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THE PASSENGER PIGEON
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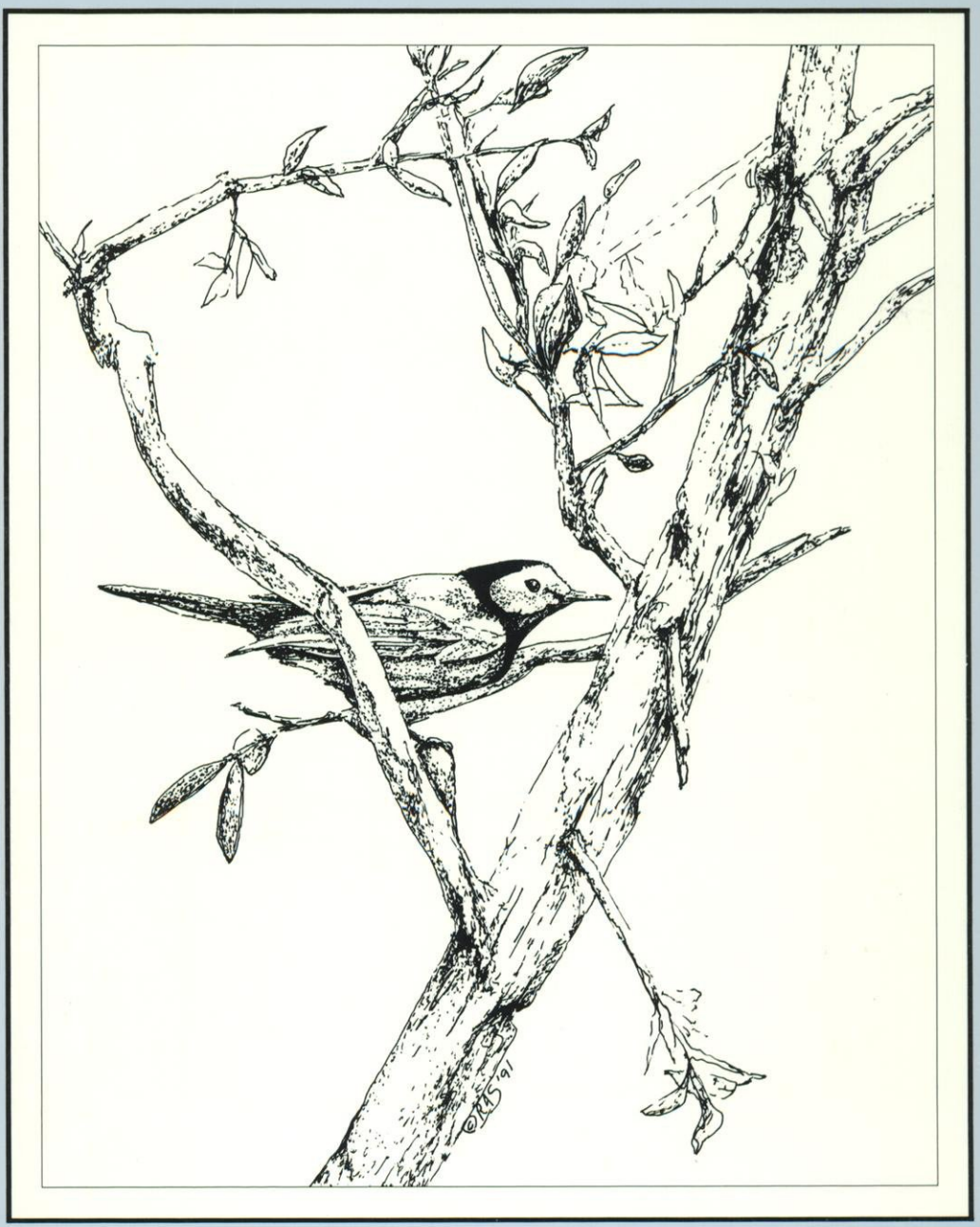

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Send all manuscripts and correspondence to the Editor; information for "Seasonal Field-Notes" should be sent to the Associate Editor or the appropriate Field-Note Compiler. Manuscripts that deal with information on birds in the State of Wisconsin, 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.

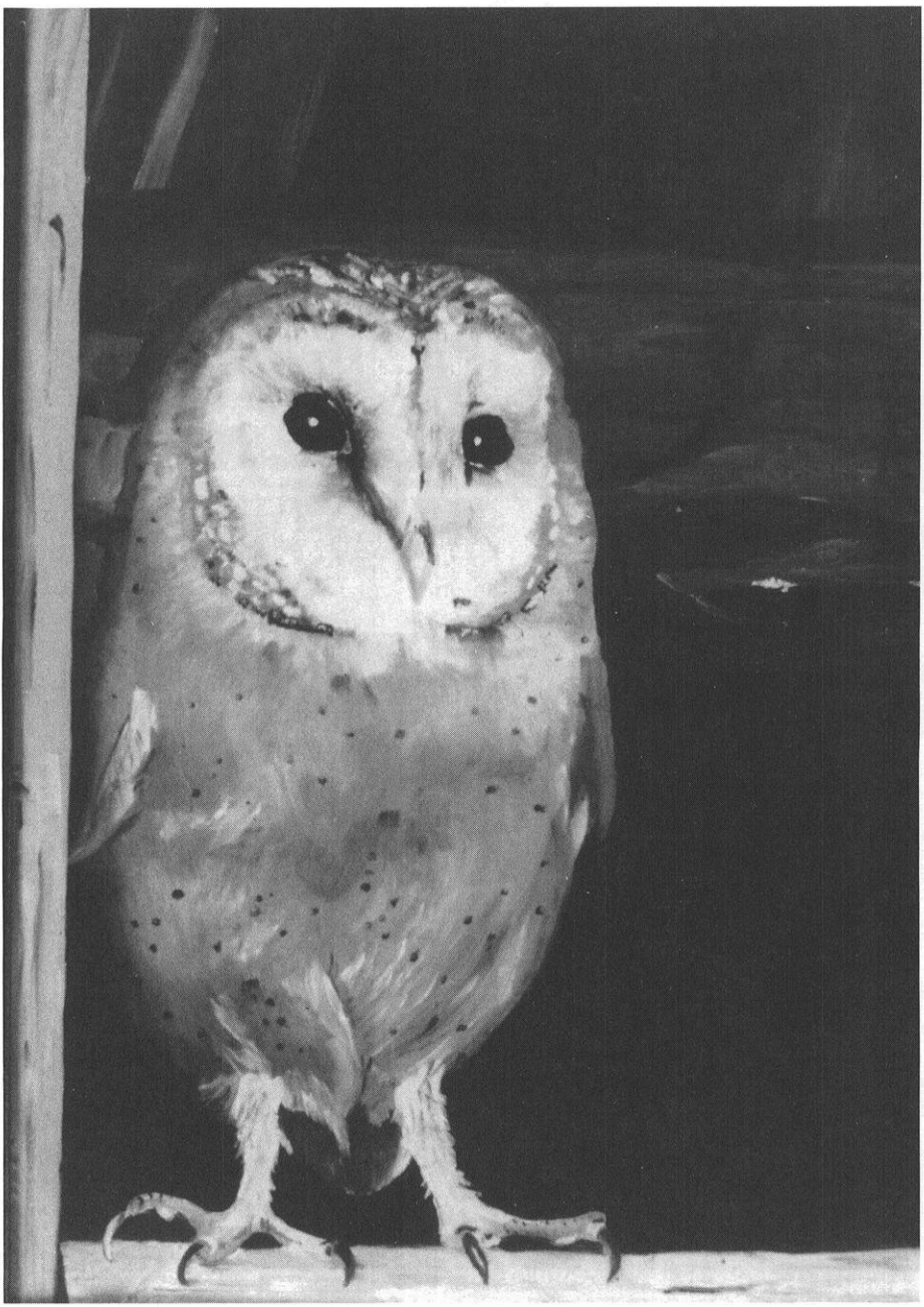
WSO Conventions

What had about 400 eyes, 400 ears, 200 pairs of binoculars and a whole lot of fun? Give up? The answer is the participants in WSO's 1991 annual convention! What did you miss if you weren't there? Not much, except outstanding field trips, excellent ornithological papers, a great banquet, a fascinating keynote presentation on the Ivory-billed Woodpecker, and a chance to renew old friendships and make new acquaintances.

Want to share in the fun this year? Then please mark your calendars now for May 28–31 for WSO's 1992 Annual Convention to be held in Ashland, Wisconsin. The convention will be hosted by Northland College; appropriately the emphasis of the convention will be on the birds of northern Wisconsin. Dr. Richard Verch is the convention chairperson; those of you who have fond memories of the Ashland convention of a decade ago, can attest to his organizational abilities both in the quality of the paper sessions and the field trips. Dr. Verch and the convention committee's preliminary plans promise to afford another superb convention experience at an outstanding time of the year for breeding birds and migrants. Without 'giving away the ship,' the pre-convention and weekend field trips look outstanding, and the keynote speaker will discuss a topic of interest to all Wisconsin birders, amateur and scientist alike.

Plan on attending the WSO's 1992 Annual Convention; you'll be glad you did.

President



Barn Owl *by Lisa Herbert.*

Territorial Activities of Common Loons on Single-Pair Lakes

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

by Jerrold L. Belant

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

Study Area and Methods

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

Results

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

Fifteen instances of Common Loon

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

Loons spent a small proportion of time (0.3%) exhibiting territorial be-

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

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

[a]Includes 2 resident chicks.

havior in defense of territory or young (Table 2). Overall, resident loons interacted with nonresidents during 11.7% of observations. Less than 3% of these interactions involved territorial behavior.

Discussion

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

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

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

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

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

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

understand the extent of, and mechanisms which cause, territorial behavior exhibited by Common Loons on single-pair lakes.

Acknowledgements

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

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The Status and Distribution of Great Egrets in Wisconsin

The Great Egret is on the Wisconsin list of threatened species. After being extirpated from the state in the late 1800's, the egret population began to increase gradually during the 1940's and peaked in the late 1940's. Since then the population has been steadily declining. No complete Wisconsin census of Great Egrets has been done since 1984. The purpose of this study was to determine the location and status of Great Egret colonies in Wisconsin, gather reproductive data from a sample of colonies and gather regional data on the egret.

by Jennifer Sauer

Currently, the Great Egret is a threatened species in Wisconsin. It was first listed in 1979. The threatened designation means that a species will likely become endangered unless management practices are undertaken (Les 1979). An aerial survey of the northern portion of the Upper Mississippi River (UMR) was conducted in 1984 through the cooperation of the Minnesota Department of Natural Resources (MDNR), the Iowa Conservation Commission (ICC), the National Park Service, U.S. Fish and Wildlife Service (USFWS), and the Wisconsin Department of Natural Resources (WDNR). This survey showed a 10% decline in nesting egrets in the survey area since Nicklaus' 1977 census (Fruth 1988). Since 1984, several of the colonies have been censused sporadically. Although these censuses have provided valuable information there were several limitations: data were collected over short time periods and censuses were not repeated regularly (Jackson et al. 1981).

The Great Egret, also known as the American or Common Egret, was considered a common bird of large marshes and swamps in Wisconsin in the mid-1800's (Kumlien and Hollister 1903). However, by the end of the century, the Great Egret was extirpated from the midwest and nearly from the nation by plume hunters (Allen 1957). The last known breeding record in Wisconsin was in 1886 (Kumlien and Hollister 1903). The population increased primarily as a result of the Mi-

gratory Bird Treaty Act of 1918. The first known nesting site in Wisconsin after 1886 was in Buffalo County in 1939 (Gabrielson 1939). During the 1940's, the range of the Great Egret expanded northward. The Wisconsin population apparently peaked in the late 1940's (Allen 1957).

A number of factors contribute to the reduction of Great Egret populations. Availability of suitable habitat is the primary limiting factor for egrets, which require extensive shallow water of feeding and secluded forests of mature trees for nesting (Thompson 1977).

The finite longevity of rookeries also may be a limiting factor. The vegetation is damaged by direct contact with guano on the leaves and also from increased pH in the soil which slows vegetation growth and inhibits regeneration of trees (Salisbury and Ross 1969). The guano also may be stressing the trees, making them more susceptible to diseases such as oak wilt or Dutch elm disease.

Natural disasters are another factor. Since egrets concentrate at only a few colonies, they are more susceptible to tornadoes, heavy rain and hail. In 1984, a 25% reduction in fledgling production was seen through nestling losses at the Four-mile Island Colony, Horicon, Wisconsin following a wind storm (Fruth 1988).

Faber et al. (1972) evaluated contaminants as a possible population limiting factors in a Wisconsin colony. Eggshell thinning decreased the reproductive success of colonies (Enderson and Berger 1970, Faber et al. 1972). Deformities, which are thought to be contaminant related, have been found in terns (*Sterna* spp.), Black-crowned Night-herons (*Nycticorax nycticorax*), Double-crested Cormorants (*Phalacrocorax auritus*) and gulls (*Larus* spp.) (Gilbertson et al. 1976, Hays and Risebrough 1971, Ohlendorf et al. 1986) and may affect egrets.

The least understood limiting factor is human disturbance. Human disturbance can cause reduced fertility, neglect of eggs and young, nest desertion, and even colony desertion (Thompson and Landin 1978). Van Scheik (1985) reported thermal stress on unprotected Double-crested Cormorant eggs and young as a result of human disturbance.

The objectives of this study were to determine the locations, status (increasing/decreasing), and size (number of active nests) of Great Egret nesting colonies in Wisconsin. Secondary objectives included gathering regional data, gathering reproductive data for a sample of colonies and outlining suggestions for long-term monitoring of Great Egret colonies.

Study Area and Methods

The study area encompassed all of Wisconsin; however, the primary focus was the northern portion of the UMR, Horicon Marsh in Dodge County, and the Embarrass River in Outagamie County. These sites represented the only known locations of active colonies in the state.

Questionnaires were mailed to WDNR wildlife managers throughout the state in early May 1987 and 1988 requesting information on Great Egret summer residents, nesting pairs, and pairs with young. Areas suspected of harboring a colony were searched by walking or canoeing through the area. Great Egret colonies reported on the Mississippi River also were checked

during the 1987 and 1988 aerial surveys. In the winter of 1990, questionnaires were mailed to WDNR, MDNR, ICC, Illinois Department of Conservation (IDOC), and UMR Fish and Wildlife Refuge Wildlife biologists requesting information on Great Egret summer residents, nesting pairs, and pairs with young for the 1989 and 1990 breeding season.

Aerial surveys of the northern portion of the UMR and portions of its major tributaries for Great Egret nesting areas were conducted in May 1987 and 1988. Both surveys were conducted using fixed wing aircraft. Sites of known active and historic colonies were surveyed and the areas were searched for newly established colonies.

The purpose of the 1987 survey was to locate active colonies rather than count nests. The first flight on 18 May began in La Crosse, Wisconsin at river mile (R.M.) 700.3 and ended in Dubuque, Iowa (R.M. 582). The second flight on 23 May began in La Crosse and ended at Nelson, Wisconsin (R.M. 762).

The 1988 aerial census was conducted to count the number of active Great Egret nests. A nest was considered active if an egret was present. Mike Mossman (WDNR) and I conducted the first census on 5 May, we censused the lower Wisconsin River and the area from Dubuque to La Crosse. On 18 May we censused the area from La Crosse to the Saint Croix River. The 5 May census was conducted by Mike Mossman (WDNR) and me while the 18 May census was conducted by Mossman. Active nests were counted by the observers until a consensus was reached.

During June 1987 and 1988 colonies were visited on the ground to gather population counts and reproductive data. Ground censuses were conducted in the early morning about 2 weeks before fledging (usually the last 2 weeks in June). Only about 1 hour was spent at each colony to minimize disturbance. Ground counts were difficult because of thick vegetation; therefore, Great Egret numbers were determined mainly through the 1988 aerial census.

Ground censuses (designed by Gerald Bartelt, WDNR) have been conducted since 1980 at the Four-mile Island colony in Horicon Marsh (Horicon, Wisconsin). The ground censuses for the other Wisconsin colonies were patterned after this method. Observers walked a line transect about 100 m apart, and counted the number of active nests of Black-crowned Night-heron, Double-crested Cormorants, Great Blue Herons and Great Egrets, and number of young per nest found within 50 m of the line. Nests were included in which it was certain that all nestlings were counted. Approximately 50% of the island was censused. On 10 February 1988, Four-mile Island was revisited to mark, count, and collect information on the nest trees. Each nest tree was marked with a numbered tag and records were kept on the species, condition (i.e., healthy, sick or dead) and the number of nests per tree. By comparing results of the summer ground census with the winter nest count it was much easier to estimate the total number of birds using a colony.

Tagging nest trees also made it possible to determine if new nests were established in other trees. To determine the number of active nests, the number of large nests (determined by

the winter survey) was multiplied by the portion of nests used by egrets (determined from the summer count). This number was multiplied by the mean number of young per nest to determine the maximum young produced.

Results

Sixty-two questionnaires were mailed by the WDNR to state wildlife managers in 1987. There was a 76% return rate. In 1988, I mailed questionnaires only to state wildlife managers who did not respond to the 1987 questionnaire or replied that no egrets nested in their area. There was a 81% return rate. In the winter of 1990, 61 questionnaires were mailed to WDNR Wildlife Managers, USFWS UMR District Managers, ICC, MDNR, and IDOC personnel. There was a 79% return rate.

Census Data—In 1977, 1984, and 1988, the number of active egret nests within the UMR remained relatively stable (Table 1). However, between 1987 and 1988 the number of active colonies in Wisconsin decreased (Fig. 1). Since there are fewer colonies, a severe rain or wind storm could destroy a major portion of the egret population. Three colonies with 156 active nests occurred on the Wisconsin side of the Mississippi River in 1988. Five colonies consisting of over 300 nests, were in the Minnesota and Iowa portion of the UMR (Table 1). Following is a historical and current summary of 9 Wisconsin great egret colonies that were active in 1987 and 1988 including data from the 1990 questionnaires.

Black Brook Rookery, St. Croix County, ownership: private. This colony was first reported active in 1989 with about 3–4 dozen nests of Great Blue Herons and Great Egrets, 6 nests being egret nests. There were some egrets present in 1990; but, nesting was not verified (Belling pers. comm.).

Nelson-Trevino Bottoms Colony, (R.M. 761.9), Buffalo County, ownership: USFWS. Nicklaus (1977) found about 30 active nests at this colony in 1977. In 1984, 43 nests were reported by Thompson and Landin (1978). The colony was active in 1987, but we found no active egret nests in the 1988 aerial survey. Although I could not locate this colony from the ground, Linderud (WDNR pers. comm.) found the colony that year and reported only Great Blue Herons nesting. Abandonment by the egrets could have been caused by disturbance associated with the installation of a bridge that spans the Mississippi River about 1.6 km from the colony. Since herons did not abandon the site they may be less sensitive than egrets to disturbance. In 1989 and 1990, the colony was reported to contain active nesting herons and egrets. No census was done either year (Linderud pers. comm).

Whitman Bottoms Colony, (R.M. 737.6), Buffalo County, ownership: WDNR. This colony contained 20 egret nests in 1968 (Thompson and Landin 1978). A 1977 survey by Nicklaus showed an increase to 146 active nests. Seventy active nests were found in both 1984 and 1988. One might have expected an increase at this colony with abandonment of the Nelson-Trevino Colony only 38 km downriver.

Many of the nest trees had been tagged previously, however; no records were found concerning the tagging. It would be useful to record the

Figure 1. Locations of Great Egret Colonies in Wisconsin.

tags to help determine if new nest trees are being used or if there is a loss of nest trees. An eagle has nested in the center of the colony since 1987. At this time it does not appear to have a detrimental effect on the colony. The colony was reported active in 1989 and 1990—no census was done (Linderud pers. comm.).

St. Mary's Bottoms Colony, (R.M. 726.6), Buffalo County, ownership: St. Mary's College, Winona, MN. This colony was first established in 1977 with 1 egret nest and 12 Great Blue Heron nests. Kowles (1984) documented 147 egret nests in 1983, 155 in 1981, and 99 nests in 1982. There was an increase of heron nests from 122 in 1981 to 229 in 1982. In the 1984 census (Mossman and Thompson 1985) 20 egret nests were recorded; we found 50 nests in 1988.

This area is vulnerable to human disturbance because it is accessible during periods of low water. Kowles (1984) reported that the colony seemed to be shifting northward where it may be less susceptible to human disturbance. Kowles tagged numerous nest trees; however, many of the aluminum tags are illegible and need to be replaced to permit monitoring of the nest trees. The colony was active in 1989 and

Table 1. Active Great Egret nests found within the floodplain of the Upper Mississippi River from river mile 580 to 812.

Colony	1977[1]	1984[2]	1988[3]
Eagle Point, WI	0	4	0
Dago Slough, WI	1	0	0
Brinkman's, IA	0	13	1
Butler Lake, IA	2	62	194
Reno Bottoms, MN	200	120	3
Root River, MN	90	80	110
Smith Slough, WI	—[4]	—[4]	36
St. Mary's, WI	0	20	50
Whitman's Bottom, WI	146	70	70
Zumbro River, MN	0	57	7
Nelson-Trevino, WI	30	43	0
WISCONSIN COLONIES	177	137	156
MINNESOTA & IOWA COLONIES	292	332	315
TOTAL COLONIES	469	469	471

[1]From Nicklaus (1977).
[2]From Mossman and Thompson (1985).
[3]From this study.
[4]Colony not previously active.

1990; but, no census was done (Linderud pers. comm.).

Smith Slough Colony, (R.M. 700.3), La Crosse County, ownership: USFWS. This colony was first active in 1987. About 100 egret and heron nests were reported to Bill Thrune (USFWS) in 1987. Thirty-six egret nests were counted in the 1988 census. Since 1987, the USFWS has been conducting winter nest counts. The number of egret and heron nests have ranged from 240 in 1987 to 431 in 1990. This colony is vulnerable to human disturbance. About 92 m from the colony is a sandbar that often is used by campers. The USFWS has no regulations to prevent people from using the island. This colony was still active in 1989 and 1990. No census was done during those years (Bill Thrune pers. comm.).

Dago Slough Colony, (R.M. 600.9), Grant County, ownership: USFWS. In 1957, 75 egret nests were found here (Thompson and Landin 1978). Nicklaus (1977) reported 2 egret nests in 1977. In the 1984 (Mossman and Thompson 1985) and 1987 aerial surveys no egret nests were located; however, in 1987 the USFWS (McGregor District) found 2 nests at this location. No egret nests were located during the 1988 aerial or ground census although 6 adults were observed in the area. This rookery appears relatively free from human disturbance. It is unknown if this colony was used by egrets in 1989 or 1990; Colonial waterbird colonies in pools 9, 10, and 11, which includes Dago Slough, are to be censused by the UMR Fish and Wildlife Refuge Staff, McGregor District in 1991 (John Lyons pers. comm.).

Eagle Point Colony, (R.M. 582.7), Grant County, ownership: USFWS. This colony was first reported in 1984 when 4 egret and 11 heron nests were found (Mossman and Thompson 1985). The colony was reported active from the aerial survey in 1987; however, it could not be located by a ground search in 1987 or 1988. It was not located in the 1988 aerial census although about 10 Great Blue Herons and 1 Great Egret were seen feeding in the area. There was no report of this rookery in 1989 or 1990.

Embarrass River Colony, Outagamie County, ownership: private. This rookery was first reported active in 1978 with Great Blue Herons nesting here. It is thought that the colony was started from the Wolf River Colony that was destroyed by logging (James Anderson pers. comm.). In 1980, David Dunsmoore (WDNR) marked 125 nest trees but did not mention egrets nesting at the site. Mossman first reported 21 egrets nesting at this site in 1985. A 1988 ground survey was conducted on 20 June. We found one nest containing 2 egret nestlings; however, more egrets probably nested at this time since there were many egret feathers on the ground and 4 adult egrets were observed in the area. The colony was found to contain both egrets and herons in 1989 and 1990 during an aerial census for eagle nests; however, no census was done on the colony. The landowner agreed to contact the WDNR if he plans to alter the site (Fruth 1988).

Four-mile Island Colony, Dodge County, Horicon Marsh, ownership: WDNR. Four-mile Island is the most intensively studied colony in Wisconsin. Nesting was first reported by King (1949) in 1943. This site was designated as a scientific area in 1965 and consists of approximately 6 ha. Four-

mile Island is the largest egret rookery in the state and the species nesting in this area include Great Blue Herons, egrets, Black-crowned Night-herons, and cormorants. Records of active nests and reproductive data were collected first in 1971 (Table 2). The lowest (75) and highest (348) counts of egrets occurred in 1990 and 1972, respectively.

The 1988 summer count revealed 162 active nests, 25% of all the large nests being used by egrets. Comparing this number with the winter nest count, it was determined that there were 197 active egret nests. This is down from the 1987 count of 268 active nests. There has been a steady decline of active egret nests since 1985. The 1989 summer count showed a decline of 45, 15, 81 and 65% decline in Great Egrets, Great Blue Herons, Black-crowned Night-herons and cormorants, respectively.

In 1990, the Black-crowned Night-herons, and cormorants staged a comeback. The night heron population increased from 50 active nests in 1989 to 100 active nests in 1990. The cormorant population increased from 53 active nests in 1989 to 122 active nests in 1990. While the Great Blue Heron population increased only 1% between 1989 and 1990, the egret population declined 31%. The reasons for the drastic increases and decreases are unclear; but, it appears with the decline of nesting trees from diseases such as oak wilt and Dutch elm, the species seem to be competing for the

Table 2. Population and production estimates of herons and egrets using Four-mile Island, Horicon Marsh, Wisconsin

	Great Blue Herons		Great Egrets	
Year	Number of nests	Young/nest	Number of nests	Young/nest
1971[1]	371	2.8	146	3.1
1972	538	3.1	348	2.8
1973	669	1.8	263	2.1
1974	768	2.2	282	2.4
1975	639	2.2	234	2.3
1976	872	2.5	242	2.1
1980	534	1.9	208	2.0
1981	504	2.4	311	2.8
1982	721	2.1	309	2.4
1983	474	2.3	193	2.9
1984	396–503[2]	1.8	139–179	2.0[3]
1985	705	1.8	302	2.0
1986	437	2.2	281	2.1
1987	712	2.4	268	2.7
1988	437	—	197	1.58
1989	372	—	108	—
1990	370	—	75	—

[1]From 1971–76 data were collected by Dick Johnson on the Rock River surveys. In 1980 a complete count was attempted in June and July. In 1981–88 transects were used to estimate both the species composition of nests and number of young per nest. A complete count of all nests was conducted in the winter to obtain a total population estimate (see methods).

[2]The lower number is the number counted in January. The higher number is the estimated population from June counts.

[3]Actual production was lower. See results and discussion.

nesting spaces that are available. Since 1987, when the trees were first tagged, 30% have either died or are dying. The drought of 1988 also could be contributing factor to the population fluctuations (Bill Volkert pers. comm.). More research needs to be done at the site to determine the actual cause of the fluctuations.

The 1990 questionnaires revealed one previously undocumented egret colony (Black Brook Rookery) along with some possible nesting areas (unverified) in Rock and Manitowoc Counties. The egret has appeared as a summer resident throughout the state. However, it appears to nest only in traditional areas in the southern two-thirds of the state.

Data collected by the MDNR showed declines in the egret population on the Minnesota side of the Mississippi River. Historically, 8 colonies containing Great Blue Herons and egrets were present; however, in 1989 only 3 colonies were used by egrets. The greatest decline occurred at the Reno Bottoms Colony. In 1986, there were 170 active egret nests; however only 3 egret nests were active in 1987 and 1989. Great Blue Heron nests increased from 320 in 1986 to 908 in 1987. Pig's Eye Lake Colony had a 49, 40, and 67% decline of Great Egrets, cormorants, Great Blue Herons, respectively, between 1987 and 1988. This colony is located near a major airport and metropolitan area. Disturbance could be one cause of the decline. The Root River Delta Colony had a 57% decline in nesting egrets between 1986 and 1989 (Galli pers. comm.).

Illinois and Iowa Mississippi River egret populations seem to be fairing better. Both states are reporting an increase in egret populations; however they also are seeing a decline in the number of rookeries. In the last 10 years, as many as 10 colonies had been censused in the Savanna District. Between 1980 and 1986 5 of these were abandoned (DeVries pers. comm.). However, The IDOC reported an increase from 18 colonies containing egrets in 1985 to 24 in 1987. The data for 1988, 1989 and 1990 have not yet been compiled (Kleen pers. comm.).

Reproductive Data—No consistent reproductive data on the egret have been recorded on any of the Wisconsin colonies except for Four-mile Island. Sporadic records do not reveal whether hatching success has changed.

Four-mile Island data shows a range of young per nest from 3.1 in 1971 to 1.58 in 1988. The 1988 survey on 21 June was conducted after many of the young had fledged, which may account for the low clutch size. Another low occurred in 1984 (2.0) when heavy winds swept the area. About 80 young were found dead after the storm (Mossman pers. comm.).

I collected reproductive data for the Smith Slough and Whitman Bottoms colonies. The Smith Slough Colony had an average of 1.3 young per nest (n=6) while the Whitman Bottoms Colony had an average of 1.5 per nest (n=13). Dense vegetation resulted in a small sample size and therefore, the results may not be representative. Nosek (1984) found an average of 2.99 young per nest in a colony near Whitman Bottoms.

Kahl (1963) reported that egret pairs must fledge 2.92 young per nest to maintain a stable population. Fledging success in Wisconsin colonies appears below this number. Egret colonies, especially those located in the

UMR, should be monitored to determine reproductive success and gather baseline data.

Long-term Monitoring Program—A long-term monitoring program would be beneficial in providing baseline data on the Wisconsin Great Egret population. It could permit detection of population fluctuations, allowing us to establish population trends and detect local changes in aquatic ecosystems, such as a decrease in prey due to pollutants (Custer and Osborn 1977, Fox and Weseloh 1987).

The two most important factors in developing a long-term monitoring program are consistency of techniques and cooperation between agencies (Erwin pers. comm.). The following are suggested guidelines that will aid agencies in standardizing their methods.

The same team of observers should census the same colony year after year. Erwin (1982) reported that inconsistency between observers was the greatest problem in long-term monitoring programs. If the same observers are not available, Green (1985) suggests training sessions for new individuals censusing a colony.

Colonies should be censused every year. However, due to limited manpower and money this is rarely possible. Therefore, checking the activity of the colony every year and censusing every 3–4 years appears to be the most cost efficient method.

The same sampling methods should be used in each colony to allow comparison of data between various agencies. Even though the accuracy of population estimates utilizing best sampling methods rarely exceeds ±10%, the 20% strip transect method seems to provide the best accuracy of the population regardless of the spatial distribution (Erwin 1980). Winter nest counts also should be done so the summer count can be compared with the winter count. Tagging and mapping of nest trees also is highly recommended to monitor loss or gain of nest trees.

Aerial surveys lend themselves to the censusing of egrets since egrets are readably visible in the green tree canopy. The expense of aerial surveys limit application of this technique.

Time of day is another consideration when censusing waterbird colonies. Van Sheik (1985) reported that heat stress can result in nestling fatalities. Therefore, colonies should be censused early in the morning to minimize flushing of adults from the nest and exposing the nestlings to the hot sun. Time of day also can influence whether parents are present at the nest (Erwin and Odgen 1980). Standard data forms such as those that were distributed by the Colonial Bird Register (CBR) should be used. The CBR stored data on the location, abundance, and species composition of colonial nesting birds (McCrimmon 1978). Standard data forms would alleviate the problem of colonies having more than one name (i.e., Vogt Lake Rookery also is called Ambrough Slough and Paint Creek). Standard forms also would clarify whether individuals, pairs, or active nests were recorded.

For any long-term monitoring program, a data base center needs to be established. Unfortunately, the CBR was discontinued in 1988; however, it would be advantageous to have a center in the region. The USFWS Environmental Management Technical Center located in Onalaska, Wisconsin would be ideal. One of the goals of the center is to monitor and evaluate the

condition of the Upper Mississippi River ecosystem which includes monitoring and evaluating wildlife populations (U.S. Fish and Wildlife Service, 1991).

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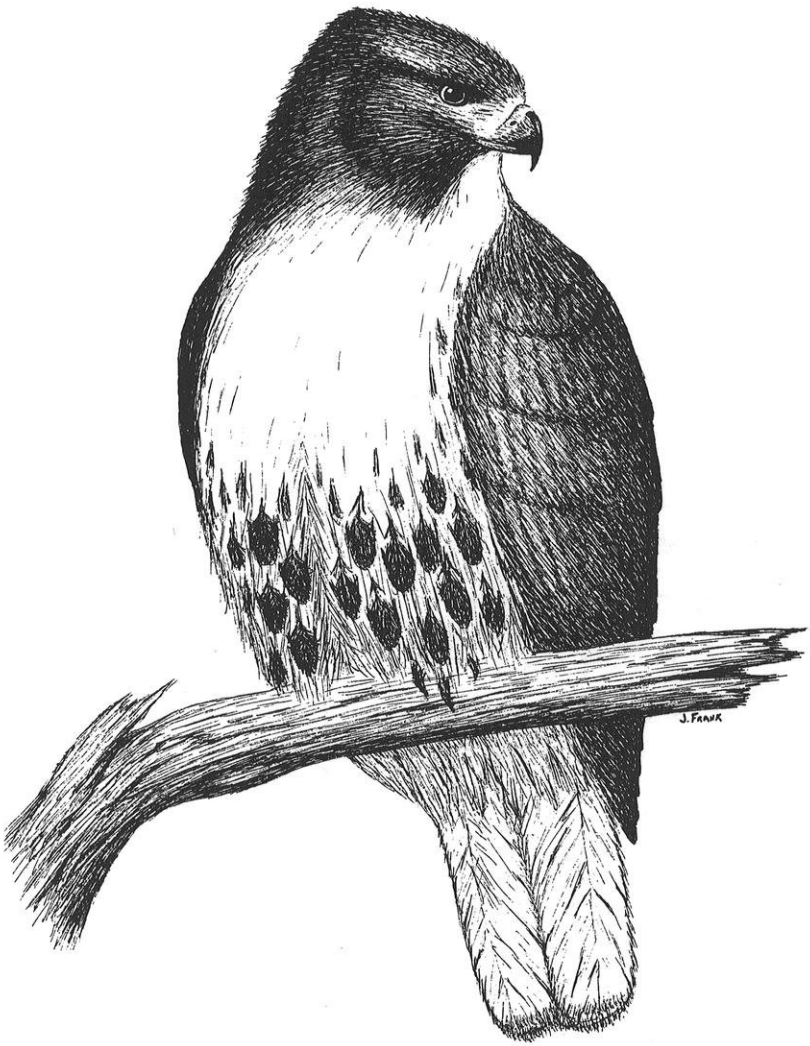
Wood Thrush *by Brian R. Henrickson.*



Red-tailed Hawk *by Jim Frank.*

Land-Use Changes in the Gulf Coast Region: Links to Declines in Midwestern Loggerhead Shrike Populations

Declining populations of Loggerhead Shrikes and other midwestern grassland birds that winter in the southern United States prompted this study of conditions on wintering ranges. We found loss of habitat was extensive because of changes in agriculture and forestry. Furthermore, the arrival and establishment of exotic fire ants renders many remaining patches of habitat unsuitable. Problems on wintering ranges may be more severe than those on breeding ranges.

by Nadine Lymn and Stanley A. Temple

Many midwestern grassland birds have been declining for decades (Robbins et al. 1986). Among them, the Vesper Sparrow, Grasshopper Sparrow, Eastern Meadowlark and Loggerhead Shrike have shown particularly severe rates of decline. These birds share similar geographic ranges and habitat requirements both on their breeding and winter ranges. Loss of native grasslands to agricultural development and changes in farming practices on the breeding range in Wisconsin and other midwestern states have been blamed for the steady declines of grassland birds in the region (Blankespoor and Krause 1982, Vance 1976), but little attention has been directed to possible problems on the winter range. The winter ranges of midwestern grassland birds include the Gulf Coast region, which extends from Texas to Florida (Root 1988).

One bird of particular concern is the migratory midwestern population of the Loggerhead Shrike (*Lanius ludovicianus*). Loggerhead Shrikes are found as far north as southern Canada, across the entire U.S. continent, and down to Mexico. The Loggerhead Shrike is under consideration for placement on the federal Threatened and Endangered Species List. The shrike is already on Wisconsin's endangered species list. Fish and Wildlife Service Breeding Bird Surveys (Robbins et al. 1986) have recorded significant decreases in shrike populations throughout the bird's United States range. Their declines have been most

severe in Midwest, New England and Mid-Atlantic regions. According to Robbins et al. (1986), shrike populations in Wisconsin, Minnesota, Illinois, Michigan, Iowa and Indiana have dropped an average six percent annually over the last quarter century. If current rates persist, Wisconsin and nearby states could lose their shrike populations entirely within the next twenty or thirty years (Brooks and Temple 1990).

Although Wisconsin is near the northern edge of the shrike's breeding range, earlier this century shrikes bred across the southern, central and northwestern parts of the state (Kumlien and Hollister 1903). The birds began a slow decline in the 1930s. Although still fairly common summer residents in 1942, by the early 1960s few shrikes bred in the state each spring (Erdman 1970). Since then, Loggerhead Shrike numbers have continued to fall.

The factors behind the Loggerhead Shrike's decline in Wisconsin and neighboring states remain unclear. Inadequate reproduction because of pesticides, loss of suitable breeding habitat, and overwinter mortality have all been suggested as possible reasons.

When shrike populations in Illinois plummeted between 1957 and 1965, ornithologists speculated the grassland predator had fallen victim to pesticides. Anderson and Duzan (1978) found concentrations of the DDT metabolite, DDE, in Illinois shrikes. They suggested that the pesticides more likely were killing birds directly rather than interfering with their reproduction. Most organochlorines were banned in the U.S. by the 1970s. Yet shrike numbers continued to fall. Recent studies of shrike reproduction have found good reproductive success (Kridelbough 1983, Gawlik 1988, Brooks and Temple 1990).

Insufficient breeding habitat has also been suggested as a possible factor behind shrinking shrike populations. Midwestern land cover has changed from predominately small farms, with much pastureland, earlier in the century (Sample 1989), to large monocultures of alfalfa and corn. Yet a recent study in Minnesota (Brooks and Temple 1990) concluded that availability of breeding habitat was not limiting Loggerhead Shrikes. In fact, Brooks and Temple found suitable nesting areas vacant of shrikes. Breeding grounds in other midwestern and eastern states also seem to offer adequate nesting habitat. Where migrant shrikes are present, their reproductive rates appear normal. When breeding habitat is not limiting and reproduction is good, overwinter mortality may be behind the declines (Temple 1988).

Migrant shrikes leave midwestern breeding grounds between August and November. They spend the winter months in the Gulf Coast states of eastern Texas, Louisiana, Mississippi, Alabama, Georgia and Florida. In the wintertime, as during other times of the year, shrikes require open grassy areas such as pastures and old fields where they can spot and hunt prey (Brooks 1988). The Gulf Coast region has undergone tremendous changes in land-use patterns during the last 40 years: intensive rice cultivation in eastern Texas and in Louisiana, expanding forestry plantations in Mississippi, Alabama, Georgia and on Florida's panhandle, and the invasion of an aggressive exotic insect, the red fire ant. All these changes have reduced the area and carrying capacity of shrike habitat.

The negative effects of these changes would likely be felt most severely by migrant shrikes. If habitat becomes limiting, resident Gulf Coast shrikes—which are themselves declining—will defend the best quality habitat for themselves, forcing winter visitors to use marginal land. Resident shrikes defend year-round territories against other shrikes (Miller 1931), giving Gulf Coast residents a competitive edge. Reduced suitability of wintering habitat would decrease migrant shrikes' chances of overwinter survival (Brooks 1988).

In spite of reproductive success and nonlimiting habitat on breeding grounds in the Midwest, shrike numbers throughout the region continue their downward trend. Little research has been directed at possible problems migrant shrikes and other grassland birds face during the wintertime. This study focused on the Loggerhead Shrike. Its objective was to: (1) investigate and document habitat trends in the Gulf Coast region that could offer clues to the shrike's and other grassland birds' decline, and (2) statistically test for a link between these trends and changes in Loggerhead Shrike populations.

Quantitative Data Collection

Census of Agriculture—We used the Census of Agriculture, taken by the U.S. Department of Commerce, Bureau of the Census, "the nation's leading source of statistics on agricultural production," to track habitat available to shrikes in the Gulf Coast. The census is the only data source that provides consistent and comparable long-term data on a county-by-county level. Since 1925, the Department of Commerce has taken a census every five years. It covers roughly 90 percent of U.S. farms and can account for more than 96 percent of the nation's agricultural production. The census provides acreage figures, on a county level, for various agricultural land-uses.

In addition to native grassland habitats, Loggerhead Shrikes live on rangeland, pastures and along the edges of cultivated fields, and other so-called "waste" areas (Owens and Myres 1973). Accordingly, two of the census land-use categories were judged to provide useable shrike habitat for the purposes of this study. The two categories are defined by the census as follows: (1) cropland used only for pasture and grazing: "this category covers rotation pasture and grazing land that could have been used for crops without additional improvements" and (2) other land: "includes pastureland and rangeland other than cropland and woodland pasture, and house lots, barn lots, ponds, roads, wasteland, etc."

Land-use data were collected for the time period 1950 to 1987. The total area covered by the two land-use categories was determined for each county within the shrike's Gulf Coast wintering range. We regarded this total land area as available shrike habitat. For analysis purposes, areas of available shrike habitat for each county, for each year, were expressed as a percentage of a given county's total land area (also listed in the census).

Although the census provided the best available statistics on agricultural land-use changes, it did present some limitations. Land-use data were available only every five years. In addition, available shrike habitat, as we defined

it, did not include other possible areas inhabited by shrikes, such as parks, wildlife refuges, or private land other than farmland.

Christmas Bird Counts—To track wintertime Loggerhead Shrike populations in the Gulf Coast region, Christmas Bird Count (CBC) data were used. These counts include both year-round resident shrikes as well as migrant visitors. The National Audubon Society has sponsored the annual count since its inception in 1900. The counts take place within a 15-mile diameter circle on a single calendar day within two weeks of December 25. Data available from each CBC include the number of hours parties of observers spent counting birds and how many of a given bird species they counted. To reduce variation due to count effort, shrike abundance is expressed as the average number of individual birds counted per hour by parties of observers (Root 1988). All CBC data for each county were averaged to produce the number of shrikes per party-hour in each county each year.

We analyzed shrike data from CBCs for the states of Texas, Louisiana, Mississippi, Alabama, Georgia and Florida from 1950 to 1987. Counts taken in 1960 to 1987 were obtained from Bird Population Studies at Cornell Laboratory of Ornithology. CBCs published in *American Birds* were used for the years 1950 to 1959.

While it serves as a good index of bird populations, CBC data do have limitations. Observers possess different levels of expertise. The intensity of observer effort varies between sites and years, as do weather conditions. All these factors have an effect on the number of birds counted (Robbins and Bystrak 1974, Verner 1985).

Fire Ants—Since the 1930s, when introduced red fire ants first began their invasion of the South, the U.S. Department of Agriculture (USDA) has tracked the insects' annual movements on a county-by-county basis. Each year the department designated counties as either free of or infested with fire ants. Fire ants are, therefore, either absent from a county or present. Once fire ants invade a county, they become a constant; all efforts by USDA to eradicate the ants have failed.

Data Quality—Data availability was not uniform for all counties and years. Census data is available only every five years. Some CBCs did not start until the 1960s and not all counties within the shrikes' range had CBCs. A total of 103 counties had both Census of Agriculture and CBC data: eastern Texas (35), Louisiana (11), Mississippi (10), Alabama (7), Georgia (15), and Florida (25). The differences in the number of counties for each state are mainly results of variation in the number of CBC sites in each state.

Supplemental Data—Rice figures for the coastal plains of Texas and for Louisiana were obtained from each state's Agricultural Statistics Department. Agricultural Stabilization and Conservation Service (ASCS) offices in all gulf states and Wisconsin supplied information on the acres of land enrolled in the federal Conservation Reserve Program, which encourages farmers to shift marginal lands from crops to a permanent cover of grass or trees.

Qualitative Data Collection

In March 1990, a two-week trip to the Gulf Coast region was undertaken in order to gain a better understanding of these data by talking with wildlife and fisheries departments, ornithologists, agricultural economists, soil conservationists, and agricultural extension agents.

Results

Shrike Population Trends—Trends in winter shrike populations showed declines in eastern Texas, Florida, Alabama and Mississippi. Georgia and Louisiana winter shrike populations appeared relatively stable. Overall shrike abundances were highest in eastern Texas and Florida and lowest in Georgia. Louisiana shrike counts were equal to or higher than Florida's beginning in the mid-1970s. It should be noted that with the exception of eastern Texas and Florida, shrike counts in early years (1950–1955) were based on a low number of count sites.

Agricultural Land-Use—Land-use trends show increases in shrike habitat in all states in early years, particularly in Texas and Florida, and decreasing trends thereafter. Between 1964 and 1987, Louisiana lost 2.1 million and Mississippi 2.7 million acres of suitable habitat. Since 1954, suitable habitat acreage declined in Alabama by 1.5 million acres and in Georgia, since 1969, by 1.2 million acres. Texas had the largest area of available habitat (range: 81,193,646 to 106,020,210 acres). Florida comes next (range: 5,090,125 to 7,630,728 acres). The rest of the states had less habitat with the least shrike habitat in Georgia. Suitable habitat peaked in 1969 and began to decline thereafter in the Gulf Coast region. There was a significant correlation ($r = +0.382$, $n = 575$, $p < 0.001$) between the number of shrikes per party-hour observed in a county and the area of suitable habitat in the county between 1950 and 1987. There was a significant correlation ($r = +0.433$, $n = 53$, $p < 0.001$) between the number of shrikes per party-hour in counties aggregated to a state-level and the area of suitable habitat in counties aggregated to a state-level between 1950 and 1987.

Red Fire Ants—Accidentally introduced in Mobile, Alabama in the 1930s, the imported red fire ant probably arrived in ballast dirt onboard cargo ships from its native South America. It originated in the floodplains of the Pantanal, where frequent heavy floods scour the land. The ants are remarkably adept at colonizing disturbed ecosystems.

The warm, moist Gulf Coast, free of natural predators, suited the red fire ants, and they began to spread rapidly. Through mating flights, by hitchhiking in nursery or construction soil, or by forming "ant rafts" during floods, the insects had reached the southeast corner of Mississippi and the northwest tip of the Florida panhandle by the 1940s. Twenty years later, the insects had completely infested most of the Gulf Coast region (Vinson and Sorensen 1986).

Today the ants are found on 250 million acres of land; they are firmly entrenched in all Gulf Coast states except for Texas. The deserts of western Texas have slowed their progress, but entomologists expect the opportunis-

tic insect will continue to move west, taking advantage of natural water bodies and irrigated land (Vinson and Sorensen 1986).

Because they were considered a serious pest, fire ants sparked a huge eradication program. Between 1957 and 1977, World War II bombers sprayed the region with the insecticides dieldrin, heptachlor and mirex (Revkin 1989, Yoffe 1988, Vinson and Sorensen 1986). The deluge of toxics took a heavy toll on many insects, invertebrates, birds and mammals, and moved Rachel Carson to write *Silent Spring* (Vinson and Sorenson 1986). Meanwhile, the pesticides only temporarily controlled fire ants, who returned after each spraying in even higher numbers (Yoffe 1988). By 1977, the use of insecticides for controlling fire ants was curtailed (Revkin 1989). Today, fire ants are controlled mainly through localized treatments such as mound drenches, surface dusts, fumigants or baits. There was a significant correlation (r=—0.195, n= 575, $p< 0.001$) between the number of shrikes per party-hour in a county and the number of years since fire ants first invaded the county.

Rice Cultivation—Rice cultivation took off in the southeastern coastal prairies of Texas and in southwestern Louisiana in the early 1940s (Dethloff 1988). Advanced, new equipment, such as combines and dryers, gave farmers the tools to vastly expand their acreages. Texas rice acreage went from 110 acres in 1850 to a high of 642,000 acres in 1954 (Texas Almanac 1990). Between the 1940s and 1950s alone, rice acreage in the state jumped sixfold (DOC, 1959).

Historically, the natural land cover in these areas had been tallgrass prairie and small natural wetlands (D. Robertson, personal communication). In the 1940s, farmers planted pastureland and old fields to rice and began to remove natural hedgerows and fences previously used for cattle (Brooks 1988). According to Brazoria, Texas, agricultural extension agent John Wood: "Farmers have rotated rice acreage with cattle since the 1940s: rice one year, then cattle two years. In 1973, when the price of rice was real good, farmers got rid of cattle and took down all the fences that go with them."

After peaking in the 1950s, the amount of land devoted to rice declined, but the intensity of production remained high. Texas reported record production in 1981 (Texas Almanac 1990) and today grows two crops of rice in a season. Farmers harvest the first rice crop in late July and the second in October (A. Gerlow, personal communication). In Louisiana, rice plots are generally much smaller than in Texas and farmers rotate their rice fields with soybean crops every one or two years (A. Gerlow, personal communication). The see-saw trends of both Texas and Louisiana rice reflect federally driven market policies (Dethloff 1988, Daniel 1985).

Texas farmers rotate rice plots with low quality grazing land. Rice is grown on the plot one year, and the following two years, farmers run their cattle on the land (J. Engbrock, J. Wood, A. Gerlow, personal communications).

Only scattered weeds grow on recently abandoned rice fields, and fire ants rapidly colonize the bare soil (B. Dres, personal communication). As the fields become overgrown with weedy red rice and bermuda grass, grasshop-

pers and other insects gradually return, but the ant-infested land produces little food for shrikes. Fallow fields not grazed quickly become overgrown with tall vegetation that interferes with shrike hunting (D. Robertson, personal communication).

Forestry—The South has always been the nation's leading producer of pulpwood. Timber industries play an important economic role in the region (Barrett 1962). Over the past few decades pine monocultures have been planted on previously open land, as farmers converted their marginal agricultural land (mostly pastures and old fields) to slash pine (Jones and Mirarchi 1989). Much of the land in the region set aside under the federal Conservation Reserve Program (CRP) is now going into pine stands (J. Hartley, personal communication). With the exception of Texas, which plants virtually no trees on CRP land, the Gulf states plant the majority of CRP land to trees. In comparison, Wisconsin farmers convert most of their erodible cropland to permanent grass cover.

According to agricultural economist Bud Diller at Mississippi State University, many farmers opted to place erodible land in slash pine because the trees are more profitable than pastureland: "Just fifteen years ago [in Alabama], you had little ol' part-time cattle farms. Now much of that land has gone to trees. The cattle just can't pay for building fences."

Commercial forestry has also expanded onto formerly open land. In Mississippi, commercial forestry is a big business that has turned former pastureland and old fields to pine plantations (B. Diller, W. Couvillion, J. Waldrop, personal communications). Between 1934 and 1953, commercial forestland in Georgia increased by 12 percent, or 2.6 million acres. Most of the land came from abandoned farmland (Georgia Forestry Commission 1953). Today, 64 percent—23.6 million acres—of the land area in Georgia is covered with forestland. Tree planting and natural succession on abandoned farmland has made up nearly 94 percent of timberland increases since 1982 (Thompson 1989).

As of 1987, forestland in Florida covered 43 percent of the state. Pine plantations made up 27 percent of the state's forests—the highest proportion of any state in the Southeast (Brown and Thompson 1987). As farmers in Florida have moved orange groves in the state further south, pine monocultures have replaced areas formerly planted in orange groves (J. Cox, personal communication).

Discussion

The winter range of migratory Loggerhead Shrikes from Wisconsin and other midwestern states has clearly undergone many changes during the past 50 years. Many of these changes have resulted in reduced areas of habitat being available to migrant shrikes and reduced carrying capacities of even those areas that remain suitable. Agriculture and forestry have reduced the area of shrike habitat, and fire ants have reduced prey populations on areas of potential habitat.

Fire ants and loggerhead shrikes often share the same habitats, especially pasturelands, old fields, and fallow croplands. Fire ants are a direct food competitor with shrikes. Shrikes eat mainly grasshoppers, crickets, beetles and other insects but also feed on rep-

tiles, amphibians, small mammals and the occasional small bird (Howell 1928).

Fire ants are aggressive predators that feed on whatever prey is readily available (Wilson and Oliver 1968). The larvae of grasshoppers and a host of other insects make up the bulk of their diet (Hays and Hays 1958). Fire ants have been known to attack and sometimes kill newborn pigs, calves, and birds. They also destroy seedling corn, soybeans and even girdle young trees (USDA n.d.). Fire ants present a threat to a plethora of flora and fauna. When they invade an area, the ants reduce the abundance and diversity of potential shrike prey (R. Mount, H. Thorvilson, personal communications).

The enormous amount of insecticides used to control fire ants probably posed a greater threat to Loggerhead Shrikes than the ants themselves. By killing off many insects and other small animals, the insecticides reduced shrikes' prey. The poisons may also have directly killed loggerhead shrikes. Collins et al. (1974) found that out of two dozen bird species found on ant-control areas, Loggerhead Shrikes accumulated the highest concentrations of mirex. The possible affects of the pesticide on shrikes were not well researched. At two parts per million, the insecticide dieldrin killed shrikes. At lower doses it negatively affected their hunting ability (Busbee 1977).

The presence of the introduced red fire ant is probably a major but so far largely overlooked factor affecting migrant shrikes and other grassland birds. Because of expanding agriculture, a growing portion of shrike habitat in the Gulf Coast region is fallow croplands, the most preferred habitat for fire ants, where 40 ant mounds per acre have been recorded (Vinson and Sorensen 1986). As shrikes come to depend more and more on fallow cropland, fire ants have become an increasing threat.

Shrikes lost habitat when grassland areas in the Gulf Coast region were converted to rice or pine plantations. Cereal crops provide poor foraging opportunities for shrikes, particularly when hedgerows and fences are absent. The birds need perches to employ their "sit-and-wait" strategy when hunting for prey. It is also questionable how much use Loggerhead Shrikes can get out of rotation pastureland that is only available for one to two years between crops. Initially devoid of animal and plant life, then colonized by fire ants, these areas have low carrying capacities for shrikes. Grazed fallow land may actually be more useful to shrikes than non-grazed idle land. Shrikes require low vegetation in order to locate and capture prey on the ground. If ungrazed, fallow rice fields rapidly grow into a dense and high cover of weeds that precludes use by shrikes.

Shrikes are able to utilize pine plantations only in their earliest stages. However, once tree cover becomes dense, the birds are no longer able to hunt for prey (Engstram et al. 1984). Slash pines grow very rapidly, and quickly close up open areas. The rapid, federally encouraged conversion of pasturelands, old fields, and marginal croplands to pine plantations in recent years (since 1988) portends large losses of shrike habitat in the coming years as trees mature.

Conclusions—Profound changes in agricultural practices in Wisconsin and

other midwestern states have drastically altered the habitat for breeding populations of Loggerhead Shrikes and other grassland birds (Sample 1989). Row-crops replaced native upland prairies and grasslands reducing the quality and quantity of habitat for many grassland bird species. Vesper Sparrow, Grasshopper Sparrow, Eastern Meadowlark, and other grassland bird populations have probably suffered as a result (Sample 1989). Meanwhile grain-eating birds such as the Red-winged Blackbird are able take advantage of row-crops and are thriving. The land acreage set aside as pasture or returned to native grassland under the federal Conservation Reserve Program marks a positive trend for grassland birds in midwestern states.

Similar agricultural changes have taken place on the wintering range of Loggerhead Shrike and other grassland bird populations. Again, grasslands and pasturelands gave way to row-crops. Monocultures of rice and soybeans eliminated many fenced pastures and thereby perch sites and prey availability for Loggerhead Shrikes (Brooks 1988). Faced with large expanses of row-crops, Loggerhead Shrikes are frequently found along the roadsides and edges of these fields. These narrow strips of pesticide-free land, where vegetation is often kept short by mowing, probably serve as a last hunting haven for shrikes in many highly developed agricultural areas (R. Hamilton, personal communication). As in the Midwest, populations of grain-eating birds are climbing.

Other changes in the Gulf Coast region are very different from changes that have occurred on midwestern breeding grounds. The strong trend toward vast monocultures of pine plantations have reduced the amount of available habitat for shrikes and other grassland birds. This trend seems likely to continue as marginal agricultural land in the Gulf states goes predominately into trees under CRP. Further, the infestation of the aggressive red fire ant has lowered the quality of range and pastureland on which shrikes and other bird species have come to depend. Some areas that appear to offer suitable habitat are sparsely populated by animal life when fire ants are present, which lowers the carrying capacity of these areas for shrikes and other grassland birds (R. Mount, personal communication). The results of this study show that the Loggerhead Shrike and other midwestern grassland birds that winter in the Gulf Coast region have lost large areas of habitat and that even remaining areas of habitat are of reduced value because of fire ants.

As in the Midwest, these alterations probably negatively affect breeding grassland bird populations. For such ground nesters as the Eastern Meadowlark, the presence of the red fire ant may be particularly problematic (R. Mount, personal communication). Local Loggerhead Shrike populations may be limited by inadequate roost sites and hunting areas. These limitations affect migrant shrikes more severely. Prey availability is already reduced in the winter months and migrant shrikes must contend with lower quality habitat than their resident Gulf Coast counterparts.

Habitat loss and, probably more importantly, degradation on Gulf Coast wintering grounds are likely contributors to the decline of midwestern Loggerhead Shrike and other grassland bird populations. The correla-

tions between shrike CBCs and suitable habitat and between shrike CBCs and years since fire ants were significant but somewhat weak, probably because of the nature of the data used. Suitable habitat, as defined by the two census land-use categories, probably includes habitat that shrikes and other grassland birds can not use. Varying ranges of habitat quality between regions were lost under this very broad definition. For example, although certain apparent patterns emerged: Texas had both the highest percent available habitat as well as the highest shrike abundance, while Georgia had the lowest percent available habitat and lowest shrike abundance, shrike counts in Louisiana were relatively high and stable, in spite of apparently declining habitat.

The uncertainties associated with CBCs may also have clouded any connection between Loggerhead Shrike declines and habitat changes. Many CBC count sites take place near wildlife refuges and parks or near cities. The birds observed near such areas may not be a fair representation of how populations are faring in strictly agricultural areas. Breeding Bird Surveys of Gulf Coast Loggerhead Shrikes may yield more conclusive cause-effect relationships between changing habitat and bird populations.

Yet in spite of data limitations, we still found a significant positive correlation between Loggerhead Shrike abundance and habitat, and a significant negative correlation between shrike numbers and the presence of fire ants. It seems likely that agriculture, forestry and the presence of the imported red fire ants are factors that limit Loggerhead Shrikes in the Gulf Coast region.

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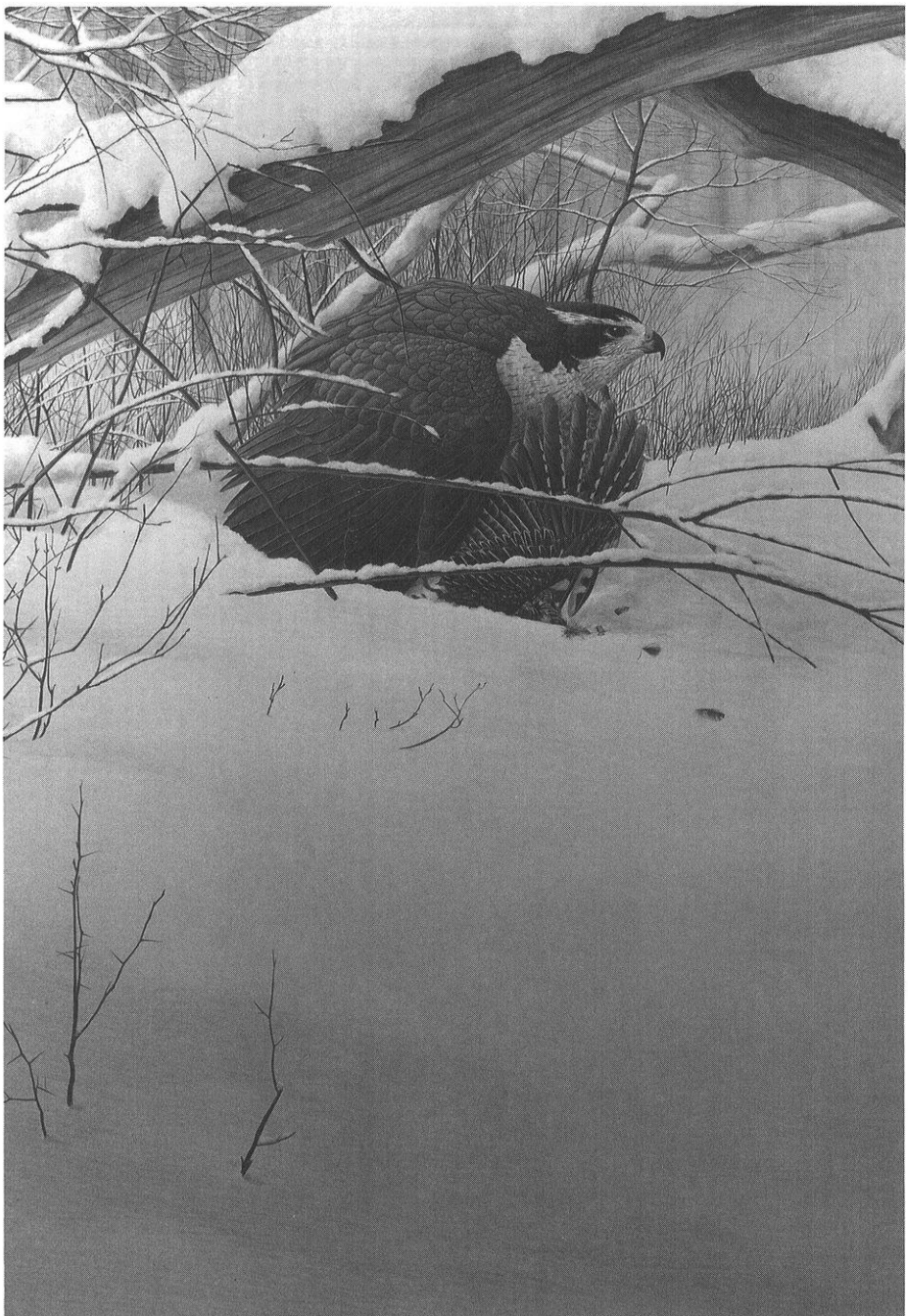

Northern Goshawk *by Michael James Riddet* (Reprinted with permission of the artist and Hawkshead Ltd. Wildlife Art, Boscobel, WI 53805).

Fall Birding on Outer Island in Lake Superior

The Apostle Islands in Lake Superior offer some unique birding opportunities, and the National Park Service has needs for volunteers to help them inventory the birds of the National Lakeshore. This account describes one volunteer's experiences.

by Phyllis Johnson

That oddly shaped bone sticking out of the sand bank caught the youngster's eye right off, and he pulled it out and carried it into the camping area I had called home for three days. He silently presented it to his dad for examination.

"That's a cow bone," Tom Doolittle told us. "When Outer Island was being logged off in the early days there was no refrigeration; the lumber barons brought the beef out live and kept the cows in a fenced area over on the west side of the sand spit," he explained.

I had noticed that broken down corral as I walked about the Outer Island, one of the 20 islands of the Apostle Islands National Lakeshore Park in Lake Superior. I had been dropped on this island by Tom, Resource Management Technician, and Julie Van Stappen, Resource Management Specialist, to participate in the fall, 1991, migratory bird survey.

The island is not inhabited. I had been camping there alone in what must have been the spot where the loggers came to eat. The area was somewhat protected from the fierce winds by having been dug into the sand. The cook must have thrown the refuse into a pit.

Conifers ring the camping area, and an old iron bedstead lies half buried at the edge, a mute reminder that all humans strive for creature comforts. The National Park Service provided me with a radio so that I did have contact with the mainland. At 8 A.M. I participated in the daily weather roundup.

I make no claim to bravery. But, some birds are hard to locate and are not seen often enough to cause the birder to feel comfortable in the identification. That was one of the reasons I became a Park Service volunteer.

Another was that I, as a college instructor, was hard at work during both spring and fall migrations and never really got a good opportunity to see all the birds I wanted to see. I retired at

the end of the 1991 school year. Free at last to wallow in whatever birding extravaganza I could locate!

Extravaganza it is! Outer Island is on a migratory pathway for birds leaving Canada for southern regions. The birds are attracted by the eight-mile island itself and concentrated onto the sand spit which trails out on the southern end.

When wind conditions are right, the numbers of American Robins, Brewer's Blackbirds, warblers, and other passerines are said to be truly astounding. And the show is compounded by the Peregrine Falcons and Merlins that prey on the passerines as they migrate.

So many birds migrate beginning at dawn and lasting until about 9 A.M., that the observer can easily be swamped. Well, that didn't happen to me. The wind never favored a large migration. Yet, I was able to record more than 1,800 birds in the short period I was there.

After 9 A.M., you are free to do whatever you wish. Just sitting in camp is likely to yield some life birds. I arrived about 9 A.M. on the first day of October, 1991: too late for the migration, but not too late to begin the casual observation list.

Birds literally seemed to be falling out of the trees. Alarm calls from Northern Flickers and American Robins could be heard as Merlins and Peregrine Falcons, which had not yet captured breakfast, tried to score. I had trouble setting up my tent for all the birds.

Once the tent was up, I could turn my attention to the birds. The trees were full of Red-breasted Nuthatches and more Brown Creepers than I had ever seen before.

White-crowned Sparrows and White-throated Sparrows fed in the brushy area along the sandy bank. What were those other sparrows with them? Bigger, pink bill, bold black markings on the chest. Handsome birds. Harris' Sparrow! A nice addition for my Wisconsin list!

I had seen Harris' Sparrow at Atwater National Wildlife Refuge in that narrow section of eastern Texas where it winters. This beautiful sparrow is known to breed only in a narrow belt of stunted timber and brush near the limits of trees near Churchill, Manitoba, on the west shore of Hudson Bay and west to the Mackenzie Delta. Outer island is on the eastern edge of the migration pattern for the Harris' Sparrow (U.S. Fish and Wildlife Service 1979).

Merlins pursued flickers right through the camp! What is that woodpecker? A black-backed! Goodness knows I've looked for one of those on the mainland long enough! What a feast!

The Black-backed Woodpecker is now an uncommon resident in the northern part of Wisconsin, but was common in the pine regions of the state during late fall and winter before the heavy tamarack was cut in many swamps of southern Wisconsin. By the turn of the century, the bird was confined largely to the northern part of the state (Kumlien and Hollister 1903, Robbins 1991).

A trail has been cut right up the center of the island. This trail is used by Julie for a breeding bird survey in early summer. Stops are made every five minutes.

I located the trail on day two, and I had one of the most memorable events of the trip there. I didn't get very far. Once again: so many birds. Here I saw

another "most wanted" bird: the Three-toed Woodpecker.

The Three-toed Woodpecker is currently listed as a rare winter resident in Wisconsin's north and only a casual summer visitor in the north (Robbins 1991).

Few specimen were collected in earlier days. Some specimen were collected in winter as far south as Jefferson County when tamarack bogs had not yet been logged out (Kumlien and Hollister 1903).

Julie's 1990 Breeding Bird Survey lists neither the Black-backed Woodpecker nor the Three-toed Woodpecker as breeding on Outer Island. Temple and Harris (1985) said the Black-backed Woodpecker was found on Outer Island during the summer of 1977.

Along the trail, I observed the abundant bird life at the several small spruce bog lakes. Many birds turn into autumn flycatchers here, including Yellow-rumped Warbler and Rusty Blackbirds. No moth or flying insect escaped the sharp eyes of the birds perched around that bog.

Overhead a young Bald Eagle and an adult soared. A Red-tailed Hawk added to the panorama. On the trail, Ruby-crowned Kinglets fluttered as they fed near the ground. Brown Creepers everywhere.

Would I do it again? You bet! In spring, I hope to spend time on Long Island, which is one long sand spit, during the shorebird migration. Next summer I am volunteering to do a blooming calendar of orchids and other rare plants of the Apostles.

The volunteer program of the Apostle Islands National Lakeshore is fairly extensive and includes such unpaid work as island host and lighthouse keeper, as well as work chores in the headquarters building.

Not brave enough to spend three or four days alone on an uninhabited island in Lake Superior? I did wonder if bears lived on Outer Island, as I understood they did on several others. The biggest mammals to inhabit the island perhaps were those unfortunate cows. And now lucky humans manage some short stays.

Tom brought his sharp-eyed son, Keenan, along on the beautiful day he picked me up from Outer Island. Keenan, at age six, is an accomplished birder. He can spot merlins, peregrines, and eagles, just like that. He kicked at pebbles with his untied hightops and found old cow bones. And on the way back he climbed into his dad's lap to help steer the boat.

What an opportunity! For information on Apostle Island volunteering, write: Apostle Island National Lakeshore, Route 1, Box 4, Bayfield, WI 54814.

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Peregrine Falcon *by Michael James Riddet* (Reproduced with permission of the artist and Hawkshead Ltd. Wildlife Art, Boscobel, WI 53805).

Predation and the Backyard Birder

by Scott R. Craven

For those of us concerned about our backyard bird populations, the death of a single bird can be traumatic, whether caused by storm, window strike, predator, or disease. In reality the loss of a nestling robin or cardinal is insignificant to the well being of the population. However, human nature mandates our concern. Is that concern justified, and what if anything can or should be done to improve the survival rate of backyard songbirds? I will address these questions with emphasis on predatory animals as mortality factors for songbirds.

The reproductive potential of most common species is staggering. J.C. Welty (1975) in his textbook on ornithology uses this example for the American Robin "which commonly produces, in one season, two modest broods of four young each, and will leave a spectacular 19,500,000 descendants in ten years—if one makes the superficially plausible assumption that all young survive at least ten years and reproduce the same number as the original pair." Obviously this kind of multiplication does not occur or we would be waist-deep in robins!

Ornithologist David Lack (1954) examined about 60 studies of avian survival and concluded that only about 25% of all eggs laid result in independent young birds. Survival is most problematic during early life. If a bird survives its first full year, its chances of surviving each succeeding year remain fairly constant, although there is much variation in annual survival rates between species. Annual adult mortality rates of 40–70% are common for smaller species. Since many species persist and even flourish in the face of such losses, it should be clear that high death rates are the rule, especially among the young of small songbirds, and that the population dynamics of the bird are adapted to such losses.

In spite of this, such statistics do little to dampen concern over bird survival on the scale of a single backyard. For birds, death may come in many forms. Most are beyond our ability to control. There is little we can do about accidents, disease, parasites and predation beyond a few simple steps. For example, silhouettes or bird netting can be used to reduce window strikes and regular cleaning of feeders can re-

duce the spread of some diseases. By improving habitat with feeders, nest boxes, high quality cover, and water we can mitigate the forces of starvation and severe weather.

What about predation? Certainly death at the claws or teeth of a predator can be a sudden and violent event; something we are aware of but may just as soon not see. Predation is, however, a natural and essential event. Predators play a vital role in reducing those 19.5 million robins to a more manageable number!

There are some elements of predation that should be of concern to the backyard bird enthusiast. First, the fact that predation is both natural and necessary does little to calm an eyewitness. If you have not had such an opportunity, try to visualize the impact of seeing your favorite cardinal snatched off a feeder and plucked and eaten by a passing Sharp-shinned Hawk or Cooper's Hawk as you were enjoying a quiet breakfast next to the kitchen window. Stan Temple described an incident to me that involved him and his wife being awakened by a commotion at their feeding station. The screaming cries were coming from a Blue Jay pinned to the ground and being plucked by a Sharp-shinned Hawk. They had no more than turned away, when the commotion intensified, and drawn again to the window, they saw a Red-tailed Hawk on top of the now shrieking Sharp-shinned Hawk still clinging to the screaming jay. What a scene!

Such an event does not necessitate human intervention of any kind and certainly does not justify the illegal use of lethal force (i.e., a shotgun) against the predator. There are many more cardinals and jays than there are hawks. Perhaps we should try to think in terms of the levels of a food chain; at one level we provide seeds for the songbirds, at another level we provide songbirds for the raptors. Furthermore, the various avian predators are all beautiful and fascinating birds in their own right and should be as welcome in backyard habitats as any other species.

Concern over the impact of American Crows on songbird populations is common but very difficult to translate into action. Crows do take eggs and nestlings of other species, and crow populations are thriving in urban-suburban areas. However, crows are very difficult to manage on a single-property basis. Large night roosts and staging areas can be managed, but such action requires professional involvement and broad community support. Careful management of food sources for crows (pet foods, trash, compost, etc.) and discouraging nesting crows (tree thinning, disturbance, etc.) are some of the few options available to a backyard manager.

Mammalian predators are more manageable. Potential predators such as raccoons, opossums, skunks, and even squirrels are common in suburban habitats. Rural property, or urban property adjacent to parks, rights-of-way, or other green spaces that serve as travel lanes for wildlife, supports an even greater diversity of predators. These animals are primarily nest predators and not much of a threat to healthy adult birds. Remember, too, that like hawks most of these species (in moderation) are interesting components of the backyard wildlife community.

Raccoons are an excellent example because they are widely distributed,

abundant, and physically very capable. If raccoons are preying upon birds nesting in boxes, there are several ways to improve the chances of nest success. Generally, a pole-mounted box is more difficult for a raccoon to gain access to than a box on a tree or fence post, but the pole itself may not be enough. In an interesting experiment, Berner et al. (1990) tested the ability of a captive semi-wild raccoon to circumvent various means of protecting Eastern Bluebird nest boxes. They found that the raccoon had no difficulty climbing 2.2-cm galvanized pipe or 2.5-cm PVC plastic pipe. Thus, a predator guard such as an inverted cone baffle, a "spooker pole," or an application of oil or spray teflon on the pole is necessary. For an excellent review of anti-mammal pole and mounting techniques refer to Bill Adler, Jr.'s (1988) excellent and humorous book, *Outwitting Squirrels*.

Nest-box openings are frequently protected with wood blocks installed around the actual opening. The theory is that the blocks prevent large animals from reaching into the box far enough to obtain eggs or the incubating female. In the Berner et al. tests, the raccoon was not deterred by a 1.5-cm-thick wooden predator guard. Although not evaluated, a thicker block and/or deeper box cavity might be useful. The only modification of the bluebird boxes that Berner et al. found useful was an extension of the roof from a 12.7-cm to a 17.8-cm overhang.

Quality habitat with dense escape cover and abundant nest sites is probably the best insurance against excessive losses to predators of all kinds. Troublesome individual mammals can be live-trapped and removed from the area, but don't attempt to eliminate raccoons, squirrels or other species by persistent removal. It's close to impossible. A friend who live-traps and removes mammals (with 1 or 2 traps) from his urban backyard in Madison, in part to protect valuable plantings and in part as an experiment, *averages* about 140 gray squirrels, 13 raccoons, 15 opossums, 25 rabbits, and 50–75 assorted small mammals each year! Learn to live with the local mammalian fauna as you do with birds. County-based Cooperative Extension Service offices have excellent literature available on coping with most species in the home environment.

One mammal is in a class by itself—the domestic cat. Cats are a major predator on songbirds in the suburban and rural environment. Whereas barn cats in the countryside hunt for a living, suburban cats—even docile well-fed family pets—hunt because it's instinctive, natural behavior. Healthy adult birds, nestlings, migrants and residents are all vulnerable. The catbird predation problem is the subject of on-going research by Stan Temple and his graduate students at the University of Wisconsin-Madison and has received extensive media attention.

A recent syndicated newspaper column cited estimates of 50–60 million pet cats nationwide. The daily success rate of these cats can be very low and still account for millions of dead birds every day! The U.W.-Madison research suggests that Wisconsin's 1.2 million rural cats kill about 20 million songbirds a year; see Coleman and Temple (1989) for a review. Adler's book also contains a chapter on cats. No data are available for urban areas in Wisconsin, where cat densities are much greater.

As unfortunate as the cat situation is, it can be managed. If the cats on

your property are your own, the problem can be reduced by utilizing some of the following suggestions. If the cats belong to neighbors, the problem becomes one of delicate diplomacy. If the cats are *known* to be feral (no owner) they can be easily live-trapped and turned over to a humane society. Declawed cats or cats equipped with a bell can still be effective hunters. A cat that never leaves the house cannot hunt. Existing leash laws for cats that are allowed outside are often ignored. Some believe that letting cats out only at night may concentrate their hunting on nocturnal rodents and shrews. As the problem of cat predation receives more media attention and is better defined, lenient cat owners may show more restraint of their pets.

One final predator should be considered—us. We humans are also a threat to birds, although most of the mortality we now cause is indirect via development, land-use changes, pesticides, motor vehicles, and hazards such as towers, windows, etc. This situation makes our positive steps to create and improve backyard habitat all the more important as a compensatory mechanism for our other activity.

Fortunately, the illegal and entirely unjustifiable shooting of songbirds and other wildlife as targets or out of boredom seems to be increasingly uncommon. Youngsters with pellet or BB guns should not and, for the most part, do not indiscriminately use wildlife as targets. I hope that increased environmental education in our schools, mandatory hunter education at age 12, youth activities such as 4H Shooting Sports, and peer pressure can be credited with this very positive observation. Such positive activities should be encouraged and suggested whenever possible and illegal behavior reported to conservation officers.

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The Spring Season: 1991

by Allen K. Shea

Weather Eye

Rather than a review of the usual *Crop Weather Report* statistics, let's take an *observers* eye view of the weather in southern, central and northern Wisconsin:

Southern (Jefferson County)—March was wet and windy. 3.45″ of rain; and snow on 4 days. Windy 3/5–6, 3/11–14 and 3/23 (WSW 30+mph). April was rainy, windy and cool. 4.25″ of rain on 8 days. Wind 4/6–7 (SW to S at 20–25) brought in record 80 degree temperatures. Otherwise cool (50's for highs on 11 days). May was very hot and humid! 18 days over 80 degrees (5/10–5/16 & 5/21–31). Record 92 on 5/28 and 91 on 5/29.

Central (Portage County)—March began cold through mid-month; short period of snow early. Temperature reached 50–65 degrees only on 19th, 26th & 27th. Otherwise a cold month with overcast 50% of the time and normal rainfall. April 1–8 saw highs 60–85 degrees, then cool through the 16th. A mild finish to the month with persistent south winds April 24–May 2. May 1–8 cool and unsettled with frequent rain. Except for May 17–19, remainder of month with highs of 80+ degrees. Rainfall totaled at 8.0″ with 70% in the last two weeks.

North (Douglas County)—"To summarize, it was another strange spring. . . . Instead of daily up and down trends in temperature, it was conversely weeks of cold and weeks of hot. As I believe elsewhere in the state, it was a spring of incredible precipitation."

The Migration at a Glance

What did you, the observers, think of the migration? Some excerpts:

"The poorest waterfowl migration ever. Most species represented but in small numbers. This follows a year which was one of the best."

"This is a spring to remember! Without a doubt this was the poorest passerine migration for me in 20–25 years! . . . Missed an unbelievable number of standard birds."

"I have talked with southern Wisconsin birders, Iowa birders, southern Illinois birders and Tennessee birders,

and by golly, they all said the same thing: 'where are the shorebirds?' "

"Enclosed is my account of the most miserable spring of birding I have ever experienced. The May migration was horrible, but part of the problem may have been that I was in Ohio May 8–11 . . ."

"If I had not been birding on Wednesday, May 8, I would have rated this spring's migration as poor. Luckily, I had that day off work and hit one of the best wave days in years."

The above quotes typify the majority of comments received this year. In combination with the raw data contained in the seasonal report forms, they suggest three key phenomena about spring migration 1991:

1. Many migrants overflew all or significant portions of the state;
2. Unlike 'normal' years, the migration 'windows' for many spring migrants were very narrow; and
3. Observer impressions about the migration were highly dependent on whether they are 'lucky' enough to correspond their field activities with wave phenomena.

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

Waterfowl—The majority of observers around the state considered the waterfowl migration as "normal." However, there were a few exceptions to this rule of thumb. The waterfowl migration at Lake Superior's Chequamegon Bay was deemed to be the poorest ever. Both Red-throated Loons and Common Loons were in lower numbers than normal. Red-necked Grebes were both widespread and in above average numbers across the state; 50 observed off Wisconsin Point highlighted an otherwise bleak migration there. Interestingly, observers have begun to report sightings of Trumpeter Swans—not all of these were banded or marked birds; the Records Committee will need to make a decision on the disposition of records of this species in the state. Unlike the past few years, the scoter migration was abysmal—Black and White-winged Scoters were each only reported from one location, and Surf Scoters were not reported at all!!

Herons—A nice assortment of species was observed this spring, but continued overall concern for this group is warranted. Reports of American and Least Bitterns dropped significantly from last year's more encouraging statistics. Black-crowned Night-heron numbers were also down from recent years.

Raptors—Cooper's Hawks were again widespread across the state; this species certainly appears to have reestablished itself as a fairly common nesting species in Wisconsin. The Northern Goshawk may be in an upswing in its ten-year population cycle as the number of sightings increased for the third spring in a row. Merlins and peregrines were again seen in good numbers; with several reports of nesting Merlins along the south shore of Lake Superior.

Shorebirds—For the second year in a row, observers descried the shorebird migration was universally decried as "poor" or "abysmal." Observers attributed the lack of shorebirds to the unusual abundance of habitat; others conjectured that shorebird "overflight" of the state was responsible. Despite the scarcity of numbers, 35

species were recorded—two more than in 1990 and three more than in 1989.

Gulls—This spring produced another excellent year for gull diversIty with 11 species being reported. Seven Laughing Gull reports from the Lake Michigan shoreline from early March to the EOP continued this species recent presence in the state.

Owls—This was the third spring in a row that nine owl species were recorded. Long-eared, Short-eared and Saw-whet Owls were widespread and in good numbers. Following last spring's single record, snowy owls were reported in six counties.

Warblers—After the usual late April push of early arrivals for many species, most observers considered the spring's warbler migration to be a 'one-wave' phenomenon. In southern Wisconsin, the peak for warblers was early and condensed—May 8–9; the same peak was noticed a few days later in northern Wisconsin. Across the state after this seemingly good start, however, the warbler migration was seemingly nonexistent—no discernable waves, no concentrations and poor variety after mid–May. Many observers hypothesized that 'overflight' was responsible. Despite this poor showing, some excellent single day maximums were recorded.

Flycatchers, Thrushes, and other Song Birds—The thrush and flycatcher migration was considered poor by most observers, largely due to the lack of 'waves.' An exception to this was good numbers of veerys and flycatchers species noted in southern Wisconsin on May 15.

Sparrows—Arrival dates for most species were 'normal.' However, the perspective on the quality of the sparrow migration depended on location: those observers reporting from the northern of part of the state thought migration was excellent in terms of variety and numbers; those observers reporting from the southern part had the opposite impression. Fox Sparrow typified this phenomenon with northern observers reporting a prolonged migration and high numbers of this species, while southern observers provided few reports and low numbers.

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Eighty five observers submitted 113 separate county field report forms. The number of observers, while quite a bit below 1990's record of 97, was still above the ten-year average of 77. A commendable sixty-six counties received coverage of some extent. Reports were not received from the following six counties: Crawford, Florence, Iron, Juneau, Rusk, and Waushara. The counties receiving the most extensive coverage were as follows: Dane and Milwaukee with 13 separate reports each; Manitowoc with 11; Columbia and Dodge with 9 each; Brown, Ozaukee, Portage and Waukesha with 7 each; and Burnett, Dunn, Jefferson, Rock, St. Croix and Sheboygan with 6 reports each.

A total of 309 species were reported during the period, 11 more than in either 1989 or 1990 and nine higher than the ten year average of 300. Notable rare birds were: Tri-colored Heron, Snowy Egret, Ferruginous Hawk, Prairie Falcon, Snowy Plover, Laughing Gull, Thayer's Gull, Iceland

Gull, Lesser Black-backed Gull, Great Black-backed Gull, Northern Hawk Owl, Great Gray Owl, Bewick's Wren, Yellow-throated Warbler, Kirtland's Warbler, Western Tanager, Green-tailed Towhee, and Eurasian Tree Sparrow.

Miscellany

Abbreviations used in the following species accounts are: BOP = Beginning of the Period, EOP = End of the Period, TTP = Throughout the Period. Once again, I wish to extend a special thanks to Suzan Shea for her extensive assistance in preparing this report.

Reports (March 1–May 31, 1991)

Red-throated Loon.—Reported as follows: Sheboygan County, April 7 (E. Hansen); Ozaukee County, April 21 (B. Domagalski); Douglas County, May 14–15 (J. Robinson and R. Johnson); and Manitowoc County, March 24–April 2 (M. Peterson, C. Sontag, and D. Tessen). On April 7, 6 birds were sighted in Sheboygan County (E. Hansen).

Common Loon.—First reported in Dane County, March 15 (A. & S. Shea).

Pied-billed Grebe.—First reported in Chippewa County, March 3 (C. Kemper).

Horned Grebe.—First reported in Milwaukee County, March 3 (S. Diehl). On May 5, 400 birds were sighted in Douglas County (L. Semo). Present at the end of the period in Douglas County (T. Schultz).

Red-necked Grebe.—First reported in Douglas County, April 13 (R. Johnson). Also reported during the period in Ashland, Burnett, Chippewa, Columbia, Dunn, Manitowoc, Marathon, St. Croix, Taylor, and Winnebago Counties. On May 5, 50+ birds were sighted in Douglas County (L. Semo). Present at the end of the period in Dunn, Green Lake, Taylor, and Winnebago Counties.

Eared Grebe.—Reported as follows: Columbia County, April 26 (B. Hilsenhoff); Sauk County, May 15 (Randy Hoffman, A. Shea); Dunn County, May 16–24 (Randy Hoffman, M. Peterson, J. Polk, and S. Robbins); and Chippewa County, May 16 (M. Peterson & J. Polk).

Western Grebe.—On May 27, 2 birds were sighted in Manitowoc County (C. Sontag).

American White Pelican.—On April 5, 33 birds were sighted in Trempealeau County (T. Hunter); on April 28, 12 birds were sighted in Buffalo County (F. Lesher); also reported in Douglas County, April 27 (R. Johnson & J. Robinson); Ashland County, April 29 (D. Verch); and LaCrosse County, May 11 (F. Lesher).

Brown Pelican.—A May 3 report of this species in Winnebago County was rejected by the Records Committee.

Double-crested Cormorant.—First reported in Buffalo County, March 27 (B. Domagalski). On May 3, 600 birds were sighted in Door County (R. & C. Lukes).

American Bittern.—Over-wintering in Dodge County, February 27–March 9 (B. Domagalski). Also reported in: Ashland, Burnett, Columbia, Dodge, Douglas, Green Lake, Lincoln, Marathon, Oconto, Price, Sawyer, Shawano, Taylor, Vilas, Washburn, Waukesha, Winnebago, and Wood Counties.

Least Bittern.—First reported in Dodge County, May 7 (B. Domagalski). Also reported during the period in Ashland, Douglas, Green Lake, Oconto, Taylor, and Winnebago Counties.

Great Blue Heron.—Present at beginning of period in Dodge and Trempealeau Counties.

Great Egret.—First reported in Dane County, March 23 (D. Tessen).

Snowy Egret.—Reported as follows: Washington County, May 10 (M. Peterson); Fond du Lac County, May 11 (T. Schultz); and Oconto County, May 11-end of period (J. & K. Smith).

Little Blue Heron.—Reported in Ozaukee County, May 13 (B. Cowart).

Tri-colored Heron.—The following records for this species were accepted by the Records Committee: Ozaukee County, 05/25/91 (R. Gustschow), 05/26/91 (B. Cowart), and 05/26/91 (J. Frank).

Cattle Egret.—Reported as follows: Dodge County, April 13–15 (B. Domagalski) and May 15 (Randy Hoffman and A. Shea); Brown County, May 15–20 (M. Peterson); and Trempealeau County, May 23 (T. Hunter).

Green-backed Heron.—First reported in Taylor County, April 13 (B. Armbrust).

Black-crowned Night-Heron.—First reported in Dodge County, April 3 (B. Domagalski). On April 10, 75 birds were sighted in Dodge County (B. Domagalski). Also reported in: Ashland, Brown, Calumet, Columbia, Dane, Door, Green Lake, Jefferson, Manitowoc, Milwaukee, Oconto, St. Croix, and Winnebago Counties.

Yellow-crowned Night-Heron.—Reported as follows: Marathon County, March 22 (D. Belter and M. Tacke); Rock County, May 1–25 (Randy Hoffman, J. Robinson, D. Tessen); and Dodge County, May 15 (Randy Hoffman and A. Shea).

Tundra Swan.—First reported in Dane County, March 13 (A. & S. Shea). On March 29, 4000+ birds were sighted in Outagamie County (D. Tessen). Last reported in Green Lake County, May 19 (T. Schultz).

Trumpeter Swan.—Reported as follows: On March 9, 7 birds were sighted in Buffalo County (J. Polk); also reported in Douglas County, April 24 (R. Johnson) and Burnett County, May 18–19 (M. Peterson).

Mute Swan.—Reported at the beginning of the period in Dane, Douglas, Ozaukee, and Portage Counties. Also reported in Ashland, Brown, Burnett, Green Lake, Manitowoc, Milwaukee, Shawano, Vernon, Walworth, and Waukesha Counties.

Greater White-fronted Goose.—First reported in Milwaukee County, March 10 (W. Woodmansee). On March 30, 14 birds were sighted in Columbia County (T. Schultz). Also reported in Brown, Columbia, Dane, and Eau Claire Counties. Last reported in Brown County, May 10 (B. Mead).

Snow Goose.—First reported in Dodge County, March 5 (B. Domagalski). Also reported during the period in Columbia, Dane, Dodge, Portage, Rock, Taylor, and Trempealeau Counties.

Canada Goose.—Present at beginning of period in Dane, Kenosha, and Taylor Counties.

Wood Duck.—Present at beginning of period in Trempealeau and Waukesha Counties. On April 6, 40 birds were sighted in Dane County (A. & S. Shea).

Green-winged Teal.—First reported in LaCrosse County, March 13 (J. Dankert). On April 5, 100+ birds were sighted in Calumet County (C. Rudy).

American Black Duck.—Present at the beginning of period throughout the state.

Mallard.—Present at the beginning of period throughout the state.

Northern Pintail.—First reported in Dodge County, March 10 (B. Domagalski). On March 29, 400+ birds were sighted in Outagamie County (D. Tessen).

Blue-winged Teal.—First reported in Dane County, March 23 (A. & S. Shea). On April 13, 112 birds were sighted in Dane County (A. & S. Shea).

Cinnamon Teal.—Reported as follows: Jefferson County, March 29–30 (B. Cowart); Waukesha County, April 2 (M. Peterson); Kenosha County, April 8 (Ron Hoffmann); and Winnebago County, May 7 (P. Bruce).

Cinnamon × Blue-winged Teal.—This hybrid was reported in Eau Claire County, May 29 (J. Polk).

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

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

American Widgeon.—Present at the be-

ginning of period in Dane County (several observers).

Canvasback.—Present at beginning of period in Ozaukee County (S. Fischer), probably an over-wintering bird. First migrant reported March 15 in Dane County (P. Ashman). A bird(s) at the end of the period in Ozaukee County was very late.

Redhead.—First reported in Dane County, March 4 (E. Hansen).

Ring-necked Duck.—Present at beginning of period in Dane, and Portage Counties. On April 13, 425 birds were sighted in Dane County (A. & S. Shea).

Greater Scaup.—Present at beginning of period in Door, Milwaukee, Ozaukee, and Sheboygan Counties. This species was reported inland in LaCrosse, Marathon, Portage, and Trempealeau Counties. On March 10, 3000+ birds were sighted in Milwaukee County (W. Woodmansee). Present at the end of the period in Manitowoc County.

Lesser Scaup.—Present at beginning of period in Dane County (A. & S. Shea).

Harlequin Duck.—Milwaukee County, March 4–17 (B. Domagalski and (D. Tessen) and April 20 (M. Peterson); and Door County, May 19 (N. Stevenson & V. Heig).

Oldsquaw.—Present at beginning of period in Door, Manitowoc, Milwaukee, Ozaukee, and Sheboygan Counties. This species was reported inland in Taylor County. Present at the end of the period in Manitowoc County.

Black Scoter.—The only report of this species was in Ozaukee County, April 21 (B. Domagalski).

Surf Scoter.—There were no reports of this species!

White-winged Scoter.—The only report of this species in Ashland County, May 22 (D. Verch).

Common Goldeneye.—Present at beginning of period throughout the state. Late sightings reported as follows: Dane County, May 18 (A. & S. Shea and D. Tessen); Buffalo County, May 19 (S. Robbins); and Ashland County, EOP (D. Verch).

Bufflehead.—Present at beginning of period in Dane, Door, Manitowoc, Milwaukee, and Taylor Counties. On March 20, 78 birds were sighted in Portage County (M. Berner). Present at the end of the period in Ashland County.

Hooded Merganser.—Present at beginning of period in Manitowoc, Portage, St. Croix, Taylor, and Vernon Counties.

Common Merganser.—Present at beginning of period in Dane, Door, Douglas, Manitowoc, Ozaukee, Polk, St. Croix, Shawano, Taylor, and Vernon Counties.

Red-breasted Merganser.—Present at beginning of period in Door, Milwaukee, and Ozaukee Counties. On May 3, 350+ birds were sighted in Portage County (D. & M. Brasser).

Ruddy Duck.—First reported in Dane County, March 2 (P. Ashman). This species was reported as far north as Douglas County (R. Johnson).

Turkey Vulture.—First reported in Monroe County, March 15 (E. Epstein).

Osprey.—First reported in Barron County, March 31 (A. Goff).

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

Northern Harrier.—Present at beginning of period in Dodge, Marathon, Monroe, and Portage Counties. Present at the end of the period in 17 Counties.

Sharp-shinned Hawk.—Reported at the beginning of the period in Barron, Dane, Door, Green Lake, and Taylor Counties. On May 7, 384 birds were sighted in Ozaukee County (B. Cowart). Present at the end of the period in Ashland, Barron, Burnett, Door, Douglas, Jefferson, Marinette, Portage, Sawyer, and Taylor Counties.

Cooper's Hawk.—Reported at the begin-

ning of the period in Brown, Dane, Door, Green Lake, and Taylor Counties. Present at the end of the period in Brown, Burnett, Dane, Dodge, Door, Douglas, Green Lake, Manitowoc, Marathon, Marinette, Milwaukee, Monroe, Ozaukee, Polk, Portage, and Taylor Counties.

Northern Goshawk.—Reported at the beginning of the period in Ashland, Dane, Door, Marinette, and Taylor Counties. Also reported in Bayfield, Chippewa, Douglas, Forest, Grant, Marathon, Monroe, Outagamie, and Sawyer Counties. Present at the end of the period in Ashland, Door, Douglas, Marinette, Oconto, Sawyer, and Taylor Counties.

Red-shouldered Hawk.—Reported at the beginning of the period in and Polk Counties. Also reported during the period in Bayfield, Brown, Dane, Forest, Monroe, Oconto, Outagamie, Portage, St. Croix, Sawyer, Shawano, Taylor, and Trempealeau Counties.

Broad-winged Hawk.—First reported in Marathon County, April 3 (K. & J. Luepke).

Swainson's Hawk.—Reported in Brown County, May 14 (P. Bruce).

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

Ferruginous Hawk.—A report of this species in Pepin County on May 4 (R. Hoffman) was accepted by the Records Committee.

Rough-legged Hawk.—This species lingered later in the state than normal with 12 May sightings in 10 counties. Notable were the following reports: St. Croix County, May 19 (S. Robbins, J. Robinson, and J. & K. Smith); Taylor County, May 19 (P. Risch); and Ashland County, May 20, (D. Verch). On April 14, 17 birds were sighted in Portage County (A. & S. Shea).

Golden Eagle.—Reported as follows: Monroe County, March 3 (E. Epstein) and Marathon County, March 24 (D. Belter).

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

Merlin.—First reported in Marathon County, April 14 (D. Belter). Also reported during the period in Manitowoc, Ozaukee, Polk, Portage, and Sawyer Counties.

Peregrine Falcon.—First reported in Dane County, March 29 (P. Ashman). On April 11, 2 birds were sighted in Dane County (P. Ashman). Reported at the end of the period in Dane and Douglas Counties. Also reported in Burnett, Dodge, Marathon, Ozaukee, Sawyer, and Trempealeau Counties.

Gyrfalcon.—Reported in Buena Vista Marsh, Portage County, March 15 (D. Spuhler). This, or another of the two (3?) over-wintering birds was still present at this location April 14 (A. & S. Shea).

Prairie Falcon.—A report of this species in Portage County at the Buena Vista Marsh on March 15 (D. Spuhler) was accepted by the Records Committee.

Gray Partridge.—Reported during the period in Columbia, Dane, Dodge, Door, Marathon, Portage, St. Croix, Shawano, and Winnebago Counties.

Ring-necked Pheasant.—Reported in 30 Counties during the period.

Spruce Grouse.—There were no reports of this species.

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

Greater Prairie-Chicken.—Reported during the period in Adams, Burnett, Clark, Marathon, Portage, and Taylor Counties. On March 16, 33 birds were sighted in Marathon County (D. Belter).

Sharp-tailed Grouse.—Reported during the period in Bayfield, Burnett, Douglas, and Taylor Counties. On April 13, 42 birds were sighted in Taylor County (B. Armbrust).

Wild Turkey.—Reported in 20 Counties during the period. This species appears to be well established in the state except the north central counties. Reported as far north as Burnett and Marinette Counties.

Northern Bobwhite.—Reported during

the period in Dunn, Green Lake, LaCrosse, Marquette, Monroe, Pepin, Portage, Richland, Rock, Trempealeau, and Vernon Counties. On March 26, 12 birds were sighted in Richland County (B. Duerksen).

Yellow Rail.—Reported as follows: Burnett County, April 28-EOP (K. Castelein, D. Lauten, J. Hoefler, M. Peterson, J. Robinson, and A. & S. Shea); and Green Lake County, May 5–16 (T. Schultz). The Burnett County reports were from 4 widely dispersed locations in the Crex Meadows and Fish Lake Wildlife Areas. The Green Lake County report marks the second year in a row that this species has been found in southern Wisconsin away from its traditional Burnett and Vilas County locales.

King Rail.—Reported as follows: Dane County, May 7 (Randy Hoffman); Fond du Lac County, May 11 (T. Schultz); LaCrosse County, May 11 (F. Lesher and S. Robbins); Waukesha County, May 12 (S. Diehl); Dodge County, May 15 (Randy Hoffman and A. Shea); and Columbia County, May 18–19 (T. Schultz and D. Tessen). On May 28, 4 birds were sighted in Dane County (Randy Hoffman).

Virginia Rail.—First reported in Marathon County, March 23 (P. Risch). This possibly was an over-wintering bird. The next earliest sighting was in Dane County, April 23 (E. Hansen).

Sora.—First reported in Taylor County, April 10 (B. Armbrust).

Common Moorhen.—First reported in Oconto County, April 16 (J. & K. Smith). Also reported in Brown, Columbia, Dodge, and Winnebago Counties. On May 11, 12 birds were sighted in Winnebago County (T. Ziebell).

American Coot.—Present at beginning of period in Dane and Ozaukee Counties.

Sandhill Crane.—First reported on March 5 in Dodge (B. Domagalski); Jefferson (K. Hale); and Outagamie (J. Anderson & S. Petznick) Counties.

Black-bellied Plover.—First reported in Dodge County, April 27 (B. Domagalski). Also reported during the period in Dane, Door, Douglas, Milwaukee, Oconto, and Shawano Counties. Present at the end of the period in Ashland and Manitowoc Counties.

Lesser Golden Plover.—Reported as follows: Dane County, April 27 (B. Isenring); Dodge County, April 27 (B. Domagalski); Dodge County, May 1 (S. Robbins); and Shawano County, May 11 (M. Peterson).

Snowy Plover.—Ten reports of this species in Manitowoc County were accepted by the Records Committee. The reports were as follows: April 20 (R. Domagalski and J. Smith); April 21 (B. Cowart, C. Sontag and D. Tessen); April 22 (S. Robbins); April 25 (J. Frank); and April 26 (M. Peterson, C. Sontag and T. Soulen).

Semipalmated Plover.—First reported in Taylor County, April 2 (B. Armbrust). On May 13, 47 birds were sighted in Dodge County (B. Domagalski).

Piping Plover.—Only one sighting again for this species for the third year in a row: 1 bird seen in Manitowoc County, April 26 (B. Boldt).

Killdeer.—First reported in Trempealeau County, March 3 (T. Hunter).

Black-necked Stilt.—A May 11 report of this species in Sheboygan County was rejected by the Records Committee.

American Avocet.—First reported in Milwaukee County, April 16 (B. Domagalski). The only other sighting of this species was on April 25 when 65 birds were sighted in LaCrosse County (T. Hunter and J. Skewes).

Greater Yellowlegs.—First reported in Dodge County, March 30 (J. Haseleu).

Lesser Yellowlegs.—First reported in Dodge County, April 4 (B. Domagalski).

Solitary Sandpiper.—First reported in Taylor County, April 26 (P. Risch). Present at the end of the period in LaCrosse County.

Willet.—First reported in Manitowoc County, April 25 (J. Frank and M. Peterson). Also reported during the period in Ashland, Barron, Dodge, Milwaukee, and Sheboygan Coun-

ties. On May 2, 28 birds were sighted in Manitowoc County (C. Sontag).

Spotted Sandpiper.—First reported in Wood County, April 14 (K. Merkel).

Upland Sandpiper.—First reported in Portage County, April 14 (A. & S. Shea).

Whimbrel.—Reported as follows: Douglas County, May 17 (R. Johnson and L. Semo); Sheboygan County, May 18 (D. & M. Brasser); Manitowoc County, May 19-EOP (C. Sontag); and Kewaunee County, May 20 (M. Peterson). On May 20, 55 birds were sighted in Manitowoc County (M. Peterson).

Hudsonian Godwit.—Reported as follows: Ashland County, May 11 (D. Verch); Dunn County, May 17 (J. Polk); Columbia County, May 18 (B. Isenring); and Dane County, May 18 (A. & S. Shea and D. Tessen).

Marbled Godwit.—Reported as follows: Ozaukee County, May 11–12 (B. Cowart, J. Frank, and D. Tessen); Winnebago County, May 11 (T. Ziebell); Ashland County, May 15 (D. Verch); and Douglas County, May 16 (R. Johnson).

Ruddy Turnstone.—First reported in Manitowoc County, May 6 (C. Sontag). On May 26, 850 birds were sighted in Manitowoc County (C. Sontag). Present at the end of the period in Ashland, Douglas, Manitowoc, and Winnebago Counties.

Red Knot.—Reported as follows: Winnebago County, May 17 (B. Harriman); Douglas County, 7 birds were seen on May 19 (R. Johnson) and on May 26 (J. Robinson); and Manitowoc County, May 29 (C. Sontag). Present at the end of the period in Manitowoc County.

Sanderling.—First reported in Manitowoc County, May 13 (J. Frank). Present at the end of the period in Ashland, Douglas, Manitowoc, and Winnebago Counties.

Semipalmated Sandpiper.—First reported in Dane County, May 7 (Randy Hoffman). Present at the end of the period in Ashland, LaCrosse, and Manitowoc Counties.

Western Sandpiper.—There were no reports of this species.

Least Sandpiper.—First reported in Taylor County, April 20 (B. Armbrust). On May 16, 60 birds were sighted in Dane County (P. Ashman). Present at the end of the period in Ashland, LaCrosse, and Manitowoc Counties.

White-rumped Sandpiper.—First reported in Taylor County, May 7 (B. Armbrust). Also reported during the period in Columbia, Dane, and Milwaukee Counties. Present at the end of the period in LaCrosse County.

Baird's Sandpiper.—Reported as follows: Dane County, May 9 (E. Hansen) and May 18 (A. & S. Shea); Ozaukee County, May 12 (D. Tessen); and Manitowoc County, May 19 (C. Sontag).

Pectoral Sandpiper.—First reported in Ozaukee County, March 22 (B. Cowart).

Purple Sandpiper.—Four reports of this species in Sheboygan County were accepted by the Records Committee. The reports were as follows: March 3 (M. Peterson); March 7 (J. Frank); March 10 (T. Schultz); and March 18 (T. Soulen).

Dunlin.—First reported in Sheboygan County, May 11 (D. & M. Brasser). On May 18, 400 birds were sighted in Dodge County (D. Tessen). Present at the end of the period in Ashland, Dane, Dodge, Douglas, Manitowoc, and Sheboygan Counties.

Stilt Sandpiper.—Reported as follows: Dane County, May 12 (Randy Hoffman); and Ozaukee County, May 12 (D. Tessen).

Ruff.—Reported in Brown County, April 27–May 3 (I. & C. Baumann, B. Cowart, B. Mead, M. Peterson, and P. Risch).

Short-billed Dowitcher.—First reported in Dodge County, May 1 (B. Domagalski). Present at the end of the period in Manitowoc County.

Long-billed Dowitcher.—After no reports last year this uncommon spring migrant was reported as follows: Dodge County, April 30 (B. Domagalski); Winnebago County, May 2 (B.

Harriman); and Dane County, May 19, 17 birds— a high number (Randy Hoffman).

Common Snipe.—Present at beginning of period in Trempealeau County (T. Hunter). The next observation of this species was in Portage County, April 3 (M. Berner). On April 14, 78 birds were sighted in Portage County (A. & S. Shea).

American Woodcock.—First reported on March 16 in Dane (E. Hansen) and Milwaukee (S. Diehl) Counties.

Wilson's Phalarope.—First reported in Dodge County, April 27 (B. Domagalski).

Red-necked Phalarope.—This uncommon spring migrant was reported only once: Dane County, May 18, 3 birds were sighted (A. & S. Shea and D. Tessen).

Laughing Gull.—Seven reports of this species in Milwaukee County were accepted by the Records Committee. The reports were as follows: March 3 (B. Cowart and J. Frank); March 4 (D. Tessen); March 7 (A. Henning); March 10 (T. Schultz); and March 24 (B. Boldt). In addition, a report of this species in Manitowoc County from May 17—EOP (C. Sontag) was also accepted by the Records Committee.

Franklin's Gull.—Reported as follows: Buffalo County, May 4 (Randy Hoffman); Dane County, May 4 (P. Ashman) and May 18 (A. & S. Shea and D. Tessen); Dodge County, May 5 (M. Peterson); and Milwaukee County, May 29 (B. Breihan).

Little Gull.—Reported in Manitowoc County, May 22-EOP (C. Sontag).

Bonaparte's Gull.—First reported on April 5 in Dane (Randy Hoffman) and Ozaukee (B. Cowart) Counties. On May 5, 1000+ birds were sighted in Ashland County (D. Verch).

Ring-billed Gull.—Present at the beginning of the period along the Lake Michigan shoreline.

Herring Gull.—Present at beginning of period along the Great Lakes' shorelines.

Thayer's Gull.—A report of this subspecies in Ozaukee County, May 13 (J. Frank) was accepted by the Records Committee. A May 19 report of this subspecies in Manitowoc County was rejected by the Records Committee.

Iceland Gull.—A report of this species in Milwaukee County, March 3 (B. Cowart) was accepted by the Records Committee.

Lesser Black-backed Gull.—A report of this species in Sheboygan County, May 18 (D. & M. Brasser) was accepted by the Records Committee.

Glaucous Gull.—Late sightings reported as follows: Manitowoc County, May 3 (C. Sontag); Sheboygan County, May 19 (D. & M. Brasser); and Douglas County, May 27 (R. Johnson and J. Robinson). Also reported in Marathon and Winnebago Counties. On April 18, 6 birds were sighted in Douglas County (R. Johnson).

Great Black-backed Gull.—A report of this species in Manitowoc County, TTP (C. Sontag) was accepted by the Records Committee.

Caspian Tern.—First reported in Ozaukee County, April 7 (B. Domagalski). On May 12, 400 birds were sighted in Manitowoc County (D. Tessen).

Common Tern.—First reported in Door County, April 13 (R. & C. Lukes).

Forster's Tern.—First reported in Sheboygan County, April 6 (D. & M. Brasser).

Black Tern.—First reported on May 4 in Marathon (D. Belter); Pierce (N. Carlson); and Sheboygan (D. & M. Brasser) Counties.

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

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

Black-billed Cuckoo.—An extremely early and northerly report was of one in Marinette County, April 30.

Yellow-billed Cuckoo.—First reported on

May 12 in Dane (Randy Hoffman) and Winnebago (T. Ziebell) Counties.

Eastern Screech-Owl.—Reported in 15 Counties during the period. This species was reported as far north as Chippewa, St. Croix, and Taylor Counties.

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

Snowy Owl.—Following last year's single spring report, there were 6 reports as follows: Douglas County, BOP–March 25 (L. Semo); Winnebago County, BOP–March 13 (T. Ziebell); Marathon County, March 3 (D. Belter); St. Croix County, March 3–20 (J. & K. Smith); Clark County, March 15 (K. & J. Luepke); and Burnett County, April 16 (J. Hoefler).

Northern Hawk-Owl.—Following last winter's 'invasion' of this species, two reports of birds in March were accepted by the Records Commitee. These were: Douglas County, March 6 (D. Lauten); and Pierce County, March 6 (N. Carlsen).

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

Great Gray Owl.—A report of this species in Bayfield County, March 30 (P. David) was accepted by the Records Committee.

Long-eared Owl.—Another good spring for this species reported as follows: Trempealeau County, March 17 (T. Hunter); Clark County, March 22 (K. & J. Luepke); Taylor County, April 7 (B. Armbrust); Portage County, May 8-EOP, where two nests fledged three young each (E. Jacobs); and St. Croix County, May 19, where nesting documented for the second year in a row (J. Robinson).

Short-eared Owl.—For the third year in a row, reports of this species have increased. Present at beginning of period in Clark and St. Croix Counties. Reported in 15 other Counties during the period. Present at the end of the period in Clark County. On April 1, 18 birds were sighted in Portage County (D. Tessen).

Northern Saw-whet Owl.—Present at beginning of period in Marinette and Portage Counties. Reported in 10 other Counties during the period. Present at the end of the period in Douglas, and Marinette Counties. On March 10, 7 birds were sighted in Portage County (E. Jacobs); the Linwood Springs Research Station banded a total of 50 saw-whets during the period.

Common Nighthawk.—First reported in Jefferson County, April 27 (K. Hale).

Chuck-will's-widow.—A May 23 report of this species in Dane County was rejected by the Records Committee.

Whip-poor-will.—First reported in Milwaukee County, April 16 (S. Diehl).

Chimney Swift.—First reported in Marathon County, April 4 (K. & J. Luepke).

Ruby-throated Hummingbird.—First reported in Marinette County, May 1 (S. LaValley).

Belted Kingfisher.—Present at beginning of period in Dane, Door, and Trempealeau Counties.

Red-headed Woodpecker.—Present at beginning of period in Dunn, Marathon, Marinette, and Portage Counties.

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

Yellow-bellied Sapsucker.—First reported in Dane County, March 24 (P. Ashman).

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

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

Black-backed Woodpecker.—Reported as follows: Ashland County, TTP (D. Verch); Douglas County, TTP (R. Johnson and L. Semo); and Vilas County, May 5 (J. Baughman).

Northern Flicker.—Present at beginning

of period in Dane, Outagamie, and Ozaukee Counties.

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

Olive-sided Flycatcher.—First reported in Buffalo County, May 4 (Randy Hoffman).

Eastern Wood Pewee.—First reported in Dane County, April 29 (B. Isenring).

Yellow-bellied Flycatcher.—First reported in Douglas County, May 11 (R. Johnson).

Acadian Flycatcher.—First reported in Rock County on May 13 (Randy Hoffman). Also reported in Buffalo, Grant, Green Lake, Milwaukee, Monroe, and Sauk Counties. On May 15, 5 birds were sighted in Rock County (Randy Hoffman and A. Shea).

Alder Flycatcher.—First reported on May 9 in Chippewa (C. Kemper); Milwaukee (W. Woodmansee); and Portage (M. Berner) Counties.

Willow Flycatcher.—First reported in Monroe County, April 27 (E. Epstein).

Least Flycatcher.—First reported in Marathon County, April 10 (K. & J. Luepke).

Eastern Phoebe.—First reported in Richland County, March 21 (B. Duerksen).

Great-crested Flycatcher.—First reported in Dane County, May 5 (A. & S. Shea).

Western Kingbird.—There were no reports of this species.

Eastern Kingbird.—First reported in Monroe County, April 24 (E. Epstein).

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

Purple Martin.—First reported in Trempealeau County, April 4 (T. Hunter).

Tree Swallow.—First reported in Dodge County, March 21 (B. Domagalski).

Rough-winged Swallow.—First reported in LaCrosse County, April 13 (J. Dankert).

Bank Swallow.—First reported in Portage County, April 14 (M. Berner).

Cliff Swallow.—First reported in Portage County, April 8 (M. Berner). On May 4, 240 birds were sighted in Marathon County (D. Belter).

Barn Swallow.—First reported in Winnebago County, April 8 (T. Ziebell).

Gray Jay.—Reported as follows: Douglas County, TTP (L. Semo); Price County, TTP (M. Hardy); Sawyer County, BOP–April 4 (K. Castelein & D. Lauten) and April 28 (J. Robinson); and Forest County, April 2 (D. Tessen).

Steller's Jay.—A report of this species in Forest County from May into June was deferred by the Records Committee until more information on the record could be obtained.

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 Calumet and Jackson Counties.

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

Boreal Chickadee.—Reported as follows: Oneida County, April 2 (D. Tessen) and Vilas County, May 15–27 (J. Baughman).

Tufted Titmouse.—Reported at the beginning of the period in Dane, St. Croix, and Waukesha Counties. Also reported in Buffalo, Clark, Columbia, Grant, Milwaukee, Richland, and Rock 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: Milwaukee County, BOP–May 8 (M. Berner, W. Woodmansee, and N. Zehner); Dane County, March 7 (E. Hansen); and Sauk County, May 19 (T. Schultz).

Bewick's Wren.—For the second year in a row, a report of this species was received. This spring a record from Dunn County, May 25 (R. Hoffman) was accepted by the Records Committee.

House Wren.—First reported in LaCrosse County, April 25 (F. Lesher).

Winter Wren.—First reported in Portage County, March 23 (M. Berner).

Sedge Wren.—First reported in Columbia County, April 18 (B. Isenring).

Marsh Wren.—First reported in Columbia County, April 18 (B. Isenring).

Golden-crowned Kinglet.—Reported at the beginning of the period in Dane, Douglas, Jefferson, Sawyer, and Taylor Counties. Present at the end of the period in Door, Douglas, Taylor, and Vilas Counties.

Ruby-crowned Kinglet.—First reported in Portage County, April 2 (M. Berner). On May 8, 45 birds were sighted in Dane County (P. Ashman). Present at the end of the period in Ashland, Door, and Douglas Counties.

Blue-gray Gnatcatcher.—First reported in Milwaukee County, April 20 (B. Domagalski). This species was reported as far north as Burnett County.

Eastern Bluebird.—First reported in Dane County, March 5 (E. Hansen).

Veery.—First reported in Dane County, April 28 (A. & S. Shea). On May 15, 20+ birds were sighted in Rock County (A. Shea and R. Hoffman).

Gray-cheeked Thrush.—First reported on April 28 in Dodge (J. Haseleu); and Milwaukee (B. Breihan) Counties.

Swainson's Thrush.—First reported in Door County, April 17 (R. & C. Lukes).

Hermit Thrush.—First reported in Marathon County, March 28 (K. & J. Luepke).

Wood Thrush.—First reported in Dane County, May 5 (A. & S. Shea).

American Robin.—Present at beginning of period in Dane and Milwaukee Counties.

Varied Thrush.—Reported in Ashland County, BOP–April 14 (D. Verch).

Gray Catbird.—First reported in Milwaukee County, April 21 (W. Woodmansee).

Northern Mockingbird.—Reported as follows: Sawyer County, May 8 (K. Castelein & D. Lauten); Bayfield County, May 12 (P. David); Outagamie County, May 13 (J. Anderson & S. Petznick); and Ashland County, May 17 (D. Verch).

Brown Thrasher.—First reported in Door County, April 8 (R. & C. Lukes).

Water Pipit.—Reported as follows: Dane County, May 4 (D. Tessen and May 18, A. & S. Shea); Douglas County, May 8–15 (R. Johnson, J. Robinson, and L. Semo); and Ashland County, May 10 (D. Verch).

Bohemian Waxwing.—Reported as follows: Ashland County, BOP–March 15 (D. Verch) and Eau Claire County, March 2 (J. Polk).

Cedar Waxwing.—Present at beginning of period in Barron, Dane, Marinette, Milwaukee, Polk, Trempealeau, and Waukesha Counties.

Northern Shrike.—Reported in 13 counties during the period. Last reported on March

30 in Ashland (D. Verch) and Taylor (P. Risch) Counties.

Loggerhead Shrike.—Similar to 1989, this species made a good showing again this spring. Reported as follows: Buffalo County, March 27 (B. Domagalski); Calumet County, April 20 (C. Rudy); Oconto County, April 21-EOP, 4 birds (successful nest?) (J. & K. Smith and M. Peterson); Douglas County, May 2 (L. Semo); St. Croix County, May 18 (J. Robinson); and Polk County, May 19 (J. Hudick).

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

White-eyed Vireo.—Reported as follows: Manitowoc County, May 6 (C. Rudy); Dane County, May 7–11 (E. Hansen, B. Hilsenhoff, Randy Hoffman, and S. Robbins); and Green County, May 10 (M. Peterson) and May 25 (D. Tessen).

Bell's Vireo.—A dismal spring for this species with only two reports: Iowa County, May 24 (M. Peterson) and Green County, May 25 (D. Tessen).

Solitary Vireo.—First reported in Marinette County, April 26 (S. LaValley).

Yellow-throated Vireo.—First reported in Outagamie County, April 27 (J. Anderson & S. Petznick).

Warbling Vireo.—First reported on April 27 in Dane (B. Hilsenhoff) and Marinette (S. LaValley) Counties.

Philadelphia Vireo.—First reported in Milwaukee County, April 27 (B. Cowart).

Red-eyed Vireo.—First reported in Wood County, April 23 (K. Merkel). On May 16, 22 birds were sighted in Chippewa County (C. Kemper).

Blue-winged Warbler.—First reported in Rock County, May 1 (J. Robinson).

Golden-winged Warbler.—First reported in Price County, May 6 (M. Hardy).

Tennessee Warbler.—First reported on April 27 in Dane (P. Ashman) and Milwaukee (W. Woodmansee) Counties. On May 17, "100s" birds were sighted in western Wisconsin County (Randy Hoffman).

Orange-crowned Warbler.—First reported in Brown County, April 25 (M. Wierzbicki).

Nashville Warbler.—First reported on April 27 in Dane (P. Ashman and B. Hilsenhoff) and Milwaukee (B. Cowart) Counties.

Northern Parula Warbler.—First reported in Milwaukee County, April 21 (R. Gutschow).

Yellow Warbler.—First reported in Dane County, April 23 (E. Hansen).

Chestnut-sided Warbler.—First reported in Dane County, May 1 (B. Isenring).

Magnolia Warbler.—First reported in Milwaukee County, April 27 (W. Woodmansee). A bird present in Jefferson County at the EOP was very late (K. Hale).

Cape May Warbler.—First reported in Portage County, May 2 (M. Berner).

Black-throated Blue Warbler.—First reported in Milwaukee County, April 27 (B. Cowart and W. Woodmansee). Also reported during the period in 11 other counties.

Yellow-rumped Warbler.—First reported on April 6 in Columbia (P. Ashman); Dane (E. Hansen); Door (R. & C. Lukes); Milwaukee (B. Breihan); Outagamie (J. Anderson & S. Petznick); and Portage (M. Berner) Counties. On May 8, 150+ birds were sighted in Dane County (P. Ashman).

Black-throated Green Warbler.—First reported in Milwaukee County, April 27 (W. Woodmansee). On May 8, 18 birds were sighted in Dane County (P. Ashman).

Blackburnian Warbler.—First reported in Portage County, May 1 (M. Berner).

Yellow-throated Warbler.—Reported in Rock County, May 1–25 (M. Peterson, J. Robinson, and D. Tessen).

Pine Warbler.—First reported in Sawyer County, April 18 (J. Robinson).

Kirtland's Warbler.—Reported in Jackson County, May 30 (J. Polk). This singing male was in the same location as last year.

Prairie Warbler.—For the second year in a row, no individuals of this species were observed.

Palm Warbler.—First reported in Dane County, April 21 (Randy Hoffman). On May 8, 200 birds were sighted in Dane County (P. Ashman).

Bay-breasted Warbler.—First reported in Dane County, May 7 (Randy Hoffman).

Blackpoll Warbler.—First reported in Grant County, May 3 (F. Lesher). On May 18, 70 birds were sighted in Trempealeau County (F. Lesher).

Cerulean Warbler.—First reported in Rock County, May 1 (J. Robinson).

Black-and-white Warbler.—First reported in Dane County, April 23 (E. Hansen).

American Redstart.—First reported on May 9 in Dane (Randy Hoffman); Milwaukee (W. Woodmansee); and Portage (M. Berner) Counties. On May 8, 40 birds were sighted in Dane County (P. Ashman).

Prothonotary Warbler.—First reported in Dane County, April 28 (Randy Hoffman). Also reported in Buffalo, Grant, Monroe, Polk, Rock, St. Croix, Taylor and Trempealeau Counties.

Worm-eating Warbler.—First reported in Dane County, April 27 (Randy Hoffman) also observed on May 9 (E. Hansen); Milwaukee County, May 2 (R. Gutschow); Sauk County, May 24, 4 birds in Hemlock Draw (M. Peterson); and Grant County, May 25 (D. Tessen).

Ovenbird.—First reported on April 23 in Marinette (S. LaValley) and Wood (K. Merkel) Counties.

Northern Waterthrush.—First reported in Dane County, April 26 (Randy Hoffman).

Louisiana Waterthrush.—First reported in Dane County, April 12 (P. Ashman). Also reported in Grant, Manitowoc, Milwaukee, Portage, St. Croix, and Sauk Counties.

Kentucky Warbler.—First reported in Winnebago County, May 11 (T. Ziebell). Also reported in Grant, Lafayette, Milwaukee, and St. Croix Counties. On May 25, 7 birds were sighted in Grant County (D. Tessen).

Connecticut Warbler.—First reported in Chippewa County, May 14, (C. Kemper). Also reported during the period in Ashland, Dane, Douglas, Green Lake, Milwaukee, Oconto, Ozaukee, Pepin, St. Croix and Vilas Counties.

Mourning Warbler.—First reported in Milwaukee County, May 9, (B. Cowart).

Common Yellowthroat.—First reported in Dodge County, April 27, (B. Domagalski).

Hooded Warbler.—First reported in Milwaukee County, May 2, (W. Woodmansee). Also reported during the period in Dane, Fond du Lac, and Waukesha Counties.

Wilson's Warbler.—First reported in Dane County, April 28, (D. Cederstrom).

Canada Warbler.—First reported in Milwaukee County, May 9, (W. Woodmansee). On May 15, 20 birds were sighted in Rock County (Randy Hoffman and A. Shea).

Yellow-breasted Chat.—Reported as follows: Dane County, May 13, (E. Hansen); Milwaukee County, May 15, (W. Woodmansee); and Green County, May 27 (M. Peterson).

Summer Tanager.—After last spring's excellant showing, there was only one report: Walworth County, May 8 (P. Parsons).

Scarlet Tanager.—First reported in Clark

County, April 21 (P. Risch). On May 11, 12 birds were sighted in Marathon County (D. Belter).

Western Tanager.—Two reports of this species in Marathon County were accepted by the Records Committee: April 28 (P. Risch and J. Roti). A report of this species in Buffalo County, May 4 (R. Hoffman) was also accepted by the Records Committee.

Northern Cardinal.—This species was reported as far north as: Ashland, Burnett, Marinette, Sawyer, Taylor, and Vilas Counties. On March 3, 22 birds were sighted in St. Croix County (J. & K. Smith).

Rose-breasted Grosbeak.—First reported in Richland County, April 28 (B. Duerksen). On May 12, 15 birds were sighted in Marathon County (D. Belter).

Indigo Bunting.—First reported on April 28 in Dane (P. Ashman) and Door (R. & C. Lukes) Counties.

Dickcissel.—Reported as follows: Dane County, May 17 (A. & S. Shea) and May 27 (E. Hansen); Door County, May 21 (R. & C. Lukes); Green County, May 25 (D. Tessen); Pepin County, May 25 (Randy Hoffman); Rock County, May 25 (D. Tessen); and LaCrosse County, May 30 (F. Lesher).

Green-tailed Towhee.—A report of this species in Milwaukee County, May 16 (B. Cowart) was accepted by the Records Committee.

Rufous-sided Towhee.—First reported in Walworth County, March 28 (P. Parsons), possibly an over-wintering bird.

American Tree Sparrow.—Last reported in Door County, May 10 (R. & C. Lukes).

Chipping Sparrow.—First reported in Richland County, March 25 (B. Duerksen).

Clay-colored Sparrow.—First reported in Dane County, April 28 (P. Ashman).

Field Sparrow.—First reported in Dane County, March 27 (E. Hansen).

Vesper Sparrow.—First reported on April 6 in Columbia (P. Ashman) and Richland (B. Duerksen) Counties.

Lark Sparrow.—First reported in Portage County, May 9 (M. Berner). Also reported during the period in Dane, Dunn, LaCrosse, Pepin, Rock, Sauk, Sawyer, and St. Croix Counties.

Savannah Sparrow.—First reported in Dane County, May 21 (B. Isenring).

Grasshopper Sparrow.—First reported in Door County, April 28 (R. & C. Lukes).

Henslow's Sparrow.—First reported in Marathon County, April 28 (D. Belter). Also reported during the period in Green Lake, Lafayette, Lincoln, Pepin, Richland, and Taylor Counties.

LeConte's Sparrow.—First reported in Ozaukee County, April 23 (B. Cowart). Also reported during the period in Ashland, Burnett, Douglas, Green Lake, LaCrosse, Marathon, Sawyer, Shawano, and Taylor Counties. A singing male in Green Lake County on May 19 (T. Schultz) was extremely far south for this late date.

Sharp-tailed Sparrow.—The only report of this species came was from Burnett County, March 25 (K. Castelein & D. Lauten and J. Robinson).

Fox Sparrow.—First reported in Milwaukee County, March 8 (S. Diehl).

Song Sparrow.—Present at beginning of period in Dane, Milwaukee, and Taylor Counties.

Lincoln's Sparrow.—First reported in Ozaukee County, April 29 (B. Cowart).

Swamp Sparrow.—Present at beginning of period in Dane County (P. Ashman).

White-throated Sparrow.—Present at beginning of period in Dane County (P. Ashman).

White-crowned Sparrow.—First re-

ported in Ozaukee County, April 29 (B. Cowart). On May 8, 10 birds were sighted in Dane County (P. Ashman).

Harris' Sparrow.—First reported in Rock County, May 4 (D. Tessen). Also reported during the period in Ashland, Barron, Douglas, Milwaukee, Pepin, and Price Counties.

Dark-eyed Junco.—Present at the end of the period in Ashland, Douglas, and Vilas Counties.

Lapland Longspur.—Present at beginning of period in Taylor and Winnebago Counties. Reported in 11 other Counties during the period. On April 11, 400 birds were sighted in Marathon County (K. & J. Luepke). Last reported in Winnebago County, May 11 (T. Ziebell).

Snow Bunting.—Present at beginning of period in Ashland, Douglas, Dunn, Marathon, Portage, Taylor, and Vilas Counties. Reported in 9 other Counties during the period. Last reported in Ashland County, April 29 (D. Verch).

Bobolink.—First reported in Dodge County, May 9 (B. Domagalski).

Red-winged Blackbird.—Present at beginning of period in Dane, Dodge, Kenosha, Manitowoc, Racine, Walworth, and Winnebago Counties.

Eastern Meadowlark.—First reported on March 10 in Dane (E. Hansen) and Jefferson (K. Hale) Counties.

Western Meadowlark.—First reported in Richland County, March 20 (B. Duerksen).

Yellow-headed Blackbird.—First reported in Dodge County, April 7 (B. Domagalski).

Rusty Blackbird.—Present at beginning of period in Trempealeau County (T. Hunter).

Brewer's Blackbird.—Present at beginning of period in Dodge County (B. Domagalski).

Common Grackle.—Present at beginning of period in Dane, Milwaukee, Walworth, and Washington Counties.

Brown-headed Cowbird.—Present at beginning of period in Dane, Dodge, Jefferson, Walworth, and Washington Counties.

Orchard Oriole.—First reported in Dane County, May 3 (B. Hilsenhoff). On May 9, 6 birds were sighted in Dane County (Randy Hoffman). Reported in 13 other counties during the period as far north as Dunn and Oconto Counties.

Northern Oriole.—First reported in Milwaukee County, April 27 (B. Cowart). On May 9, 27 birds were sighted in Dane County (Randy Hoffman).

Pine Grosbeak.—Reported as follows: Ashland County, BOP–March 10 (D. Verch); Douglas County, BOP (L. Semo); Price County, BOP–March 14 (M. Hardy); Shawano County, March 5 (M. Peterson); and Portage County, March 17 (M. Berner).

Purple Finch.—Present at the end of the period in 11 Counties, as far south as Portage County.

House Finch.—Reported in 35 counties during the period; seven more than last spring and 18 more than spring 1989. This species was reported as far north as: Ashland, Oconto, Price, Sawyer, and Taylor Counties. The corner of northwest Wisconsin without this species is getting smaller.

Red Crossbill.—Present at beginning of period in Douglas and Vilas Counties. Also reported in Jackson, LaCrosse, Marinette, Portage, Sawyer, and Shawano Counties. Present at the end of the period in Ashland, Douglas, and Marinette Counties. On April 25, 50 birds were sighted in Marinette County (S. LaValley).

White-winged Crossbill.—The only Report of this species was in Portage County, March 27 (M. Berner).

Common Redpoll.—As opposed to last year's 28 counties, this species was present at the beginning of period in only 2: Ashland and Door Counties. Also reported in Price, St. Croix, Sawyer, Taylor, and Vilas Counties. Last reported in Taylor County, April 15 (B. Armbrust).

Pine Siskin.—Present at beginning of period in 12 Counties, as far south as Jefferson, Ozaukee, and Trempealeau Counties. Present at the end of the period in Ashland, Barron, Burnett, Douglas, Marathon, and Winnebago Counties.

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

Evening Grosbeak.—Present at beginning of period in 8 counties, and reported during the period as far south as Shawano and Portage Counties. Present at the end of the period in Ashland, Douglas, Marinette, Price, Sawyer, and Vilas Counties.

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

Eurasian Tree Sparrow.—Reported in Pierce County, March 9 (D. Tessen).

Contributors

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"By the Wayside"

Highlights of last year's spring season include Ferruginous Hawk, Gyrfalcon, Prairie Falcon, Snowy Plover, Purple Sandpiper, Laughing Gull, Northern Hawk-Owl, Great Gray Owl, Bewick's Wren, Western Tanager, and an award-winning school bird-feeding project.

During the Spring 1991 season the WSO Records Committee reviewed 45 records of 21 species from 28 observers. They accepted 40, rejected 4 and deferred on one. Accepted records include Tricolored Heron, Yellow-crowned Night-Heron, Ferruginous Hawk, Gyrfalcon, Prairie Falcon, Snowy Plover, Purple Sandpiper, Laughing Gull, Thayer's Gull, Iceland Gull, Lesser Black-backed Gull, Great Black-backed Gull, Northern Hawk-Owl, Great Gray Owl, Bewick's Wren, Western Tanager, and Green-tailed Towhee. Not accepted were records of Brown Pelican, Black-necked Stilt, Chuck-will's-widow, and Steller's Jay.

Ferruginous Hawk (*Buteo regalis*)

4 May 1991, Pepin County, Five-mile Bluff—I noticed a buteo with very distinctive "windows" at the base of the primaries (wrist area) when it was flying away from me. I also noted a general more brown back appearance compared to a red-tail and a more floppy flight on long wings. The tail's upper colors were rather light with a brownish-red, wide terminal band. The bird landed on the top of a small branch on a large tree, very reminiscent of preferred rough-legged perches. Being very intrigued by the bird, I proceeded into the farmer's drive where the bird had landed. Upon flushing the species was confirmed when I got a good look at its undersides. There was a basic very light plummage underneath. There was some very light mottling on the sides and breast with light brown mottling on the underwing linings. The tail was light. The clincher was the distinctive brown-red (rufous) V formed by the legs. I watched until it was out of sight, heading northwest.—*Randy Hoffman, 305 Fifth Street, Waunakee, WI 53597.*

Gyrfalcon (*Falco rusticolus*)

14 March 1991, Portage County, Buena Vista Marsh—During mid to late afternoon, I took a trip through Buena Vista Marsh to watch for prairie chickens and late winter hawks. Following Co. Hwy W east and then south, I ob-

served a raptor perched on the upper branches of an isolated cottonwood from a distance of 500+ yards. At first view it was not identifiable as buteo or accipiter. The tail was relatively short and the breast and shoulders appeared too narrow to be any of the common hawks. I, therefore, decided to approach for a closer view.

It was a perfectly clear day, sun was bright but in the west (in my eyes) with the bird perched to the northwest—ahead and right. I approached to within 75–80 yards, watching occasionally as I moved up on the bird. I approached making a wide swing to get a better view because of the sun's angle. On my final observation the sun was at about 60° to 70° to my left of the bird. My final observation was made in excellent lighting.

The bird remained perched for approximately 2 to 3 minutes as I viewed it. I noticed the heavily speckled breast—from the throat to the abdomen. No barring was seen, but a dark irregular spotting on a dark gray background. No particular facial markings were seen, but the head seemed fairly large, certainly not small or short-faced like sharp-shinned or Cooper's.

The shoulders were somewhat broad, with a long tapering wings extending along the tail. The tail was not short and square like a buteo, but mid-length and narrow. The back color appeared to be a uniform dark gray.

When the bird took flight, it became very apparent that this was a large falcon. The wings were a long and pointed triangular shape. They were not narrow as in a Merlin or Peregrine. These wings were very broad, with a rather shallow wingbeat. The downstroke was very powerful with a slow but deliberate and constant beat.

The bird flew to the south west. I tried to follow on the area roads, but could not locate it again as it passed into thicker cover of the adjacent woodlots.—*William K. Volkert, W996 Birchwood Dr., Campbellsport, WI 53010.*

Prairie Falcon (*Falco mexicanus*)

15 March 1991, Portage County, Buena Vista Marsh—The bird was pale brown in appearance, especially the spotted breast and face. The malar stripe was not real distinct. The bird was erect on its perch and looking around, from N to SE to SW. Before coming upon the bird I observed a dark phase and light phase Rough-legged Hawks flying tight circles around the top of the snag. At this point I was approximately 60 meters away.

After approximately 1 minute of observation through binoculars (10×) 30 meters from the bird, the bird left its perch. I turned over to its left exposing its underside where its pale underwings, pointed wing tips and dark wing linings (axillars) were very noticeable. The ventral part of the tail was also quite visible and exhibited several faint/pale bars.

The bird proceeded SW slightly above the vegetation. It did not soar or glide but traveled with strong deliberate wing beats to out of sight over a swale in the terrain.

The bird was much larger than a kestrel or Merlin, and a bit smaller than the Rough-legged Hawks. Both kestrels and Rough-legged Hawk were common to abundant that day. The bird was also larger than a female harrier. I have worked with harriers for a summer on the Buena Vista Marsh and have handled them as well as kestrels.—

Daniel R. Spuhler, 1352 Robin Lane, Stevens Point, WI 54481.

SNOWY PLOVER (*Charodrius alexandrinus*)

20 April 1991, Manitowoc County, Two Rivers—Upon returning from observing the gulls that were perched on the south breakwater by the fisherman's access point at the mouth of the Twin Rivers, Karen pointed out a small plover-sized shorebird that was running along the sandy beach area. We both began observing the bird through 7 × 50 binoculars from about 40′ distant. The bird was a small plover; white throat, breast and belly and light tan/brown upper body color. What struck me first was it's lightness in color, 7/2–6/2 Munsell, which made it obvious it was not a Semipalmated Plover (which was somewhat obvious from initial observation). This bird had a small black mark across the forehead with white in front of this in the lore area. Another black patch ran on the side of the face, starting in the lore area through the eye (which was dark in color) and ending in the area of the ear patch. There was also another black mark (like a swath with a paint brush), which almost gave the appearance of an incomplete neck ring, but was in the shouldered area, just in front of the folded wing. The bird had black or what could have been very dark gray legs and a small, rather narrow black bill. When we approached within 25′ of the bird, we could also see that the folded wing edges and area was slightly darker brownish/tan and the outer tail feathers were white, with the central tail color being dark brown to black in color.

The bird made several circular, brief flights and returned to the beach area. In flight, the darker primary feather areas were seen, with a narrow white wing stripe on the dorsal surface also observed. The white outer tail feather and the darker colored central area were readily observed along with the brownish/tan rump area. We observed this bird for about 15 minutes as it ran up and down along about 100′ of lake beach, occasionally picking at items and usually moving about in short, quick, burst fashion then briefly stopping. Notes were completed upon return to the vehicle and later, when we had consulted a field guide, it was apparent when we looked at the banded plover page, we had been observing a Snowy Plover.—*Jerry H. Smith, 6865 Fredrickson Road, Lena, WI 54139.*

22 April 1991, Manitowoc County, Two Rivers—The plover was little larger than a Song Sparrow, standing on spindly legs and displaying an extremely short tail. It reminded me more of a miniature Killdeer than a sparrow. For fully 15 minutes the plover and I eyed each other. I moved scarcely a muscle as I waited for Bill Foster to join me. The bird moved three feet toward me, on dry loose sand that offered excellent protective coloration, then maintained a constant position. It preened a bit, twice lifting one wing, but otherwise scarcely moved.

Compared with a similarly-shaped Killdeer, this bird—in addition to being much smaller—showed a much lighter gray-brown back and wings. The underparts were pure white, interrupted only by small patches of darker gray on the shoulder—the edge of what would be black bands on a Killdeer. The top and back of the head were

essentially the same color as the back, with just the faintest suggestion of light yellow mixed in. On the fore part of the crown there was a solid black patch, and ahead of that, a solid white forehead. A blackish spot also extended back from a dark eye.

The bill was moderately short, thin, straight, and solid black. The legs were solid gray. Although the bird did not fly, it lifted its wing twice, showing a white stripe on the under surface of the wing that extended half way to the tip.

The bird opened its mouth once, apparently to yawn. I heard no sound.—*Sam Robbins, 14 South Roby Road, Madison, WI 53705.*

26 April 1991, Manitowoc County, Two Rivers—I arrived at the motel parking lot in Two Rivers about 1:00 on April 26, and Chuck Sontag greeted me with the welcome news that the bird was just a few hundred yards to our south. It took us only a few minutes to find it, and although it was moving fairly rapidly much of the time, I had the chance with my 7 × 50 binoculars to see it at distances as close as 15–20 feet, frequently in excellent light. There also were a few occasions when it sat still long enough to get even closer views with my 30 × 75 telescope. We immediately saw the very dark legs and the thin, black bill. The bird flew only once while I was there, but we could see no trace of the white on the rump that one would expect on a piping. The very dark "ear smudges" were very prominent, as was the black "incomplete breast band" and horizontal black band separating the white forehead from the tan crown. We watched the bird for at least 10–15 minutes before turning our attention to other birds in the area.—*Thomas K. Soulen, 1725 W. Eldridge Ave., St. Paul, MN 55113.*

Purple Sandpiper (*Calidris maritima*)

10 March 1991, Sheboygan County, Sheboygan—Due to the relative "tameness" of this bird, it was easily observable at distances down to 10–15 feet. It was a relatively small, plump shorebird with short legs that were a bright yellow color. The bill was medium short, and bicolored—the distal half being blackish, and the basal half being the same yellowish color as the legs. The bill drooped slightly towards the tip.

The head was gray, with an irregular white ring around the eye, especially wide at the front. The gray of the head and neck broke up into spotting going down the upper breast, with diminished spotting continuing down the white belly, back to the legs. The back and wing coverts were a dark brownish gray with pale feather edges, which produced a scaly effect.—*Thomas R. Schultz, N6104 Honeysuckle Ln, Green Lake, WI 54941.*

18 March 1991, Sheboygan County, Sheboygan—I arrived at the YMCA in Sheboygan around 2:00 on March 18 with my daughter, Karen Wasiluk. Since there were no birds on the lawn near the parking lot, we searched along the shore and very soon saw the sandpiper, which initially was quite inactive. We could see that it was approximately pectoral-size, and its upper side was rather darkish overall. The outer half of its bill curved down slightly. The bird began to feed within a few minutes, and we readily saw its

short, dirty yellowish legs. During the next 15–20 minutes it roamed extensively around the rocky area between the shore and the parking lot, sometimes approaching us within 50–60 feet. Our view of it was unobstructed much of that time. It was a fairly bright day, and most of the time the light hit the bird at a very favorable angle, never worse than 90 degree from our direction of view. We used both 7 × 50 binoculars and a 30 × 75 telescope. It has been a while since our observation, but I remember being struck by the difficulty of seeing much lighter color at the base of the bill, although some *was* obvious when the bird was oriented favorably. The eye-ring also was not terribly obvious, although again one could see traces of it. There were times when the sun reflecting off the head gave the plumage a definite purplish cast, although most of the time the overall impression was of a fairly uniform slate gray color over the head and upper breast. The streaking underneath the bird was most extensive along the sides.—*Thomas K. Soulen, 1725 W. Eldridge, St. Paul, MN 55113.*

Laughing Gull, Milwaukee, March 1991 (*photo by Bill Cowart*)

Laughing Gull (*Larus atricilla*)

10 March 1991, Milwaukee County, South Shore Yacht Club—This bird was observed while it was standing on some Yacht Club piers (at a distance of about 100–150 ft.), and also in flight as it repeatedly flew back and forth in front of our group (at distances as close as 10–20 feet). It was in the company of numerous Ring-billed Gulls, and they would all occasionally drop down to the water to squabble over food scraps (bread, etc.) which were being tossed to the ducks.

The Laughing Gull had the long, dark, slightly drooping bill which is indicative of this species. When standing, the folded wingtips were rather long, extending well past the tip of the tail, giving the body a long, tapered appearance. In overall size, it was only slightly smaller than the Ring-billed Gulls which accompanied it.

This Laughing Gull was in a rather unusual plumage, (see photos) showing characters of *both* 1st *and* 2nd-winter plumages. The blackish primaries and secondaries, along with brownish outer secondary coverts would normally indicate a 1st-winter bird. On the other hand, the predominately gray upper wing coverts, and the white tail (with only two dark feathers) should point toward a second-year individual. The mostly white tail should not normally be attained until the complete summer molt (June–Sept.), as the bird grows its 2nd-year plumage. It's probably most likely that the bird is a first-year with a strange tail.—*Thomas R. Schultz, N6104 Honeysuckle Lane, Green Lake, WI 54941.*

24 May 1991, Milwaukee County, Coast Guard Station—The bird was in adult plumage, except for the 2 next-to-outermost tail feathers, which had black spots near the tip. The bird was slightly smaller than nearby ring-billeds. The mantle was darker than "ring-billed" gray, and the primaries were a shade darker still. The bill was heavy, and like the legs was a deep blood-red. The bill seemed to have a slightly contrasting dark spot at the gonys. The bird stood near a Caspian Tern, preening almost continuously, for the entire viewing time.—*Brian Boldt, 1832 Jeffery La., Waukesha, WI 53186.*

Northern Hawk-Owl (*Surnia ulula*)

6 March 1991, Pierce County, south of Spring Valley—While driving south of Spring Valley in my vet. truck heading for my first farm call of the day I approached a bird that was perched on a fence near some small trees on the left side of the road. As I neared it looked like a hawk but perched more horizontally. As I drove by, its definite owl face tracked me. I stopped and turned around and viewed it with my 10 × 50 binoculars from about 50 yards. From this distance I could see enough detail to further confirm my suspicion of Hawk Owl. As I moved my truck closer several times it moved across the road and I ended up watching it for several minutes from directly across the road, about 10 yards away. With 10× binoculars it nearly filled my field of view. All the fine details of its finely barred underside and more broadly barred long tail were clearly visible. Its bright yellow eyes were striking. It finally flew away as another car came by so I was able to watch it fly. It flew more like a harrier or large falcon than an owl.—*Nathan J. Carlsen, Rt. 2, Box 2096, Spring Valley, WI 54767.*

Great Gray Owl (*Strix nebulosa*)

30 March 1991, Bayfield County, near Washburn—The bird was perched on a limb of a tree approximately 6 feet off the road and 15 feet above the ground. We approached in the vehicle to less than 25 feet. The large size was quite distinguishable at this distance, as well as the lack of eartufts, yellow eyes, strong white "mustache" and longish tail. (I backed up the car to obtain a clear frontal view.) The owl did not call. After viewing for about 5 minutes, I moved the car slightly and the owl flew approximately 40 yards into the woods to a new perch.—*Peter David, Box 9, Odanah, WI 54861.*

Bewick's Wren (*Thyromanes bewickii*)

25 May 1991, Dunn County, Meridean—In the tiny town of Meridean, I heard a song that vaguely brought about a conscious correlation. It was a song that had two introductory notes followed by a trill. I kept hearing the song it sang quite continuously in the early morning. The bird was briefly located in some bushes next to a house. I only had brief looks at the bird, but the field marks in combination with the song led to only one conclusion. For about 15 seconds I saw the bird's head, back and throat. The bird was obviously wren shaped. In the poor light colors were not apparent, but there was a definite white eye stripe. The head was dark and the throat light. I

watched the bird sing. The only other wrens (Carolina and marsh) with white eye stripes sing much, much differently.—*Randy Hoffman, 305 Fifth Street, Waunakee, WI 53597.*

Western Tanager (*Piranga ludoviciana*)

28 April 1991, Marathon County, Hull—The Western Tanager I observed was larger than a warbler but smaller than an American Robin (*Turdis migratorius*). I was standing on Elderberry Road watching Palm Warblers (*Dendrocia palmarum*) when there was a flash of yellow about 15–20 meters to my left. Thinking I was going to find more warblers I turned and focused my binoculars.

The bird had a bill that was thick and seemed slightly down-curved at the tip. The face was *red,* the back of the head was yellow. The red on the head stopped right around the eye. The breast, belly, and side were yellow. The lower back, rump and uppertail coverts were also yellow. The tail was black. The wings were black except for two lightly colored wingbars and some small white spots.

The tanager was foraging among the branches of a small bush and a dead tree along the side of the road. It proceeded to move westward down the road to some taller maple and pine trees. Eventually it flew across the road, up over the trees, then downward and disappeared in the brush. I didn't hear it vocalize the entire time.—*Jon Roti Roti, H3333 Cty Hwy N, Colby, WI 54421.*

4 May 1991, Buffalo County, Tiffany Bottoms—While birding in the Tiffany Bottoms, I heard a song vaguely similar to a robin. The song was repeated at irregular intervals. I tracked down the song until I got a look at the singer. The bird was foraging in the forest canopy. The red head, yellow nape, breast, belly and upper wing bar, and the black wings, tail, and especially the back made identification easy and instantaneous. The only difference between this bird and one in classic breeding plumage was the amount of red on the head. The red was lighter and mottled near the yellow collar. It did not form a clean line.—*Randy Hoffman, 305 Fifth Street, Waunakee, WI 53597.*

School Bird Feeding Project

1990–91, Milwaukee County, West Allis—My name is Thor H. Templin. I presently live in Milwaukee, WI. I am a student at Webster Middle School in the 8th grade and have a grade-point-average of 3.9+. My interest in birds started at the age of 4 or 5. I read everything I can about the subject. I am a member of the W.S.O. and have been for the last five years. I plan to become an ornithologist. This is my second article published in *The Passenger Pigeon* (my first was in 1987: "A Birder's Nightmare has turned into a Birder's Dream—The Peregrine Falcon").

In the fall of 1989 I entered a new school for sixth grade, which was Washington Elementary, in West Allis. The principal heard of my interest and knowledge of birds and asked me to give him some examples of bird feeders from basic household items, and so I did. He later told me that a bird project would be started, it never happened. The following year I moved over to a neighboring (actually the

same building) middle school, Horace Mann, where I met a home economics (or family and consumer education) teacher, who heard of my birding skills, had an environmental group known as FHA-HERO (Future Homemakers of America-Home Economics Related Occupations). I joined the organization. Within a month I proposed a bird project. In March of this year we entered in a Wisconsin FHA Regional Event, in which I went to Racine and gave a speech describing my project. I took first place. Then two months later I went to the state meet in La Crosse, and also took first place. Finally three months later I was off to Washington D.C. for their national meet where I took second place.

The following is the speech I used for all of the events: "We made eight bird feeders to be placed around our school: four outside teacher's rooms, one outside the vice-principal's office, and three outside our library. It was designed by myself. I am very knowledgeable about birds, and have been active in organized birding circles since 1986, as well as have planned to become an ornithologist. We expect mainly to attract sparrows, of all sorts, American Robins, Mourning Doves, and Rock Doves, known more commonly as the Domestic Pigeon. Most other schools have had to wait five to six weeks for a sighting, we had our first within two weeks. Finches and Rock Doves have been observed so far. The feeders are made from plastic gallon milk jugs. Part of the money we make, as you already know, by recycling aluminum is used to buy seed, so what we recycle is given back to the environment. Then shells from the eggs that we use in cooking class, are saved, dried, and crushed then used as grit, which strengthens the bird's gizzard and adds more calcium to the bird's diet. The hollow shells that the birds leave after they eat the seeds are used as squirrel feed, so there is no waste."—*Thor H. Templin, 1551 South 15th Place, Milwaukee, WI 53204.*

Black-capped Chickadee *by Michael James Riddet* (Reprinted with permission of the artist and Hawkshead Ltd. Wildlife Art, Boscobel, WI 53805).

May Day Counts: 1991

by Jim Frank

The 22 May Day Counts conducted this year represent an average number of counts over the past nine years. Leading the list for participation was Waukesha (28 individuals) closely followed by Portage (27), Winnebago (26), and Oxbo/Fifield (24). Total species reported were generally down with only 2 counts exceeding 150 species. One of those counts finally exceeded 175 species, the first time a May Count has achieved this since 1980. Winnebago County had an impressive 177 species. Fond du Lac County compiled a good total of 165. Portage County was the only other count above 140 at 149.

This years 242 species compared to 245 in 1989 and 244 in 1990. Most regular occurring species exhibited little difference in frequency over the past 3 years. A few irruptive species lingering in spring after a winter invasion were infrequently seen, as evident in the data: Brown Creeper (6 counts in '91, 0 in '90, 13 in '89); Red-breasted Nuthatch (7 counts in '91, 15 in '90, 10 in '89); and Pine Siskin (6 counts in '91; 18 in '90, 4 in '89).

While none of the reported species would be called outstanding, mention should be made of Portage County's 6 owl species, Winnebago County's 22 shorebird species, and Fond du Lac County's 27 warbler species.

Winnebago County has set the mark for the past 11 years—177 species by taking last year's challenge to exceed 175 species. Next May will there be any others?

Jim Frank
4339 W. Laverna Ave.
Mequon, WI 53092

Table 1. Details of the counts.

Name of Count	Date	Time	Sky	Wind	Temp	Observers	Parties	Species
Ashland/Bayfield	5/17	05:00–17:00	P.Cl.	NE 15	56–63°	17	3	138
Burnett	5/17	04:30–22:00	P.Cl.	NE 25	50–60°	2	1	123
St. Croix	5/18	04:45–21:45	P.Cl.	NE 5	39–56°	3	2	134

continued

Table 1. *Continued*

Name of Count	Date	Time	Sky	Wind	Temp	Observers	Parties	Species
Oxbo/Fifield	5/18	06:00–22:00	Clear	NE 5	34–60°	24	5	110
Taylor	5/25	06:30–19:30	Clear	? ?	60–80°	2	1	87
Marathon	5/18	04:30–18:00	P.Cl.	E 10	48–65°	7	4	113
Portage	5/11	04:30–19:00	P.Cl.	SE 10	51–86°	27	12	149
Shawano	5/25	04:00–21:00	?	?	? ?	6	4	114
Oconto	5/26	04:15–20:15	P.Cl.	SW 12	61–81°	2	1	132
Calumet	5/11	05:30–19:30	P.Cl.	SW 5	65–80°	8	6	124
Winnebago	5/11	05:00–20:30	P.Cl.	SW 12	55–86°	26	12	177
Fond du Lac	5/11	04:30–18:00	P.Cl.	S 10	56–85°	18	6	165
Shiocton	5/11	06:30–15:30	P.Cl.	S 8	49–72°	7	2	75
Horicon	5/11	06:00–18:00	Clear	? 5	68–82°	7	5	133
Woodland Dunes NE	5/18	04:00–21:00	Clear	NE 8	54–67°	4	3	123
Woodland Dunes SW	5/18	05:00–15:00	Clear	NE 8	54–71°	2	2	93
Plymouth	5/11	05:00–17:00	Cloudy	S 5	57–82°	16	6	133
Waukesha	5/11	00:00–24:00	P.Cl.	SW 5	53–90°	28	13	133
Oconomowoc	5/12	04:30–19:00	Clear	SW 15	59–88°	15	7	125
Lake Geneva	5/12	04:00–19:30	Clear	? 0	67–87°	4	2	97
Lake Mills	5/19	05:30–17:30	P.Cl.	E 10	47–64°	2	1	76
Rock	5/18	07:00–17:00	Rain	SW 5	55–65°	6	4	52

Table 2. Species found on 5 or more counts in northern Wisconsin.

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Marathon Co.	Portage Co.	Shawano Co.	Oconto Co.	# of counts—1991	# of counts—1990	# of counts—1989
Common Loon	X	X	X	X	X	—	—	—	—	5	8	11
Pied-billed Grebe	—	X	X	—	—	X	X	X	X	13	16	15
Double-crested Cormorant	X	X	X	—	X	X	X	—	X	12	8	11
American Bittern	X	X	—	X	X	X	X	X	X	13	15	16
Great Blue Heron	X	X	X	X	X	X	X	X	X	21	22	22
Great Egret	—	—	X	—	—	—	—	—	—	7	10	11
Green-backed Heron	X	X	X	X	X	X	X	X	X	21	19	21
Black-crowned Night-heron	—	—	X	—	—	—	X	—	X	7	8	8
Canada Goose	X	X	X	X	X	X	X	X	X	20	21	19
Wood Duck	—	X	X	X	X	X	X	X	X	20	22	21
Green-winged Teal	X	X	X	—	—	—	X	—	X	10	11	10
American Black Duck	X	—	X	—	—	—	—	—	—	7	6	5
Mallard	X	X	X	X	X	X	X	X	X	22	21	22
Northern Pintail	—	—	X	—	—	—	X	—	—	6	5	0
Blue-winged Teal	X	X	X	—	X	X	X	X	X	21	22	20
Northern Shoveler	—	X	X	—	—	X	X	—	—	14	14	10
American Wigeon	X	X	X	—	—	—	X	—	X	8	8	11
Redhead	—	—	X	—	—	—	X	—	—	5	5	9
Ring-necked duck	X	X	X	—	X	—	X	X	—	7	8	9
Lesser Scaup Duck	X	X	X	—	—	—	X	—	—	9	12	8
Hooded Merganser	X	—	—	X	—	X	X	X	—	7	7	8
Ruddy Duck	—	—	X	—	—	—	X	—	—	7	10	10
Turkey Vulture	—	X	—	X	—	X	X	—	X	15	11	16
Osprey	X	X	X	X	X	X	X	X	—	8	7	11
Bald Eagle	X	X	X	X	X	X	X	X	—	8	7	5
Northern Harrier	X	X	X	X	X	X	X	—	—	12	15	14
Sharp-shinned Hawk	X	X	—	—	—	—	X	—	—	7	9	10
Cooper's Hawk	—	—	—	—	—	X	X	—	—	7	9	12

continued

Table 2. *Continued*

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Marathon Co.	Portage Co.	Shawano Co.	Oconto Co.	# of counts—1991	# of counts—1990	# of counts—1989
Red-shouldered Hawk	—	—	—	—	—	—	X	—	X	5	5	5
Broad-winged Hawk	X	X	X	X	—	X	X	—	X	11	11	13
Red-tailed Hawk	X	X	X	—	X	X	X	X	X	21	20	21
American Kestrel	X	X	X	X	X	X	X	X	X	22	21	21
Ring-necked Pheasant	—	—	X	—	X	—	—	—	—	13	15	13
Ruffed Grouse	X	X	X	X	X	X	X	X	X	14	14	16
Wild Turkey	—	—	—	—	—	—	X	—	—	5	4	3
Virginia Rail	—	—	—	—	—	—	—	—	—	5	7	8
Sora	—	X	X	—	X	X	X	X	X	15	20	15
American Coot	—	X	X	—	—	X	—	—	X	13	17	15
Sandhill Crane	X	X	—	X	X	X	X	X	X	18	18	18
Semipalmated Plover	—	—	—	—	—	—	—	—	X	7	6	11
Killdeer	X	X	X	X	X	X	X	X	X	21	21	21
Greater Yellowlegs	—	—	—	—	—	—	—	—	—	8	13	10
Lesser Yellowlegs	—	—	—	—	—	—	—	—	—	7	14	13
Solitary Sandpiper	—	X	—	—	—	—	X	—	—	10	13	9
Spotted Sandpiper	X	X	X	X	X	—	X	X	X	18	18	19
Upland Sandpiper	X	X	—	—	—	X	X	—	—	6	6	8
Semipalmated Sandpiper	—	—	—	—	—	—	—	—	X	6	6	8
Least Sandpiper	—	—	—	—	—	—	—	—	X	9	12	13
Dunlin	—	—	—	—	—	—	—	—	X	9	4	8
Short-billed Dowitcher	—	—	—	—	—	—	—	—	—	6	5	6
Common Snipe	X	X	X	X	X	X	X	X	X	15	19	17
American Woodcock	X	—	—	X	—	X	X	—	X	10	18	11
Wilson's Phalarope	—	X	—	—	—	—	—	—	—	6	10	4
Bonaparte's Gull	X	—	—	—	—	X	—	—	—	7	7	7
Ring-billed Gull	X	X	X	—	X	X	—	X	X	19	14	14
Herring Gull	X	—	—	—	—	—	—	—	X	7	9	10
Caspian Tern	X	—	—	—	—	—	—	—	X	5	7	7
Common Tern	X	X	—	—	—	—	—	—	X	7	10	10
Forster's Tern	X	—	—	—	X	—	—	—	X	10	14	7
Black Tern	X	X	X	—	X	X	X	X	X	16	16	17
Rock Dove	X	X	X	X	X	X	X	X	X	22	21	22
Mourning Dove	X	X	X	X	X	X	X	X	X	22	22	23
Black-billed Cuckoo	—	—	—	—	X	—	—	X	X	10	8	14
Great Horned Owl	X	—	—	—	—	X	X	—	X	11	16	15
Barred Owl	—	—	—	—	—	—	X	X	—	6	12	10
Common Nighthawk	X	X	X	X	—	X	X	X	X	13	9	16
Whip-poor-will	—	X	X	X	—	X	—	X	X	8	8	12
Chimney Swift	X	X	X	X	X	X	X	X	X	20	20	22
Ruby-throated Hummingbird	X	X	X	X	X	X	X	X	X	15	13	14
Belted Kingfisher	X	X	X	X	—	X	X	X	X	17	18	21
Red-headed woodpecker	—	—	X	X	—	X	X	X	X	17	19	21
Red-bellied Woodpecker	—	—	X	X	X	X	X	X	—	16	17	20
Yellow-bellied Sapsucker	X	—	X	X	—	X	X	X	X	8	10	10
Downy Woodpecker	X	X	X	X	X	X	X	X	X	22	21	23
Hairy Woodpecker	X	X	X	X	X	X	X	X	—	19	21	21
Northern Flicker	X	X	X	X	X	X	X	X	X	22	22	22
Pileated Woodpecker	—	X	X	X	X	X	X	X	—	9	10	9
Eastern Wood Pewee	—	—	X	—	X	X	X	X	X	13	13	16
Willow Flycatcher	—	—	X	—	—	—	—	—	X	5	5	9
Least Flycatcher	X	X	X	X	X	X	X	X	X	18	20	19
Eastern Phoebe	X	X	X	X	X	X	X	X	X	19	20	19
Great Crested Flycatcher	X	X	X	X	X	X	X	X	X	20	21	21
Eastern Kingbird	X	X	X	X	X	X	X	X	X	22	21	21

continued

Table 2. *Continued*

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Marathon Co.	Portage Co.	Shawano Co.	Oconto Co.	# of counts—1991	# of counts—1990	# of counts—1989
Horned Lark	X	X	X	—	—	X	X	X	X	17	18	19
Purple Martin	X	X	X	X	X	X	—	X	X	19	19	21
Tree Swallow	X	X	X	X	X	X	X	X	X	22	22	21
Northern Rough-winged Swallow	—	X	X	X	—	—	X	—	X	17	20	21
Bank Swallow	—	X	X	X	—	—	—	X	X	16	14	16
Cliff Swallow	X	X	X	X	X	X	X	X	X	13	16	16
Barn Swallow	X	X	X	X	X	X	X	X	X	22	21	22
Blue Jay	X	X	X	X	X	X	X	X	X	22	22	23
American Crow	X	X	X	X	X	X	X	X	X	22	22	23
Common Raven	X	X	—	X	X	X	X	X	X	8	5	8
Black-capped Chickadee	X	X	X	X	X	X	X	X	X	22	22	23
Red-breasted Nuthatch	X	X	—	X	—	X	X	—	—	7	15	10
White-breasted Nuthatch	X	X	X	X	X	X	X	X	X	22	21	23
Brown Creeper	X	—	—	X	—	—	—	—	—	6	0	13
House Wren	X	X	X	X	X	X	X	X	X	22	21	23
Winter Wren	X	X	—	—	—	—	—	X	—	7	5	9
Sedge Wren	X	X	X	—	X	X	—	X	X	13	16	10
Marsh Wren	—	X	X	—	—	—	X	—	X	11	14	7
Ruby-crowned Kinglet	X	—	X	—	—	—	X	—	—	7	14	15
Blue-gray Gnatcatcher	—	—	X	—	—	X	X	X	X	14	14	15
Eastern Bluebird	X	X	X	X	X	X	X	X	X	21	22	21
Veery	X	X	X	—	—	X	X	X	X	15	20	17
Gray-cheeked Thrush	—	X	—	—	—	—	—	—	—	7	10	4
Swainson's Thrush	X	—	—	X	—	X	X	—	—	13	14	11
Hermit Thrush	X	X	—	X	X	—	—	X	X	10	12	13
Wood Thrush	X	—	X	X	X	X	X	X	X	19	19	19
American Robin	X	X	X	X	X	X	X	X	X	22	22	23
Gray Catbird	X	X	X	X	X	X	X	X	X	22	21	23
Brown Thrasher	X	X	X	X	X	X	X	X	X	21	20	21
Cedar Waxwing	—	—	X	X	—	—	X	X	X	14	13	15
European Starling	X	X	X	X	X	X	X	X	X	22	22	23
Solitary Vireo	X	—	—	—	—	—	X	X	—	6	9	9
Yellow-throated Vireo	—	X	X	—	—	X	X	X	X	14	12	16
Warbling Vireo	X	X	X	X	—	X	X	X	X	20	19	16
Philadelphia Vireo	—	—	X	—	—	—	—	—	—	8	6	7
Red-eyed Vireo	X	X	X	X	X	X	X	X	X	21	17	19
Blue-winged Warbler	—	—	X	—	—	—	X	X	X	12	13	10
Golden-winged Warbler	X	X	—	—	—	X	X	X	X	9	13	16
Tennessee Warbler	X	—	X	X	—	X	X	—	X	16	15	17
Nashville Warbler	X	—	X	X	—	—	X	X	X	16	18	18
Yellow Warbler	X	X	X	X	X	X	X	X	X	20	21	22
Chestnut-sided Warbler	X	X	X	X	—	—	X	X	X	18	178	18
Magnolia Warbler	X	—	X	X	—	X	X	—	—	16	19	16
Cape May Warbler	X	—	X	—	—	—	X	—	X	12	10	13
Yellow-rumped Warbler	X	—	X	X	X	X	X	—	X	18	22	20
Black-throated Green Warbler	X	—	—	X	—	—	X	X	X	16	17	18
Blackburnian Warbler	X	—	—	X	—	—	X	X	X	14	16	13
Pine Warbler	X	X	X	—	—	—	X	X	X	8	6	9
Palm Warbler	X	X	—	—	—	—	X	—	—	12	19	17
Bay-breasted Warbler	X	—	—	—	—	—	X	—	—	12	13	14
Blackpoll Warbler	X	—	X	X	—	X	X	—	—	14	10	11
Cerulean Warbler	—	—	X	—	—	—	—	—	X	7	3	8
Black-and-White Warbler	X	X	X	X	—	—	X	X	X	16	20	21
American Redstart	X	—	X	X	—	X	X	X	X	18	19	20
Ovenbird	X	X	X	X	X	X	X	X	X	19	20	21

continued

Table 2. *Continued*

Species	Ashland/Bayfield	Burnett Co.	St. Croix Co.	Oxbo/Fifield	Taylor Co.	Marathon Co.	Portage Co.	Shawano Co.	Oconto Co.	# of counts—1991	# of counts—1990	# of counts—1989
Northern Waterthrush	—	X	X	—	—	—	X	X	—	11	16	12
Connecticut Warbler	—	—	—	—	—	—	—	—	X	5	3	2
Mourning Warbler	X	X	X	X	—	—	—	X	X	11	8	11
Common Yellowthroat	X	X	X	X	X	X	X	X	X	20	21	22
Wilson's Warbler	X	—	X	X	—	—	X	—	—	10	15	12
Canada Warbler	X	X	X	X	—	X	—	X	X	13	7	9
Scarlet Tanager	X	X	X	—	—	X	X	X	X	17	16	17
Northern Cardinal	—	X	X	X	—	X	X	X	X	20	20	22
Rose-breasted Grosbeak	X	X	X	X	X	X	X	X	X	22	22	23
Indigo Bunting	X	X	X	X	X	X	X	X	X	20	18	19
Rufous-sided Towhee	X	X	X	X	—	X	X	X	X	18	18	17
Chipping Sparrow	X	X	X	X	X	X	X	X	X	22	22	21
Clay-colored Sparrow	X	X	X	—	X	X	X	X	X	11	10	12
Field Sparrow	—	X	X	—	—	X	X	X	X	17	18	19
Vesper Sparrow	X	X	X	—	—	X	X	X	X	15	16	15
Savannah Sparrow	X	X	X	X	—	X	X	X	X	19	21	19
Grasshopper Sparrow	—	—	X	—	—	X	—	X	—	8	6	7
Song Sparrow	X	X	X	X	X	X	X	X	X	22	20	23
Lincoln's Sparrow	—	—	—	X	—	—	—	—	—	5	5	12
Swamp Sparrow	X	X	X	X	—	X	X	X	X	19	20	19
White-throated Sparrow	X	X	—	X	—	X	X	X	X	15	21	18
White-crowned Sparrow	X	—	—	X	—	X	X	—	—	13	19	15
Bobolink	X	X	X	X	X	X	X	X	X	20	19	19
Red-winged Blackbird	X	X	X	X	X	X	X	X	X	22	22	23
Eastern Meadowlark	X	X	X	X	X	X	X	X	X	22	19	18
Western Meadowlark	X	X	X	—	—	X	X	—	—	11	16	12
Yellow-headed Blackbird	X	X	X	X	—	X	X	—	X	15	16	17
Brewer's Blackbird	X	X	—	X	—	X	X	X	X	12	14	16
Common Grackle	X	X	X	X	X	X	X	X	X	22	21	23
Brown-headed Cowbird	X	X	X	X	X	X	X	X	X	22	21	23
Northern Oriole	X	X	X	X	X	X	X	X	X	22	21	22
Purple Finch	X	—	—	X	X	X	X	X	—	13	13	9
House Finch	X	—	X	X	—	—	X	X	X	16	12	11
Pine Siskin	X	X	—	X	—	—	X	—	—	6	18	4
American Goldfinch	X	X	X	X	X	X	X	X	X	22	22	23
House Sparrow	X	X	X	X	X	X	X	X	X	21	22	23

Table 3. Species found on 5 or more counts in southern Wisconsin.

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Shiocton	Horicon	Woodland Dunes NE	Woodland Dunes SW	Plymouth	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Common Loon	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—

continued

Table 3. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Shiocton	Horicon	Woodland Dunes NE	Woodland Dunes SW	Plymouth	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Great Blue Heron	X	X	X	X	X	–	X	X	X	X	X	X	X
Great Egret	–	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	–	–	–	–
Canada Goose	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
Green-winged Teal	X	X	X	X	X	–	–	–	–	–	–	–	–
American Black Duck	–	X	X	–	–	X	–	X	–	X	–	–	–
Mallard	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern Pintail	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	–	X
American Wigeon	–	X	X	–	X	–	–	–	–	–	–	–	–
Redhead	–	X	X	–	X	–	X	–	–	–	–	–	–
Ring-necked duck	–	X	–	–	–	–	–	–	–	–	X	–	–
Lesser Scaup Duck	X	X	–	–	–	X	X	–	–	X	–	–	–
Hooded Merganser	–	–	–	X	X	–	–	–	–	–	–	–	–
Ruddy Duck	–	X	X	–	X	–	X	X	–	–	–	–	–
Turkey Vulture	X	X	X	X	–	X	–	X	X	X	X	X	–
Osprey	–	–	–	–	–	–	–	–	–	–	–	–	–
Bald Eagle	–	–	–	–	–	–	–	–	–	–	–	–	–
Northern Harrier	–	X	X	–	X	X	–	X	–	–	–	–	–
Sharp-shinned Hawk	–	X	X	–	–	–	–	–	X	X	–	–	–
Cooper's Hawk	–	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	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
Ruffed Grouse	X	–	X	–	–	X	X	X	–	–	–	–	–
Wild Turkey	–	–	X	–	–	–	–	X	X	X	–	–	–
Virginia Rail	X	X	X	–	X	–	–	–	–	X	–	–	–
Sora	X	X	X	–	X	X	X	–	X	X	–	–	–
American Coot	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	–	–	X	X	–	–	–	–
Killdeer	X	X	X	–	X	X	X	X	X	X	X	X	X
Greater Yellowlegs	X	X	X	–	X	–	–	X	X	X	X	–	–
Lesser Yellowlegs	X	X	X	–	X	–	–	X	X	–	–	X	–
Solitary Sandpiper	X	X	X	–	–	X	–	X	X	X	X	–	–
Spotted Sandpiper	X	X	X	–	X	X	X	X	X	X	X	–	–
Upland Sandpiper	–	X	–	–	–	–	–	X	–	–	–	–	–
Semipalmated Sandpiper	X	X	X	–	X	–	–	X	–	–	–	–	–
Least Sandpiper	X	X	X	–	X	X	X	X	X	–	–	–	–
Dunlin	X	X	X	–	X	X	–	X	X	–	–	X	–
Short-billed Dowitcher	X	X	X	–	X	–	X	X	–	–	–	–	–
Common Snipe	X	X	X	–	–	–	–	–	X	X	–	X	X
American Woodcock	X	X	–	–	X	–	–	–	X	X	–	–	–
Wilson's Phalarope	X	X	X	–	X	–	–	X	–	–	–	–	–
Bonaparte's Gull	–	X	–	–	–	X	–	X	–	–	–	–	–
Ring-billed Gull	X	X	X	–	X	X	X	X	X	X	X	X	X
Herring Gull	X	X	–	–	–	X	X	X	–	–	–	–	–
Caspian Tern	–	X	–	–	–	X	–	X	–	–	–	–	–
Common Tern	–	X	–	–	X	X	–	X	–	–	–	–	–

continued

Table 3. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Shiocton	Horicon	Woodland Dunes NE	Woodland Dunes SW	Plymouth	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Forster's Tern	X	X	X	–	X	X	–	X	X	–	–	–	–
Black Tern	X	X	X	–	X	–	X	–	X	X	X	–	–
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	X
Great Horned Owl	–	X	X	–	X	–	–	X	X	X	X	–	–
Barred Owl	–	–	X	–	–	–	–	–	X	X	X	–	–
Common Nighthawk	X	X	X	–	X	–	–	–	–	X	–	–	–
Whip-poor-will	–	–	–	–	–	X	–	–	X	–	–	–	–
Chimney Swift	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	–
Red-headed woodpecker	X	X	X	X	X	X	–	X	X	X	X	–	X
Red-bellied Woodpecker	X	X	X	X	X	–	X	X	X	X	X	–	–
Yellow-bellied Sapsucker	–	–	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
Northern Flicker	X	X	X	X	X	X	X	X	X	X	X	X	X
Pileated Woodpecker	–	–	X	–	–	–	X	–	–	–	–	–	–
Eastern Wood Pewee	–	X	X	–	X	X	X	X	–	–	–	X	–
Willow Flycatcher	–	X	–	–	–	–	–	–	–	X	–	X	–
Least Flycatcher	X	X	X	X	X	X	X	–	X	X	–	–	–
Eastern Phoebe	X	X	X	X	X	X	–	X	X	X	X	–	–
Great Crested Flycatcher	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	–
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
Rough-winged Swallow	X	X	X	X	X	X	X	X	X	X	X	X	–
Bank Swallow	X	X	X	–	X	X	X	X	X	X	–	X	X
Cliff Swallow	–	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	–	–	–
White-breasted Nuthatch	X	X	X	X	X	X	X	X	X	X	X	X	X
Brown Creeper	–	X	–	X	X	X	–	–	–	–	–	–	–
House Wren	X	X	X	X	X	X	X	X	X	X	X	X	X
Winter Wren	X	X	–	–	–	X	X	–	–	–	–	–	–
Sedge Wren	X	X	X	–	X	–	–	–	–	X	–	X	–
Marsh Wren	X	X	X	–	X	X	X	–	X	X	–	–	–
Ruby-crowned Kinglet	–	X	X	–	–	X	–	X	–	–	–	–	–
Blue-gray Gnatcatcher	X	X	X	X	X	X	–	–	X	X	X	–	–
Eastern Bluebird	X	X	X	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	–	–	X	X	–	–	–	–
Swainson's Thrush	X	X	X	X	X	X	–	X	X	–	–	–	X
Hermit Thrush	X	X	–	–	–	–	–	X	X	–	–	–	–
Wood thrush	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

continued

Table 3. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Shiocton	Horicon	Woodland Dunes NE	Woodland Dunes SW	Plymouth	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
Cedar Waxwing	–	X	X	–	X	X	–	X	X	X	X	X	–
European Starling	X	X	X	X	X	X	X	X	X	X	X	X	X
Solitary Vireo	–	–	X	–	–	–	–	X	X	–	–	–	–
Yellow-throated Vireo	X	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	X	–	X	–	–	–	–	–
Red-eyed Vireo	X	X	X	X	X	X	X	X	X	X	X	X	–
Blue-winged Warbler	–	–	X	–	X	–	X	X	X	X	X	X	–
Golden-winged Warbler	–	–	X	X	–	–	–	X	–	–	–	–	–
Tennessee Warbler	X	X	X	X	X	X	–	–	X	X	X	X	–
Nashville Warbler	X	X	X	X	X	X	–	X	X	X	X	–	–
Yellow Warbler	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	–	–
Cape May Warbler	X	X	X	X	X	–	–	X	–	X	X	–	–
Yellow-rumped Warbler	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	–	–	–
Pine Warbler	–	–	–	–	–	X	–	–	X	–	–	–	–
Palm Warbler	X	X	X	X	X	–	–	X	X	X	X	–	–
Bay-breasted Warbler	X	X	X	X	X	–	X	X	X	X	X	–	–
Blackpoll Warbler	X	X	X	X	X	X	–	X	X	–	X	–	–
Cerulean Warbler	X	–	X	X	–	–	X	–	–	X	–	–	–
Black-and-White Warbler	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	–	–	–
Northern Waterthrush	X	X	X	X	X	X	–	–	X	–	–	–	–
Connecticut Warbler	–	X	X	–	–	–	–	X	–	X	–	–	–
Mourning Warbler	–	–	X	–	X	X	–	X	–	–	–	X	–
Common Yellowthroat	X	X	X	X	X	X	X	–	X	X	X	X	–
Wilson's Warbler	–	X	X	–	–	X	–	X	X	–	X	–	–
Canada Warbler	–	X	X	X	–	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	–
Rufous-sided Towhee	–	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	–
Vesper Sparrow	X	X	X	–	–	X	–	X	X	X	–	–	X
Savannah Sparrow	X	X	X	–	X	X	X	X	X	X	X	X	–
Grasshopper Sparrow	–	X	X	–	–	X	–	–	–	X	X	–	–
Song Sparrow	X	X	X	X	X	X	X	X	X	X	X	X	X
Lincoln's Sparrow	–	X	X	–	X	–	X	–	–	–	–	–	–
Swamp Sparrow	X	X	X	–	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	X	X	X	–	–
Bobolink	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	X
Western Meadowlark	X	X	X	–	X	–	–	–	–	X	X	–	–
Yellow-headed Blackbird	X	X	X	–	X	–	–	X	X	X	X	–	–
Brewer's Blackbird	X	X	–	–	X	X	–	X	–	–	–	–	–

continued

Table 3. *Continued*

Species	Calumet Co.	Winnebago Co.	Fond du Lac Co.	Shiocton	Horicon	Woodland Dunes NE	Woodland Dunes SW	Plymouth	Waukesha Co.	Oconomowoc	Lake Geneva	Lake Mills	Rock Co.
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	X	X	—	—	—	—
House Finch	X	X	X	—	—	X	—	X	X	X	X	X	X
Pine Siskin	—	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

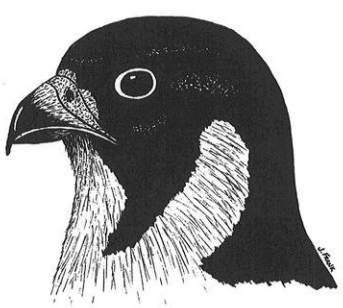
Table 4. Species seen on 4 or fewer counts.

Species	Count
Red-necked Grebe	Burnett, St. Croix, Winnebago
Least Bittern	Winnebago, Fond du Lac, Horicon, Waukesha
Snowy Egret	Oconto
Mute Swan	Ashland/Bayfield, Portage, Lake Geneva
Trumpeter Swan	St. Croix
Gadwall	Ashland/Bayfield, Winnebago, Fond du Lac, Horicon
Canvasback	Winnebago
Greater Scaup Duck	Winnebago
Common Goldeneye	Waukesha
Bufflehead	Ashland/Bayfield, Burnett, Oconomowoc
Common Merganser	Burnett, Oxbo/Fifield, Shawano, Shiocton
Red-breasted Merganser	Ashland/Bayfield, Woodland Dunes NE
Northern Goshawk	Ashland/Bayfield, Oconto
Rough-legged Hawk	St. Croix, Taylor, Horicon
Merlin	Ashland/Bayfield, Oxbo/Fifield
Peregrine Falcon	Burnett, Horicon
Greater Prairie-Chicken	Marathon, Portage
Sharp-tailed Grouse	Burnett, Taylor
Northern Bobwhite	Winnebago, Fond du Lac
Yellow Rail	Burnett
King Rail	Fond du Lac
Common Moorhen	Oconto, Winnebago, Fond du Lac, Horicon
Black-bellied Plover	Fond du Lac
Willet	Portage
Marbled Godwit	Winnebago
Ruddy Turnstone	Calumet, Winnebago, Woodland Dunes NE
Sanderling	Winnebago
White-rumped Sandpiper	Oconto, Winnebago, Woodland Dunes NE
Baird's Sandpiper	Fond du Lac
Pectoral Sandpiper	Calumet, Winnebago, Fond du Lac, Plymouth
Stilt Sandpiper	Winnebago, Fond du Lac, Plymouth
Long-billed Dowitcher	Winnebago, Horicon, Waukesha
Yellow-billed Cuckoo	Winnebago, Fond du Lac, Oconomowoc
Eastern Screech-Owl	St. Croix, Portage, Waukesha

continued

Table 4. *Continued*

Species	Count
Long-eared Owl	Portage
Short-eared Owl	St. Croix, Portage
Northern Saw-whet Owl	Portage
Olive-sided Flycatcher	Oxbo/Fifield, Oconto, Plymouth, Lake Mills
Yellow-bellied Flycatcher	Woodland Dunes SW
Acadian Flycatcher	Woodland Dunes SW
Alder Flycatcher	Woodland Dunes SW, Oconto
Tufted Titmouse	St. Croix, Horicon
Golden-crowned Kinglet	Fond du La, Woodland Dunes NE, Woodland Dunes SW, Waukesha
Mockingbird	Ashland/Bayfield
Water Pipit	St. Croix
Loggerhead Shrike	St. Croix, Oxbo/Fifield, Oconto
Orange-crowned Warbler	St. Croix, Calumet, Winnebago, Fond du Lac
Northern Parula Warbler	Ashland/Bayfield, Portage, Fond du Lac, Horicon
Black-throated Blue Warbler	Shawano, Plymouth, Waukesha, Oconomowoc
Louisiana Waterthrush	Burnett, Portage, Winnebago
Kentucky Warbler	Winnebago
Hooded Warbler	Fond du Lac, Woodland Dunes NE, Woodland Dunes SW, Waukesha
Dickcissel	Woodland Dunes NE
Lark Sparrow	Oconomowoc, Lake Geneva
Henslow's Sparrow	Fond du Lac
Le Conte's Sparrow	Ashland/Bayfield, Burnett, Shawano, Winnebago
Fox Sparrow	Oxbo/Fifield, Horicon, Plymouth, Waukesha
Harris's Sparrow	Oxbo/Fifield, Portage
Dark-eyed Junco	Portage, Winnebago, Plymouth
Lapland Longspur	Ashland/Bayfield, Woodland Dunes NE
Rusty Blackbird	Waukesha
Orchard Oriole	Winnebago, Horicon, Plymouth, Waukesha
Red Crossbill	Ashland/Bayfield
Evening Grosbeak	Ashland/Bayfield, Oxbo/Fifield, Waukesha



Peregrine Falcon *by Jim Frank.*

Big Day Counts: 1991

by Jim Frank

The 24 Big Day Counts completed this year are an expected number of counts. Nine of those were conducted in the northwestern part of the state. In contrast to 5 counts surpassing 170 species in 1990, only 2 such counts occurred this year. With prevailing southwest winds seeming to blow migrating birds through the state and with few significant frontal passages, few good "waves" were to be had this year. Using 160 species lists as a standard, there were six such lists in each of the last two years. The top list again came from Randy Hoffman in the northwest with 187 species, including an astounding 30 warbler species. An average shorebird migration on that day could have brought his list near last year's record. Another impressive list came from Hoffman and Shea in the south central region at 176 species. A May 13th count in the south central area by Hoffman listed 23 shorebird species.

In total 253 species were tallied on the 24 counts (an average number). The best of the best include Ferruginous Hawk in Pepin County, Purple Sandpiper at Sheboygan, Western Sandpiper, Thayer's Gull at Port Washington, Bewick's Wren in Dunn Co., Loggerhead Shrike, and Western Tanager in Buffalo County.

Special mention should be made of a couple of endurance records this year. Randy Hoffman participated in 8 counts in a three-week span, four of them being full-day counts. Mark Peterson and Randy Hoffman share the exhausting honor of having done 3 full-day counts in 4 days!

Here are the details of the 24 Counts; italicized species were unique to the counts, italicized groups were the largest number of that group seen on 1991 Big Day Counts.

Northwestern Region

Randy Hoffman, 5/25/91, 187 species—The areas covered included Nelson Bottoms, Muddy Creek, Tiffany Bottoms, St. Croix Potholes, Oakridge Lake, Lake St. Croix, Lyman Lake Bog, Wisconsin Point, County A Bog, Crex Meadows, and Fish Lake. Interesting species noted were Red-necked Grebe, Trumpeter Swan, *Snow Goose,* Merlin, Sharp-tailed Grouse, Wild

Table 1. Details of the counts.

Observers	Date	Area	Time	Sky	Wind	Temp	Car miles	Foot miles	Species
Hoffman	5/25/91	NW	1:10–21:40	Clo.	NE 10	48–65°	476	4	187
Hoffman, Shea	5/15/91	SC	1:00–21:05	P.Cl	S 8	66–85°	465	2	176
Baughman, Baughman, Schultz, Schultz, Stott	5/19/91	SC	0:00–20:00	P.Cl	NE 12	42–65°	399	4	169
Johnson, Semo	5/24/91	NW	1:15–22:15	Clo.	? 5	52–78°	457	2	169
Hoffman, Peterson	5/17/91	NW	1:10–22:40	P.Cl	NE 20	60–47°	489	3	162
Johnson, Semo	5/19/91	NW	2:45–22:00	Fair	? ?	35–75°	393	1	160
Risch, Risch, Risch	5/19/91	NC	0:45–21:15	P.Cl	W 5	52–75°	510	1	157
Anderson, Peterson, Petznick	5/20/91	NE	3:00–20:30	Fair	SW 5	?	325	3	154
Hoffman, Peterson	5/18/91	NW	4:45–21:15	P.Cl	NE 15	42–62°	447	2	154
Frank	5/13/91	SE	3:40–19:40	P.Cl	SW 10	59–88°	340	3	153
Hudick, Maercklein, Honetschlager	5/20/91	NW	4:30–22:30	Fair	S 8	48–80°	350	2	143
Bray, Eliot, Foster, Robbins	5/19/91	NW	3:00–21:30	?	? ?	?	?	?	142
Tessen	5/18/91	SC	0:00–19:30	Rain	NE 20	49–41°	445	2	140
Brouchoud, Rudy	5/16/ 91NE	4:00–21:00	P.Cl	SW 10	51–73°	41	17	139	
Frank	5/16/91	SE	4:00–21:00	P.Cl	SW 10	62–85°	134	3	136
Woodcock	5/23/91	NE	5:00–23:00	Clo.	SW 10	54–80°	266	6	135
Hoffman	5/11/91	SC	5:00–10:00	Fair	S 5	64–85°	28	6	132
Belter	5/12/91	NC	4:45–20:30	P.Cl	S 5	59–85°	120	11	128
Hoffman	5/13/91	SC	3:00–11:00	P.Cl.	S 8	60–75°	128	2	125
Hoffman	5/12/91	SC	6:00–12:00	Fair	S 5	60–72°	34	5	123
Hoffman	5/4/91	NW	6:00–12:00	Clo.	0	48–50°	18	6	117
Brasser, Brasser, Konigs, Schaafsma	5/11/91	SE	5:30–21:00	P.Cl	SW 5	65–89°	110	4	114
(Ron) Hoffman	5/11/91	SE	4:00–20:30	P.Cl	SE 6	50–80°	45	21	110
Petters	5/21/91	NW	4:15–11:00	P.Cl	W 8	52–78°	?	?	98

Turkey, Yellow Rail, Olive-sided Flycatcher, Alder Flycatcher, Tufted Titmouse, *Bewick's Wren,* Prothonotary Warbler, Louisiana Waterthrush, Connecticut Warbler, Kentucky Warbler, Hooded Warbler, *Dickcissel,* Lark Sparrow, Henslow's Sparrow, LeConte's Sparrow, Dark-eyed Junco, Orchard Oriole, 12 ducks, 10 hawks, *5 galliformes,* 3 rails, 7 shorebirds, *2 cuckoos, 7 woodpeckers, 9 flycatchers, 7 thrushes, 5 vireos, 30 warblers, 14 sparrows,* and *10 blackbirds.*

Johnson and Semo, 5/24/91, 169 species—They birded Lyman Lake Bog, Stone's Bridge, Wisconsin Point, Gordon, Marine Landing, Willow River, Crex Meadows, and Cylon Marsh. In the course of the day they encountered Red-necked Grebe, Trumpeter Swan, Common Merganser, Rough-legged Hawk, Merlin, Greater Prairie-Chicken, Sharp-tailed Grouse, Yellow Rail, *Long-eared Owl,* Alder Flycatcher, *Loggerhead Shrike,* Prothonotary Warbler, Louisiana Waterthrush, Connecticut Warbler, LeConte's Sparrow, Red Crossbill, *Pine Siskin,* 11 ducks, 10 hawks, 4 galliformes, *3 rails,* 9 shorebirds, 3 owls, 8 flycatchers, 4 vireos, 22 warblers, 11 sparrows, and *6 finches.*

Randy Hoffman and Peterson, 5/17/91, 162 species—Areas covered were Nelson Bottoms, Muddy Creek, Meri-

dean, Tiffany Bottoms, Wilson's Pond, Old Elk Lake, Lake St. Croix, County A Bog, Wisconsin Point, Riverside, Crex Meadows, and Fish Lake. They discovered Tundra Swan, Acadian Flycatcher, Prothonotary Warbler, Lark Sparrow, Henslow's Sparrow, Orchard Oriole, 13 ducks, 9 hawks, 9 shorebirds, 7 *woodpeckers,* 7 flycatchers, 7 *thrushes,* 4 vireos, 22 warblers, 11 sparrows, and *10 blackbirds.*

Johnson and Semo, 5/19/91, 160 species—Birding Wisconsin Point, Stone's Bridge, Lyman Lake Bog, Gordon, Marine Ferry Landing, Cylon Marsh, Willow River, and Crex Meadows, they found Red-necked Grebe, Trumpeter Swan, Common Merganser, Sharp-tailed Grouse, *Red Knot,* Glaucous Gull, Northern Saw-whet Owl, *Black-backed Woodpecker,* Olive-sided Flycatcher, Tufted Titmouse, Connecticut Warbler, LeConte's Sparrow, Dark-eyed Junco, 11 ducks, 8 hawks, 8 shorebirds, 4 gulls, 3 owls, 7 *woodpeckers,* 8 flycatchers, 4 vireos, 20 warblers, and 12 sparrows.

Randy Hoffman and Peterson, 5/18/91, 154 species—On the day after their previous count, they stopped at Fish Lake, Crex Meadows, Riverside, County A Bogs, Lyman Lake Bog, Stone's Bridge, Old Elk Lake, Wilsons' Pond, Oakridge Lake, St. Croix Potholes, Stockholm Pier, and Tiffany Bottoms. They found Red-necked Grebe, Eared Grebe, Trumpeter Swan, Tundra Swan, Greater Prairie-Chicken, Sharp-tailed Grouse, Yellow Rail, White-rumped Sandpiper, Olive-sided Flycatcher, LeConte's Sparrow, Red Crossbill, *3 grebes, 3 swans,* 11 ducks, 7 hawks, 3 rails, 11 shorebirds, 6 woodpeckers, 7 flycatchers, *5 vireos,* 20 warblers, 10 sparrows, 9 blackbirds, and 5 finches.

Hudick, Maercklein and Honetschlager, 5/20/91, 143 species—They birded Interstate Park, Fish Lake, Crex Meadows, and Wisconsin Point finding Trumpeter Swan, Sharp-tailed Grouse, LeConte's Sparrow, 10 ducks, 9 hawks, 12 shorebirds, 3 owls, 6 woodpeckers, 17 warblers, 9 sparrows, and 9 blackbirds.

Bray, Eliot, Foster and Robbins, 5/19/91, 142 species—They covered Durand, Nelson, Pepin, Hammond, Star Prairie, St. Croix Falls, Fish Lake, and Crex Meadows. On their Big Day, they found Trumpeter Swan, Common Goldeneye, Wild Turkey, Tufted Titmouse, Prothonotary Warbler, Lark Sparrow, Henslow's Sparrow, LeConte's Sparrow, Orchard Oriole, 9 ducks, 8 hawks, 4 galliformes, 10 shorebirds, 7 *woodpeckers,* 19 warblers, 11 sparrows, and *10 blackbirds.*

Randy Hoffman, 5/4/91, 117 species—A morning of birding took him to Tiffany Bottoms, Pepin Harbor, Five Mile Bluff, and Silver Birch Lake to find *Ferruginous Hawk,* Wild Turkey, Olive-sided Flycatcher, Kentucky Warbler, *Western Tanager, Harris' Sparrow,* Dark-eyed Junco, 10 hawks, 1 shorebird, 7 *woodpeckers,* 15 warblers, *2 tanagers,* and *14 sparrows.*

Petters, 5/21/91, 98 species—He birded Bibon Marsh only, finding Alder Flycatcher, LeConte's Sparrow, Evening Grosbeak, 4 shorebirds, 6 woodpeckers, 17 warblers, and 8 sparrows.

North Central Region

Risch, Risch and Risch, 5/12/91, 157 species—They birded Pershing Wildlife Area, Chequamegon Flowage, Chequamegon Forest, and St. Croix County adding Red-necked Grebe, Trumpeter Swan, Sharp-tailed Grouse, *Northern Goshawk,* Rough-legged Hawk, Northern Saw-whet Owl, Alder Flycatcher, Tufted Titmouse, Prothonotary Warbler, Lark Sparrow, Henslow's Sparrow, LeConte's Sparrow, 10 ducks, *12 hawks,* 6 shorebirds, 4 owls, *7 woodpeckers,* 4 vireos, 21 warblers, 12 sparrows, and 9 blackbirds.

Belter, 5/12/91, 128 species—Birding Mead Wildlife Area, Big Eau Plaine Co. Park, Blue Gill Bay Co. Park, and Fern Island Park he found Canvasback, Greater Prairie-Chicken, LeConte's Sparrow, Henslow's Sparrow, 10 ducks, 6 shorebirds, *7 woodpeckers,* 19 warblers, 10 sparrows, and 9 blackbirds.

Northeastern Region

Anderson, Peterson and Petznick, 5/20/91, 154 species—They birded Navarino Wildlife Area, Stockbridge Indian Reservation, Green Bay, Kewaunee, and Manitowoc. Interesting birds included Cattle Egret, Common Merganser, Common Moorhen, *Whimbrel, Laughing Gull,* Black-throated Blue Warbler, Connecticut Warbler, LeConte's Sparrow, 56 herons, 10 ducks, 7 hawks, 13 shorebirds, *4 gulls, 7 woodpeckers,* 4 vireos, 21 warblers, and 10 sparrows.

Brouchoud and Rudy, 5/16/91, 139 species—Birding Woodland Dunes only, they found Olive-sided Flycatcher, Alder Flycatcher, White-eyed Vireo, Hooded Warbler, Yellow-breasted Chat, 9 shorebirds, *2 cuckoos, 9 flycatchers,* 6 thrushes, *5 vireos,* 23 warblers, and 9 sparrows.

Woodcock, 5/23/91, 135 species—Areas covered included Manitowoc Harbor, Woodland Dunes, Two Rivers, Collins Marsh, Green Bay, Oconto Marsh, and Archibald Lake. Notable birds were Snowy Egret, Gray Partridge, White-eyed Vireo, Alder Flycatcher, Hooded Warbler, 5 herons, 10 ducks, 11 shorebirds, 6 thrushes, 4 vireos, and 20 warblers.

South Central Region

Randy Hoffman and Shea, 5/15/91, 176 species—They birded Waunakee Marsh, Baxter's Hollow, Sclukebier Prairie, Mazomanie, Monroe Grassland, Avon Bottoms, South Kettle Moraine, Theresa Marsh, Horicon NWR, Lake Maria, Devil's Lake, Mazomanie, and DM Pond. In the course of their day, they found Eared Grebe, Cattle Egret, *Yellow-crowned Night-heron,* Wild Turkey, King Rail, Common Moorhen, *Western Sandpiper,* White-rumped Sandpiper, Pectoral Sandpiper, Olive-sided Flycatcher, Acadian Flycatcher, *Water Pipit,* Prothonotary Warbler, Louisiana Waterthrush, Connecticut Warbler, Yellow-breasted Chat, Lark Sparrow, Orchard Oriole, *3 grebes, 8 herons,* 12 ducks, 7 hawks, 4 galliformes, *3 rails,* 16 shorebirds, 2 cuckoos, 3 owls, 6 woodpeckers, *9 flycatchers,* 6 thrushes, 3 vireos, 23 warblers, 11 sparrows, and 9 blackbirds.

Baughman, Baughman, Schultz, Schultz, and Stott, 5/19/91, 169 species—Areas birded were Grassy Lake,

Mud Lake, Lake Maria, Snake Creek Wetlands, Grand River Marsh, Baxter's Hollow, Mazomanie, Goose Pond, Horicon NWR, North Kettle Moraine, Sheboygan, and Manitowoc. Their list included Red-necked Grebe, Tundra Swan, Wild Turkey, King Rail, Common Moorhen, White-rumped Sandpiper, *Baird's Sandpiper,* Glaucous Gull, Acadian Flycatcher, Alder Flycatcher, *Carolina Wren,* Louisiana Waterthrush, Connecticut Warbler, Lark Sparrow, Henslow's Sparrow, LeConte's Sparrow, 5 herons, 14 ducks, 4 galliformes, 3 rails, 17 shorebirds, *4 gulls, 2 cuckoos,* 3 owls, 6 woodpeckers, 8 flycatchers, 6 thrushes, 20 warblers, and 13 sparrows.

Tessen, 5/18/91, 140 species—He covered Sugar River, Mud Lake, Lake Wisconsin, Baxter's Hollow, Devil's Lake, Laws Bottoms, Arlington Prairie, Grassy Lake, AW Pond, Horicon NWR, and the Milwaukee Harbor. In the process, he found Common Goldeneye, King Rail, *Hudsonian Godwit, Franklin's Gull,* Olive-sided Flycatcher, Acadian Flycatcher, Louisiana Waterthrush, Lark Sparrow, Orchard Oriole, 5 herons, *16 ducks,* 3 rails, 11 shorebirds, *4 gulls,* 11 warblers, 9 sparrows, and *10 blackbirds.*

Randy Hoffman, 5/11/91, 132 species—In a morning of birding, he covered Mazomanie Bottoms, Indian Lake, DM Pond, and Patton Road Pond, finding Gray Partridge, Wild Turkey, White-rumped Sandpiper, Pectoral Sandpiper, White-eyed Vireo, Prothonotary Warbler, Orchard Oriole, 11 ducks, 13 shorebirds, 6 woodpeckers, 6 thrushes, 19 warblers, and 9 blackbirds.

Randy Hoffman, 5/13/91, 125 species—Another morning of birding took him to Mazomanie Bottoms, Monroe Grasslands, Avon Bottoms, Territorial Road, and Lake Barney. Interesting sightings included Acadian Flycatcher, Prothonotary Warbler, Yellow-breasted Chat, Lark Sparrow, Orchard Oriole, 8 shorebirds, *7 woodpeckers, 5 vireos, 23 shorebirds,* and 9 sparrows.

Randy Hoffman, 5/12/91, 123 species—Yet another morning effort found him birding Mud Lake, Jamieson Park, Schoeneberg Marsh, Goose Pond, Patton Road Pond, and DM Pond sighting White-rumped Sandpiper, Pectoral Sandpiper, Orchard Oriole, 12 ducks, 13 shorebirds, 6 woodpeckers, 4 vireos, 15 warblers, and 10 sparrows.

Southeastern Region

Frank, 5/13/91, 153 species—He covered Cedarburg Bog, Belgium Pond, Kletzsch Park, Estabrook Park, Virmond Park, Concordia College, Port Washington Harbor, Theresa Marsh, Horicon NWR, Manitowoc Harbor, and Two Rivers. Interesting birds were Snowy Egret, Canvasback, *Thayer's Gull,* Orchard Oriole, 6 herons, 11 ducks, 16 shorebirds, *4 gulls,* 22 warblers, 11 sparrows, and 9 blackbirds.

Frank, 5/16/91, 136 species—Confining his efforts to Ozaukee County, yielded Canvasback, Common Goldeneye, Pectoral Sandpiper, White-rumped Sandpiper, Acadian Flycatcher, Black-throated Blue Warbler, Connecticut Warbler, Orchard Oriole, 10 shorebirds, 7 flycatchers, 6

thrushes, 22 warblers, and 11 sparrows.

Brasser, Brasser, Konigs and Schaafsma, 5/11/91, 114 species—Covering Horicon NWR, Riveredge Nature Center, Belgium Ponds, Harrington Beach State Park, Terry Andrae S.P., Sheboygan Harbor, and Maywood Environmental Center, they found *Purple Sandpiper,* Pectoral Sandpiper, Olive-sided Flycatcher, 11 shorebirds, and 13 warblers.

Randy Hoffman, 5/11/91, 110 species—A Kenosha County effort found *Golden Plover,* Common Moorhen, 9 shorebirds, 6 thrushes, and 13 warblers.

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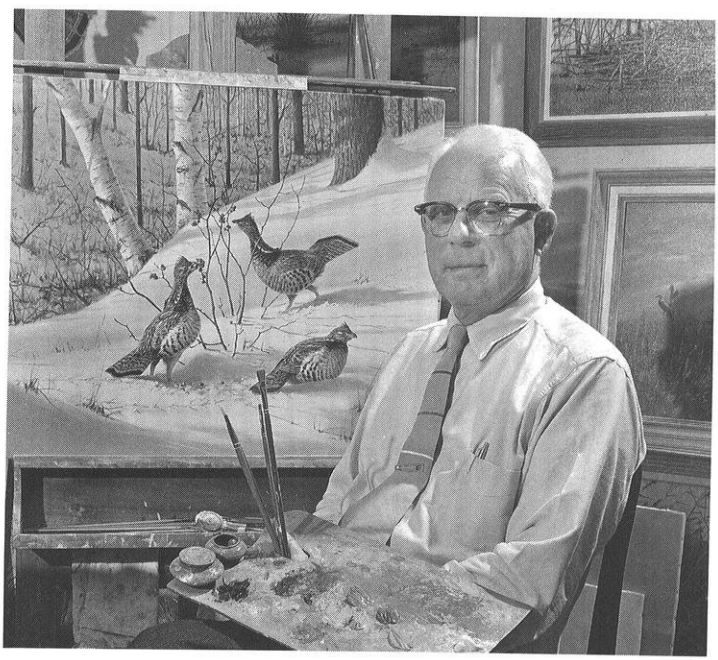
Mequon, WI 53092

50 years ago in *The Passenger Pigeon*
Excerpts from Volume 3(11): 1941

"Mr. H.L. VanNess, 302 Church St., Lodi, Wisconsin, had some school boys bring to him on Dec. 9 an unusual bird which he at first believed to be a Dovekie. He later determined that it must have been an Ancient Murrelet. He took very detailed notes and made a drawing of the bird before releasing it."

"Under date of Nov. 24, 1941, the U.S. Forest Service published an estimate of the number of game birds on the National Forests in 1940. Tabulations for Wisconsin were as follows: Chequamegon Forest: 75,000 Ruffed Grouse, no Pinnated Grouse, 10,000 Sharp-tailed Grouse, 5,000 Ducks, no Geese, 7,000 Woodcock, 100 Mourning Doves and 230 Pheasants. Nicolet Forest: 75,000 Ruffed Grouse, 300 Pinnated Grouse, 10,000 Sharp-tailed Grouse, 4,000 Ducks, no Geese, 1,500 Woodcock, 100 Mourning Doves and 75 Pheasants. Game refuges of these forests were listed as 23 areas totaling 49,950 acres for the Chequamegon and 8 areas totaling 74,340 acres for the Nicolet."

OWEN J. GROMME
1896–1991



It was just another rainy fall day in Milwaukee, but when the phone rang with the news of Owen Gromme's death, time, for a moment, seemed to stand still. It wasn't a great surprise. Most of us had known of his long illness. But still, it was a shock, a shock which signaled the end of an era.

A charter member of WSO and a recipient of a Golden Passenger Pigeon Award, Owen Justus Gromme was born in Fond du Lac, Wisconsin, July 5th 1896 and grew up along the shores of Lake Winnebago. There during his early formative years he learned the ways of nature from his father and the local hunters, trappers and woodsmen that made this region their home. From his high school assembly room, he watched massive flocks of waterfowl staging on Lake Winnebago (one of the reasons he claims he never graduated from high school.) He shot Greater Prairie-Chickens and geese and spent his days in the wetlands, fields and forests near his home. This was a time of great learning for Gromme and a time that influenced the remainder of his life.

Gromme's life was so productive, so prolific and so full that I would find it difficult to touch upon all of it here. There are however a few areas that were important in Owen's development, a few important mentors, his museum career,

Owen Gromme at Milwaukee Public Museum, 1927

his involvement in environmental issues and his art. I would like to discuss some of these areas and hopefully provide an encapsulated glimpse into the life of the man who deftly put on canvas what Aldo Leopold put so eloquently into words.

During Gromme's 43 years at the Milwaukee Public Museum he traveled extensively on museum expeditions, collecting, documenting and recording the vast variety of life forms he encountered. Colorful notes both written and in oils and watercolors were made of the specimens he collected and the landscapes he encountered. The longest expedition and the one that truly became a turning point in Gromme's life was without a doubt, the Cudahy Massee African expedition of 1928–29. This African trip was the dream of the museum's director, Dr. Sam Barrett, and was to become the bedrock for future expansion and development at the museum, which he envisioned to be one of the premier natural history institutions in the U.S.

Planning was slow and funding difficult to obtain, but Barrett sought the encouragement and advice of one of the country's leading African explorers of the day, Carl Akeley, who was also one of the Milwaukee Public Museum's early taxidermists. After several meetings with Akeley, who was then with the American Museum in New York, Barrett ventured forth on an unforgettable and historic expedition across Africa. Barrett was accompanied by his two taxidermists, Irving Perkins and, of course, Owen Gromme. During the ensuing 8 months, they collected an impressive 312 mammals, 1390 birds and thousands of artifacts. In addition, Gromme, who Barrett had designated as artist for the trip, painted nearly 100 field sketches of birds and several dozen landscapes. Before the expedition, Gromme was a keen hunter and taxidermist. With this, his first real, extended and intensive museum expedition, Gromme stepped forth into the realm of painting and evolved into what was termed, a museum man. In Gromme's own words, a good museum man had a solid background as an all-around scientist, artist, carver, sculptor, lecturer, writer, photographer, bookkeeper, taxidermist and hunter. During Gromme's years at the museum he became the consummate museum man.

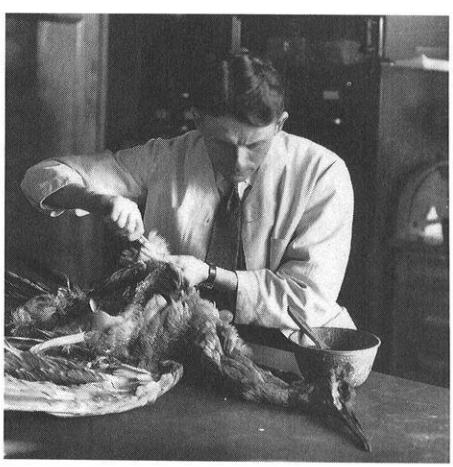
In speaking with Owen he credited three individuals as being influential in his development. The first was his father, the second was Herbert L. Stoddard Sr. and the last, Dr. Sam Barrett. Gromme says with pride that each man had strong character, provided mental stimulation and had massive amounts of integrity. Of all of Owen's many qualities, it was his own high degree of

integrity that served as a driving force during this museum career and beyond. In addition to collecting birds and creating exhibits for the museum, Gromme began collecting data on Wisconsin's wildlife and documented population fluctuations. He is also responsible for building a major portion of the museum's current scientific bird-skin collection and creating such breathtaking exhibits as the Bonaventure Island group, The Great Blue Heron Group, The Loon Group, The Wisconsin River Peregrine Falcon Group, and most of the bird mounts in the Horicon Marsh Diorama. The fact that Gromme collected, prepared and installed much of this material himself further attests to his abilities as a field collector and an artist.

Although Gromme was kept busy with his field collecting and creating scientifically accurate museum dioramas, he also built a series of mini dioramas or vignettes that were circulated throughout the Milwaukee school system. Gromme created nearly sixty of these exhibits. To attest to their impact and longevity, it's interesting to note that most of these are still being circulated today.

All throughout his museum career Gromme continued to paint, but his stance on environmental issues and conservation of wildlife resources often times proved to be paramount. Early in his career, Owen took to heart a directive by Dr. Barrett who told the young Gromme that "As long as you are an employee of this institution, conservation of natural resources is part of your job." Gromme lamented that to be a guardian of the states resources, he had no recourse but to get involved. Gromme became a conservationist and an activist long before conservation and activism became popular. As a consequence many of his battles were long and lonely. Walter Pelzer, Gromme's close associate and former chief taxidermist at the museum, recalls that Gromme was fighting for sound wildlife laws long before most people even thought about it. Throughout the 30's Gromme's efforts alternated between taxidermy and natural history groupings to environmental causes and the training of potential museum employes.

It was during the 30's that Owen joined forces with Aldo Leopold in fighting for the protection of herons and bitterns. Reports from this period tell of entire nesting colonies of herons which were exterminated by shotgun-wielding fishermen who believed the great birds were detrimental to the states fisheries. This broad misunderstanding of the natural roles of predators was not limited only to herons. Hawks and owls were also considered vermin and were relentlessly persecuted. In 1935 Gromme waged a battle against the Milwaukee Gun Club which had announced a proposed "Statewide

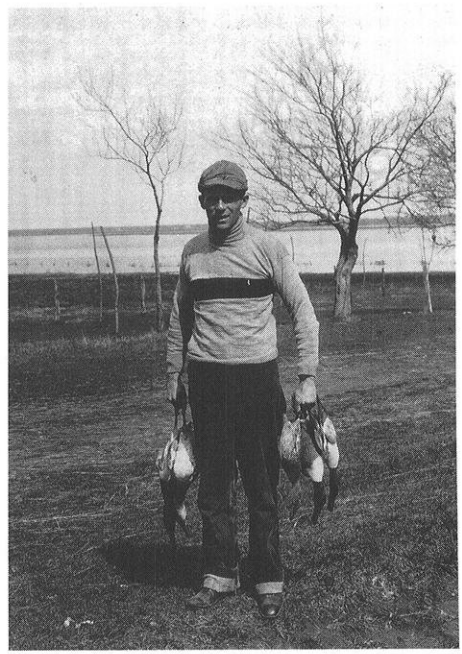


Owen Gromme in taxidermy studio, 1927

Varmint Hunt" in which hawks, owls and crows would be indiscriminately killed, as all had been categorically described as varmints. During the week or so after the announcement of the proposed hunt, the *Milwaukee Journal* devoted several columns to the issue and within a few days, the hunt was canceled. At a time when most hunters and the general public viewed hawks and owls as nothing short of a nuisance, Gromme was doing all he could to explain their roles in the natural order. As further testimony to Gromme's commitment to the environment, he built and operated Wisconsin's first hawk-trapping and banding station at the now famous Cedar Grove site. For the following ten years, museum personnel, under Gromme's direction, documented the migration patterns of raptors through Wisconsin and formed baseline data crucial to their management today.

When bird populations began to decline in the 70's and chemical insecticides were found to blame, Gromme in typical fashion, went straight to his favorite means of communication, the daily newspaper to publicly protest the wholesale slaughter of birds. It was not uncommon for Gromme to take on the Wisconsin Department of Natural Resources or the Federal Fish and Wildlife Service when it came to matters of managing wildlife resources and refuges. In 1961 he took his fight to save Horicon Marsh to Washington, D.C., and presented his case to then Secretary of the Interior, Stewart Udall. Today, a number of Gromme's recommendations regarding regulations and management of federal wildlife refuges are still in effect.

Gromme spent over a half century defending environmental causes and donated his time and talents to conservation whenever and wherever needed. Funds from the sales of his original oil paintings and reproduction rights to his prints have netted hundreds of thousands of dollars towards conservation-oriented projects. Gromme helped found and organize the International Crane Foundation in Baraboo, Wisconsin, which is fighting to save the endangered cranes of the world. His painting of Canada Geese entitled "Requiem at Horicon Marsh" helped The Wisconsin Citizens Natural Resources Association fight the federal government's irresponsible management policies at Horicon Marsh. In 1978, he was also chosen as Ducks Unlimited artist of the year, and the sales from prints of his painting of Wood Ducks entitled "Fall Kaleidoscope", netted DU $600,000.00 towards waterfowl habitat protection. Most re-



Owen Gromme at Lake Puckaway, WI, 1924

cently, Owen helped form the Wisconsin Peregrine Society and backed the reintroduction of his beloved Peregrine Falcons to Wisconsin by donating reproduction rights to his 1936 peregrine falcon painting to the Society.

Gromme's environmental philosophy is perhaps best summed up in his 1978 commencement address at Marian College in his native Fond du Lac, where he stated "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. By every legal means it is our duty to oppose those who out of greed and avarice, or for selfish or other reasons, would pollute, defile or destroy that which means life itself to every living being."

Over the years, many awards have been bestowed upon Gromme. In light of this fact, what I find most impressive is that even though Gromme was a high school dropout, he went on to receive no less than five honorary doctorates for his environmental work and of course his monumental book, *Birds of Wisconsin*. In addition he authored over sixty published articles. What this adds up to is the fact that Gromme lived by the basic elements of success from the beginning: integrity, honesty, hard work and an untiring quest for knowledge of the natural world around him.

Owen Gromme with Sandhill Crane, 1927

No story about Gromme would be complete without mention of his loving wife, Anne. Anne and Owen met at the museum in 1924 and were married in Briggsville in 1927. For most of Gromme's life she offered her support (and criticism) and looked after all the"other details" so that Owen was free to paint. She screened phone calls and intercepted curious visitors who would stop by "to meet the guy." Anne's dedication to Owen was without a doubt, one of the single most important ingredients to his success. I remember visiting with Anne and Owen one day. I had come up to ask for permission to reproduce his Peregrine Falcon painting to help support peregrine recovery in Wisconsin. Well, as was always the case, Owen had stories to tell, and I loved hearing them. But Anne, who knew why I had come, interrupted Owen after about 45 minutes of story telling and said, "Oh Owen, would you please shut up, can't you see Greg came all the way up here to ask you something?" Owen seemingly unshaken, smiled and said, "Well, what is it you want?" An hour later we'd chosen the painting, and he agreed to donate the reproduction rights to the Wisconsin Peregrine So-

ciety. Normally, we'd end up talking most of the day, and it was generally dark before I returned to Milwaukee. Before I'd leave, Anne would always send me off with a bag of home-made cookies for the ride home. Anne passed away in August of 1991 and like Owen will be deeply missed.

Today, Gromme's legacy speaks for itself. For those of us fortunate enough to live in Milwaukee, we have his life's work here at the Milwaukee Public Museum to admire. His collection of 43 inspired oil paintings at Milwaukee's M&I bank are also available for viewing (by appointment). For the remainder of his followers, there exists a wealth of fine art prints which are available through WildWings of Lake City, Minnesota. The current wildlife art field owes much to Gromme and WildWings for leading the way and establishing the wildlife art print phenomenon.

A further testimony to Gromme's drive and dedication to wildlife art was his involvement in helping the Leigh Yawkey Woodson Art Museum in Wausau develop it's annual "Birds in Art" exhibition. This annual exhibit alone has done more to further the growth of the bird art field than any other show or exhibit at any time in history.

Yes, Gromme's life has been prolific, but a deeper look at the man shows a true human spirit undaunted by bureaucracies, ignorance, administrative inadequacies and indifference. On the outside, we saw a man who was tough, outspoken and outgoing, but underneath he was a gentle person who really cared about the people and the world around him. During Gromme's

Owen and Anne Gromme

museum years he demanded perfection from himself and those with whom he worked. He knew the public was paying the freight, so to speak, and he wanted to make sure they got their moneys worth. Walt Pelzer, who was taken under Gromme's wing early in his own museum career, says "Owen always gave me free reign. . . . he was never a difficult person to work with. He was always loyal to his people but would chew the hell out of you if he felt there was a cause for it." Pelzer went on to say, "One of Owen Gromme's greatest talents was his ability to get the ball rolling and keep it going. Whenever they needed a sponsor or a donation for a trip, Owen would always go out and get what they needed."

During his museum career, he was much revered by his associates and fought and struggled in the spotlight of controversy because it was his passion. In his own words, regarding environmental issues he once stated, "It's never been easy, but if I'm backed into a corner and someone has to speak up then I won't shy away from it." Gromme's hard stance on matters was a direct result of his curious, persistent, hard-driving and analytical mind and the fact that he thrived on hard work and believed in the future. There is an instance and a quote that perhaps best sums up the personality of Owen Gromme. In 1979, the state DNR wanted the winning artist of the state duck stamp contest to share their financial gain with the state as a prerequisite to entering the contest. Being a staunch supporter of wildlife artists, Gromme verbally assaulted the DNR, stating that this requirement was a classic example of bureaucratic greed and extortion. Shortly afterwards, this requirement was dropped and Gromme's battle won. Former DNR Secretary and Wisconsin Governor Anthony Earl once stated after several dealings with Owen that, "During the time I served as Secretary of the DNR, I had no firmer friend nor more formidible adversary than Owen Gromme. . . . When he was on my side, we could not be defeated, when he was on the other, I could not win."

Throughout my own 15 years here at the museum, Owen has served as a mentor and an inspiration. I still look at his works and marvel at his output and dedication to the museum. But most of all I admire his integrity. This seems to be the key element in the man's life and the source of his being.

Over the years, Owen and I became close friends. We saw things along the same lines and believed in the same future. Perhaps Owen's greatest strength, however, was the friendship that he shared with so many. For those of us who have had the opportunity to know Owen, our lives have been truly enriched.

Interestingly enough, when Owen died, there were still several weeks remaining of the 1991 waterfowl season. At his internment, prompted by an early winter storm, flocks of Sandhill Cranes, Canada Geese and Tundra Swans passed overhead as if to say goodbye to a dear friend. Then at the end of the prayer, geese in a nearby field took to the air, prompted by a volley of shotgun fire. With Owen's deep love for goose hunting, this was perhaps the most appropriate salute.

Gregory A. Septon
Milwaukee Public Museum
Wells Street
Milwaukee, WI 53233

Green-backed Heron *by Lisa Herbert.*

ABOUT THE AUTHORS AND ARTISTS

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.

Scott R. Craven is Professor and Extension Wildlife Specialist in the UW-Madison's Department of Wildlife Ecology. He is well known to naturalists around the state for his extension publications and radio shows. He is particularly interested in urban wildlife and wildlife damage problems.

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Phyllis Johnson is recently retired from Madison Area Technical College where she taught technical writing. She has B.S. and M.S. degrees from UW-Madison. She now resides near Columbus on her family farm.

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Michael James Riddet was born in England and has his B.S. degree in Biology from Roosevelt University. In 1983 he received first place in the National Wildlife Federation's "Wildlife in Art" exhibition. He lives in Boscobel.

Jennifer Sauer earned her B.S. degree in biology at UW-LaCrosse and her M.S. degree in natural resources from UW-Stevens Point. She works for the U.S. Fish and Wildlife Service in LaCrosse.

Greg Septon has been a taxidermist at the Milwaukee Public Museum since

1976. He attended the UW-Parkside. His interests are in birds of prey and gamebirds; he is an accomplished photographer.

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Randall Smith manages the Biological Conservation Data system for the Wisconsin chapter of The Nature Conservancy. He has been an artist for 17 years, and his watercolors are sold at galleries throughout the midwest.

Stanley A. Temple is Editor of *The Passenger Pigeon* and a Professor of Wildlife Ecology at the UW-Madison. He has authored several WSO publications and has received WSO's Golden Passenger Pigeon Award.

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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 15, 1992. Send your application to:

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

THE WISCONSIN SOCIETY FOR ORNITHOLOGY

The Wisconsin Society for Ornithology is an educational and scientific non-profit organization founded in 1939 "to encourage the study of Wisconsin birds." The Society achieves this goal through programs in research, education, conservation, and publication.

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