X	–	–	X	X	X	X	–	–	–
Red-shouldered Hawk	X	X	–	–	–	–	–	–	–	X	–	–	–
Broad-winged Hawk	–	–	X	–	–	X	–	–	–	X	–	–	X
Red-tailed Hawk	X	X	X	X	–	X	X	X	X	X	X	X	X
Rough-legged Hawk	–	X	X	X	–	–	–	X	X	X	–	–	–
American Kestrel	X	X	X	X	X	X	X	X	X	X	X	X	X
Ring-necked Pheasant	–	X	X	X	X	X	X	X	X	X	X	X	X
Ruffed Grouse	X	–	X	–	X	X	X	–	–	–	–	–	–
Virginia Rail	–	X	X	–	X	–	X	X	X	–	–	–	–
Sora	X	X	X	X	X	X	X	X	X	X	X	X	–
American Coot	X	X	X	X	X	X	X	X	X	X	X	X	X
Sandhill Crane	X	X	X	X	–	X	X	X	X	X	–	X	–
Semipalmated Plover	–	X	X	–	–	–	X	X	–	–	–	–	–
Killdeer	X	X	X	X	X	X	X	X	X	X	X	X	X
Greater Yellowlegs	–	X	X	X	X	X	X	X	X	X	X	–	–
Lesser Yellowlegs	–	X	X	X	X	X	X	X	X	X	X	–	–
Solitary Sandpiper	X	X	X	X	–	X	X	X	X	X	–	–	–
Spotted Sandpiper	X	X	X	X	X	X	X	X	X	X	–	X	–
Upland Sandpiper	–	X	–	–	X	–	X	X	–	–	–	–	–
Semipalmated Sandpiper	–	–	X	–	–	X	–	X	X	–	–	–	–
Least Sandpiper	X	X	X	X	–	X	X	X	X	X	–	–	–
Pectoral Sandpiper	–	X	X	X	–	X	X	X	X	X	–	–	–
Short-billed Dowitcher	–	–	X	X	–	–	X	X	–	–	–	–	–
Common Snipe	X	X	X	X	–	X	X	X	X	X	X	–	X
American Woodcock	X	X	–	X	X	X	X	X	X	X	X	–	–
Wilson's Phalarope	X	X	X	–	X	–	X	X	–	X	–	–	–
Bonaparte's Gull	–	X	–	–	X	X	X	X	–	–	–	–	–
Ring-billed Gull	–	X	X	X	X	X	X	X	–	–	X	–	–
Herring Gull	–	X	–	–	X	X	X	X	–	–	–	–	–
Caspian Tern	–	X	–	–	X	X	X	X	–	–	–	–	–
Common Tern	–	X	–	X	X	X	X	X	X	–	X	–	–
Forster's Tern	–	X	X	X	X	X	X	X	X	X	X	–	–
Black Tern	X	X	X	X	X	X	–	–	X	X	X	X	–

(*continued*)

Table 2. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Horicon	Woodland Dunes	Plymouth	Milwaukee/Ozaukee	Racine/Kenosha	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Rock Dove	X	X	X	X	X	X	X	X	X	X	X	X	X
Mourning Dove	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-billed Cuckoo	X	–	X	–	–	X	X	–	–	X	X	–	–
Eastern Screech-Owl	–	X	X	–	–	–	–	X	X	X	–	–	–
Great Horned Owl	X	X	X	X	X	X	X	X	X	X	–	–	–
Barred Owl	X	–	X	X	X	X	X	–	X	X	–	–	–
Common Nighthawk	–	–	–	–	–	–	X	X	–	X	X	–	–
Whip-poor-will	–	–	–	X	–	–	X	X	–	X	–	–	–
Chimney Swift	X	X	X	X	X	X	X	X	X	X	X	X	X
Ruby-throated Hummingbird	–	X	–	–	–	X	X	–	X	X	–	X	–
Belted Kingfisher	–	X	X	–	X	X	X	X	X	X	X	X	X
Red-headed Woodpecker	X	X	X	X	–	X	X	X	X	X	X	X	X
Red-bellied Woodpecker	X	X	X	X	–	X	X	X	X	X	X	X	X
Yellow-bellied Sapsucker	X	–	–	–	–	X	–	–	–	X	–	–	X
Downy Woodpecker	X	X	X	X	X	X	X	X	X	X	X	X	X
Hairy Woodpecker	X	X	X	X	X	X	X	X	X	X	X	–	X
Northern Flicker	X	X	X	X	X	X	X	X	X	X	X	X	X
Pileated Woodpecker	–	–	X	–	–	X	–	–	–	–	–	–	–
Olive-sided Flycatcher	X	–	–	X	–	X	–	–	–	X	–	–	–
Eastern Wood-Pewee	–	X	X	X	–	X	X	X	–	X	X	–	X
Willow Flycatcher	–	–	–	X	–	X	X	X	–	–	–	–	–
Least Flycatcher	X	X	X	X	X	X	X	X	X	X	X	X	–
Eastern Phoebe	X	X	X	X	X	X	X	X	X	X	–	–	X
Great Crested Flycatcher	X	X	X	X	X	X	X	X	X	X	X	X	X
Eastern Kingbird	X	X	X	X	X	X	X	X	X	X	X	X	X
Horned Lark	X	X	X	X	X	X	X	X	–	X	X	X	–
Purple Martin	–	X	X	X	–	X	X	X	X	X	X	X	X
Tree Swallow	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern Rough-winged Swallow	X	X	X	X	X	X	X	X	X	X	X	X	X
Bank Swallow	X	X	X	–	X	X	X	X	X	X	–	–	X
Cliff Swallow	–	X	X	–	X	–	X	X	X	X	–	–	X
Barn Swallow	X	X	X	X	X	X	X	X	X	X	X	X	X
Blue Jay	X	X	X	X	X	X	X	X	X	X	X	X	X
American Crow	X	X	X	X	X	X	X	X	X	X	X	X	X
Common Raven	–	–	–	–	–	–	–	–	–	–	–	–	–
Black-capped Chickadee	X	X	X	X	X	X	X	X	X	X	X	X	X
Red-breasted Nuthatch	–	X	X	X	–	X	X	X	–	–	X	–	–
White-breasted Nuthatch	X	X	X	–	X	X	X	X	X	X	X	X	X
House Wren	X	X	X	X	X	X	X	X	X	X	X	X	X
Winter Wren	–	–	X	–	–	X	X	–	–	–	–	–	–
Sedge Wren	X	X	X	X	X	X	X	X	–	–	X	–	–
Marsh Wren	X	X	X	X	X	X	X	X	X	X	–	–	–
Golden-crowned Kinglet	–	X	–	–	–	X	–	X	X	X	–	–	–
Ruby-crowned Kinglet	–	X	X	X	X	X	X	X	X	–	X	–	–
Blue-gray Gnatcatcher	X	X	X	X	X	X	X	X	–	X	X	–	–
Eastern Bluebird	X	X	X	X	X	X	X	X	X	X	X	X	X
Veery	X	X	X	X	X	X	X	X	X	X	X	X	–
Gray-cheeked Thrush	X	X	–	–	–	X	X	X	–	–	X	–	–
Swainson's Thrush	X	X	X	X	X	X	X	X	X	–	–	–	–
Hermit Thrush	–	X	–	X	–	X	–	X	X	X	–	–	X
Wood Thrush	X	X	X	X	X	X	X	X	X	X	X	X	–
American Robin	X	X	X	X	X	X	X	X	X	X	X	X	X
Gray Catbird	X	X	X	X	X	X	X	X	X	X	X	X	X
Brown Thrasher	X	X	X	X	–	X	X	X	X	X	X	X	X
Cedar Waxwing	–	X	–	–	–	X	X	X	X	X	X	–	X

(continued)

Table 2. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Horicon	Woodland Dunes	Plymouth	Milwaukee/Ozaukee	Racine/Kenosha	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
European Starling	X	X	X	X	X	X	X	X	X	X	X	X	X
Solitary Vireo	X	—	—	—	—	X	X	X	—	X	—	X	—
Yellow-throated Vireo	—	—	X	X	—	—	X	X	X	X	—	X	—
Warbling Vireo	X	X	X	X	X	X	X	X	X	X	—	X	X
Philadelphia Vireo	—	—	X	—	X	X	X	—	—	—	X	—	—
Red-eyed Vireo	X	X	X	—	—	X	X	X	X	X	X	—	—
Blue-winged Warbler	—	X	X	X	X	X	X	X	X	X	X	X	—
Golden-winged Warbler	—	X	X	—	—	X	X	X	—	X	—	—	—
Tennessee Warbler	X	X	X	—	—	X	X	X	X	X	X	—	—
Orange-crowned Warbler	—	X	X	—	—	X	X	X	X	—	—	—	—
Nashville Warbler	X	X	X	—	X	X	X	X	X	X	X	X	—
Northern Parula Warbler	X	X	X	—	—	X	X	X	X	X	—	X	—
Yellow Warbler	X	X	X	X	X	X	X	X	X	X	X	X	X
Chestnut-sided Warbler	X	X	X	X	X	—	X	X	X	X	X	X	—
Magnolia Warbler	X	X	X	X	X	X	X	X	X	X	X	X	—
Cape May Warbler	X	X	X	—	—	X	X	X	X	X	X	—	—
Yellow-rumped Warbler	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-throated Green Warbler	X	X	X	—	X	X	X	X	X	X	X	X	—
Blackburnian Warbler	X	X	X	X	X	X	X	X	X	X	X	X	—
Pine Warbler	—	—	X	—	—	—	—	X	—	X	—	—	—
Palm Warbler	X	X	X	X	X	X	X	X	X	X	X	X	X
Bay-breasted Warbler	X	X	X	—	—	X	X	X	X	X	X	X	X
Blackpoll Warbler	—	X	X	—	—	X	—	X	X	X	—	—	—
Black-and-White Warbler	X	X	X	X	X	X	X	X	X	X	X	X	X
American Redstart	X	X	X	X	—	X	X	X	X	X	X	X	—
Ovenbird	X	X	X	X	X	X	X	X	X	X	X	X	—
Northern Waterthrush	X	X	X	X	X	X	X	X	X	X	—	X	—
Mourning Warbler	—	—	X	—	X	—	X	—	—	—	—	—	—
Common Yellowthroat	X	X	X	X	X	X	X	X	X	X	X	X	X
Wilson's Warbler	X	X	—	—	X	X	X	X	X	X	X	—	—
Canada Warbler	X	—	—	—	—	X	—	X	—	—	—	—	—
Scarlet Tanager	X	X	X	—	X	X	X	X	—	X	X	X	—
Northern Cardinal	X	X	X	X	X	X	X	X	X	X	X	X	X
Rose-breasted Grosbeak	X	X	X	X	X	X	X	X	X	X	X	X	X
Indigo Bunting	—	X	X	X	X	X	X	X	X	X	X	X	X
Rufous-sided Towhee	—	X	X	X	—	X	X	X	X	X	X	X	X
Chipping Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	X
Clay-colored Sparrow	—	X	—	—	X	—	X	—	—	—	—	—	—
Field Sparrow	—	X	X	X	X	X	X	X	X	X	X	X	X
Vesper Sparrow	X	X	X	X	X	X	X	X	X	X	—	—	X
Savannah Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	X
Grasshopper Sparrow	—	—	—	—	—	—	X	X	—	X	—	—	—
Fox Sparrow	—	X	—	—	X	X	—	—	X	—	—	—	X
Song Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	—
Lincoln's Sparrow	—	—	X	—	—	—	X	X	—	—	—	—	—
Swamp Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	—
White-throated Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	X
White-crowned Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	X
Harris' Sparrow	—	X	—	—	X	—	—	—	—	—	—	—	—
Dark-eyed Junco	—	—	X	X	—	X	—	—	—	—	—	—	—
Bobolink	X	X	X	X	X	X	X	X	X	X	X	X	—
Red-winged Blackbird	X	X	X	X	X	X	X	X	X	X	X	X	X
Eastern Meadowlark	X	X	X	X	X	X	X	X	X	X	X	—	X
Western Meadowlark	X	X	—	X	—	—	X	X	X	—	—	—	X
Yellow-headed Blackbird	X	X	X	X	—	X	—	X	X	X	X	—	—

(*continued*)

Table 2. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Horicon	Woodland Dunes	Plymouth	Milwaukee/Ozaukee	Racine/Kenosha	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Brewer's Blackbird	X	X	—	X	X	X	—	X	X	—	—	—	—
Common Grackle	X	X	X	X	X	X	X	X	X	X	X	X	X
Brown-headed Cowbird	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern Oriole	X	X	X	X	X	X	X	X	X	X	X	X	X
Purple Finch	—	X	X	—	—	X	X	—	X	—	—	—	—
House Finch	—	X	X	—	—	X	X	X	X	X	X	—	X
Pine Siskin	X	X	X	—	X	X	X	—	X	—	X	—	X
American Goldfinch	X	X	X	X	X	X	X	X	X	X	X	X	X
House Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 3. Results of the 1990 May Day Counts in Northern Wisconsin.

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Black River Falls	Marathon Co.	Portage Co.	Shawano Co.
Common Loon	X	X	X	X	X	—	X	—	—
Pied-billed Grebe	X	X	X	—	X	—	X	X	X
Double-crested Cormorant	X	X	X	—	X	—	X	—	—
American Bittern	X	X	—	X	X	—	X	X	X
Great Blue Heron	X	X	X	X	X	X	X	X	X
Great Egret	—	X	X	—	—	—	—	—	—
Green-backed Heron	X	X	X	X	X	—	—	X	X
Black-crowned Night Heron	—	—	X	—	—	—	—	—	X
Canada Goose	X	X	X	—	X	X	X	X	X
Wood Duck	X	X	X	X	X	X	X	X	X
Green-winged Teal	X	X	X	—	—	—	—	—	X
American Black Duck	X	—	X	—	—	X	—	—	—
Mallard	X	X	X	X	X	—	X	X	X
Northern Pintail	—	—	—	—	—	—	—	—	—
Blue-winged Teal	X	X	X	X	X	X	X	X	X
Northern Shoveler	X	X	X	—	X	—	X	—	—
Gadwall	X	X	X	—	—	—	—	—	—
American Wigeon	X	X	X	—	—	—	—	—	—
Redhead	X	—	X	—	—	—	—	—	—
Ring-necked Duck	—	X	X	—	X	—	X	—	—
Lesser Scaup Duck	X	—	X	—	X	—	X	—	—
Bufflehead	X	—	X	—	—	—	X	—	—
Hooded Merganser	X	X	X	—	X	—	—	—	—
Red-breasted Merganser	X	—	—	—	—	—	—	—	—
Ruddy Duck	—	X	X	—	—	—	X	—	X
Turkey Vulture	X	—	—	—	—	—	—	—	X
Osprey	X	X	—	—	X	—	X	X	—
Bald Eagle	X	X	X	X	X	—	X	—	X
Northern Harrier	X	—	X	X	X	—	X	X	X
Sharp-shinned Hawk	X	—	—	X	X	—	—	—	—
Cooper's Hawk	—	—	—	—	X	—	—	X	—
Red-shouldered Hawk	—	—	X	—	—	—	—	X	—
Broad-winged Hawk	X	X	X	X	X	—	X	X	—

(*continued*)

Table 3. *Continued*

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Black River Falls	Marathon Co.	Portage Co.	Shawano Co.
Red-tailed Hawk	–	X	X	X	X	X	X	X	X
Rough-legged Hawk	–	–	–	–	–	–	–	–	–
American Kestrel	X	X	X	X	X	–	X	X	X
Ring-necked Pheasant	–	–	X	–	–	–	–	X	X
Ruffed Grouse	X	X	X	X	X	X	X	X	X
Virginia Rail	–	X	–	–	–	–	–	–	–
Sora	X	X	X	X	X	–	X	X	X
American Coot	–	X	X	–	–	–	X	–	X
Sandhill Crane	–	X	X	X	X	X	X	X	X
Semipalmated Plover	X	–	X	–	–	–	–	–	–
Killdeer	X	X	X	X	X	–	X	X	X
Greater Yellowlegs	X	–	X	–	–	–	–	X	–
Lesser Yellowlegs	X	X	X	–	–	–	–	–	X
Solitary Sandpiper	X	–	X	–	–	–	–	X	X
Spotted Sandpiper	X	X	X	–	X	–	X	X	X
Upland Sandpiper	–	X	X	–	–	–	–	–	–
Semipalmated Sandpiper	X	–	X	–	–	–	–	–	–
Least Sandpiper	X	–	X	–	–	–	–	–	X
Pectoral Sandpiper	–	–	X	–	–	–	–	–	–
Short-billed Dowitcher	X	–	–	–	–	–	–	–	–
Common Snipe	X	X	X	X	X	–	X	X	X
American Woodcock	X	X	X	X	X	–	X	X	X
Wilson's Phalarope	X	X	X	–	–	–	–	–	–
Bonaparte's Gull	X	–	–	–	–	–	–	–	X
Ring-billed Gull	X	X	X	–	X	–	X	–	X
Herring Gull	X	–	–	–	X	–	–	X	X
Caspian Tern	X	X	–	–	–	–	–	–	–
Common Tern	X	–	X	–	–	–	–	–	–
Forster's Tern	–	–	X	–	X	–	–	X	X
Black Tern	X	X	X	–	X	–	X	–	X
Rock Dove	X	X	X	–	X	X	X	X	X
Mourning Dove	X	X	X	X	X	X	X	X	X
Black-billed Cuckoo	–	–	–	–	X	–	–	–	X
Eastern Screech-Owl	–	–	–	–	–	–	–	–	–
Great Horned Owl	X	X	X	–	X	–	–	X	X
Barred Owl	–	X	–	–	X	–	–	X	X
Common Nighthawk	–	X	X	–	X	–	X	–	–
Whip-poor-will	–	–	–	X	–	X	–	X	X
Chimney Swift	X	X	X	–	X	–	X	X	–
Ruby-throated Hummingbird	X	X	X	X	X	–	X	X	–
Belted Kingfisher	X	X	X	X	–	–	X	X	X
Red-headed Woodpecker	X	X	X	X	X	–	–	X	X
Red-bellied Woodpecker	–	X	X	–	X	–	–	X	X
Yellow-bellied Sapsucker	X	X	X	X	X	–	–	–	X
Downy Woodpecker	X	–	X	X	X	X	X	X	X
Hairy Woodpecker	X	X	X	X	X	X	X	X	X
Northern Flicker	X	X	X	X	X	X	X	X	X
Pileated Woodpecker	X	X	X	X	X	X	X	X	–
Olive-sided Flycatcher	–	–	X	X	X	–	–	X	X
Eastern Wood-Pewee	X	X	–	–	X	–	X	–	–
Willow Flycatcher	–	–	–	–	X	–	–	–	–
Least Flycatcher	X	X	X	X	X	–	X	X	X
Eastern Phoebe	X	X	X	X	X	–	X	X	X
Great Crested Flycatcher	X	X	X	X	X	–	X	X	X
Eastern Kingbird	X	X	X	X	X	–	X	X	X
Horned Lark	X	X	X	–	X	–	X	X	X

(*continued*)

Table 3. *Continued*

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Black River Falls	Marathon Co.	Portage Co.	Shawano Co.
Purple Martin	X	X	X	X	X	—	X	X	X
Tree Swallow	X	X	X	X	X	X	X	X	X
Northern Rough-winged Swallow	X	X	X	X	X	—	—	X	X
Bank Swallow	—	X	X	—	X	—	—	—	X
Cliff Swallow	X	X	X	X	X	—	X	X	X
Barn Swallow	X	X	X	X	X	—	X	X	X
Blue Jay	X	X	X	X	X	X	X	X	X
American Crow	X	X	X	X	X	X	X	X	X
Common Raven	X	X	X	X	X	—	—	—	—
Black-capped Chickadee	X	X	X	X	X	X	X	X	X
Red-breasted Nuthatch	X	X	X	X	X	—	X	X	X
White-breasted Nuthatch	X	X	X	X	X	X	X	X	X
House Wren	X	X	X	X	X	—	X	X	X
Winter Wren	X	X	—	—	—	—	—	—	—
Sedge Wren	X	X	X	—	X	—	X	X	X
Marsh Wren	—	—	—	—	X	—	X	X	X
Golden-crowned Kinglet	—	—	—	X	—	—	—	—	—
Ruby-crowned Kinglet	X	X	X	X	—	—	—	X	—
Blue-gray Gnatcatcher	—	X	X	—	—	—	—	X	X
Eastern Bluebird	X	X	X	X	X	X	X	X	X
Veery	X	X	X	X	X	—	X	X	X
Gray-cheeked Thrush	—	—	X	X	—	—	X	X	—
Swainson's Thrush	X	—	X	X	—	—	X	X	—
Hermit Thrush	X	X	X	X	—	—	—	X	—
Wood Thrush	X	—	X	X	X	—	X	X	X
American Robin	X	X	X	X	X	X	X	X	X
Gray Catbird	X	X	X	X	X	—	X	X	X
Brown Thrasher	X	X	X	X	X	—	X	X	X
Cedar Waxwing	—	—	X	X	X	—	X	—	X
European Starling	X	X	X	X	X	X	X	X	X
Solitary Vireo	X	—	X	—	—	—	—	X	—
Yellow-throated Vireo	—	X	X	—	—	—	X	X	X
Warbling Vireo	X	X	X	—	X	—	X	X	X
Philadelphia Vireo	X	—	—	—	—	—	—	—	—
Red-eyed Vireo	X	X	X	X	X	—	X	X	X
Blue-winged Warbler	—	—	X	—	—	—	—	—	X
Golden-winged Warbler	X	X	X	X	—	—	X	X	X
Tennessee Warbler	X	X	X	—	—	—	X	X	X
Orange-crowned Warbler	—	—	X	—	—	—	—	—	—
Nashville Warbler	X	X	X	X	X	—	—	X	X
Northern Parula Warbler	—	—	—	—	—	—	—	—	—
Yellow Warbler	X	X	X	X	X	—	X	X	X
Chestnut-sided Warbler	X	X	X	—	X	—	X	X	—
Magnolia Warbler	X	—	X	X	X	—	X	X	X
Cape May Warbler	X	—	—	—	—	—	—	—	—
Yellow-rumped Warbler	X	X	X	X	X	X	X	X	X
Black-throated Green Warbler	X	X	X	X	—	—	—	X	X
Blackburnian Warbler	X	X	—	X	—	—	—	X	—
Pine Warbler	X	X	—	X	—	—	—	—	—
Palm Warbler	X	X	X	X	—	—	X	X	—
Bay-breasted Warbler	—	—	—	—	—	—	X	—	X
Blackpoll Warbler	X	X	—	—	—	—	X	—	X
Black-and-white Warbler	X	X	X	X	—	—	X	X	X
American Redstart	X	X	X	X	X	—	X	X	X
Ovenbird	X	X	X	X	X	—	X	X	X
Northern Waterthrush	X	—	X	—	—	—	X	X	X

(*continued*)

Table 3. *Continued*

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Black River Falls	Marathon Co.	Portage Co.	Shawano Co.
Mourning Warbler	X	–	X	–	X	–	X	–	X
Common Yellowthroat	X	X	X	X	X	–	X	X	X
Wilson's Warbler	X	X	X	X	–	–	X	X	–
Canada Warbler	X	X	–	X	–	–	–	–	X
Scarlet Tanager	X	X	–	X	X	–	–	X	X
Northern Cardinal	–	–	X	X	X	X	X	X	X
Rose-breasted Grosbeak	X	X	X	X	X	X	X	X	X
Indigo Bunting	–	X	X	X	X	–	–	X	X
Rufous-sided Towhee	X	X	X	–	X	–	X	X	X
Chipping Sparrow	X	X	X	X	X	X	X	X	X
Clay-colored Sparrow	X	X	X	X	X	–	X	–	X
Field Sparrow	–	X	X	X	–	–	X	X	X
Vesper Sparrow	X	X	X	–	–	–	–	X	X
Savannah Sparrow	X	X	X	X	X	–	X	X	X
Grasshopper Sparrow	–	–	X	X	–	–	–	–	X
Fox Sparrow	–	–	–	X	X	–	–	–	–
Song Sparrow	X	X	X	X	X	–	X	X	X
Lincoln's Sparrow	–	–	X	–	–	–	–	–	X
Swamp Sparrow	X	X	X	X	X	–	X	X	X
White-throated Sparrow	X	X	X	X	X	–	X	X	X
White-crowned Sparrow	X	–	X	X	–	–	X	X	X
Harris' Sparrow	X	–	X	X	–	–	–	–	–
Dark-eyed Junco	–	–	–	–	–	X	X	X	–
Bobolink	X	X	X	–	X	–	X	X	X
Red-winged Blackbird	X	X	X	X	X	X	X	X	X
Eastern Meadowlark	X	X	X	–	X	–	X	X	X
Western Meadowlark	X	X	X	–	X	X	X	X	–
Yellow-headed Blackbird	X	X	X	X	X	–	X	–	X
Brewer's Blackbird	X	X	X	X	X	–	X	X	–
Common Grackle	X	X	X	X	X	–	X	X	X
Brown-headed Cowbird	X	X	X	X	X	–	X	X	X
Northern Oriole	X	X	X	X	X	–	X	X	X
Purple Finch	X	–	X	X	X	X	X	X	X
House Finch	–	–	–	–	X	–	X	X	–
Pine Siskin	X	X	X	X	X	X	X	X	X
American Goldfinch	X	X	X	X	X	X	X	X	X
House Sparrow	X	X	X	X	X	X	X	X	X

Table 4. Unusual species seen on the 1990 May Counts.

Species	Number of counts	Counts
Red-necked Grebe	4	Burnett, St. Croix, Winnebago, Waukesha
Eared Grebe	1	St. Croix
Least Bittern	4	Winnebago, Fond du Lac, Milwaukee/ Ozaukee, Waukesha
Cattle Egret	2	Fond du Lac, Racine/Kenosha
Trumpeter Swan	1	St. Croix
Tundra Swan	2	Ashland/Bayfield, Taylor
Mute Swan	4	Ashland/Bayfield, Portage, Waukesha, Rock

(*continued*)

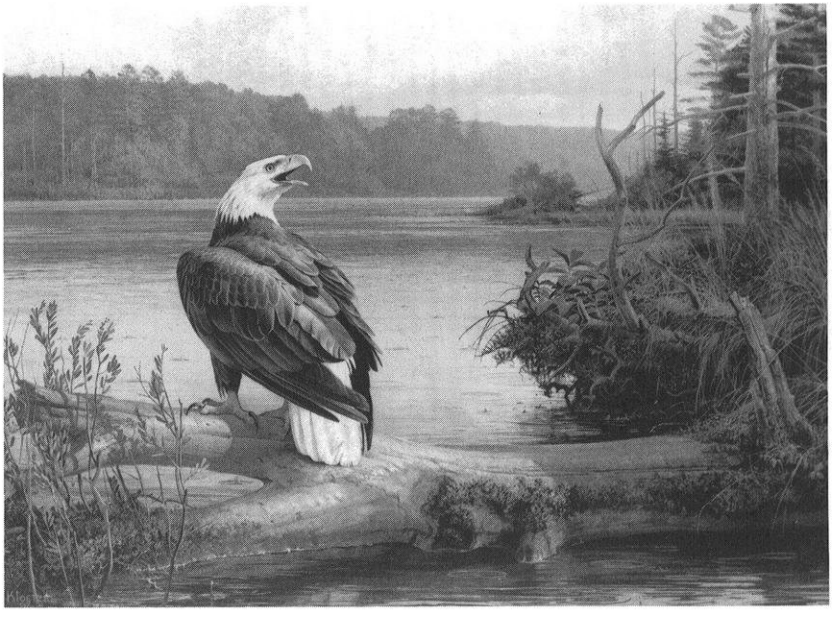
Table 4. *Continued*

Species	Number of counts	Counts
White-fronted Goose	1	Burnett
Snow Goose	2	Burnett, St. Croix
Cinnamon Teal	1	Racine/Kenosha
Canvasback	4	Ashland/Bayfield, Marathon, St. Croix, Winnebago
Greater Scaup Duck	2	Ashland/Bayfield, Waukesha
Common Goldeneye	3	Ashland/Bayfield, Plymouth, Oconomowoc
White-winged Scoter	1	Ashland/Bayfield
Common Merganser	3	Ashland/Bayfield, Oxbo/Fifield, Taylor
Northern Goshawk	1	Fond du Lac
Merlin	3	Ashland/Bayfield, Horicon, Racine/Kenosha
Peregrine Falcon	1	Winnebago
Gray Partridge	4	St. Croix, Plymouth, Milwaukee/Ozaukee, Rock
Greater Prairie-Chicken	2	Burnett, Marathon
Sharp-tailed Grouse	2	Burnett, Taylor
Wild Turkey	4	Black River Falls, Fond du Lac, Plymouth, Oconomowoc
Bobwhite	2	Horicon, Rock
Yellow Rail	1	Burnett
King Rail	2	Fond du Lac, Milwaukee/Ozaukee
Common Moorhen	4	Winnebago, Horicon, Milwaukee/Ozaukee, Waukesha
Black-bellied Plover	4	Ashland/Bayfield, Milwaukee/Ozaukee, Racine/Kenosha, Waukesha
Willet	1	Ashland/Bayfield
Marbled Godwit	1	Fond du Lac
Ruddy Turnstone	2	Plymouth, Racine/Kenosha
Sanderling	3	Ashland/Bayfield, Woodland Dunes, Waukesha
Baird's Sandpiper	1	Waukesha
Dunlin	4	Ashland/Bayfield, Fond du Lac, Milwaukee/Ozaukee, Waukesha
Stilt Sandpiper	1	Racine/Kenosha
Long-billed Dowitcher	2	Horicon, Waukesha
Red-necked Phalarope	1	St. Croix
Franklin's Gull	2	St. Croix, Woodland Dunes
Little Gull	1	Woodland Dunes
Glaucous Gull	1	Racine/Kenosha
Yellow-billed Cuckoo	3	Horicon, Waukesha, Lake Geneva
Long-eared Owl	1	St. Croix
Black-backed Woodpecker	1	Oxbo/Fifield
Yellow-bellied Flycatcher	1	Oconomowoc
Acadian Flycatcher	1	Plymouth
Alder Flycatcher	1	Plymouth
Gray Jay	1	Oxbo/Fifield
Tufted Titmouse	4	St. Croix, Oconomowoc, Lake Mills, Rock
Carolina Wren	1	Racine/Kenosha
Water Pipit	2	Milwaukee/Ozaukee, Racine/Kenosha
Black-throated Blue Warbler	2	Oxbo/Fifield, Milwaukee/Ozaukee
Cerulean Warbler	3	Fond du Lac, Milwaukee/Ozaukee, Oconomowoc
Prothonotary Warbler	3	Horicon, Plymouth, Milwaukee/Ozaukee

(*continued*)

Table 4. *Continued*

Species	Number of counts	Counts
Worm-eating Warbler	1	Waukesha
Louisiana Waterthrush	4	St. Croix, Milwaukee/Ozaukee, Waukesha, Fond du Lac
Connecticut Warbler	3	Calumet, Winnebago, Plymouth
Hooded Warbler	2	Milwaukee/Ozaukee, Racine/Kenosha
Dickcissel	3	Portage, Winnebago, Woodland Dunes
American Tree Sparrow	1	Winnebago
Henslow's Sparrow	3	Shawano, Fond du Lac, Racine/Kenosha
Le Conte's Sparrow	4	Ashland/Bayfield, Burnett, Shawano, Plymouth
Lapland Longspur	2	Winnebago, Horicon
Orchard Oriole	4	Plymouth, Milwaukee/Ozaukee, Racine/Kenosha, Woodland Dunes
Red Crossbill	2	Taylor, Fond du Lac
White-winged Crossbill	2	Fond du Lac, Plymouth
Evening Grosbeak	4	Ashland/Bayfield, Oxbo/Fifield, Taylor, Shawano



"Raptor in the Rain" *by Don Kloetzke* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

"Mourning Doves" *by Don Kloetzke* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

"By the Wayside"

Observations of Common Loon, White-faced Ibis, Ross' Goose, Barrow's Goldeneye, Mississippi Kite, Red-tailed Hawk, American Kestrel, Laughing Gull, Mew Gull, Thayer's Gull, Iceland Gull, Lesser Black-backed Gull, Great Black-backed Gull, Burrowing Owl, Scissor-tailed Flycatchers, Tree Swallow, Common Crow, Yellow-rumped (Audubon's) Warbler, Yellow-throated Warbler, and Painted Bunting are featured.

Common Loon Threatens Great Blue Heron

4 June 1985, Iron County.—Aggressive behavior by Common Loons (*Gavia immer*) towards waterfowl has been well documented (Kirkham, I. R. and S. R. Johnson. 1988. Interspecific aggression in loons. *Journal of Field Ornithology* 59:3–6.). However, there are no references regarding aggressive interactions with other avian species. We describe an aggressive interaction between a Common Loon and a Great Blue Heron (*Ardea herodias*). Belant observed this while studying Common Loon productivity and brood habitat use in northern Wisconsin.

The incident occurred on 4 June 1985 on a 24-ha lake in Iron County, Wisconsin. The lake was occupied by a pair of breeding loons. At 1143 hours a Great Blue Heron was observed standing along shore. A loon, 10 m offshore and about 30 m from the heron, went from a drifting posture to an aggressive upright posture. The loon remained in aggressive upright posture and began swimming in a jerking fashion toward the heron. The heron straightened its neck and began walking along shore, away from the loon. The loon continued its approach to within 5 m at which time the heron flew. The loon resumed a drifting posture, turned, and slowly swam away. The interaction lasted about 20 s.

This encounter may have been elicited nest defensive behavior by the loon since the interaction occurred within 200 m of the nest. Great Blue Herons primarily eat fish and have not been reported to be predators of Common Loon eggs. However, loons may not distinguish between intruding spe-

cies.—*Jerrold L. Belant and Raymond K. Anderson, College of Natural Resources, University of Wisconsin, Stevens Point, WI 54481.*

White-faced Ibis (*Plegadis chihi*)

27 April 1990, Dodge County, Theresa Marsh.—Size of a medium-sized heron, much larger than any of the shorebirds it was with in the ponds. No herons present for direct comparison but similar to a night heron in size. Long decurved bill, moderately long neck and legs. Overall a dark colored bird, at a distance it appeared blackish. In better light the head, neck, back and underparts were a deep chestnut color. The wings were a dark glossy green with purplish highlights. The bill was dark brown—I do not recall any reddish cast to the bill. The eye however was distinctly red as was the bare facial skin between the eye and bill. There was a narrow border of white separating the eye and bill from the rest of head plumage. This border of white feathers extended from behind the eye up across the base of the upper mandible onto the forehead and also down along the base of the lower mandible onto the chin, this white border completely encircled the bill and eye. Legs were dark, I could not see a reddish cast to them.

Bird seemed fairly uneasy. It picked up and flew in a wide circle several times before landing again, always within a hundred yards of where it took off from. Finally on one of its circles it headed south and did not return.—*Paul Sunby, 7909 West Lorraine Place, Milwaukee, WI 53222.*

Ross' Goose (*Chen rossii*)

24 March 1990, Columbia County, Goose Pond.—While scanning the waterfowl on Goose Pond I noticed a white goose swimming amongst Canadas and an assortment of ducks. What struck me was its small size. However due to the distance (middle of west pond) I dismissed it. Further scanning revealed three obvious Snow Geese on the bank. A quick scan located the smaller goose. For about 5–10 minutes it worked over to the resting Snows. The small size was now readily apparent. Subsequently the three Snows joined it in the water and worked close to the road. By now the small size was obvious, but more significant was the smaller bill, with no black lips, smaller head and neck, and more curved head. The four birds afforded a marvelous comparison for about 10–15 minutes as they swam close to the road until working back towards the resting area.—*Daryl Tessen, 2 Pioneer Park Place, Elgin, IL 60123.*

Barrow's Goldeneye (*Bucephalla islandica*)

13 April 1990, Marathon County, East of Stratford.—The male Barrow's Goldeneye was with some Common Goldeneye and a flock of Ring-necked Ducks. As the sun was at my back, the purplish colored head was very different from the nearby Common Goldeneyes with the green head. The white patch on the side of the head below the eye was longer and more wedged shape than the roundish white spot on the commons. Also the duck had much more black on the sides compared with the very white sides on the male Common Goldeneyes. Length of observation was about ten minutes from a distance of 30–40 yards. Other observers in the car. 10 × 50 Bushnell

binoculars were used.—*Paul Risch, W6321 CTH A, Medford, WI 54451.*

Mississippi Kite (*Ictinia mississippiensis*)

26 April 1990, Portage County, Damon Booming Grounds.—At about 7:00 A.M. I noted a raptor flying south about 70–75 yards west of blind. The bird was moving into wind at 5–6 feet above ground surface. Wing beat was slow and deep, like a harrier. The bird landed on a dead snag about 70 yards west of blind. Initial impression was that it was a kite of some kind. Both male and female harriers were observed in the area. The head was light colored with dark area around eye and dark body. Gray on wings and back but light trailing edge on wings and very black tail. The bird remained perched for about 5 minutes, looking around but showing no interest in the prairie chickens that were in full view within 50 yards or so. On departure from the dead snag, the bird flew south east at 7–8 feet above ground and was at the closest perhaps 50 yards of the blind. Flight was not swift into the wind but the long black tail and gray back and whitish head were evident.—*Richard A. Hunt, 309 Birchcrest Road, Horicon, WI 53032.*

Red-tailed Hawk kills White-tailed Jackrabbit

29 August 1989, St. Croix County, 1 km north of New Richmond.—I observed an adult Red-tailed Hawk (*Buteo jamaicensis*) trying to kill a white-tailed jackrabbit (*Lepus townsendii*) in a disked sweet corn stubble field. It was 10:09 CDT when the attack was first observed and 10:15 CDT when the last movement by the jackrabbit occurred. At first, the Red-tailed Hawk had both feet attached to the rump of the jackrabbit. This allowed the jackrabbit to regain its feet many times, running a short distance until the Red-tailed Hawk was able to upset it again. The 2 "tumbled" across the field for 2 to 3 minutes. Gradually the Red-tailed Hawk worked its feet, one at a time, up to the neck region of the white-tailed jackrabbit, biting at the head region of the jackrabbit. The jackrabbit kicked at the hawk with its hind legs.

From the violence involved, the Red-tailed Hawk put itself at great risk of injury when choosing the jackrabbit as a meal. Also, I suspect I arrived at the scene shortly after the hawk's initial hit on the jackrabbit, because it is doubtful the Red-tailed Hawk could have remained attached very long at the intensity the fight was occurring when I first arrived. After killing the jackrabbit, the Red-tailed Hawk continuously looked at my truck, which was approximately 300 m away, so I left at 10:26 CDT. The hawk made no attempt to carry the prey. I used a 15–60× scope during the observations.

The next day at 09:32 CDT I revisited the kill to see if the hawk had returned, and to weigh the remains to get an idea how heavy the jackrabbit had been. It appeared the hawk had eaten the head and the flesh from the neck and 1 front shoulder and leg. At this time there was an American Crow feeding on the carcass. Most of the front half of the jackrabbit was now missing, including much of its entrails. The carcass weighed 1110 grams (2lb, 7 oz). My guess at the white-tailed jackrabbit's live weight would be about 2300 grams (5lb). It appeared to be adult-sized.

In Sherrod's review of raptor diets (Sherrod, S. K. 1978. Diets of North American Falconiformes. *Journal of Raptor Research* 12(3/4):49–121.) there are no references to white-tailed jackrabbits in the diets of Red-tailed Hawks and only 1 reference to *Lepus* sp., that could be either species of jackrabbit. There appears to be a lack of predator-prey studies in areas where range overlap occurs for the Red-tailed Hawk and white-tailed jackrabbits.

There were 3 small patches of grass left in this bare field and when I walked back to my truck from the carcass on 30 August, I jumped another white-tailed jackrabbit from 1 of these patches. Our observations of jackrabbits in this area indicate a preference for very sparse cover associated with agriculture. This habitat allows the jackrabbits to detect predators readily and to use their speed and dodging tactics for escaping them. Thanks to D. Evans, L. Petersen, R. Murphy, and B. Dumke for reviewing this note. My work was supported by the Wisconsin Department of Natural Resources and Federal Aid to Wildlife Restoration under Pittman-Robertson Wis. Proj. W-141-R.—*Bruce R. Bacon, Wisconsin Department of Natural Resources, 990 Hillcrest, Suite 104, Baldwin, WI 54002.*

American Kestrel (*Falco sparverius*) feeding on suet

25 March 1990, Sawyer County.—On the morning of 25 March 1990 I received a phone call from our neighbor, who proceeded to tell me about an unusual bird feeding on their suet. They described the bird as "brown-tailed with white spots." Unable to identify the bird from this description, I walked to their house to see if I could locate the bird. As I approached their house, an American Kestrel flew from the area of their feeders. When I questioned my neighbors about this, they confirmed that the kestrel had been feeding on the suet.

Neither myself nor John Robinson, a fellow birder who resides in Sawyer County, have ever seen or heard of an American Kestrel feeding on suet. Several days later, I spoke with Dr. Stanley Temple at the University of Wisconsin at Madison about this event. He was not surprised, and stated that many raptors are not only expert killers, but are also expert scavengers. What proves interesting about this event is that the kestrel had figured out that a "white mass" on a pole was edible.

Was this an isolated event? Have other kestrels fed on suet? Or did this one bird realize that a free meal was nailed to a post? And would this kestrel do it again (i.e., could it have "learned" from the experience)? Is it cost-effective for kestrels to save energy by feeding on suet, or do they sacrifice essential nutrients usually found in "natural" prey?

Oftentimes birds will form "search images" as they learn to locate certain abundant prey; they then specialize in eating that prey as long as it remains abundant (Erlich, P. R. et al. 1988. *The Birder's Handbook*. Simon and Schuster, Inc., New York.). American Kestrels generally feed upon small birds, small mammals, and insects. The observation of an American Kestrel feeding on suet, as described herein, is a noteworthy sighting and may prove to be a highly unique activity for this species.—*David J. Lauten, 7705 Twin Lake Rd., Hayward, WI 54843.*

Laughing Gull (*Larus atricilla*)

5 May 1990, Manitowoc County, Two Rivers, Seagull Marina.—Bird a breeding plumage adult. This gull was approximately the same height (and length) as the Ring-bills and was just about as tall. It was however nowhere near as bulky, it had overall a much slimmer build. The gull had a black hood extending down onto the back of the head. Above and below the dark eye were white crescents forming an incomplete eye-ring. The bill was long and moderately thin. Its color was a mottled reddish-black, redder at the tip. The neck and underparts were a clean white. The mantle was slaty gray. The outer primaries were black with no white spotting. There was a white trailing edge to the secondaries. The tail was white. The legs appeared relatively long for the bird's size and were black. The bird flapped its wings a couple of times, affording a good view of the wing pattern. Once the bird called, making its characteristic drawn-out "laugh." This bird gave me the impression it was paired with or at least "sweet-on" one of the Ring-bills. It stayed close to the same Ring-bill the entire time I observed the bird. They also exhibited courting behavior three times. The two birds faced each other, lifted their heads, pointed their bills skyward and waggled them at each other. The other Ring-bills would nip and chase the Laughing Gull. I observed this gull from a distance of twenty feet through 9× binoculars. I threw it McDonald's french fries and although it was interested, the greedy Ring-bills always beat it to the fries.—*Paul Sunby, 7909 West Lorraine Place, Milwaukee, WI 53222.*

Mew Gull (*Larus canus*)

3 March 1990, Sheboygan County, Sheboygan Harbor.—My brother Scott and I were birding, March 3, 1990. We were looking at gulls on the ice off Pennsylvania Ave. at a small park/wayside when I spotted an adult Mew Gull. After seeing an Adult Mew in Milwaukee in January made the ID process quite simple. The following description was recorded on taped notes: (1) Ring-billed Gull in size (slightly smaller when compared to the many Ring-bills around the Mew Gull). (2) Small *unmarked* yellowish bill; noticeably thinner and shorter than the Ring-bill's, an unpronounced gonys. (3) Back color: gray, darker than the Ring-bill's. (4) Eye color: dark deep brownish/black (through a Bushnell scope @ 40×). (5) Leg color: yellow. (6) Wing in flight: compared to the Ring-billed Gulls very similar in size and length, but the wing tips had the larger amount of white (as illustrated in the field guides). (7) Head shape: was overall smaller, front to back and rounder, not as flat as in the Ring-bill's.—*Jeffrey L. Baughman, Rt. 1, Box 219, Adell, WI 53001.*

Thayer's Gull (*Larus thayeri*)

11 March 1990, Ozaukee County, Port Washington Harbor.—The bird perched on a pier piling roughly 30–35 yards away. Herring Gulls were perched on nearby pilings. Size of bird that of a small Herring Gull, a couple inches shorter than the average Herring Gull. Head and neck strongly flecked with brown. Chest and belly were white. Mantle gray, similar in shade to the Herring Gulls. Primaries, from above, blackish. Bill yellow with red spot at the gonys. Bill shorter and

thinner than the Herring Gull's bills. Eye dark. Legs a deep pink--darker and brighter than the accompanying Herring Gulls. Bird flew after a few minutes. Undersides of the primaries whitish-gray. The tail was white except for a black spot at each corner, probably on the next to outermost feathers. This struck me as odd since otherwise the bird was in adult plumage. There was no hint of brown in the mantle as there should be in a third-winter bird, and by evidence of the strongly flecked head and neck the bird was still in winter plumage.—*Paul Sunby, 7909 W. Lorraine Place, Milwaukee, WI 53222.*

Iceland Gull (*Larus glaucoides*)

5 May 1990, Sheboygan County, Sheboygan, Northpoint Park.—I was scanning a flock of Ring-billed Gulls looking for Laughing Gulls when I saw a pair of all white wing-tips. Quickly looking up for the owner's other parts I noted this: overall size—larger than the Ring-billed Gulls but not by much, maybe an inch taller and a couple inches longer. Head, neck, mantle white with some faint buffy-brown barring on the back and wings. Wing tips (primaries) a pure, clean white. The head itself was fairly round. Eye dark, bill moderately thin and of a medium length, definitely larger than a Ringbill's bill but smaller than a Herring Gulls' (although no direct comparison available). Color of bill—black. I could not see the underparts of legs from my vantage point and then the bird moved down closer to the water and sat down (laid down?) out of view. Choosing not to spook the birds I left. I did not see the tail. A first-year Iceland Gull.—*Jeffrey L. Baughman, Rt. 1, Box 219, Adell, WI 53001.*

Lesser Black-backed Gull (*Larus fuscus*)

1 March 1990, Milwaukee County, South Shore Yacht Club.—While scanning a large flock of mostly Ring-billed Gulls but also a few Herring Gulls that were resting on an ice shelf in the yacht basin, we noticed a very dark-backed gull that stood out in sharp contrast to the other gray-backed gulls even with the unaided eye. Upon examining it with 8× binoculars and a 20× spotting scope we noted the following characteristics: very dark mantle, almost black, contrasting slightly with blacker wing tips; white head, underparts, and tail; very light brown streaking on nape and side of neck; a few white spots visible in tips of folded wings; wing tips extending slightly beyond tail; bill yellow with red spot near tip of lower mandible; yellow legs; pale eye similar to Ring-billed's; body size slightly larger than Ring-billed but noticeably smaller than Herring Gull; bill proportions similar to Ring-billed; crown flatter and less rounded than Ring-billed.

We concluded that we were viewing an adult Lesser Black-backed Gull in late winter plumage. Viewing distance was approximately 50 meters in bright sunlight for almost an hour ending at 12:30 P.M. The bird did not fly or raise its wings during the entire viewing period but remained at rest either standing or sitting in the same location.—*Vern Aune, S13 W22167 Ridge Rd., Waukesha, WI 53186 and Harry Leeman, 720 College Ave., Waukesha, WI 53186.*

Great Black-backed Gull (*Larus marinus*)

11 March 1990, Ozaukee County, Port Washington harbor.—What im-

mediately attracted my attention to this bird was its light head and neck and its large black bill. Bird next to two Herring Gulls. This gull was roughly 20–25% larger than the Herring Gulls, it was taller and longer.

Head, neck and underparts were very light—white with a bit of pale flecking. The mantle was darker due to large dark centers to the feathers but still against a pale background. Secondaries wholly dark brown, primaries blackish, tail white with a broad black terminal band.

Bill huge; longer and much thicker than in the Herring Gulls. Color of bill all black. Eye dark. Legs pale pink.

Feeling confident the bird was a Great Black-backed I left the pier area and drove around to the area where people feed ducks. By the time I got there the Great Black-backed had joined a large flock of Ring-billed Gulls and Herring Gulls. A duck feeder spooked the gulls. As the Great Black-backed flew I got a good look at its rump. Rump white with a little pale barring. The white of the rump actually extended in a narrow wedge up onto the back, not too unlike a dowitcher.—*Paul Sunby, 7909 W. Lorraine Place, Milwaukee, WI 53222.*

Burrowing Owl (*Athene cunicularia*)

26 May 1990, Burnett County, Namekagon Barrens.—First seen flying across the road in front of my car. Glimpses of the wing appeared brownish. Species confirmation occurred when the bird landed. Almost instantaneous identification happened when upon landing the bird began lolling and slightly weaving from side to side. While perched on the ground, blueberries and grasses obscured the lower body parts. The head area was observed most. The eyes were yellow with black pupils. The head was flattened more than other Wisconsin owls. The facial disk extended sideways from the eyes but virtually nothing above the eyes. The disk was barred brownish and white. White areas were located like eyebrows above and chin strip below the facial disk. The bill area had a dark background from the nostrils to the tip and forming a diamond shape. The chest was barred brownish and white. The following day, I found a burrow that was used. It was along side the road and had scattered droppings and a few downy feathers at the entrance.—*Randy Hoffman, 305 Fifth Street, Waunakee, WI 53597.*

Scissor-tailed Flycatcher (*Tyrannus forficatus*)

24 April 1990, Price County, west of Park Falls.—Its long tail eliminated the other flycatchers except the Forked-tailed Flycatcher, whose tail is all black. Its head and neck and upper back was gray, a dark line ran from bill back to the eye. Sides were pinkish (salmon) color as are the undersides of the wings (seen in flight). A reddish patch is at front of folded wing. Wings are black with feathers outlined with white. Upper breast and throat light gray. Underside of tail shows much white, white appears on top of tail near end then 1 1/2 in. of black on top near end that makes it look like streamers. It would fly to barbwire fence and perch, watching for an insect. Fly up, catch it and put on its tail, scissor act.—*Maybelle Hardy, R 1, Box 263, Park Falls, WI 54552.*

Bigamous Tree Swallows brood 12 fledged young

5–22 June 1990, Portage County, Stevens Point.—Some Tree Swallows (*Tachycineta bicolor*) seem remarkably gregarious during the season of reproduction. Males often court two females, often leaving the first in favor of a late arrival. Scarcity of nest cavities and bird boxes have resulted in a few reports of polygamous relations, usually two males helping a female feed her young. As many as 6 birds (at least 3 males) were observed feeding young at one nestbox (Bent, A. C. 1942. *Life Histories of North American Flycatchers, Larks, Swallows, and Their Allies.* Republished by Dover Books).

These examples are surprising in several respects. Helping behavior is unusual, such polygamy uncommon, and more than one male per female is truly exceptional. Unfortunately, the success of such breeding was not documented in any case. Harrison (1975. *A Field Guide to Birds' Nests. . .in the United States East of the Mississippi River.* Houghton Mifflin Co., Boston) mentions a "nest reported with 8 eggs incubated alternately by 2 females; successfully hatched 8 young. One male defended territory."

From 5 June to 22 June 1990, we observed hatchlings in a nesthouse about 5 feet above ground at the edge of our vegetable garden in Stevens Point, WI. A male had aggressively defended the eggs, which we did not examine until cries of the tiny young attracted our attention. To our surprise we counted 12 newly hatched young. For 17 days we observed the site daily, often more than once, and each day we examined the young. Occasionally a bright-eyed female surprised within the nest would bury herself amidst the young birds.

The birds were fed insects by the male and two mothers. The male spent a little more time watching us from a high perch, but he and the two females alternated regularly bringing food to the young. Usually one bird stayed with the young, head protruding from the entrance, until one mate or the other showed up with food. Occasionally two adults would enter the nestbox at the same time, but usually the three took turns. Fecal sacs were regularly removed, and with 12 young they were plentiful. The maximum clutch size is reportedly 6 eggs (Harrison, *loc. cit.*), and we were quite interested in whether this bigamous family would have much success with two full broods.

The 12 fledglings flew away on a rainy morning (22 June). The following day, sunny and cool, some 11–15 Tree Swallows flocked about the premises, one occasionally pushing a young bird about in the air. Apparently this was the family, which never returned to the nestbox, and never again returned to our premises to our knowledge. The fledging (100%) was a complete success as was the rate of development. Reportedly young spend 16–22 days in the nest. These 12, all about the same size except one runt (which caught up with the others), spent only 17 days in the nest and fledged approximately the same time. A big emergence of large May flies provided plentiful food for the swallows.—*Charles A. Long and Claudine F. Long, Museum of Natural History and Department of Biology; Department of Chemistry, University of Wisconsin, Stevens Point, WI 54481.*

Cacheing of Fish by the American Crow

26 April 1990, Portage County, Stevens Point, McDill Pond.—The American Crow has not been reported to cache flesh of any kind. We report herein the first example to our knowledge of transporting a dead black bullhead (*Ameiurus melas*) to a temporary cache on a maple tree branch.

On 26 April 1990, a warm, cloudy day with midges abundant in giant swarms, we observed from our south window overlooking McDill Pond, in Stevens Point, Wisconsin, a single crow perched in a tree peering down at the water. At 7:33 A.M., the crow hopped to the ground, then to the water's edge, and picked up the bullhead floating in the water. The crow carrying the ten-inch fish in its beak, the yellow, bulging belly and black whiskers quite obvious to us by use of binoculars, flew to our large maple, to a height about 12–15 feet above the water. The branch was large (3–4 inches diameter) with small stab-like branches growing upward. Buds were present but no leaves. For a couple minutes the crow picked at the tail of the bullhead, exposing and eating some of the white flesh. It then hopped to the right to a cluster of stabs, and deftly placed the catfish among them, the body draped over the main branch. The crow then flew away from the tree to the west end of our island some 225 feet westward, and it began cawing loudly.

At 7:50 A.M. the crow returned directly to the catfish, pecked at it, then picked it up, its belly bulging toward us, and flew down amid the low shrubs of our peninsula east of the maple. Five minutes later it flew away to the eastward. We went down to the peninsula but found no sign of the fish or any remains.

Perhaps additional observations will reveal more on the adaptive significance for such temporary cacheing of fish by crows, or to what extent it is learning or stereotyped behavior.—*Claudine Long and Charles A. Long, Department of Chemistry and Department of Biology, University of Wisconsin, Stevens Point, WI 54481.*

Yellow-rumped (Audubon's) Warbler (*Dendroica coronata auduboni*)

2 May 1990, Sawyer County.—At abut 6:45 P.M. on 2 May 1990, I was travelling west approaching my yard when I flushed four small passerines from the south side of the road. One of these birds appeared to be a Yellow-rumped Warbler, and I quickly returned to verify the sighting for addition to my yard list. I relocated the bird and, as I examined it in poor lighting, I briefly caught a glimpse of a yellow throat. The bird flew to the north side of the road, and I carefully worked my way around it until I had it in good lighting. It then became obvious I was looking at an "Audubon's" Warbler.

The yellow throat stood out against a heavy black breast band. The black extended from the breast down the flanks, and separated the yellow side spots from a pure white belly. The black on the breast was more extensive and widespread than I have seen on "Myrtle" Warblers. The head, back, tail, and wings were blue-gray. A yellow rump separated the back from the tail, which had white spots on the corners. Very noticeable also was the large white wing patch that contrasted against the blue-gray background

color of each wing. These patches were larger than most *Dendroica*-type wingbars, and were very different from the wing pattern seen in Myrtle Warblers. I did not note any yellow on the crown.

I notified Kathy Castelein, and we observed the bird as it traveled west for about a quarter mile to a tree line, where it hawked for insects with many other Yellow-rumped Warblers. This gave us an excellent opportunity to compare it with Myrtle Warblers, and the contrast between the Audubon's Warbler and the other birds was strikingly obvious. I then notified John Robinson, who joined us at about 7:30 P.M. He and I relocated the bird in the same tree line, where it was still feeding on insects with many other woodland birds. This sighting represents the firth known sighting for this western race of this species in Wisconsin (Sam Robbins, personal communication).—*David J. Lauten, Kathleen A. Castelein, 7705 Twin Lake Rd., Hayward, WI 54843.*

Yellow-throated Warbler (*Dendroica dominica*)

25 April 1990, LaCrosse County, LaCrosse.—Although I located the bird by song, I did not identify it by song. Later, after listening to "the" song on a tape, I must say the song was atypical. It was a large dendroica, feeding rather slowly in a medium/small silver maple, occasionally flycatching but mostly gleaning. Superficially it resembled a Blackburnian Warbler, but the yellow was more lemon than orange on the upper breast, and the black cheek patch was very pronounced as it was outlined above and in front by white. The streaks of black on the sides of the breast down to flanks were heavy, not medium or fine in width.

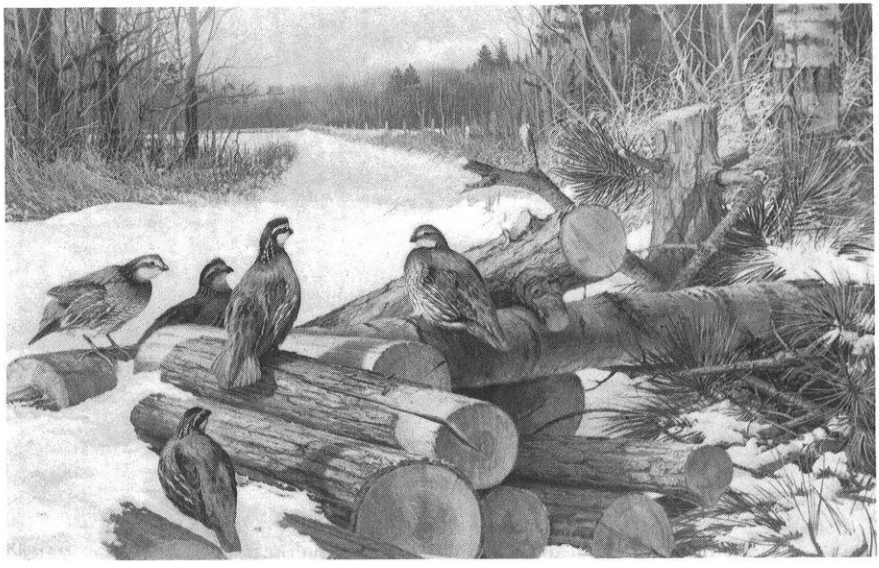
The bird was sighted repeatedly over 75 minutes, and moved from tree to tree but never far. I did not attempt a photo, but drew a sketch within minutes in my journal.

Regrettably, at this writing I have no recollection of wing bars or white belly and crissum. However, I think at the time I concentrated on black face patch, white outline, size, and song sufficiently to eliminate any other species.—*Fred Lesher, 509 Winona St., LaCrosse, WI 54603.*

Painted Bunting (*Passerina ciris*)

23 May 1990, Ozaukee County, Mequon.—First I noticed the red breast and rump on the male and saw that it was a sparrow-sized bird. I then saw the blue head and green-yellow back. I saw that the wings and tail were darker and that the bird in the yard exactly matched the picture of the male Painted Bunting in my Peterson Field guide—a book I always have handy and used while the birds were in sight. The female Painted Bunting stayed close to the male (she also exactly matched the picture of the female Painted Bunting in the Peterson Field Guide) and both were busily tugging at the seeds in the seed heads of the 4 to 6 inch high dandelions in my yard. Nearby a male and female Goldfinch were doing the same thing. We took a picture of the Painted Buntings from the inside of the house and when my husband went outside to attempt another, clearer photograph, the birds flew to a nearby brush pile. When my husband withdrew, the male again flew to the dandelions but did not linger more than an instant. The bills on both

birds were obviously finch-like. The colors on the feathers were bright and the feathers were in good condition. Three days later, we were told here at the Schlitz Auduon Center that a male Painted Bunting was sighted in Bayside very near us.—*Willathea P. Bayless, 9714 N. Dalewood Lane, Mequon, WI 53092.*



"Snow Drifters" *by Don Kloetzke* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

"Winter Monarch" *by Don Kloetzke* (A limited edition print reprinted with the permission of the artist and the publisher, Northwoods Craftsman, Menomonee Falls, WI 53051).

ABOUT THE AUTHORS AND ARTISTS

Raymond K. Anderson is an emeritus professor in the College of Natural Resources at UW-Stevens Point. He is WSO's File Keeper and maintains important records on breeding birds in Wisconsin. Professor Anderson received his Ph.D. from the Department of Wildlife Ecology at UW-Madison for work on Greater Prairie-Chickens, which he continued through his career.

Jerrold L. Belant is from Merrill, WI. He earned both his B.S. and M.S. degrees from the College of Natural Resources at UW-Stevens Point. His M.S. thesis was on Common Loons in Wisconsin. He is now pursuing a Ph.D. at Syracuse University's College of Environmental Sciences and Forestry.

Inga Brynildson is a free-lance environmental writer living in Hazelhurst, WI. She has her B.S. in Wildlife Ecology and Ag Journalism and her M.S. in Ag Journalism from UW-Madison. She has worked for the DNR and the U.S. Fish and Wildlife Service on endangered species issues. She is now pursuing a Ph.D. in Environmental Studies at UW-Madison.

Scott R. Craven is an Extension Wildlife Specialist in UW-Madison's Department of Wildlife Ecology and a regular contributor to *The Passenger Pigeon*. He is well known to naturalists around the state for his extension publications and radio shows.

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

Woody Hagge is a free-lance nature photographer who has travelled extensively in pursuit of his subjects. His photographs were featured in *Loon Magic* and have appeared in many popular nature magazines. His B.S. degree is from Stanford University. He now lives in Hazelhurst, WI.

Randy M. Hoffman is our current president. He is a biologist with the Wisconsin DNR's Bureau of Endangered Resources and The Nature Conservancy where he is in charge of managing state natural areas.

Don Kloetzke has painted wildlife for over 20 years. In 1982 *Wisconsin*

Sportsman Magazine selected him as "Wildlife Artist of the Year." In 1988 he was the "Sponsor Artist" for the Wisconsin Waterfowlers Association. In 1989 he was the "Century Artist of the Year" of Milwaukee Public Television. He is also a talented composer of music.

Don Moore has been painting continuously since high school but only recently focused on wildlife art. In 1986 he won the Wisconsin Duck Stamp Contest. He has displayed his work at the Great Lakes Wildlife Art Show. A full-time optician, he lives in Monona, WI.

Michael J. Mossman is a nongame biologist with The Wisconsin DNR's Bureau of Research. He has a M.S. degree in Wildlife Ecology from UW-Madison. He is well known to WSO members with whom he has carried out many cooperative research projects.

Erik S. Munson is a senior in the College of Natural Resources at UW-Stevens Point. He has been an active contributor to WSO's Seasonal Field-Notes for the past 3 years. His paper on plumage coloration was written to satisfy a class requirement last spring.

Thomas R. Schultz, cochair of WSO's Field Trip Committee is one of Wisconsin's finest wildlife artists and a frequent contributor to *The Passenger Pigeon*. He has illustrated several books including the National Geographic Society's field guide.

Allen K. Shea is our Vice-President and Spring Field-Note Compiler. He is the Assistant to the Director of the DNR's Bureau of Water Resources Management. He has a M.S. degree in Water Resources Management from UW-Madison.

W. Vernon Windsor is an undergraduate in the wildlife program at Iowa State University. During the summer of 1990 he was awarded a National Science Foundation fellowship that allowed him to work on Wisconsin cranes at UW-Madison, under the direction of Stanley A. Temple.

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NOTICES AND ADVERTISEMENTS

Announcements of WSO Grants

Although funds are short for ornithological research and education projects, WSO is pleased to announce the availability of two types of grants: one for graduate students and professionals and another for those not professionally engaged in ornithology.

Steenbock Awards.—A $200 grant will be awarded annually in May to support the work of a nonprofessional ornithologist (beginner or advanced, young or old). Graduate students and professionals may not apply, except for projects not associated with their work. There is no requirement for a letter of recommendation; the committee will follow up if one is desired.

WSO Scholarships.—A $200–$400 scholarship will be awarded annually in May. Anyone may apply. The scholarship may be used to provide additional support for a project that has other sources for funding. Provide names and address of two references who are familiar with you and your project.

Application Procedures.—To apply, provide a cover letter giving your name, address, telephone number, occupation, and indicating which type of grant you are applying for. On a single typewritten page, describe what you want to do and how you propose to do it. Applications must be received by April 1, 1991. Send your application to:

John H. Idzikowski
2558 South Delaware Avenue
Milwaukee, WI 53207

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