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A MAGAZINE OF WISCONSIN BIRD STUDY



The Passenger Pigeon

Spring 1967

VOLUME 29 NUMBER 1

DOUBLE-CRESTED CORMORANT

DRAWING BY
DANIEL W. ANDERSON



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The Recent Status of Wisconsin Cormorants

By DANIEL W. ANDERSON and FRANCES HAMERSTROM

A Report of the WSO Research Committee

PART I—THE WISCONSIN CORMORANT SITUATION

Introduction

This paper is a report on the status of Double-crested Cormorants (*Phalacrocorax auritus*) in Wisconsin. The report has been divided into two parts. Part I reviews the statewide situation and summarizes information received as part of a statewide survey conducted by the Wisconsin Society for Ornithology, and information already published. For further details on this survey, see **The Passenger Pigeon** 28(1):5-6. Part II concerns the more detailed information from Lac Du Bay, the colony on which we have the most information. F. H. has had a long association with the Lac Du Bay colony and has banded many fledgling cormorants and Great Blue Herons (*Ardea herodias*) there. D. W. A. has recently visited the colony in relation to a pesticide study.

We are grateful to the following persons who provided information or suggestions in preparing this report: F. N. Hamerstrom Jr., Wisconsin Conservation Department; J. J. Hickey, R. S. Ellarson, and J. R. March, Department of Wildlife Ecology, University of Wisconsin; Mrs. A. Gauerke, WSO File Keeper; and the many persons who contributed information on individual colonies. Contributors are cited as "personal communication."

The Decline of Migrating Cormorants

Although the records are incomplete for the separate years, many accounts clearly indicate a general decline. Various observers in the late 1940's and early 1950's have reported large numbers of early- or late-season (migrating) cormorants in Wisconsin. For example, Robbins (1947) reported as many as 2,000 in Adams county during the spring of 1946; and, although Robbins (1951) reported fewer cormorants than usual for the fall season of 1950, W. H. Kiel (Anonymous, 1950) observed about 5,000 on October 10, 1949 in LaCrosse county. Morse (1954) states that Genoa (bordering the Mississippi River in Vernon county) was at that time "one of the best places to watch large concentrations of Double-crested Cormorants" in the spring and fall.

By the late 1950's, reports began to suggest a decrease in observations of cormorants. Kemper (1959) gives the first suggestion of a possible decline: he received "only two fall reports for what was once regarded as a common migrant in Wisconsin." Kemper's question at that time, "Does

the scarcity lie with the birds or with the field ornithologists?" can probably now be answered in favor of the birds. Kemper's (1960) article merely states "meager" reports for cormorants although Soulen (1961) reported spring observations in nine Wisconsin counties. However, Soulen (1965) reported only seven WSO cormorant sightings for the spring of 1964. He mentions S. D. Robbins commenting that the spring of 1964 was the first in 30 years that he failed to see a single cormorant. Finally, Kemper (1965) sums up the recent status by calling it a "drastic reduction." Only three WSO sightings were recorded for the fall of 1964. Soulen (1966) reports spring observations in seven counties. He comments that spring observations in 1965 were about "par" with the last five years.

It is apparent from the lack of observations of large numbers of migrating cormorants in recent years that a decline has occurred over an area larger than Wisconsin. Kemper (1965, quoting Janet Green) mentions that a cormorant reduction has been noted for Minnesota in recent years. Three of Minnesota's cormorant colonies familiar to us show varying changes in status: Agassiz National Wildlife Refuge has had a colony at least since 1954 (30 nests); in 1965, there were still 25 active nests (J. W. Ellis, pers. comm.). The cormorants at Agassiz have responded to losses of nest trees by utilizing floating mats of dead vegetation probably originally taken over and built up from other birds (Anderson and Ellis, 1966). The cormorants disappeared from Rice Lake National Wildlife Refuge in about 1961, although herons were still nesting there in 1965 (C. Pospichal, pers. comm.). On Lake-of-the-Woods, P. E. Brenner (pers. comm.) reports that small numbers of nesting cormorants still use some of the islands. They have decreased considerably in the past ten years, however, probably due to heavy persecution by commercial fishermen (the cormorants were raiding pound- and gill-nets). Fortunately, this has ceased in recent years, and a small breeding stock still remains.

We have reviewed the published Michigan Bird Surveys (**The Jack-Pine Warbler**) back to 1961, but find no records of breeding colonies (recent) on the Upper Peninsula (UP). Palmer (1962) shows a colony on the UP, but we have no indication that this colony still exists.

Cormorant colonies on the prairie and lake areas in parts of North Dakota, Manitoba, and Saskatchewan generally seem to be doing well where left undisturbed (D. W. Anderson, unpublished). Even in these areas, however, where cormorants seem to conflict with fishing, they have been subject to control practices (McLeod and Bondar, 1953) or even "sportsmen's" gunning practice (D. W. Anderson, unpublished).

We cannot say with certainty where Wisconsin's past cormorant concentrations migrated from, although the declining populations in nearby areas to the west and north (Minnesota, Lake Superior, Lake Michigan, and possibly Ontario) seem to be reflected in recent counts. The more successful colonies still further west and north do not appear related to the Wisconsin migrants. Lewis (1929) discusses two major migration routes for interior cormorants (Missouri River and Mississippi River systems). The recent scarcity of Wisconsin, Mississippi River migrants suggests a decline of the birds that use this flyway.

The Decline of Breeding Cormorants in Wisconsin

Cormorants appear to have once been fairly common breeders on Lake Michigan. Kaiman and Nelson (1955) report that before 1954 they nested on rocky reefs in the Green Bay area, but moved to trees as a result of the disturbances. Local fishermen killed many birds because they were damaging fish in pound-nets (Ellarson, 1956). In 1954, cormorants nested on Hat Island. In 1956, Lound and Lound reported active rookeries on both Hat and Green Islands. The same authors (1957) reported an active rookery on Madeline Island in Lake Superior. Palmer (1962) shows a Lake Superior colony, also, in the same general area, but no dates are given. R. Bernard (pers. comm.) states that he and his students knew of no colonies in the Lake Superior area of northwest Wisconsin for 1966, although they have travelled that area extensively. H. C. Wilson (pers. comm.) states that cormorants disappeared from the Green Bay side of Door county around 1956 or 1957. P. Petersen (pers. comm.) states that cormorants disappeared from Spider Island (on the Lake Michigan side of Door county) in 1962. During the summer of 1966, D. W. A. and J. O. Evrard visited the Strawberry Islands, Sister Islands, Hat Island, and the Spider Island area, but saw no cormorants.

Foster (1955) reports that the cormorant started breeding at Horicon in 1954 with three nests. These increased to 11 active plus three inactive nests by 1955. G. F. Martz (pers. com.) states, however, that they have not nested at Horicon since about 1958.

Williams (1957) reports two former colonies from Columbia county, one on the Fox River prior to 1955, and one on the Okee Flowage around 1919 which disappeared when nesting trees were cut down. Foster (1955) reported cormorant nesting at isolated locations along the Wisconsin River in Adams county for 1954. Lound and Lound (1958) reported an active rookery on the north end of the Petenwell Flowage in Adams county for 1957. They reported summer cormorants in that area from 1958 to 1961, but S. D. Robbins (pers. comm.) believes the cormorants quit nesting there in the late-1950's when nesting trees were cut down. D. D. Berger (pers. comm.) recalls a cormorant colony of about 15 nests on the Rainbow Flowage in Oneida county prior to 1952-53, but it has since disappeared.

Roberts and Roberts (1964) report an active, but shrinking, cormorant colony on Necedah National Wildlife Refuge in 1963. E. J. Collins (pers. comm.) has kindly provided the following information concerning the history of the Necedah rookery: 1952—birds may have nested; 1957—first recorded nesting on the refuge with three nests yielding six young; 1958 to 1959—birds present, but did not raise any young; 1960—50 nests with about 150 young; 1961—15 nests with about 45 young; 1962—15 nests with 40 young; 1963—last recorded nesting with ten nests containing 30 young. The cormorants had nested on a 3,000-acre impoundment along with Great Blue Herons. The herons still persist in the area, although the traditional nesting trees are deteriorating. There is an abundance of seemingly adequate habitat still available on the refuge (and new areas are being created), yet the only recent cormorant observations have

been a few birds in the spring. Apparently, the last active cormorant colony from the Adams-Juneau county area is that reported by H. D. Roberts and H. E. Olson (pers. comm.). A small colony in the southeast corner of Jackson county (on the Jackson-Monroe county line, at the head of the Lemonweir River in a cranberry marsh) was still active in 1966. About 100 nests comprise the colony, 12 of which are cormorant nests. Both herons and cormorants have nested there for the past 5-6 years, but the nesting trees are deteriorating.

Foster (1955) reported 12 active nests at Crex Meadows in Burnett county for 1954. N. R. Stone (pers. comm.) reports that cormorants failed to nest there from 1963 to 1965, but again nested there in 1966 with seven nests yielding 19 young. These 1966 nests appeared to be very late (still active in August) as compared to previous years. He believes the adults arrived late in the season rather than having renested from some nearby area. This is the only Wisconsin colony that shows promise for an increase in the near future.

Gabrielson (1939) mentions a fair sized colony on the Trempealeau Migratory Waterfowl Refuge in Trempealeau county. The only 1966 active colony known to us on the southeast part of the Mississippi River would be the one reported by P. Peterson (pers. comm.) near Thompson, Illinois (10 nests), just across the border.

We have left out the reports from Lac Du Bay (5 active nests in 1966) for later discussion. The general picture over Wisconsin is one of disappearance and steady decline of nesting cormorant colonies (summarized in Figure 1). Some of the probable causes for this decline will be discussed in Part II. The reported rookery locations as summarized in Figure 1 are probably sketchy, but we believe they provide the general picture. Because of the isolation of most cormorant colonies, some are undoubtedly missed or overlooked. On the basis of the many heron colonies reported by Williams (1957), it would seem that there would be more cormorant colonies, also. We are surprised that no cormorant colonies have been reported from the Chippewa River area or from Iron, Price, Vilas, and Ashland counties. Thus the locations given on Figure 1 should be considered as minus numbers. If you know of any cormorant colonies existing now or in the past that we have not included, please inform either one of us so that this information can be put into the WSO records.

Breeding Range

The past breeding range of the cormorant in Wisconsin probably covered most of the state (see Gromme, 1963 and the comments of Robins, 1966). Schorger (1945) reported that Ned Hollister in 1896 collected a cormorant which was "the only occurrence for many years" in southern Wisconsin; nevertheless, Kumlien and Hollister (1903) reported it as a common nester in some of the more isolated and larger lakes of the northern and central parts of the state. The latter reference at least indicates that the cormorant was historically a common nester in much of the state. The cormorant's breeding range in Wisconsin during the first

and western (Mississippi-St. Croix Rivers and associated areas). It appears that the eastern colonies are now gone, along with parts of the central and western groups. The few colonies left are undoubtedly declining, with only one known exception.

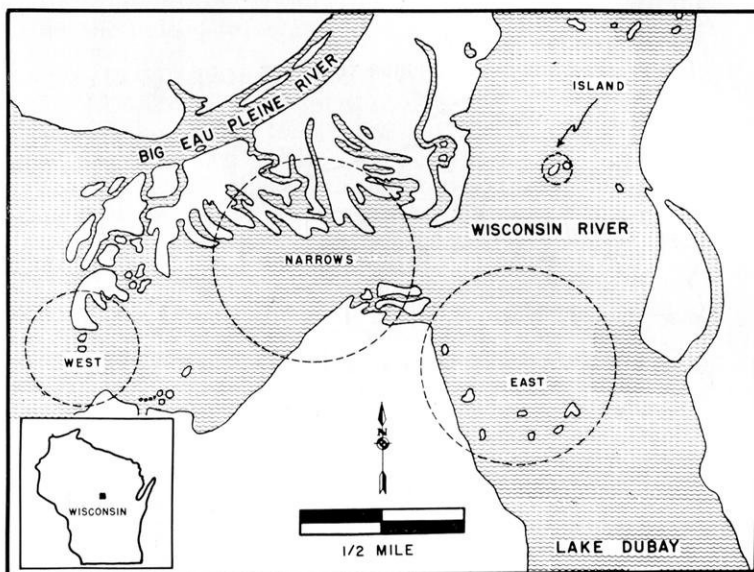


FIGURE 2. SKETCH MAP OF THE GENERAL CORMORANT AND HERON NESTING AREA AT LAC DU BAY, SHOWING THE GENERAL CHARACTERISTICS AND RELATIONSHIPS.

PART II—THE LAC DU BAY ROOKERY

Introduction

The Lac Du Bay Double-crested Cormorant and Great Blue Heron rookery is probably the best known in Wisconsin. Figure 2 summarizes its general characteristics. Barger (1940) reported 15+ cormorant and 5+ heron nests in Marathon county in 1939, our earliest records for this colony. Barger (1941) recorded 16 cormorant nests in the same general area for 1940. The colony appears to have been well established by 1949 when Knudsen (1951) observed "large numbers" of cormorants and an "abundance" of Great Blue Herons. He counted about 400 nests of both species in 1949, about the same in 1950, and "scarcely" 250 in 1951. At that time, he believed the decline of nests was due to losses of nest trees. (Many of the heron colonies reported by Williams, 1957, had also been lost due to natural or man-made losses of nest trees.) Knudsen predicted a gradual decline of the Lac Du Bay rookery. A comparison of the nest-

ing trees between 1949 and 1965 (Figure 3) shows the loss and thinning of trees in the general colony area. Figure 3B represents the best nesting habitat that we found in 1965.

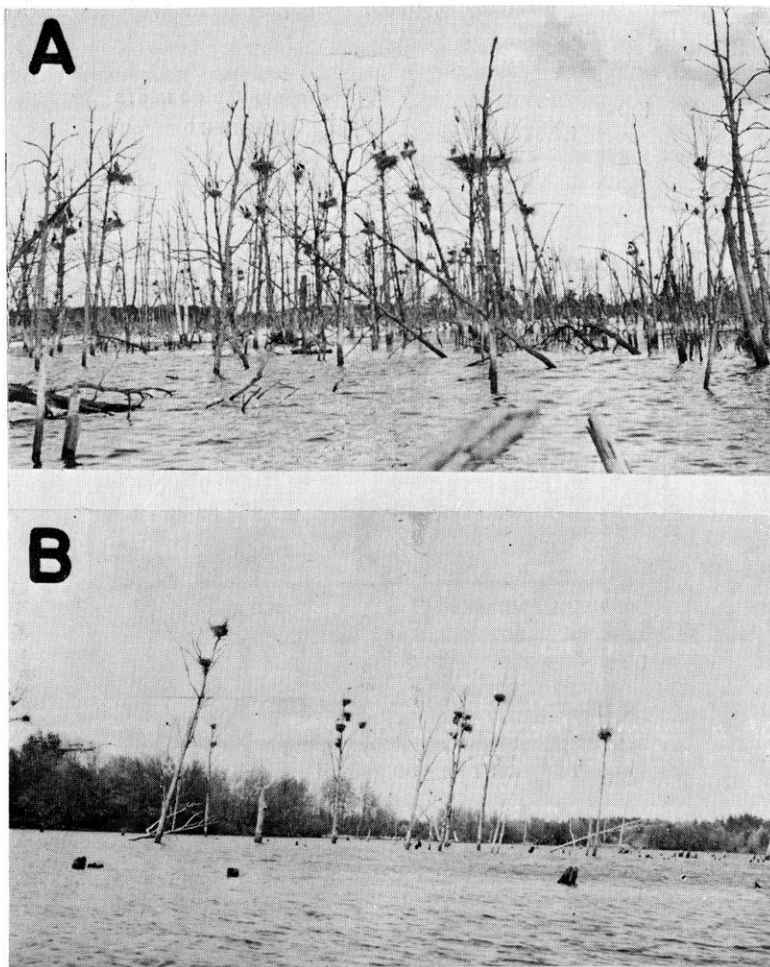


FIGURE 3. A. PHOTOGRAPH OF THE EAST COLONY AREA IN 1949, SHOWING THE EARLIER TREE AND TREE-STEM DENSITY FOUND IN CORMORANT AND HERON NESTING HABITAT AT LAC DU BAY (PHOTO BY GEORGE KNUDSEN). B. PHOTOGRAPH OF THE MAJOR PORTION OF THE NARROWS COLONY AT LAC DU BAY IN 1965 (PHOTO BY DANIEL ANDERSON).

Census

Numbers of nests were counted as a crude index to the breeding population; therefore, only those nests that appeared occupied or in a repaired condition were included. Stick platforms and partial or broken

nests were not counted. F. H. visited the colony at banding time when most of the young were conspicuous on or near the nests (a few late nests sometimes still had small young). At the time of year when the young are of bandable age it is usually not hard to distinguish between active nests and stick platforms, or old, broken nests which we did not include in the counts.

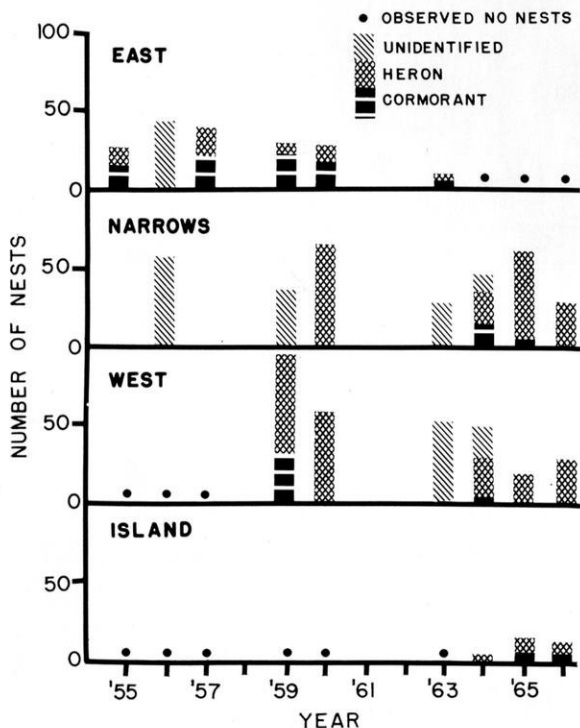


FIGURE 4. LAC DU BAY CORMORANT AND HERON NEST CENSUSES FROM 1955 TO 1966 BROKEN DOWN BY SUBCOLONY AREA. THE SPACES WITH NO DATA ARE YEARS OR AREAS NOT CENSUSED.

Results and Discussion

Considerable shifting of major nest concentrations within the general area is indicated (Figure 4). (Nests shown past 1959 on the figures as "unidentified" are probably heron nests.) Williams (1957) also reported shifting by many heron colonies as conditions changed. Apparently, as adequate nesting trees disappeared in the East Colony area (Figures 2 and 4), the birds shifted to the Narrows, then moved into the West Colony, and finally to the Island Colony (in a live elm tree) just recently. Each colony except the Narrows shows a pattern of establishment, a rise in number of nests, and then a decline. J. R. Berkahn (pers. comm.) recalls seeing several very small, temporary cormorant-heron subcolonies

elsewhere in the Lac Du Bay area, one at the mouth of the Little Eau Pleine River and one on the east arm of Lac Du Bay. These colonies only existed for short periods and none were known for 1966.

The Lac Du Bay colony was subjected to the severe stress of gunning during the breeding season of 1961. Not one of the many young F. H. had hoped to band was alive. Their bodies lay dead on the nests or floated in the water nearby. No living young were seen in the area, and the massacre appeared complete. This might account for a large drop in

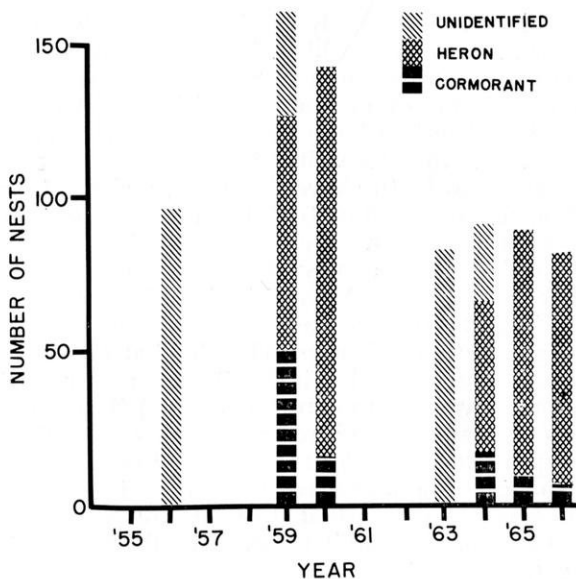


FIGURE 5. TOTAL NESTS CENSUSED AT LAC DU BAY FROM 1955 TO 1966. SPACES WITH NO DATA ARE YEARS IN WHICH NEST CENSUSES ARE NOT AVAILABLE FROM THE ENTIRE COLONY.

bird numbers (and thus active nests), especially as indicated at the Narrows and West Colonies roughly from 1959-60 to 1963 (Figures 4 and 5). The East Colony was almost gone at that time. J. R. Berkahn (pers. comm.) believes 1961 was probably the date of the shootout we mention here; however, such shootups occurred several times, especially during the years 1956 and 1958 and then during the period 1959 to 1963 (a period of excessive vandalism to the colony). In the last four to five years, there has not been a great deal of disturbance, although some minor shooting was reported in 1966 (four dead young herons observed hanging from their nests).

A substantial breeding population of both species, especially around 1959, is suggested (Figures 4 and 5) with a gradual decline, especially of cormorants, up to 1966. The pre-1959 counts are not complete enough to draw any conclusions as to the overall population status; however, the high 1959 counts are still not comparable to the earlier figures given by

Knudsen (1951). A decline is shown even from Knudsen's figures and appears to be going as predicted. R. F. Wendt (pers. comm.) has estimated the 1966 cormorant population (nests) in the Lac Du Bay area at 5-10. C. Sindelar and F. Renn counted the total 1966 nests on the colony while surveying of osprey (*Pandion haliaetus*). Their data were used in the figures, and indicate a slight decrease in both herons and cormorants from 1965. (The figures for the Narrows and West Colonies are separated only roughly, although the total for both areas is known to be 71. The contributors stated they were about equally divided.)

The cormorants have recently declined in relation to the herons, while the herons seem to have held their own (Figure 5). This was also apparent in the information from Necedah and other areas discussed earlier. Perhaps the cormorant is more sensitive and the heron more tolerant of habitat deterioration. Knudsen (1951) mentions that the rookery was "layered" when he visited it. The cormorants used the lateral branches from 3 to 15 ft. above the water, and the herons built in the terminal branches up to 30 ft. This was our impression, also. (Close inspection of Figure 3A shows that herons mainly use the terminal branches. The only cormorant nest shown on Figure 3B is the lowest on the third tree from the right.) The thinning of nest trees from 1949 to 1965 (Figure 3) indicates that the cormorants have lost suitable nest sites to a greater degree than the herons. New habitat (flooded hardwoods) has recently been created (flooded in 1964) on the Mead Wildlife Area (about five miles southwest of the present rookery) (J. R. Berkhahn, pers. comm.). Birds (especially young birds) are already using the area to find food (fishing appears to be much better at Mead than at Lake Du Bay), although no young cormorants were seen there in 1966. Cormorants may now be so low in numbers that they will not be able to reestablish themselves in this promising habitat created by the Wisconsin Conservation Department.

Palmer (1962) states that a convenient food supply and an undisturbed site are necessary requirements for successful cormorant nesting (breeding density of cormorants varies directly with the adequacy of food supply and freedom from molestation). Houston (1962) states (concerning colonial-nesting birds) that cormorants (and pelicans, *Pelecanus erythrorhynchos*) particularly cannot tolerate human molestation while nesting, since short exposures of the open nests to the sun or cold can result in death of the naked young or exposed eggs. He believes the problem of preservation of colonial birds will increase as increasing numbers of people visit the colony lakes of Saskatchewan. Lac Du Bay is probably less visited now than previously, however. Were minor disturbances by people a highly significant factor, the Lac Du Bay birds should have shown a steady increase in numbers as fewer and fewer people visited the flowage in recent years. F. H. regrets that she did not photograph the many fishing boats at Lac Du Bay in the early days. Near boat landings and access points, many people were found fishing and others were actually there for the pleasure of swimming. Nowadays, swimmers are limited to those whose boats have capsized or to banders who have been liberally splashed by warm, partially digested fish regurgitated by the young birds (the swimming is the lesser of two evils).

There could be a correlation between poor fishing and the reduction of nesting cormorants. The water has become scummy and darkened, sulfite wastes abundant, and poor fishing has discouraged the fisherman (A. Berkman, pers. comm.). The cormorants may be finding the fishing too poor to maintain the colony. The more varied diet of the heron may be strongly in its favor. Young cormorants have no choice but to fish in the paper mill waste-laden waters in which the nest trees now stand. Young herons can soon seek frogs, snails, mice, etc. and are not so closely bound to a single food source after leaving the nest, the source being a body of water which may now be so murky that they can not see to catch fish.

The possible effects of some pesticides have been examined by Hickey and Anderson (1966). They found relatively low residues in all cormorant eggs sampled from the interior of North America, although the Lac Du Bay eggs (3) contained the highest residues. Parts per million (ppm) of DDT + TDE + DDE in the Du Bay eggs ran 48.9 ppm (mostly DDE, a break-down product of DDT). Dieldrin ran 0.8 ppm. Fish sampled from Lac Du Bay ran from less than 0.149 ppm total residues in yellow perch (*Perca flavescens*), to less than 0.159 ppm in northern pike (*Esox lucius*), to less than 0.163 ppm in bullheads (*Ictalurus melas*). Analysis of bottom sediments showed only trace (less than 0.01 ppm) amounts of insecticides. The fish residues are not considered likely to result in direct mortality or in an egg buildup sufficient to impair reproduction. There may be other relationships, however, and the mere presence of pesticides in all the environmental components tested could be significant, although difficult to evaluate. Hickey and Cook (1966) and Thompson (1966) have shown varying levels of pesticides in Wisconsin fish, seemingly dependent on the particular lake from which the samples were taken. Therefore, it is possible that other cormorant colonies in Wisconsin are receiving more highly contaminated fish than those from Lac Du Bay. The more subtle effects of pesticides and other factors are just recently being indicated, for example, James and Davis (1965) and Hickey (unpublished), for some species of birds.

Habitat deterioration in the form of tree losses and thinning, probably also various forms of pollution, and local disturbances are most likely reducing the cormorant population at Lac Du Bay, although other factors may play a less significant role. The situation at Du Bay may also apply to other Wisconsin cormorant rookeries, especially in such cases where they are not isolated, located in polluted waters, or located on flowages where disturbances and/or tree losses can be expected. If the remaining rookeries are to be preserved for a maximum length of time, they will require careful study of the limiting factors, and protection from (1) extreme disturbances by the general public and (2) destruction of the nesting trees, especially during the breeding season. Although McLeod and Bondar (1953) have shown that island-nesting cormorants are tenacious renesters (when first eggs or young were destroyed, 50% renested almost immediately), there is not a great amount of suitable habitat in most areas that the birds can turn to if forced to leave (they require both adequate trees and abundant food). As far as tree destruction is concerned, we cannot restore the downed or thinned trees. Since

the birds have been shown to respond to habitat changes by moving to new locations, we can give protection to newly established, small colonies to insure their continuance and possible buildup there. In some areas, a few suitably located trees (for example, on islands to prevent predation) might be girdled to provide new nesting opportunities. The protection of the cormorant (and heron) colonies, as with many other forms of aesthetic wildlife, will require a personal interest by bird and nature lovers. Observed disturbances should be reported to local conservation wardens, as the cormorant is a protected species in Wisconsin.

General Summary and Conclusions

Historically, and even up to the late 1950's, the Double-crested Cormorant appears to have been a common migrant and a relatively common breeding bird in Wisconsin. Since the late 1950's, both migrating and breeding cormorants have declined greatly in number, with only a few of the traditional rookeries still holding small numbers of birds.

The more detailed information from Lac Du Bay follows the same general pattern, with a noticeable decline in cormorants in 1951 and since the early 1960's. The Du Bay rookery has shifted locally as nesting trees deteriorated and will probably continue to shift as nesting trees disappear. The Lac Du Bay decline is probably representative of other Wisconsin rookeries in many ways. Habitat loss and deterioration as well as disturbances have undoubtedly played a part. In general, it appears that the factors for the decline are associated with either man's increased use of the cormorant's environs (unintentional disturbances or changes), or man's overuse and abuse (pollution and intentional disturbances), combined with natural and expected environmental effects (thinning and rotting of nest trees, weather blowing trees down, etc.).

Locally, it appears that cormorants may move into an area, nest for a number of years (in Wisconsin, for example, from one year in several cases, to four years at Horicon, to at least 26 years at Lac Du Bay), and then move to another location. Most alarming, however, is the complete disappearance of the cormorants from large areas. We do not believe that in Wisconsin today the total number of nesting pairs exceeds a rough estimate of 30.

If we are to keep the few birds left, careful protection is needed, and more information is needed concerning the limiting factors causing the decline of these birds; or, the picturesque string of cormorants, bearing fish to feed their velvety-black young, will no longer fly over Wisconsin waters.

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and

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Death of a Thrush

I'm the only one who can attest your dying,
The only one who heard the mortal blow,
The only witness to that labored breathing,
The only one who saw your life blood flow.
None of your kin were within sight or hearing,
Nor could have helped you, as neither could I.
That fatal flight against my big glass window.
A thud! It takes so short a time to die.

Moments ago you were alive and breathing,
With careless, easeless grace you flew so high.
You dipped and soared and missed the smallest branches,
You scarcely turned a leaf as you passed by.
But then with lethal speed you hit my window.
Too big a sound for such a little bird.
But death, my little friend, has no dimensions,
A crash, a prick, a blow that can't be heard.

You lived through all those perilous migrations.
You learned to seek for food and hide from cold.
You followed wind and sun and stars and shadows,
In paths your ancestors had done of old.
Since early fall your voice has charmed the woodland,
That ringing flute-like call, that sweet refrain.
Now sudden death against my big glass window,
You lovely thrush who'll never sing again.

—Emma F. Lewis

LOON PRODUCTIVITY

Observations from the last several years in northern Minnesota indicate that the Common Loon may be becoming an endangered species. In addition to the loon losses on Lake Michigan, there is evidence of greatly reduced reproductive success of loons in at least some areas of northern Wisconsin.

A study was initiated in the spring of 1967 in the Boundary Waters Canoe Area of Minnesota to document actual productivity and begin an investigation of the causes of the present reduction in productivity.

Observations on loon numbers, territoriality, nesting successes, area of wintering and other pertinent information from competent observers in northern Wisconsin and Minnesota would be appreciated. Send to: Catherine H. Ream, Box 150, Ely, Minnesota 55731. Winter address is 2154 S. Rosewood Lane, St. Paul, Minnesota 55113.

Notes on the Summer Birds of the Apostle Islands. II

By EDWARD W. BEALS

I have previously reported on birds observed on the Apostle Islands during the summers of 1957 and 1958 (Beals 1958, **Passenger Pigeon** 20:151; also Beals 1960, **Wilson Bulletin** 72:156). Since then I have spent a few days in that area, working for the Wisconsin Conservation Department, during each of the summers of 1959 and 1960, and three weeks during the summer of 1966. Some of these new records seem worth reporting.

The most interesting new records are those from Devils Island, which I visited June 22-23, 1959, and August 1-5, 1966. This is the northernmost island in the group. The north end is occupied by a large tract of black spruce forest and swamp. The rest is northern conifer-hardwoods, with yellow birch and white cedar dominating. Devils Island was not included in the area covered by the earlier papers. Two other islands, which I have not visited myself, Outer and North Twin, might also yield interesting records, since they are nearly as far north in Lake Superior as Devils.

Other islands which I did visit, July 12-26, 1966, were Rocky, South Twin, Stockton, Oak, and Hermit. Judged from my general observations, the bird populations on islands revisited in 1966 have remained essentially similar to what they were in 1957 and 1958.

Pigeon Hawk. Two birds were resident (seen regularly and closely August 2-5, 1966) near the north end of Devils Island. A nest was finally found in a partially dead black spruce, about 30 feet above the ground. It consisted of sticks and leaves and was an estimated two feet in diameter. The contents of the nest were not seen. The birds vociferously scolded anyone who came within about 250 yards of the nest. I know of no other records of nesting of this species in Wisconsin. This is the only species of bird of prey that I have found on one of the smaller islands.

Olive-sided Flycatcher. My one record of this bird, June 23, 1959, on Devils Island, was reported in "Field Notes" (1960, **Passenger Pigeon** 22:40). It was in a yellow birch-white cedar forest, and sang frequently from an open perch above the road. I looked hard for this species in 1966 but found none, possibly because I visited the island much later in the season than before. The bird has been reported regularly from northern Wisconsin and might be expected to nest here.

Gray Jay. This is another species which is reported regularly in northern Wisconsin, and one was seen on Devils Island on August 3, 1966, in a yellow birch-white cedar forest.

Boreal Chickadee. A pair of this species was found (August 2-5, 1966) at the north end of Devils Island, along the edge of the black

spruce-balsam fir forest, generally in the company of four Black-capped Chickadees. This species has been found nesting in the northeast part of the state. Whether it nests here remains to be discovered.

Brown Creeper. An adult feeding an immature bird was recorded on August 4, 1966, on Devils Island in the black spruce forest. This species was observed on other islands in prior years. This observation indicates that the species is definitely a nesting bird in the area.

Brewer's Blackbird. A species recorded before on Madeline Island. A number of birds were recorded in the summer of 1966 on Stockton Island and on South Twin Island. On both islands the habitat was very similar as before—lakeshore with a bog behind the dune.

Red Crossbill. A flock of at least seven was seen on July 20, 1966, in the pine forest on the peninsula of Stockton Island. There was one adult male, at least two orange-brown birds (immature males?), and the rest were dull brown. A single female (dull brown) was observed August 3, 1966, on Devils Island in the black spruce swamp. The breeding status of these birds is unknown. Beer and Dahlberg (1965. **Passenger Pigeon** 27:141) noted this species as one of the five they had recorded in winter in the Apostle Islands which I had not reported as a summer bird.

Savannah Sparrow. Two adults and at least two immatures were resident in the clearings around the Coast Guard buildings at the north tip of Devils Island in August 1966. The vegetation was both grassy lawn and blueberry thicket.

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THE 1966 MAY COUNT

By THOMAS K. SOULEN

The most striking fact revealed by an analysis of May Count reports from the period May 5-25, 1966, is the fact that the season was indeed a very late one so far as birds were concerned. For the first time in a number of years, for example, there were well-documented reports of mid-May Common Redpolls. Other stragglers were prominent among the species turned up by Wisconsin ornithologists this May, and for the first time in several years there were good supporting details of the observations of most of these species: Hermit Thrush, Golden-crowned Kinglet, Slate-colored Junco, Tree and Fox Sparrow. All of these species were reported on 30-60% of the counts; in a more normal year, the percentage is 10% or less. There was poor representation, on the other hand, of species which habitually appear in numbers in Wisconsin only in mid-May or later. The Canada Warbler, for instance, was reported only on one count; normally they appear on one-third to one-half the counts. The Black-billed Cuckoo, also usually represented on one-half the counts,

was not reported at all. Other species which exhibited a similar scarcity were Common Nighthawk, Yellow-throated Vireo, and Blackpoll Warbler, each encountered on less than 20% of the counts versus the usual 40-70%.

Only 14 May Counts are presented here. Although I have no recollection of receiving more than these, it is possible that some may have been misplaced among the piles of papers which filled various corners of our quarters in the months immediately after spring. Should any counts which were submitted not be listed here, I apologize sincerely for their omission. The more likely reason (hopefully) for the reduced number of counts in 1966 (there were closer to 30 the previous few seasons) was the lack of sufficient announcement of dates and procedures, for which I apologize.

It was again a pleasure to have figures submitted by many compilers for the total number of individuals of many of the species seen or heard. A considerable proportion of the reports were very well prepared, with many details of terrain covered, weather conditions, and other pertinent data. We express our thanks especially to these compilers for their efforts. The details of the counts follow. A total of 228 species plus one hybrid were seen on counts; an additional 21 species plus an additional hybrid were reported by various observers in the state during the May Count period.

Details of the Count

Appleton: 157 species. May 14. Nine people began at 4:30 a. m. to search within 15 miles of the city for birds present on a chilly (41-57°) but otherwise pleasant day. Among other species, they found Common Egret, Rough-legged Hawk, Prothonotary Warbler, Common Redpoll, Slate-colored Junco, and Tree Sparrow. 20 warbler species. Reported by Daryl Tessen.

Milwaukee: 152 species. May 15. Eighteen observers spent an overcast and chilly (38-56°) day with 8-16 mph winds searching parts of Milwaukee and Ozaukee counties, finding Western Grebe, Oldsquaw, White-winged Scoter, Winter Wren, Hermit Thrush, Golden-crowned Kinglet, Black-throated Blue Warbler, and Fox Sparrow. 20 warbler species. Reported by Mary Donald.

St. Croix County: 143 species. May 18. In a selected, windy 7 hours Sam Robbins located the following species of interest: Double-crested Cormorant, Whistling Swan, Canada Goose, White-rumped Sandpiper, Short-billed Dowitcher, Hudsonian Godwit, Western Kingbird, and Lark Sparrow. 22 warbler species.

Green Bay: 141 species. May 15. Members of the Green Bay Bird Club found on a cool and windy day Common Egret, Common Merganser, Rough-legged Hawk, Mockingbird, Golden-crowned Kinglet, Black-throated Blue, Pine and Connecticut Warblers, Evening Grosbeak, Common Redpoll, Slate-colored Junco, Tree and Fox Sparrows. 21 warbler species. Reported by Edwin D. Cleary.

Douglas County: 138 species. May 14. Fourteen observers were out in cool (31-52°), windy (10-16 mph), and cloudy and rainy weather from 4:00 a. m. to 9:00 p. m. Despite the weather, they located 4,873 individuals and these species: Red-throated Loon, Canada Goose, Common Merganser, Goshawk, Bald Eagle, Pigeon Hawk, Sharp-tailed Grouse, Piping Plover, Willet, Dowitcher, Marbled Godwit, Glaucous Gull, Gray Jay, Common Raven, Evening Grosbeak, Common Redpoll, Slate-colored Junco, Tree and Fox Sparrow. 12 warbler species. Reported by Richard F. Bernard.

Wausau: 135 species. May 15. Thirty-three members of the Wausau Bird Club walked 74 party-miles, drove 257 party-miles, and in their 167 party-hours located 6,582 individuals. The wind was SW 20-30 mph, the temperature 44-60°, the sky cloudy to overcast, with rain by 4 p. m. The territory covered was within 15 miles of the center of town and consisted of 50% woodland, 30% field, 15% urban and 5% water. Interesting species observed were Sandhill Crane, Bonaparte's Gull, Yellow-bellied Flycatcher, Common Raven, Golden-crowned Kinglet, Loggerhead Shrike,

Cerulean and Connecticut Warblers, Yellow-headed Blackbird, Evening Grosbeak, Common Redpoll, Slate-colored Junco, Tree, Harris' and Fox Sparrow. 21 warbler species. Reported by Emily Bierbrauer.

Oconomowoc: 128 species. May 8. The weather this early date was anything but ideal for a May Count (24-32° with snow flurries and 10-15 mph NW winds), but 22 members of the S. Paul Jones Bird Club found in their 11-plus hours afield the following: Bobwhite, Baird's Sandpiper, and Tree Sparrow. 16 warbler species. Reported by Ed Peartree.

Beloit: 126 species. May 11. Members of the Ned Hollister Bird Club scoured Rock county from dawn to dusk on a cloudy day with moderate winds, 40° temperature, snow and rain, finding Canada Goose, Bobwhite, Baird's Sandpiper, Hermit Thrush, Golden-crowned Kinglet, Worm-eating Warbler, Dickcissel, and Tree Sparrow. 14 warbler species. Reported by June Ohm.

Lafayette County: 91 species. May 14. Five members spent 13 hours of a cool, calm and clear day looking for birds in the vicinity of Yellowstone Lake and elsewhere in the county, locating Bufflehead, Blue-gray Gnatcatcher, and Blue-winged Warbler. 10 warbler species. Reported by N. R. Barger.

Antigo: 90 species. May 22. Sixteen members of the Antigo Audubon Club spent a very pleasant day (calm, clear, 60-75°) locating 1,375 individuals in the vicinity of Antigo, including Sharp-tailed Grouse, Sandhill Crane, Yellow-bellied Flycatcher, Common Raven, Brown Creeper, Pine and Connecticut Warblers, Dickcissel, Evening Grosbeak, Grasshopper Sparrow, and Slate-colored Junco. 12 warbler species. No reporter indicated.

Fond du Lac: 88 species plus one hybrid. May 10. Rockne Knuth searched the area within 7½ miles of the city for 14 hours on a chilly (28-40°) and sometimes windy day, finding among the 702 individuals counted these species: Mallard x Black Duck hybrid, Common Merganser, and Slate-colored Junco. 9 warbler species.

Oshkosh: 88 species. May 14. Fourteen birders covered a 15-mile diameter circle centered in Oshkosh, locating 4,256 individuals and these species of interest: Rough-legged Hawk, Screech Owl, and Hermit Thrush. 9 warbler species. No reporter indicated.

Milwaukee (Whitnall Park): 76 species. May 18. In a five-hour morning, Elmer Strehlow found Osprey, Red-breasted Nuthatch, Cerulean Warbler, and Slate-colored Junco. 16 warbler species.

Sawyer County: 67 species. May 21. Mr. and Mrs. Ed Reifenauer combined 10 hours walking and trout fishing and 10 miles driving near Radisson on a day of widely varying temperature (34-82°) and wind (calm to very strong), finding Common Raven, Dickcissel, and Clay-colored Sparrow. 9 warbler species.

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CORRECTIONS

Once in a while errors creep onto the printed page—not often (editors like to say), but once in a while. When they do occur, corrections are in order. Here are two of them.

William Hilsenhoff reports that he did not see a Red-throated Loon on May 4, 1965, in Winnebago county (1966 Passenger Pigeon 24). According to his records it was the departure date of a Horned Grebe on Lake Winnebago.

Louise Erickson says that the report of 335 King Rails in Racine county on October 16, 1964, (1965 Passenger Pigeon 123) should be 335 Coots.

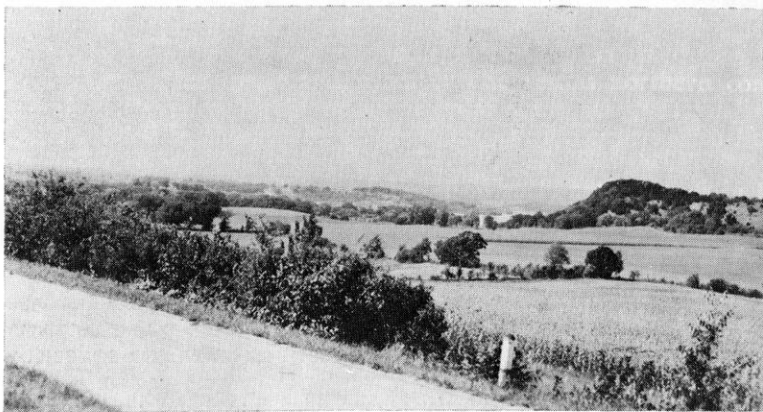
A plan to increase beauty
and wildlife habitat along Wisconsin roads

Selective Brush Management

By JOYCE JAIS

Where oh where have our scenic roads gone? Such a lament often follows in the wake of bulldozers, cement mixers and herbicide sprayers. For while most of us enjoy grass when it is in our lawns, it has definite limitations aesthetically when viewed for mile after mile along otherwise denuded roadsides. Songbirds and other wildlife find it a bit limited, too.

For those who would like to have more songbirds, wild flowers, game and scenic variation along Wisconsin roads, there is a program under



LOW GROWING BRUSHY HEDGEROWS PERMIT A VIEW OF THE LANDSCAPE BEYOND, PROVIDE WILDLIFE COVER AND ARE HAVENS FOR VALUABLE POLLINATING INSECTS.

way to help bring this about—selective brush management. Selective brush management consists of removing tall trees, undesirable woody shrubs and noxious weeds from the roadside rights-of-way and thereby encouraging the growth of more desirable low growing plants and shrubs. Sumac, wild plum, juniper, woodbine, cinquefoil, thimbleberry, dogwood, wild grape, rose and many others thrive once the taller growth is removed. Eventually, they form a thick brushy cover that prevents the reestablishment of trees and noxious weeds such as Canada thistle, field bindweed and leafy spurge.

Trees and shrubs have given way to grassy cover along the roadways for several reasons. Trees and taller brush on the road's edge tend to hinder snow removal operations and other road maintenance. They may also create a traffic hazard by impairing visibility, or in winter, cause icing by shading the road. In addition, on power line rights-of-way, trees grow into overhead wires causing interruptions in service and increased

maintenance costs. With heavier traffic and higher speeds, roadways must be made as safe as possible. However, the wholesale destruction of trees, shrubs and other native vegetation is an unnecessarily high price to pay.

Unnecessary because there is an alternative! For the past several years a working group of the Natural Resources Committee of State Agencies,

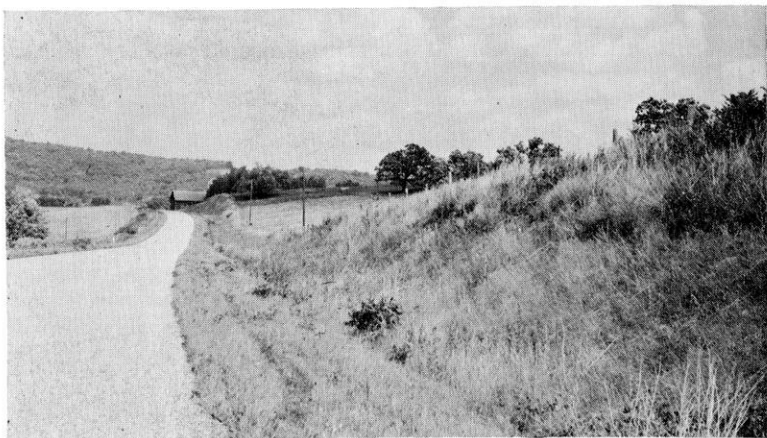


THE RIGHT SIDE OF THIS ROAD HAS BEEN CLEAR-CUT, SOLVING SOME PROBLEMS OF VISIBILITY AND MAINTENANCE, BUT SACRIFICING AESTHETIC AND WILDLIFE VALUES. THE TALLER GROWTH ON THE LEFT COULD BE SELECTIVELY CUT AND SPRAYED, LEAVING MUCH GOOD NESTING COVER FOR SONGBIRDS.

composed of 19 public and private agencies, has been conducting field studies on selected roadside sites in Columbia county. On the basis of these studies a statewide program was initiated which at present can claim a total of over 100 miles of selectively managed roadside in 19 counties. The work in these counties has shown that undesirable trees can be eliminated and weeds controlled through a program of selective cutting and spraying. This involves the cutting of individual trees or bushes that are undesirable on the roadside, and then spraying the stumps with herbicide to prevent resprouting. Occasionally a plant is simply sprayed. Grass is maintained on a mowing strip immediately adjacent to the road to make snow removal easier. No planting was done in this program, but with the larger vegetation removed, the low growing shrubs and native herbaceous plants "took over." Weeds did not increase and were eventually crowded out by the more desirable plants.

On roadsides where remnant prairie vegetation still survives, this program offers an opportunity to maintain this unique plant community. Prairie plants can be maintained by periodic burning which benefits the prairie species and eliminates intruders. The often showy, continually changing, nearly vanished prairie flowers could add a flair of color and nostalgia to our landscape.

The cost of this kind of right-of-way maintenance program is less than that spent to maintain grassy roadsides. The benefits to landscape and wildlife are many. As habitat for songbirds, pollinating insects and other wildlife the roadside hedgerows may be crucial. Certain species of wildlife require the continuity of cover that roadside hedgerows can provide. Today, the roadsides may be the only feasible place to maintain such cover, for farmers are increasingly unwilling to leave fencerows on



THIS BANK HAS BEEN "BRUSHED" BY THE OLD STYLE METHOD OF CLEAR CUTTING.

tillable land. The roadsides could provide the connecting links between otherwise isolated remnants of wildlife habitat away from the roads. In a study of quail populations in Columbia county it was found that the loss of quail was directly related to the loss of 61 percent of the hedgerows. Two-thirds of the hedgerows lost were along roadways.

Think of the acres of wildlife habitat that could be acquired **cost free** if the selective brush management program were extended throughout the state. Not all roadsides provide suitable sites, of course, but if each township in Wisconsin had just five miles of brush-edged roadway, we would have enough hedgerows to extend to California and back. Think of the nesting sites, food and cover they would provide!

Here is a program that private citizens and local residents can help to broaden. Selective brush management of roadside rights-of-way works. And at no added cost to the taxpayer. However, to be most effective selective brush management must become a part of the regular maintenance operations of town and county highway departments. The big step remaining between idea and reality in many areas is the adoption of the program by county and town boards and highway commissions. This requires committed and vocal public support.

You and your local bird or garden club can help. Here are some suggestions on what to do:

Keep talking—to anyone who will listen. There is something for everyone in the benefits of selective brush management. What is needed is public awareness of and support for the program.

Become better informed. Invite speakers from the member agencies of the Natural Resources Committee of State Agencies to speak to your local club, school or civic group.



SELECTIVE MANAGEMENT WAS INITIATED ON THIS ROADSIDE AFTER IT HAD BEEN CLEAR CUT. THIS IS THE RESULT AFTER TWO YEARS GROWTH. NOTE THE DEAD BOXELDER STEMS WHICH HAVE BEEN SELECTIVELY SPRAYED.

Locate sites being indiscriminately cut or sprayed and bring them to the attention of local officials and other citizens. There is an alternative!

Contact town or county board members. Urge that they work with the local Wisconsin Conservation Department game manager, County Extension agent, or Soil Conservation Service work unit conservationist. These men are ready and willing to assist local highway departments in establishing a selective brush management program.

The time to act is now, while some roadside hedgerows still remain and there are yet birds and other wild things looking for places to live. Selective brush management can mean scenic roads, living snow fences, native wildflower gardens and green aviaries. Lament no more. Start talking!

Wisconsin Conservation Department
Madison, Wisconsin 53701

For those who would like more information, a new manual "The Selective Brush Management Program in Wisconsin" is now available. Copies may be had by writing the Wisconsin Conservation Department, Box 450, Madison, Wisconsin 53701.



Prairie Chickens Die Under Crusted Snow

By GERALD LINDSAY

The fall of 1931 found me, like many others, without a job in the city. Having been born and raised in Iron county, a few miles west of Hurley, I knew that country and pretty much its contents, wildlife included. There being nothing in sight to keep the wolf from my door in Milwaukee, I decided to go up home where I would welcome a few for the bounty they would bring. Also the groceries and various meats were easier to secure up there.

By November 1st I had a long trap line laid out. At that time there were many sections of land which had recently been logged: it was a cut-over. Large parcels had been laid bare by the forest fires of the time and some land was little more than open prairie, not yet having a start on the second growth which follows cutting and burning.

On my trap line I knew of at least two flocks of prairie chickens, and since they were excellent eating, I varied my menu occasionally with "chicken." These were the true prairie chicken, with square tails and dark meat.

The following summer I saw many new additions to the flocks.

As the winter of 1932-33 grew on us with its cold and quite heavy snows, we were blessed with a nice mild day—then a misty rain during the afternoon and evening, followed by a sudden drop in temperature. Prairie chickens, as you must know, tunnel into the protection of deep snow at dusk; ruffed grouse plummet into it.

A Disastrous Day

The nice day was not a blessing for the chickens in their tunnels, which froze over and were sealed off by the rain and cold. We humans enjoyed the easy walking provided by the heavy crust the next day, but we did not realize what a tragedy was taking place practically under our feet. Hundreds—maybe thousands of prairie chickens were imprisoned in their crust-sealed traps. When we noticed the lack of "chickens" in the area, we shrugged it off, as we assumed they had just moved to other areas. However, when patches of bare ground began to appear in the spring, the tragedy became apparent, for many carcasses which the predators didn't find were found in the places where chickens used to spend the night. From my own observations, we must have lost the entire prairie chicken population of that area at that time. I haven't seen a chicken in Iron county since.

With the current interest in conservation in general, and the prairie chicken in particular, I became aware of the interest of other people in just what did happen on that day back in the thirties. In talking with the well-known ornithologist and lecturer, the Rev. Samuel Robbins of Rob-

erts, Wisconsin, and the nationally known authorities on prairie chickens, Mr. and Mrs. Frederick N. Hamerstrom Jr. of Plainfield, Wisconsin, they encouraged me to obtain more material on the winter tragedy.

Now, almost two generations later, it has not been easy to recover the details. There were quite a number of people to contact and some are no longer in a position to receive mail nor to send it. Most of those who are left are scattered like a covey of quail to several outlying states. Some remembered details, while some could only remember hearsay, but enough has filtered back to warrant a story. Those whose addresses are given are willing to have their names used to bear me out.

First Hand Accounts

Fred Lauren, Gurney, Wisconsin, writes, "I am not too sure about the year, but it was in the winter of 1932 or '33 that we had a lot of snow in February. The weather turned very warm; we had a thaw then it rained all day. Following it, we had very cold weather, down to 40 below. The crust would support a horse in many places. In my travels later, I found 17 prairie chickens dead, frozen in the snow. I took two of them home to examine them, but found no signs of violence. These I found in the back fields, west of Gurney." (Which would be in sections 17 and 18, T46N, R1W)

Harry Barr, Route 1, Box 137, Fairhope, Alabama, who owned a section of potato ground, Sec. 19, T46N, R1W, at that time had this to say: "I found several birds that had smothered under the snow, after which there were no more seen in the area."

I found several birds frozen in the snow in the same area Fred Lauren did—Sec. 17 and 18, T46N, R1W, and later, when the snow had begun to melt, I found several more in Sec. 11, T46N, R1W, bringing to a total of about 20 birds and lots of feathers.

By the time the fields were cleared of snow and before many people began to move about, I would assume that predators and scavengers would have accounted for many more bodies, thereby eliminating more evidence to be seen by the area residents as they began their spring work.

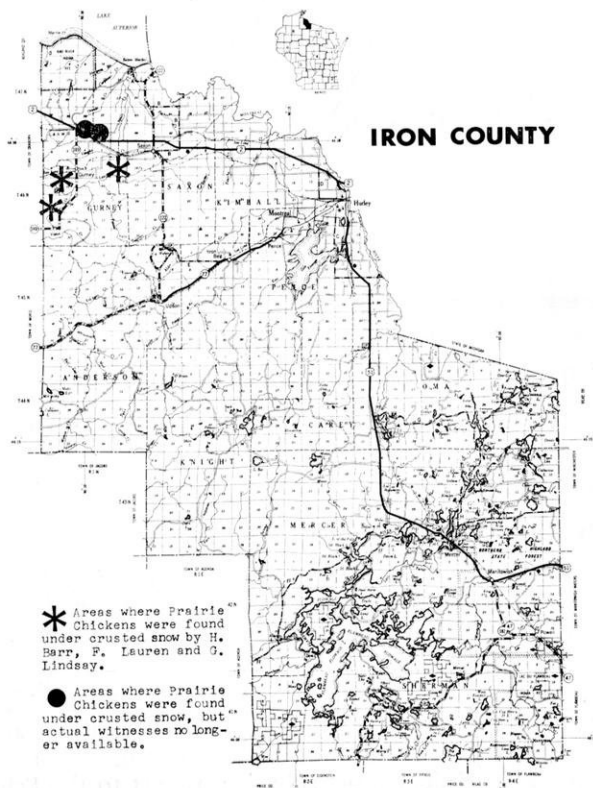
The people mentioned above have their findings substantiated by others living in the area who also claim another large flock was killed in Sections 33 and 34, T47N, R1W, embracing the village of Cedar, Wisconsin (omitted on recent maps).

James Millar, Joseph Innis, and Allen Carlson of Saxon, Wisconsin, remember the year, and believe it to be either the month of January or February, 1933, when a beautiful day was spoiled in the afternoon by rain. Then, just before dark, the temperatures suddenly dropped, creating during the night a heavy crusting that would support a man. Later, they heard of people finding birds frozen in the snow, and when the snow had melted in the spring, birds were found where they were accustomed to roost and feed.

Two correspondents gave it as their opinion that such things as diseases, parasites and grasshopper poisoning were involved in the die-off. Perhaps they played a part, but the clearest evidence points toward entrapment under the crusted snow as the most likely cause of death.

Some people have asked why the ruffed grouse and other birds survived, while the prairie chickens were wiped out.

The answer is that the ruffed grouse seeks protection by diving into the snow. However, this takes place in the woods where the snow is always much looser than in the fields. In the event of rain on the snow, it still doesn't pack the snow in the woods as much as in the open, because of the trees and brush. Another thing in favor of the ruffed grouse



LOCATIONS OF PRAIRIE CHICKEN DEATHS IN IRON COUNTY.

is the fact that it spends a lot of its time in the evergreens—hemlock, cedar, pine, spruce or balsam, where it receives a lot of protection from the elements as well as its enemies.

The prairie chicken seeks a retreat under the snow also, but most always in the open country. Here the snow is more often beaten down by wind and rain.

So much for the records on the disappearance of the prairie chickens in one area. The same thing could have happened elsewhere.

In closing, I would like to express my thanks to the many with whom I corresponded; to some for their interest and willingness to help, and

others for supplying some measure of support with the actual material used.

Some of these not already mentioned are: James Rice, 4506 Jefferson Ave., Gulfport, Mississippi, Lyman Wagner, Box 87, Route 5, Clinton, Tennessee, Howard Wagner, 113 Cooper Circle, Oakridge, Tennessee, Harry Rice, Gurney, Wisconsin, and Ernest Barton, 2560 S. 134th St., New Berlin, Wisconsin.

Editorial note: It is often said that grouse are trapped under crusted snow, but there are very few descriptions of it with dates and places and with records of birds actually found dead. Granted that the evidence here is circumstantial, it is convincing.—F. and F. Hamerstrom.

3745 N. 83rd Street
Milwaukee, Wisconsin 53222



ANNOUNCING THE WSO STEENBOCK SCHOLARSHIP FOR 1968

Objective: To promote and encourage study and research in birds.

Value: \$100

Application deadline: March 13, 1968.

Method for application: Applicant must state in a letter (typed and double spaced) his age, present occupation, educational experience to date. The use to which the funds will be put must be clearly stated.

If for research on a bird project, indicate the beginning and termination dates, nature of project, what has already been done by others as well as by the applicant. Within two months after termination date, the recipient must submit a report to the Scholarship Committee. The recipient is encouraged (but not required) to submit the report in the form of a publishable manuscript.

If for a scholarship to an Audubon camp, outdoor workshop, biological station, etc., the candidate must indicate the beginning and termination dates of the session for which the scholarship is requested. Within two months after termination date, the recipient must submit a report to the Scholarship Committee.

Send application to: Mrs. Clara Hussong, 332 Beaupre Avenue, Green Bay, Wisconsin 54301.

Announcement of award: The winner of the scholarship for the year will be announced by May 15, 1968.

book reviews

THE BIRD—Its Form and Function. By C. William Beebe. Dover Publications, Inc., New York, 1965, xi + 496 pp., 371 figures. \$2.75.

This is a reprint of a book originally published in 1906. Chapter headings such as "Ancestors", "Feathers", "Skull", "Wings", illustrate the author's approach. The information is still timely, the style interesting.—F. T. Ratliff.

BIRD DISPLAY AND BEHAVIOR. By Edward A. Armstrong. Dover Publications, Inc., New York, 1965. vii + 431 pp., illustrated, paper-bound. \$2.50.

This book, with the subtitle of "An Introduction to the Study of Bird Psychology," explores the behavior of birds and the relationships between bird psychology and physiology. Anyone interested in bird behavior will find this book crammed with firsthand observations, reports and studies of different species that cover courtship, feeding, nest building, display of all kinds, ceremonial gaping, dances and song, flight and social hierarchy.

Although it is quite readable, this book would be of most interest to the serious bird student or professional ornithologist.—Nils P. Dahlstrand.

A CONSERVATION SAGA. By Ernest F. Swift. National Wildlife Federation, 1412—16th st. N.W., Washington, D. C. 20036. 1967. 264 pp. \$5.00.

Admitting to the status of a rank amateur in the "joys of bird watching," nevertheless this retired professional conservationist has some pertinent messages for the rest of us amateurs and the professionals as well. From 1947 to 1954, Mr. Swift was Conservation Director in Wisconsin, from where he went to Washington, D. C. to be Assistant Director of the U. S. Fish and Wildlife Service. The next year he became Executive Director of the National Wildlife Federation, retiring from active duty in 1960, but still serving as Conservation Advisor from his home at Rice Lake.

Preceded by reminiscences of his days as a forest ranger and game warden in northwestern Wisconsin, the body of the book is a series of essays predicting what will happen to natural resources if Man does not heed the warnings of Nature and a few far-seeing humans. Those who are interested can find in Ernie Swift's book some hints of how they can help to slow down the rapid depletion of our natural beauty and others may see their responsibility to come to the aid of humanity in perpetuating the land we live on. Written over a long period of years, a developing philosophy is reflected in his conclusion that "the land and its husbandry will ever determine the course of our future." Senator Gaylord Nelson, in a foreword, recommends that we try to grasp this somewhat

"lonely philosophy of conservation" which is held out to us and find a "whole new world of poetic beauty and truth."—Gertrude M. Scott.

THE WILD TURKEY: ITS HISTORY AND DOMESTICATION. By A. W. Schorger. University of Oklahoma Press. 624 pp. \$10.00.

Dr. Schorger is as definitive in his volume about the turkey as he was in his earlier **Passenger Pigeon**. It is an impressive 624-page volume, with many illustrations and a bibliography that takes up no less than 114 two-column pages! "Although the turkey has nearly five centuries of recorded history," writes Dr. Schorger in his brief preface, "there is much in the behavior of the wild bird that requires verification." But there cannot be much, certainly, now that this book has come off the press, for its 18 chapters range from the discovery of the turkey in Central America and Mexico to a brief monograph on the turkey in art. Included also is a listing of vernacular names for the turkey used in various parts of the world.

Dr. Schorger considers every aspect of the turkey, not alone its history—original distribution, numbers, taxonomy, anatomy and physiology, characteristics, habits, feeding habits and food habitat, breeding and nesting, eggs, the development of the young to maturity, morality from predators, weather, accidents, diseases and parasites, utilization, hunting, management, restorations and introductions, and so weiter. It is as thoroughgoing a study as Dr. Schorger could make it—somewhat technical in various places, necessarily, but on the whole very readable if one is interested in the subject, and made more so by quotations from early accounts of the wild turkey.

He admits that, "Where information (about the wild bird) is lacking it has been necessary to resort to our knowledge of the domestic breeds. The native bird, on account of its wildness, is not amenable to some kinds of investigation." In areas where the habitat is favorable, the turkey is now once again considered abundant. "Essential is a suitable habitat, but this is of no avail unless accompanied by a law-abiding public conscience."

The history of the wild turkey is as comprehensive as any student of the subject could wish; it is doubtful that much could be added to the subject. **The Wild Turkey** is a work of rare scholarship that must have occupied a good deal of time while Dr. Schorger went through the archaeological, ethnological, and historical sources of five centuries of the wild turkey's history.—August Derleth, Sauk City. (Reprinted from the **Capital Times** of Feb. 9, 1967 with permission).

TRAVELS IN NORTH AMERICA. By Peter Kalm. Translated and edited by Adolph B. Benson. Dover Publications, Inc., New York, 1966. xviii + 797 pp., illustrated and with folded map. In two volumes (paper). \$2.50 each.

In 1747, Peter Kalm, a Swedish botanist and student of the great Linne, began a two-year journey in North America with the purpose of obtaining seeds and trees which might be hardy enough to survive in the harsh climate of Sweden and sufficiently useful to add to the economy

of the country. Kaln was interested in, and commented on, everything he saw. This then is a most interesting travelogue of Colonial America in the middle 1770's as seen by the young Swedish naturalist. The Dover edition is from one published in 1937 by Wilson-Erickson, Inc., with some additions.—F. T. Ratliff.

HANDBOOK OF BIRDS OF EASTERN NORTH AMERICA. By Frank M. Chapman. Dover Publications, Inc., New York, 1966. xxxvi + 591 pp., illustrated, (paper). \$3.00.

An ornithological classic, this Dover reprint is from the 1939 edition of Appleton-Century. This is both a text on the bird and a descriptive listing of Eastern North American species. While its utility as a field guide has been surpassed by some of the more modern publications, its interest and validity as a text and reference work should place this issue on many shelves.—F. T. Ratliff.



Dove Banding Project in Wisconsin

The Wisconsin Conservation Department and the Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service are cooperating in a five-year Mourning Dove Banding Project which is being conducted nation-wide. The banding project is an integral part of a research program designed to develop statistically valid techniques for measuring dove populations and harvests which will eventually lead to a better understanding of dove populations and better management of the Mourning Dove for the benefit of all interested persons—the sportsman, the bird watcher or simply the average citizen.

The program will be greatly improved by as much participation as possible in the Dove Banding Project.

Banding to study mortality of doves as well as movements of populations is already underway. To attain the results required for a worthwhile study, however, the number of birds banded in Wisconsin must be greatly increased.

Major emphasis will be devoted to banding during the months of June, July and August and to banding adult birds.

The project in Wisconsin will be coordinated by U. S. Game Management Agent Marshall L. Stinnett, P. O. Box 3066, Madison, Wisconsin 53704. Mr. Stinnett solicits the active participation of private bird banders to assist in banding the desired number of doves in Wisconsin for the next five-year period.

Any individual who is able to contribute to the success of the project by actively participating in the banding project should contact Mr. Stinnett for further information.

Mr. Stinnett adds, "This is a project that is currently being carried on throughout the country in cooperation with the various state conservation departments and the Bureau of Sport Fisheries and Wildlife."

By the Wayside...

Prairie Goose Visits Prairie Pond. On March 27, 1966, at . . . Goose Pond we saw a White-fronted Goose. It was in company with Snow and Blue Geese with some Canada Geese not too far off. I had been told that there was more than one White-fronted Goose, but by the time I was able to go down there, one was all I could find. I watched him through a 20X scope for about 20 minutes. At first he was in the water and behind some weeds. At that time I could see a rather light bill and the white face patch. After watching him for awhile he climbed out of the water and stood facing me. Then I was able to see clearly the black barring on the breast and belly, actually more on the lower belly than on the breast. At this time I also saw the orange feet as he raised them to scratch his head once. Other than these markings he was a general grayish color with a little white about the rump. He was about the same size as the Snow and Blue Geese around him. The distance from the goose to me was about 75 yards and the time was about 4:30 to 5:00 in the afternoon.—Mark Tomlinson, Columbia county.

Barrow's Goldeneyes on Lake Wausau. May 3, 1966. We were using the 25X spotting scope, in full sunlight, and the birds were diving and resting in the river channel about 100 yards from shore. We watched them for perhaps five minutes and intended to phone another area bird watcher for confirmation when a large power boat roared down the channel and presumably flushed the birds. But there is no question in our minds as to identification as the birds were quite close and the light was good. The drake, of course, was in full spring plumage . . . We saw the crescent on the side of the drake's head and the white stripes on the side of his back. We couldn't be confusing them with the Common Goldeneye, because they have all gone north and there's nothing much left on the lake except scaup and ringnecks.

It's rather funny that we should see this pair of Barrow's Goldeneyes, because about two weeks ago we had a rather heated argument with an old-time duck hunter who says he has seen . . . Barrow's on Lake Wausau! We spent much time trying to prove to him that he was mistaken. Perhaps the strong winds of the last week (20-30 mph in all directions) blew this pair off course.—Mrs. Spencer Doty, Wausau.

Another Straggler from the West. We observed the Long-billed Curlew May 25th in the Crex Meadows refuge within typical upland prairie habitat. Apparently the bird arose from the prairie marsh edge just to the east of us and passed by low and at a distance of perhaps 60 feet. Its large size, long down-curved bill, buffy appearance and brownish or cinnamon-like wing linings, plus my observations of hundreds of these birds along the Texas coastal marshes the past two winters, made for positive identification. Its actual size was near that of a female Mallard. It . . . was silent and did not call.

This bird was observed within one-quarter mile of my Avocet observation of last August, and with our prairie restoration I'm sure we

will be seeing more of these prairie birds as time goes on.—Norman R. Stone, Grantsburg.

A Glaucous Gull in Fond du Lac. At 7:30 on the morning of March 24, while scanning a flock of about 50 gulls that were resting on the ice in Supple's Marsh (on the northwest edge of Fond du Lac), I saw one bird stretching its wings. The upper surface of its wings was pure white. There were no black wingtips nor was there a gray mantle. It was very much larger than the Herring Gulls that rested next to it, and its pure white body contrasted sharply with the gray backs of the other gulls. It was unquestionably a Glaucous Gull in its second winter plumage. —Rockne Knuth, Fond du Lac.

New Dove Species Visits Wisconsin. May 22, 1966. I was walking down our lane, which is black cinder, when I spotted ahead of me what looked like a turtle that had been run over and lay there in two parts. As I raised the binoculars, I discovered it was two little birds instead, sleeping in the warm sunshine. I kept moving slowly toward them, watching with the glasses. At one point, a Red-winged Blackbird dropped down within the scope of the glasses, and I realized they were about the size of a sparrow in comparison.

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Then they looked up, rose up on their pinkish legs, and looked like tiny doves. Each had a pink breast with deeper pink spots; one was mostly tan with deeper brown spots on its sides, the other's back was more grey, but also had the spots. By then I was no more than 25 feet from them, and they started to walk slowly before me, constantly bobbing their heads. They had stubby tails, and when they flew to a nearby naked limb, the greyish one showed rust in the wings. I continued to watch them for about five minutes until they flew away. I immediately went back to the cabin to consult Roger Tory Peterson and found that they exactly matched his identification of Ground Doves, of which I had no previous knowledge.

Am well aware now that these little fellows do not belong in Wisconsin. Some bird watchers have guessed they might have been young Mourning Doves. However, they did not act like young birds—their flight was direct and rapid, their plumage was very sleek. Others have guessed they were escaped tame birds. In that case, I wondered that the markings were so well defined; even the Wisconsin birds in the Milwaukee Zoo lose their lustre in captivity under the most ideal conditions.—Mrs. Lawrence B. Maurin, West Bend.

Bird Boxes Attract Occupants Quickly. Something that happened for the second time yesterday (May 10, 1966) set me to thinking that the Bluebirds and Tree Swallows are beginning to recognize the bird boxes as a place to nest just as soon as I put them up. I went out and put up two more nesting boxes about 400 feet apart and then walked to another box to check it. When I started to walk back I noticed a bird sitting on the first box . . . it was a Bluebird taking over already, and two Tree Swallows were having a tussle to occupy the second box I had put up.—George Ludwig, Kenosha.

Wisconsin's First European Tree Sparrow. Yesterday (March 29, 1966) I captured a European Tree Sparrow. We have spent the winter banding House Sparrows, totaling 500 this year, and the trap was set for them, on the ground, baited with sunflower seeds and fine ground corn (two cell potter type). My wife saw this odd bird all day, but rapped on the window whenever it got near the trap, as she did not want to take time to band it. She knows local birds well enough, but assumed it was a House Sparrow. At 4:00 she noticed it was caught but knew I would be home within 20 minutes, so left it. I took the bird out, thinking it a House Sparrow, but noted the chestnut cap (better color is liver). First thought it was a sport, especially since I have banded 16 partial albinos of that species. But it was only 3/4 of a handful, and the head pattern was different. A quick check with the books confirmed identification as European Tree Sparrow. Statistics taken soon after: wing 2 13/16", tail 2 5/16", upper mandible 7/16", length about 5 1/2", weight 23.4 g. Bill all black (I suspect it was therefore male, if it follows the House Sparrow pattern . . . cannot find information in any of my books), color of legs and feet tended more to sienna than the yellow-brown of House Sparrow, fat medium. Fuller photographed it, as did Peartree. Most of the members of the S. Paul Jones Bird Club saw the bird, and it was held until the next day when the Hoffmanns and Karl Priebe and Mary Donald also saw the bird. My wife took it to the Milwaukee County Zoo where it was placed in a cage with other, more exotic birds. I

have since written them and recommended that it be turned over to the Museum.—Don Beimborn, Oconomowoc.

Western Tanager at Devil's Lake. On May 4, 1966, at approximately 6:30 p. m., an adult male Western Tanager was sighted within Devil's



EUROPEAN TREE SPARROW.

PHOTO BY JAMES FULLER

Lake State Park, Sauk county, Wisconsin. The locality was a clump of staghorn sumac, from ten to twelve (and up to 18 feet) in height, along the east side of the Chicago and Northwestern railroad track, about one-quarter mile south of the south shore road. A red and white pine plantation is located directly behind the clump of sumac. When first seen at some distance, the bird resembled a "red-headed goldfinch." But I have seen the Western Tanager in the West, and upon closer observation more of the plumage was revealed: the black back and tail, the yellow rump, and the yellow wing-bars. The slender, tanager-type bill was also noted. This bird was sallying after flying insects, then returning to a perch, usually at a different spot, near the top of the growth of sumac. After some 15 minutes from the time of initial sighting, the bird flew south and diagonally across the railroad track.—Kenneth Lange, Baraboo.

Use Caution in Identifying Blue-winged Warbler by Song. There is in the Summer 1965 issue of the **Passenger Pigeon** a report of a Blue-winged Warbler in Burnett county on June 27, 1964, by Mr. Douglas D. Campbell. His writeup in "By the Wayside" (p. 65) implies that the identity of this species can be established with certainty by song alone. There is this statement of caution in the field notes summary (p. 86): "Song heard . . . but the bird was not seen so the possibility of a hybrid is not eliminated." I believe even more caution is necessary. While Burnett county is one of the most likely counties in which we might expect northern reports of this species, I believe we must indicate more definitely the hypothetical nature of such a record. Peterson in his **Field Guide to the Birds**, p. 188, states that with regard to the Blue-winged and Golden-winged Warblers: "Both species occasionally sing the song of the other." Many of the reports of these two species which we have accepted have

been based on song alone. Most of the time it probably hasn't mattered, because songs have been heard in areas known to be inhabited by one species or the other. Peterson's statement should not be taken lightly, however, when we are considering birds which are outside their established range. I experienced some excitement in the summer of 1960 in Menominee county, for instance, when I heard a perfectly typical Blue-wing song. A brief search revealed a bright male Golden-wing which I observed to be singing the "Blue-wing" song. While this has been my only experience with such a phenomenon, I know of others who have made similar observations.—Thomas K. Soulen, 2297 Standish St., St. Paul, Minnesota.



Three WSO Research Projects

Once again WSO's Research Committee is soliciting the help of Society members in carrying out its function of gathering information on the state's bird life.

Three projects are being conducted simultaneously. These have been reported in **The Badger Birder**. They are inquiries on the Belted Kingfisher and the Migrant (Loggerhead) Shrike and a survey of Harrier (Marsh Hawk) breeding populations. Report forms for these research projects are enclosed with this issue.

The Harrier survey is under the direction of Fred and Marguerite Baumgartner, Stevens Point, and reports should be sent to them.

Thomas Erdman, Green Bay, is in charge of the Migrant Shrike inquiry. From this inquiry he hopes to find out what the status of this bird is in Wisconsin—are they declining or increasing? He's especially interested in nesting birds.

The Kingfisher inquiry is being conducted by Frank Renn, Plainfield. Indications are that fish-eating birds are decreasing in certain areas—birds such as Ospreys, Bald Eagles, and Cormorants. Are Kingfishers decreasing, too? Nesting records are of special interest. The first line of the inquiry form is filled in as an example.





FIELD NOTES

By THOMAS K. SOULEN

Spring Season

March 1-May 31, 1966

Most of the obvious migratory movement in Spring 1966 took place in early March and late May. The comments of Carl C. Knuth give some indication of the pattern of movement of a few early migrants, as he noted on "Feb. 21 a vanguard of 35 redwings and cowbirds in Supple Marsh, Fond du Lac. By the 24th the population had gone to about 60 and by March 7th a hundred plus. On March 10th, thousands of redwings came streaming into the marsh." The succeeding week brought large numbers of early migrants to many parts of the state. March 11 was mentioned by Alfred S. Bradford of Appleton and Mrs. Joseph Mahlum of Beloit as a day of marked influx of Robins, Red-winged Blackbirds, Common Grackles, and several other species. Mrs. Mahlum noted bees out two days later, as well as Killdeer and Song Sparrow arrivals about then. She says March 17 was a day with 76° temperatures and gale winds with "birds singing everywhere." Kathlyn Heidel in Sheboygan county heard frogs calling that evening, as I did in the Twin Cities, with the temperature above 50°. Birds continued to move into the state for the next few days, with several new species showing up in numbers as far north as Marathon county, according to Joan Williams. A few days later the complexion of migration changed dramatically, as snow and cold returned to the state and dominated the weather through April and part of the first half of May.

Wisconsin observers mention little of note with regard to April migration. A perusal of the field notes following will reveal a fairly normal if somewhat delayed set of arrival dates during the month, but in most cases there was no obvious movement of large numbers of any species. While arrival dates might appear to be not very late, there was little apparent in the way of waves. April 16-17 marked the departure of large numbers of geese from the Appleton area (Bradford); Williams noted Juncos building up then, as well as the arrival of several typical April migrants; and Richard F. Bernard counted 400 hawks in two hours in Superior on April 22; but these are about the only comments observers made on migratory movement during April.

The first week of May, especially the period May 5-8, brought many species into the state in large numbers; a few people even thought this

to be the peak of the migration. Cold weather from May 7-8 to about May 14-15 kept birds pretty well bottled up, but from the latter dates until about May 20 observers in several areas witnessed a very sizable migration. The species observed even during this period, however, were frequently those which normally arrive somewhat earlier in the month. Delayed arrival dates were particularly evident in the case of such species as the cuckoos, Common Nighthawk, Eastern Wood Peewee, and Red-eyed Vireo (not recorded in a number of areas until the last week of May!). All these are characteristically late migrants, of course, but each was considerably later even than normal. The delayed season was reflected also in late departure dates for several species; there were many more May reports than is usual for the Rough-legged Hawk, Golden-crowned Kinglet, juncos, Tree and Fox Sparrows, and even three May 14 observations of Common Redpolls. (Many of these late observations were very well documented.) Myrtle and Palm Warblers, normally substantially gone by mid-May, were present in many areas in large numbers during the May 15-20 period. I should mention that although many observers felt that this period encompassed the major migratory movement of the season (e.g., the Stockings at Beloit state that "May 17 broke all our banding records for quantity"), some thought either that major waves did not occur at all or took place May 21-22, while many were at the WSO convention at Racine (and sizable numbers of birds were observed there). Bernard did note a warbler wave in Douglas county during those two days, and the F. M. Baumgartners state that Stevens Point birders also witnessed a wave at that time.

Comments on the relative abundance or scarcity of particular species are in the field notes section immediately following. Except for Bernard, who encountered fairly normal arrival dates and numbers in the Superior area, those observers who commented felt that the migration of both ducks and shorebirds this spring was very poor. Bradford states that it was the "poorest duck flight . . . that any of the old guides and hunters . . . can remember."

The Season Summary

Common Loon: Howard Young's March 20 observation from La Crosse county precedes others by two weeks. Several reports from southern counties April 2-4. By April 9 birds had arrived as far north as Burnett county (Norman R. Stone), with most other areas reporting birds within the following weeks. Richard F. Bernard encountered many on Lake Superior, Douglas county, on May 14; one small sample counted contained 20 birds. Still present May 31 in Winnebago county (William Hilsenhoff).

Red-throated Loon: One in Waukesha county April 8 (John Bielefeldt); three in Ozaukee county April 17 (Daryl Tessen); three in Douglas county May 14, one of them in breeding plumage (Bernard).

Red-necked Grebe: Single birds noted in Dane county April 9 (Tom Ashman) and in St. Croix county April 29 (Sam Robbins). Present in Douglas county April 18 through May 7, with at least 10 present at the peak (Bernard).

Horned Grebe: Observed March 20 in Jefferson (Don Beimborn) and Waukesha (Bielefeldt) counties, but not elsewhere until April 8-9. Not noted in northern counties until April 15 (Douglas county, Bernard). Many observers saw no birds until even later in the month, and the few peaks reported were during the last few days of April. Still present May 25 in Douglas county (Bernard).

Eared Grebe: The only report comes from St. Croix county May 28 (Robbins).

Western Grebe: Reported on the Milwaukee-Ozaukee county May Count, but no details provided.

Pied-billed Grebe: Fred Lesh's March 4 report from La Crosse county is the earliest; the next observations were March 11-12 (Outagamie county, Alfred S. Bradford; Racine county, Bob Fiehweg). Many birders in northern counties found none until mid-April.

Double-breasted Cormorant: Noted in eight counties. Several observers commented on seeing greater numbers than in the past few years. Present June 1 in Portage county (Mr. and Mrs. F. M. Baumgartner).

Anhinga: Less than a year after Wisconsin's first report of this species, a female appeared in the Milwaukee area April 7 and remained for several days. It was first seen by Mrs. Dorothy Bednarec and her son Russell, later photographed at very close range by Oscar R. Lemke, and seen by a number of other observers.

Great Blue Heron: First noted in Portage county, March 13 (the Baumgartners), in three other central counties March 17. The first northern report was from Oneida county March 21 (Mrs. Emma Fell).

Green Heron: An April 19 observation in Brown county (Rev. Melvin Wierzbicki, O.F.M.) is the first of five April reports. Several observers commented on a scarcity of this species.

Little Blue Heron: Wierzbicki reported an adult in Brown county May 31. He saw the bird at close range and provides an excellent description of the bird.

Cattle Egret: A bird was present near the river bottoms at Avon near the Green-Rock county line from May 1-6. It was observed by a number of people, first by Mrs. Stanley Anderson.

Common Egret: Twenty reports in all from 15 counties representing most corners of the state. After Lesh's April 10 observation in La Crosse county, there were four more reports April 16-17, as far north as Marinette county (Harold Lindberg). Seen May 19-26 in Douglas county (Bernard), perhaps for the first time in that far northern county.

Black-crowned Night Heron: A March 25 report from Brown county (Ed Cleary and Ed Paulson) is very early; the next observations were April 16-17. Fourteen reports in all, from only 12 counties.

Yellow-crowned Night Heron: Present April 29 in Pierce county, the third consecutive year in this area (Robbins); noted there several days earlier by Richard Behrens. Also seen May 3-4 in Green county (Frances Clark, Mrs. Hubert Klinkenberg, June Ohm, Mrs. Robert Reppert, Al Walmsley).

Least Bittern: Only five reports, May 17-31, in Douglas (Bernard), Jefferson (Richard Sharp), Racine and St. Croix (Robbins), and Winnebago (Tessen) counties.

American Bittern: Of the three reports April 13-14, two were fairly far north, in Burnett (Stone) and Oconto (C. H. Richter) counties. Nine more observations within the following week, reaching all parts of the state.

Glossy Ibis: Seen in Horicon Marsh April 25 (10 birds, Refuge personnel) and May 6 (Wierzbicki, Richard Hasterlik). Richard P. Narf provides good details of a bird seen May 20 in Winnebago county.

Mute Swan: A pair seen in Manitowoc county March 6 by Wierzbicki and Hasterlik were not near any park or other trace of civilized surroundings and consequently might have been wild birds.

Whistling Swan: First noted in Racine and Milwaukee counties March 6 (Ashman), with no further reports until March 13-17, when birds reached all but some of the northernmost counties. Most peaks listed were in the first week of April with general departure from most areas occurring by about April 20. Still in several counties into May, even to the end of the month in Marinette county (Lindberg).

Canada Goose: A well-marked influx into the state occurred March 2-4, reaching at least some central counties. Peaks in southern counties were reported March 9-13, but other peaks there and elsewhere were noted as late as mid-April. Some mid-May observations with the latest May 28 in Marinette county (Lindberg).

White-fronted Goose: One bird observed in Columbia county March 27 (Mark Tomlinson); see "By the Wayside" for details.

Gadwall: Wintered in Dane and Milwaukee counties. First migrants noted March 12 in Winnebago county (Tessen), with further reports drifting in through the rest of the month.

Pintail: Wintered in Milwaukee county. The first new birds arrived in Dane county March 10 (Ashman), with many individuals appearing March 13-17 as far north

as Oconto county (Richter). A few observers in northern counties saw none until April.

Green-winged Teal: Noted first on March 15 in St. Croix county (Robbins), with others arriving in the next few days in 7 more central and southern counties. Arrivals in the far north were almost uniformly about a month later. Most birds had departed by May 15-24, but some were still to be seen in St. Croix county at the end of May (Robbins) and into June in Winnebago county (Tessen).

Blue-winged Teal: There were three mid-March reports, earliest in Jefferson county March 13 (Emil Stock). The next observations were March 27-30. Most observers statewide saw none until about April 10 and later.

European Widgeon: Seen well and photographed in Pierce county April 20-30 (Behrens, Robbins, Bob Garber).

American Widgeon: Appeared in Jefferson county March 5 (Sharp, Stock), in Rock county the next day (Melva Maxson). Few subsequent reports until March 12-21, then no further arrivals until March 27 and later. No reports from far northern counties until mid-April or later. Last seen in Marinette county May 25 (Lindberg).

Shoveler: Noted first March 13 in Jefferson county (Stock), with subsequent arrival pattern resembling those of other species of puddle ducks.

Wood Duck: Aside from birds seen on the WSO Lake Michigan trip March 6, the first arrivals noted were March 11 in Juneau county (Necedah Refuge staff). Birds reached as far north as Burnett county by March 15 (Burnett), but the general spread of the species over the entire state was nearly a month-long process.

Redhead: One early bird was observed in Rock county March 2 (Bernice Andrews, Frances Glenn, Mr. and Mrs. R. Dougan), and Sam Robbins' March 8 report from St. Croix county was the only other before a rash of appearances in southern and central counties March 10-17.

Ring-necked Duck: After Leshner's March 5 observation in La Crosse county, subsequent arrival dates were bunched into several periods: March 11-17, March 30-April 4, and April 12-17, each approximating a further stage in the push from southern to northern counties.

Canvasback: The first migrants were noted March 12 in Winnebago county (Tessen); subsequent reports in the following week were mostly in southern counties. Most observers in northern counties saw none until April, and Stone found none in Burnett county until April 22, by which date birds had left many more southern areas. Still in Douglas county May 22 (Bernard). There were no comments on scarcity of this species.

Greater Scaup: A decided push into central and northern counties was evident April 11-20, and the only peaks reported were in this period also. Last noted May 19 in Douglas county (Bernard).

Lesser Scaup: General arrival in central and northern counties occurred April 9-14.

Common Goldeneye: Most peaks mentioned were in the last half of March. Still present in Columbia (Tomlinson) and Pierce (Robbins) counties near the end of May.

Barrow's Goldeneye: Mr. and Mrs. Spencer Doty encountered a pair of birds on Lake Wausau in Marathon county May 3 which fit the description of this species. Although the observation must be considered hypothetical, conditions of observation were good (see "By the Wayside").

Bufflehead: General movement into southern and central counties occurred March 13-17, with no reports from the north until April.

Oldsquaw: The only report submitted (except for those from the March 6 WSO lakeshore trip) was from Racine county May 21-22 (Tessen).

Harlequin Duck: One female in Milwaukee county March 6 (Ashman, Tessen).

White-winged Scoter: A wintering bird was seen until March 5 in Waukesha county (Bielefeldt); seven in Racine county and 61 in Ozaukee county April 17 (Tessen); one in Oconto county April 20 (Richter); April 30 in Sheboygan county (Myron Reichwaldt).

Ruddy Duck: Wintered in Winnebago county (Tessen). Migrants began to appear about March 20, reaching a few central counties by the end of the month, the remainder and the northern counties during the first three weeks of April. Birds had left most areas by mid-May, but lingered in a few spots until the end of the month.

Hooded Merganser: La Crosse county March 2 (Leshner); next reports March 12-14, as far north as Burnett county (Stone).

Common Merganser: March 11-12 marked the first obvious push northward of this species. The only report after mid-May was of a pair in Waukesha county into June, the female with an injured wing (Bielefeldt).

Red-breasted Merganser: Hilsenhoff's March 16 observation in Dane county was the first inland one; it was followed in less than a week by sightings in several more areas. Still in St. Croix county May 17 (Robbins) and in Douglas county May 25 (Bernard).

Turkey Vulture: Appeared first near the Mississippi River in La Crosse county March 27 (Leshner). Subsequent reports were scattered through the rest of the season and came from 13 additional counties representing literally every corner of the state.

Goshawk: Ten reports from as many counties, the last being May 14 in Douglas (Bernard) and Marathon (John Williams) counties.

Sharp-shinned Hawk: Noted in 13 counties, from March 6 (Waukesha county, Emma Hoffmann) to May 24 (Douglas county, Bernard).

Cooper's Hawk: Sighted in 15 counties in all.

Red-tailed Hawk: Likely periods of movement, as indicated by clusters of arrival dates, are March 11-17 and April 1-4. Rockne Knuth saw a bird in Fond du Lac county May 10 which was nearly white except that it had a normally colored tail.

Red-shouldered Hawk: Five out of the eleven arrival dates reported were March 13-17.

Broad-winged Hawk: Birds appeared April 21 in Portage county (the Baumgartners); they reached two far northern counties (Douglas, Bernard; Marinette, Lindberg) the next day.

Rough-legged Hawk: Decided movement likely occurred March 11-12 (arrival dates in four counties, as far north as Burnett). There were five May observations, the latest May 16 in St. Croix county (Robbins).

Golden Eagle: Two birds were seen in Burnett county March 11 (Stone).

Bald Eagle: Seen in 14 counties, mostly encompassing known wintering or breeding areas.

Marsh Hawk: Decided northward movement occurred March 5-9, by which time some observers in all parts of the state had seen birds. General arrival of this species in numbers was later, however, as arrival dates are scattered up to the middle of April.

Osprey: Noted first in the far north, in Douglas county April 20 (Bernard); only three more April observations, including appearance and activity near a nest site in Lincoln county April 25 (Donald J. Hendrick).

Peregrine Falcon: Only four reports: Portage county March 22 (Fiehweg); Burnett county April 29 (Stone); Columbia (May 1) and Winnebago (June 3) counties (Tessen).

Pigeon Hawk: Observed in six counties from March 20 (Jefferson, Sharp) until the end of the period (Douglas, Bernard Klugow fide Bernard).

Sparrow Hawk: The northernmost March report was in Marinette county March 19 (Lindberg); other northern observations saw none until April 3-4 or later.

Spruce Grouse: Reported from Lincoln county May 8 (Hendrick). A bird seen in Rock county on March 21 at a distance of six feet, possessing a comb of red skin over the eye and having some but not all of the characteristic field marks is very puzzling. The record must be considered hypothetical, since the area is so far removed from known range (Mrs. Joseph Mahlum).

Ruffed Grouse: A report somewhat away from known range is that of Sharp from Jefferson county May 1.

Greater Prairie Chicken: The only observation reported was from Portage county April 18 (the Baumgartners).

Sharp-tailed Grouse: Burnett county throughout the period, with a peak count March 27 (Stone); Douglas county April 12 to May 14 (Bernard); Juneau county, a peak count of 30-40 (Necedah Refuge staff); two on Antigo May count, Langlade county.

Bobwhite: Noted in only six counties.

Ring-necked Pheasant: Myron Reichwaldt saw a striking bird in Manitowoc county May 15; it was all white with red cheeks and was "standing on the road, flapping its wings and calling."

Eastern Turkey: Melva Maxson reported a female escapee in her woods in Rock county. The Baumgartners provide a report from Portage county April 16.

Sandhill Crane: Observed first in Jefferson county March 10 (Sharp), in four more areas within the following week. There was a cluster of reports in an area which has not been noted much for producing birds; Shawano county (Mrs. Russell Rill, Wierzbicki), Langlade county (Antigo May Count) and Marathon county (Wausau May Count).

King Rail: Oconto county May 15 (Richter); two in Waukesha county the same day (Bielefeldt).

Virginia Rail: The first reports were from Marinette county in the north, April 23-29 (Richter, Lindberg); the other seven observations were May 4 and after. Richter found a nest with 10 eggs in Oconto county May 28.

Sora: Six reports April 22-24, as far north as Burnett county (Stone).

Yellow Rail: Carl Richter provides the only report of the spring. He first heard birds May 7 in Oconto county, found three birds there May 16, and a nest with eight eggs May 28. In Marinette county he flushed one bird May 15, found a nest with two fresh eggs May 27. Storms on the 28th flooded the nest, and three eggs were three inches under water. He moved the nest, later found six new eggs by the 31st and eight on June 2. The set of eggs disappeared June 3.

Common Gallinule: Noted in eight counties, earliest April 17 in Dodge county (Reichwaldt).

Semipalmated Plover: Don Beimborn reports that his wife and a neighbor saw a bird in Waukesha county March 18 which was smaller than a Killdeer, had yellow legs and one breast band. As incredibly early as this date is, the details provided, coupled with the exceptionally warm weather of the period, made the identification possible, if not likely.

Piping Plover: Two were watched for an hour with a 30-power scope in Columbia county May 1 (Tessen); noted in Douglas county May 14-25 with as many as five birds at peak periods (Bernard).

Killdeer: Noted March 3 in Dane (Ashman) and Sauk (Kenneth Lange) counties. (Lange states that it was reported from the Oshkosh area February 27.) Birds reached all but a few northern areas by March 1. Three nests (4, 4, and 3 eggs) in Lincoln county May 4-8 (Hendrick).

American Golden Plover: Only eight reports from April 20 (La Crosse county, Leshner) to May 22 (Racine and Winnebago counties, Tessen).

Black-bellied Plover: Noted first in Dane county May 6 (Hilsenhoff). Very few in Marinette county (Lindberg). As usual, birds lingered in several places until the end of May. 100 birds in Racine county May 22 (Tessen).

Ruddy Turnstone: The first report of this normally late-migrating bird was May 14 in Outagamie county (Tessen); most arrival dates were during the last week of May.

American Woodcock: Courting activity was first observed March 12 in Sauk county (Lange), and arrivals were noted in five additional counties within the following week as far north as Marathon (Williams) and Oconto (Richter).

Common Snipe: Found in Juneau county March 18 (Necedah Refuge staff), not elsewhere until March 30-31. Not reported from most of the more northern counties until mid-April.

Long-billed Curlew: Norman Stone and Donald Johnson saw a bird very well at Crex Meadows in Burnett county on May 25. See "By the Wayside" for details of this second published record of this species in Wisconsin in this century.

Whimbrel: Five were noted in Douglas county May 24 (Bernard).

Upland Plover: An extremely early arrival was seen at close range in Outagamie county April 5 (Bradford); the next group of migrants appeared April 21-24 and reached Marinette county (Lindberg).

Spotted Sandpiper: Paulson's and Cleary's report from Brown county April 22 is the earliest; the species was noted in six additional counties during the last few days of the month.

Solitary Sandpiper: Mrs. John Brakefield's April 19 report from Rock county is very early; it precedes others by one week. The only birds noted after May 14-15 were four in Milwaukee county May 18 (Elmer Strehlow).

Willet: Pierce and St. Croix counties April 29 and Eau Claire county April 30 (Robbins); a flock of 15 in Waukesha county April 30 (Bielefeldt); Dodge county May 6

(Hilsenhoff); Douglas county May 14-31 (Bernard); Milwaukee county May 17 (Mary Donald); Winnebago county May 1 (Tessen).

Greater Yellowlegs: After Lesh's April 2 observation in La Crosse county, arrival dates are scattered from a week later through the rest of the month, with a cluster around April 17-22. Last seen May 18, in St. Croix county (Robbins).

Lesser Yellowlegs: Noted March 29 in Brown county (Cleary and Paulson); subsequent arrival patterns similar to preceding species. Still present in Marinette county May 31 (Lindberg). A marked influx into northeastern counties noted April 29-30.

Knot: St. Croix county May 12 (Robbins); Racine county May 21 and Winnebago county June 3 (Tessen).

Pectoral Sandpiper: Observed first in Dane county April 7 (Hilsenhoff). Last noted May 26 in Manitowoc county (John Kraupa).

White-rumped Sandpiper: La Crosse county May 6 (Lesh); St. Croix county May 18 to June 4 (Robbins); Douglas county May 25 (Bernard); Dodge and Sheboygan counties May 28-30 (Reichwaldt); eight in Winnebago county June 5 (Tessen).

Baird's Sandpiper: Three reports April 22 to May 7 are undocumented. Noted in five additional counties from May 14 to the end of the month.

Least Sandpiper: Appeared April 29 in Brown (Cleary and Paulson) and St. Croix (Robbins) counties. Lingered until the end of May in at least three widely scattered parts of the state.

Dunlin: Only three April dates, at the end of the month, including Douglas county (Bernard). Present in many areas at the end of the period with several observers commenting on large numbers of birds.

Dowitcher: One bird seen well and heard in St. Croix county April 20 (Robbins) was identified as a Long-billed. Subsequent arrival dates stretched from May 7 (three counties) through much of May, with flocks of 15-18 in several places, and a departure by May 27.

Semipalmated Sandpiper: La Crosse county May 1 (Lesh); St. Croix county June 7 (Robbins); peaks near the end of the month, as usual.

Marbled Godwit: Observed under good conditions in two counties: Douglas (May 14-31, Bernard) and St. Croix (three on May 16, Robbins).

Hudsonian Godwit: Robbins provided the only reports; one in Eau Claire county April 30; as many as 10 in St. Croix county May 13-18.

Sanderling: An April 29 arrival date from Brown county (Cleary and Paulson) is undocumented. Noted in seven more counties May 14-31.

Wilson's Phalarope: Appeared April 22 in St. Croix county (Robbins), May 1 in three additional counties.

Northern Phalarope: A female was carefully identified in St. Croix county May 19 (Robbins).

Glaucous Gull: A bird was seen well in Fond du Lac county March 24 (Knuth). (See "By the Wayside.") Observed in Douglas county (where they wintered) through May 14 (Bernard).

Iceland Gull: One bird was present in Superior April 11-15 and was observed closely in company with Herring and Glaucous Gulls (Bernard).

Herring Gull: A likely period of major movement was March 15-20 when quite a number of observers noted either arrivals, peaks, or thinning of numbers.

Laughing Gull: Although no formal report of this species was received by the Field Notes staff, it is known that it was seen during the WSO convention in Racine. Sam Robbins reports that his brother Chandler had in the field of his binoculars three species of black-headed gulls at the same time: Bonaparte's, Franklin's, and Laughing, affording a rare opportunity for comparison.

Franklin's Gull: Tessen also reports this species from Racine (four birds) May 21; on in Marinette county May 31 (Lindberg).

Bonaparte's Gull: Dane county April 7 (Hilsenhoff). Last noted May 29 in Brown county (Cleary and Paulson).

Forster's Tern: Noted in four counties April 20-22, in several more before the end of April.

Common Tern: No documented observations before the end of April with general arrivals occurring during or after the first week of May.

Caspian Tern: Observed in nine counties, earliest April 30 (Marinette county, Lindberg) with birds lingering until the end of May in several areas. Peaks were noted in two northeastern counties May 29-30.

Black Tern: An amazing number of April reports, several well documented even from more northern areas; Hilsenhoff's April 22 arrival in Columbia county is the earliest. A general influx occurred May 16-18. A few observers saw no birds until near the end of May.

Ground Dove: The prime candidate for the season's most unusual observation is Mrs. Lawrence Maurin's sighting of a pair of these near her home in Washington county May 22. The normal range of this species is far to the south, and in the absence of specimen or photograph, of course, the record must be considered hypothetical. Nevertheless, her details are excellent and there is good reason to believe—largely because of her careful documentation—that this is a valid sight record. See "By the Wayside."

Yellow-billed Cuckoo: The lateness of the season is really borne out by arrival dates of the cuckoos. Although they generally appear late, the spring of 1966 found them really delaying. Only four observations of this species were made in May, the earliest May 15 in Brown county (Cleary and Paulson).

Black-billed Cuckoo: Only a dozen May reports, with Tomlinson's May 21 Columbia county bird being the first.

Barn Owl: Observed in Racine county May 23 by Louise Erickson and Chan and Sam Robbins.

Screech Owl: Noted in a scant seven counties.

Snowy Owl: March observations in Douglas (Bernard) and Winnebago (Tessen) counties; last date was April 8 in Fond du Lac county (R. Knuth).

Great Gray Owl: The bird which appeared on the back porch of a house in Superior March 14 is noteworthy. It could be approached within 10 feet, and it was photographed (Bernard).

Long-eared Owl: Present throughout the period in Waukesha county (Bielefeldt). Elsewhere the latest date is Fond du Lac county April 2 (Carl and Rockne Knuth).

Short-eared Owl: Noted March 6 in Racine county on the WSO lakeshore trip. Reported also from Outagamie (Bradford) and St. Croix (Robbins) counties in March, in Waukesha county in April (Bielefeldt), and on May 6 in Winnebago county (Tessen).

Saw-whet Owl: More records than in a number of years: Mary Lou and Tom Nicholls heard as many as four at once in one area of Price county during April; the Grommes found one young and a nest in Marquette county April 24; Robbins noted the species May 4-17 in St. Croix county; Rill found one looking out from a hole in a tree in Forest county May 29.

Whip-poor-will: Appeared in four counties May 4-6 as far north as Burnett (Stone) with general arrival in those areas reporting by mid-month.

Common Nighthawk: There were only two observations before mid-May: Sauk county May 5 (Mrs. Henry Koenig) and Chippewa county May 12 (Charles A. Kemper). Although nighthawks sometimes do migrate rather late, the main influx was delayed considerably longer than usual; fully half the arrival dates reported fell in the last week of May.

Chimney Swift: Dane county April 19 (Hilsenhoff); noted in three more counties before May. The major movement into the state occurred May 3-5, reaching all but a few counties in the northwest.

Ruby-throated Hummingbird: One report May 5 (Sheboygan county, Kathleen Heidel); no others until May 16 and later. Almost half the arrival dates reported were May 18-20.

Yellow-shafted Flicker: Very few birds reported wintering. The March warm spell brought migrants to five counties, earliest to St. Croix March 14 (Robbins). Noted in seven additional counties near the end of the month. A general spread of the species over the state occurred during the week beginning about mid-April. Eight of the nine peaks noted were April 20-24.

Red-headed Woodpecker: There were scattered observations of March birds (which might have wintered, at least in some cases), then a few arrivals noted during the first week of April, with the final push into northern counties taking place May 11-14.

Yellow-bellied Sapsucker: Observed in March only in Rock county (March 27, Maxson). The next reports were April 9, including one from Price county (Alice Vincent). The week beginning April 11 brought birds to all sections of the state. Still noted in several southern counties at the end of May.

Black-backed Three-toed Woodpecker: There were two reports; Columbia county April 22 (Mrs. Margarita Cuff) and at a feeder in Wautoma, Waushara county, until May 1 (fide Mrs. Merwood Chipman). The birds were observed under good conditions, but unfortunately no descriptions of the birds were provided.

Eastern Kingbird: A pair was noted in Sauk county April 28 (Lange). All other reports are in May, with movement north as far as Douglas county taking place by May 7 (Bernard).

Western Kingbird: Two were observed in St. Croix county May 18 in the same spot where they have been found for five years (Robbins).

Great Crested Flycatcher: Vernon county April 29 (Viratine E. Weber); Milwaukee county May 1 (Strehlow); next reported May 5 in three more counties. Although there were continued observations in the next few days, there then occurred a week in which no new arrivals were noted. Starting again in mid-month movement was evident, although birds reached few northern counties until the last week in May. The few peaks reported were in the period May 25-28. Several observers commented on increased numbers of this species.

Eastern Phoebe: Observed in four counties during March, earliest the 19th in Waukesha county (Hoffmann). The species reached most central and a few northern counties April 12-16.

Yellow-bellied Flycatcher: One in Milwaukee county May 16 (Strehlow), with observations stretching through the remainder of the month in nine more counties. Peaks mentioned were May 28-29.

Acadian Flycatcher: Reported from Rock county May 12 by Mahlum (undocumented); banded in Rock county May 23 (David and Marion Stocking); Waukesha county May 27 (Bielefeldt); not noted in Sauk county until June 3 (Lange).

Traill's Flycatcher: Three reports before mid-May were undocumented. Over half the arrival dates reported came within the last 10 days of May.

Least Flycatcher: Over a third of the arrivals were May 1-6, reaching several central counties. No more movement noted until a week later, when during the period May 13-16 birds were observed in most parts of the state. Most peaks May 15-19.

Eastern Wood Peewee: Only four reports before May 17, the earliest May 4 in Columbia county (Tomlinson). There were no observations in northern counties until May 30-31.

Olive-sided Flycatcher: Fewer than usual with reports from only six counties May 15 (Brown; Cleary and Paulson) to June 5 (St. Croix; Robbins).

Horned Lark: Arrivals were noted in five central counties during the first week of March.

Tree Swallow: Rock county March 22 (Brakefield); two more counties March 27; two more counties April 2. In the week and a half beginning April 8 birds blanketed most of the state.

Bank Swallow: La Crosse county April 17 (Leshner); quite a few observations April 23 through the rest of the month, from eight counties.

Rough-winged Swallow: Arrival pattern remarkably similar to that of preceding species, except first observation was in Brown county April 14 (Cleary and Paulson).

Barn Swallow: Brown county April 14 (Cleary and Paulson); quite a few reports beginning a few days later.

Cliff Swallow: The first observation comes, oddly enough, from Marinette county April 22 (Lindberg); essentially all other reports are in May. Nest building actively noticed in Lincoln county by May 15 (Hendrick).

Purple Martin: Rock county March 23 (Brakefield); a few more noted April 5-10, but no appreciable movement occurred until April 13-17, reaching all but a few northern counties.

Gray Jay: Noted in Brown (Cleary and Paulson), Burnett (Stone), and Forest (Richter) counties in March, in Douglas (Bernard) and Forest (Rill) counties in May. Bernard witnessed a definite migratory movement May 14-26, unusual for the Superior area; he stated that birds also had been noted during the fall of 1965.

Blue Jay: It would be interesting to have more observers keep records of the peaks of this species. Hendrick reports a rapid build-up around April 9 in Lincoln county. Several people in the Lake Winnebago region saw many during the first week of May, and Lindberg noted a peak in Marinette county May 15.

Common Raven: Reported from seven northern counties. Hendrick saw the species carrying nesting material in Lincoln county April 17.

Common Crow: Evidence from five observers points to a major movement during the first week of March.

Black-capped Chickadee: A few people thought this species was scarce.

Red-breasted Nuthatch: Noted in 16 counties in all with rather later departure dates than usual. There were several reports from southern counties after May 20.

Brown Creeper: Few wintering birds. A bird banded March 18 in Rock county probably came in on the balmy weather (Stockings). There were few intervening reports until April 14, and within a little over a week thereafter people in nearly all parts of the state had found birds.

House Wren: Noted in three counties April 25, in six more before the end of the month. The first week of May brought birds to all central counties, the second week to the remainder of the state.

Winter Wren: Rock county March 13 (Maxson); Brown county March 29 (Cleary and Paulson); noted in only six more counties. Some observers saw fewer birds than usual.

Long-billed Marsh Wren: A few arrivals May 5-7, a few more about mid-May, with birds reaching northern counties the last 10 days of the month.

Short-billed Marsh Wren: Arrival pattern somewhat similar to that of Long-billed.

Mockingbird: Six reports, most of them well documented: Brown county April 6 (Brother Columban); Marinette county April 21 (Wierzicki); Winnebago county May 2 (Hilsenhoff, Narf); Ozaukee county May 16 (Donald); Washington county May 17 (Mrs. Earl Schmidt); seen for three days near Park Falls, Price county (Miss Mabel Hardy and brother, fide Chipman).

Catbird: Waukesha county May 1 (Bielefeldt); several more areas May 3; May 5-6 brought birds to a number more sections of the state; general movement into many central and northern counties took place May 14 and later.

Brown Thrasher: Appeared April 13 in Brown (Cleary and Paulson) and Juneau (Necedah Refuge staff) counties; not elsewhere until 1-2 weeks later.

Robin: A few migrants were noted during the first week of March. Over half the arrival dates reported were March 13-17. Nest building had begun in several rather northern counties by April 4-12, and during this period peaks also were noted in several counties, a few of them northern.

Varied Thrush: A bird which wintered in Eau Claire county was last seen March 23 (fide Kemper).

Wood Thrush: Although not all reports are documented, it is interesting to note that all four April observations (April 23-27) are from east central or northeastern counties. The next observations are May 4 and thereafter.

Hermit Thrush: Columbia county April 8 (Tomlinson); only a few more reports before substantial movement April 16-19. Not observed in northern counties until the last few days of April. Still present in some southern counties until almost mid-May. Peaks were reported May 1 in Fond du Lac (C. Knuth) and Waushara (Chipman) counties.

Swainson's Thrush: Reported from six counties May 5-7, from four more May 10-13, with the major influx not beginning until May 14. Several observers noted an unusual scarcity of this species. Still present June 3-4 in several southern counties.

Gray-checked Thrush: Arrived in much the same fashion as the preceding species.

Veery: Brown county May 2 (Cleary and Paulson); subsequent arrival pattern similar to two preceding species.

Eastern Bluebird: N. R. Barger's March 12 report from Sauk county began a week which saw this species reach many parts of the state, including some northern ones, at least in small numbers. Most observers who found none during this period saw no birds until mid-April or later. Of the seven people who commented on relative abundance, only one felt numbers were poor, the remainder feeling there were good populations present.

Blue-gray Gnatcatcher: Dane county April 30 (Hilsenhoff); in six more counties in May, mostly within the following week.

Golden-crowned Kinglet: Relatively few wintering birds. There was apparently some movement March 17-22, according to arrival dates reported. Strehlow noted a sudden influx in Milwaukee March 30; the birds remained for three days. A diffuse movement to all parts of the state occurred after mid-April. There were four reports from southern and central counties after the first week of May, the latest well-documented one from Waukesha county May 14 (Bielefeldt).

Ruby-crowned Kinglet: Milwaukee county April 13; three more counties April 16 with birds reaching virtually all parts of the state within the following week. Major peaks appeared to be April 24 and May 1.

Water Pipit: Noted in only six counties, from May 3 (Rock; Brakefield) to 18 (St. Croix; Robbins).

Northern Shrike: Noted in six counties (only two of them southern) during March, last the 26th in Waushara county (Chipman).

Loggerhead Shrike: None of the March reports was documented. Noted in La Crosse county April 7 (Leshner), in only six more counties during the rest of the season.

Bell's Vireo: Milwaukee county May 17 (Donald); one banded in Rock county May 18 (the Stockings); Dane county May 18 through early June at least, with as many as three present simultaneously (Steve Martin); another location in Dane county May 19 (Ashman); La Crosse county May 26 and later (Leshner, Young); Trempealeau county May 26, three birds in the same location for the sixth consecutive year (Robbins).

Yellow-throated Vireo: Appeared in five counties May 5, as far north as St. Croix (Robbins); noted in several more areas two days later. No subsequent arrivals until May 14.

Solitary Vireo: Arrival pattern much the same as that of the preceding species. Most departures were May 15-20.

Red-eyed Vireo: A Portage county observation May 7 (the Baumgartners) is a full week ahead of any others. Of the 28 other arrival dates reported, almost two-thirds were May 20 or later, considerably later than usual. The most pronounced movement came May 23-25.

Philadelphia Vireo: Noted in nine counties May 14 (Brown; Wierzbiicki) to 30 (Jefferson; Sharp).

Warbling Vireo: First observed May 5 in five counties. The week beginning May 14 brought birds to central counties, the last week of May to northern counties.

Black-and-white Warbler: Three April reports, the earliest April 26 in Milwaukee county (Strehlow). By May 5 birds had reached a few northern counties. Peaks May 5-7 and 17. Still in Milwaukee county May 26 (Strehlow).

Prothonotary Warbler: Dane county May 5-16 (Hilsenhoff); Milwaukee county May 6 (Strehlow); Sauk county May 7-8 (Lange); Outagamie county May 14, Tessen, two birds; Pierce county May 15 (Robbins).

Worm-eating Warbler: Noted at close range in Rock county May 8 (Glenn, Andrews, the Douglans; good details); observations near the end of May in Sheboygan county, unfortunately, were not documented (Heidel, Pauline Trowbridge).

Golden-winged Warbler: First noted May 5. General movement reaching central counties began May 15.

Blue-winged Warbler: Appeared in four counties May 5-7, not elsewhere until May 14 and later. Reported May 15-22 from Brown county (Cleary and Paulson, Wierzbiicki).

Brewster's Warbler: One seen well May 15 in Portage county, although details were unfortunately omitted (the Baumgartners).

Tennessee Warbler: Half the arrival dates reported were May 17-18, the period of most marked movement of this species. There was one very early date (for this season), April 29 (Rock county, Maxson), and a good scattering of first dates May 5-6, reaching Douglas county (Bernard). Numbers were not seen in some areas until the last week of May.

Orange-crowned Warbler: Three April dates, the earliest April 26 from Milwaukee county (Strehlow). Most birds had departed by about mid-May, but there were two late dates: Outagamie county May 23 (Bradford) and Chippewa county May 25 (Kemper).

Nashville Warbler: Sauk county May 4 (Lange); the next four days brought arrivals to two-thirds of the reporting areas, including some far northern ones. Still present in several southern counties during the last week of May.

Parula Warbler: Half of the 17 arrival dates mentioned were May 5-7; virtually all of the rest were mid-May and later. Oddly enough, this species was hardly reported at all from northern counties, where it nests.

Yellow Warbler: Vernon county April 19 (Weber); Lafayette county April 24 (Baiger); noted in four additional counties in April. A few birds reached northern counties during the May 5 push, but most did not make it until May 15.

Magnolia Warbler: Milwaukee county May 3 (Strehlow). Some movement occurred May 5-9, mainly in southern and some central counties. The few days beginning May 14 saw birds reach all parts of the state. The few peaks mentioned were May 17 and later. Noted in six southern counties during the last week of May, and up to June 5 in Outagamie county (Tessen).

Cape May Warbler: Reported from only two areas during the May 5-7 period: Portage (the Baumgartners) and Outagamie (Tessen) counties. Of 24 arrival dates reported, 20 were May 14-20.

Black-throated Blue Warbler: Reported from eight counties, May 7 (Rock, Maxson; Columbia, Tomlinson) to 24 (Milwaukee, Strehlow).

Myrtle Warbler: April 6 in Brown county (Wierzbicki). The period April 15-20 brought birds to many areas, April 24-29 to virtually all the rest. Prominent among the peaks mentioned were April 18, 21, and 26, and May 5-6, 10, and 14-17. Several birds were seen in southern counties during the last week of May.

Black-throated Green Warbler: Pierce county April 29 (Robbins); Jefferson county May 3 (Sharp); many reports May 5-7, from most parts of the state.

Cerulean Warbler: Noted in eight southern and central counties, beginning May 6 (Jefferson, Sharp; Milwaukee, Strehlow).

Blackburnian Warbler: Quite a few observations May 5-7, as far north as Douglas county (Bernard). Most remaining arrival dates noted were May 15 (or the few days following).

Chestnut-sided Warbler: Rock county May 1 (Maxson); six more counties May 5-7. The species penetrated most remaining areas of the state May 15-17. All peaks mentioned were May 18 or later. Still present in five southern counties May 30-31.

Bay-breasted Warbler: The earliest report is from Portage county May 14 (the Baumgartners); only three more arrivals were noted before a very decided influx May 17-18. Penetration into the few northern counties which reported the species did not occur until the last few days of the month.

Blackpoll Warbler: Observed in three counties May 5-7, in two more May 15. All subsequent arrival dates were May 17 and later. The few peaks noted were May 22-24.

Pine Warbler: Dane county April 25 (Hilsenhoff). Seen in seven more counties, last by Leshar on the rather late date of May 26 in La Crosse county (no details).

Palm Warbler: Rock county April 20 (Andrews, Glenn, the Dougans); quite a few reports the last few days of April. Observers in those areas where none had appeared earlier saw birds May 5-9. Major peaks were noted May 5-7. Many departures took place May 15-17, although there were considerably more reports than usual during the last week of May, a few of them from southern counties.

Ovenbird: Rock county April 29 (Maxson); three more observations before May 5-7, when birds reached quite a number of areas. Penetration of most northern counties occurred May 14-18.

Northern Waterthrush: Three April observations, the earliest April 26 in Milwaukee county (Strehlow). Richter heard birds in Oconto county May 1. The major influx of this species occurred May 5-7. R. Knuth found a bird May 10 in Fond du Lac county which was "normal in coloration except for a well-defined white saddle on the back."

Louisiana Waterthrush: Dane county April 30 to May 15 (Hilsenhoff); reported from six more counties, mostly in known breeding areas.

Kentucky Warbler: Rock county May 17 (Brakefield); Dane county May 19 (Ashman); Waukesha county May 27 (Bielefeldt).

Connecticut Warbler: There were three undocumented reports May 5-9; general arrivals did not begin until mid-month, and most observations, as is usual, were during the last 10 days of the month. Remained in at least four counties into June.

Mourning Warbler: Two in Outagamie county May 7 (Tessen); next reports May 15-19 with observations in northern counties mostly in the last week of May. Lingered late, as usual.

Yellowthroat: Recorded in Milwaukee (Strehlow) and Rock (Brakefield) counties May 1, not elsewhere until May 5-9 during which period birds reached many central counties. Major movement northward took place May 15-17.

Yellow-breasted Chat: Rock county May 5 (Maxson); Racine county May 20 (Brother Daniel) and 22 (Tessen); Milwaukee county May 29-30 (Strehlow).

Hooded Warbler: Dane county May 24-June 2 (Ashman, Hilsenhoff).

Wilson's Warbler: Three arrival dates May 5-7, most of the rest May 15-17. Peaks May 17-19 and 23-24. Thought to be more common than usual by several observers.

Canada Warbler: The first report was of a bird at a feeder in Lincoln county May 12 (Hendrick). Observers in most southern and central counties noted arrivals May 15-19, but further north some people found none until the end of the month.

American Redstart: Rock county May 4 (Andrews, Glenn, the Dougans); quite a few areas the next few days. Penetration of some northern counties occurred by May 10, but it was May 20-21 before the spread over the state was complete.

European Tree Sparrow: The first bird of this species ever to be recorded in Wisconsin appeared at the feeder of Don Beimborn in Waukesha county March 29, and it was seen and photographed by a number of people after being trapped and banded. "By the Wayside" has a number of details.

Bobolink: Appeared in five counties April 29-30 but did not reach many areas until May 14 and later.

Eastern Meadowlark: During the period March 12-17, migrants appeared in most of the counties which reported this species.

Western Meadowlark: Arrived much as preceding species, except beginning a day earlier.

Yellow-headed Blackbird: Arrivals were noted in four eastern counties April 16-18, as far north as Brown (Wierzbicki). Birds did not reach other breeding areas until a week later (or even into May). A few observers commented on reduced numbers of this species.

Red-winged Blackbird: Reported March 1 in Brown county (Cleary and Paulson), in eight southern counties within the next five days. Substantial migration was noted in several areas March 9 and within the following week birds reached the entire state. In Lincoln county Hendrick noted the first immatures and females near the end of April and nesting by May 5. In Marinette and Oconto counties, Richter found a half completed nest May 15, and 11 nests with 0-4 eggs each May 22-28. Peaks mentioned included March 6, 11-13, 19, 24, April 1, 3, 14-18.

Orchard Oriole: More observations than in a number of years, from no less than 12 counties. The earliest was in Rock county May 3 (banded; the Stockings).

Baltimore Oriole: Appeared in 11 counties May 5, including a number of central ones. The next apparent movement occurred May 15-18, when birds reached the remainder of the state.

Rusty Blackbird: Waukesha county March 5 (Bielefeldt); Rock county March 6 (the Stockings). Most other arrivals were March 16-18 or later in the month. Observed in St. Croix county April 29 (Robbins) and in Portage county May 1 (the Baumgartners).

Brewer's Blackbird: Birds appeared in a few areas during the March warm spell, earliest in Brown county March 17 (Wierzbicki). Most arrival dates were either during the last week of the month or in April, with those in northern counties mid-April or later.

Common Grackle: Noted in Milwaukee county March 2 (Donald), in a fair number of other areas within the next four days; March 6 was mentioned by several people as a date of peak movement. The period March 9-17 included most of the significant further migration, with the great majority of peak dates falling during that week, as well as arrivals in a number of more northern counties.

Brown-headed Cowbird: Aside from a few wintering birds, there were few March reports prior to March 12-17. Of the three areas reporting March 3-5, the northern-

most was Brown county (Wierzbicki). The mid-March movement was predominantly in southern counties. The period April 15-18 brought birds to almost all the rest of the state. Three of four peak dates noted were April 26-29.

Western Tanager: Wisconsin's first spring report in nearly 10 years is of a nice adult male in Sauk county May 4 (Lange). See "By the Wayside."

Scarlet Tanager: Appeared in three counties May 5, in virtually no others until May 14-17 when birds moved into all southern and central counties. Arrival in northern areas was May 23-26.

Cardinal: A few in Lincoln county (fide Hendrick) are in an area where this species is not particularly common.

Rose-breasted Grosbeak: Rock (the Stockings) and Milwaukee (Strehlow) counties April 30. Further arrivals spread across the state during the first half of May with no well marked influx being apparent during that period. A few peaks were mentioned May 15-19, the remainder the last week of May. Almost all of the people commenting on abundance said there were great numbers of this species.

Indigo Bunting: There were several well-defined periods of movement: May 5-8 in four southern counties, May 15-20 in most remaining areas, May 25 in a few northern spots. The above mentioned dates include nearly all arrivals noted. Most peaks were May 22-25.

Dickcissel: A healthy number of reports, although not as many as in 1965. A rather unusual report is of a bird at a feeder in Douglas county May 10-13 (Klugow). All remaining May reports (from nine counties) were May 20 or later, and of course, the species did not appear in many areas until June. Several far northern counties were represented among those reporting.

Evening Grosbeak: Quite a number of observations, from 21 counties. Departure dates stretch through the entire season, with the only report after mid-May being from Douglas county May 31 (Bernard).

Purple Finch: Migratory movement was noted during the mid-March warm spell, right at the end of March, mid-April, and again about mid-May by which time birds had left most areas. A rather poor migration overall.

Pine Grosbeak: Noted in early March in Milwaukee county (Donald); March 1-2 in Douglas (Bernard), Marathon (Williams), and Price (Vincent) counties. Four birds were observed carefully in Lincoln county May 8 (Hendrick).

Hoary Redpoll: Two were seen in a large flock of redpolls in St. Croix county April 4 (Robbins). A 30X scope at 40 yards permitted easy observation of the white rumps.

Common Redpoll: After the winter's splendid showing of this species there were spring reports from 18 counties covering most of the state. Many departure dates were noted in March with most remaining ones in April. For the first time in many years there were well-documented departure dates from several areas, all May 14: Douglas county (Klugow), Winnebago county (Natzke, Tessen). Robbins saw 2,000 in St. Croix county April 4.

Pine Siskin: A few areas reported birds in March, but the major movement (2/3 of the reporting counties) occurred in May beginning May 6-9 and—in the north—after mid-May. Present in a number of counties during the last few days of the month.

American Goldfinch: Some movement occurred during the last half of March, the remainder after the middle of May.

White-winged Crossbill: Juneau county March 7 (Necedah Refuge staff); St. Croix (Robbins) and Waukesha (Bielefeldt) counties March 11.

Rufous-sided Towhee: There were a few March observations, the earliest March 19 in Dane county (Hilsenhoff). Movement into quite a few southern and central counties took place around mid-April, into many more and a few northern ones during the last few days of April.

Savannah Sparrow: Jefferson county April 3 (Stock); Waukesha county April 13 (Bielefeldt); many areas nearly statewide April 16-22.

Grasshopper Sparrow: An April 13 report from Chippewa county is undocumented (Kemper). Waukesha county April 29 (Bielefeldt); seven additional counties in May.

LeConte's Sparrow: One in St. Croix county May 28 (Robbins), for the fifth year in a row.

Henslow's Sparrow: Rock county April 18 (Maxson); two more counties April 30; five additional counties in May.

Vesper Sparrow: Although there were no details provided, two March reports might have been of birds which arrived with the mid-March warm spell: March 20 Waukesha county (Beimborn) and March 30 Dane county (Hilsenhoff). The next observations began April 9, and within less than two weeks observers statewide had encountered this species.

Lark Sparrow: Dane county May 15 (Ashman); St. Croix county May 16-21 and Buffalo and Trempealeau counties May 26 (Robbins); Portage county May 23 (the Baumgartners).

Slate-colored Junco: A few birds appeared in northern counties March 17-21. Movement about April 10 is indicated by several northern arrival and departure dates then. Quite a few observers noted departures during the last half of April, but there were many more than usual mid-May departures noted (from nine counties) some of them southern.

Oregon Junco: Noted in nine counties in March, in St. Croix county until April 15 (Robbins), in Outagamie county until May 1 (Tessen), and in Douglas county May 14 (Bernard).

Tree Sparrow: Slight movement March 6, many departures during the last half of April, but many in May, an unusual phenomenon. There were four departures May 14-16, several very well documented.

Chipping Sparrow: Two March reports (undocumented) are early, although both are during periods of marked movement: Chippewa county March 7 (Kemper) and La Crosse county March 20 (Young). Noted in four counties April 1-4 as far north as Brown (Cleary and Paulson) and Lincoln (Hendrick). There were very few additional reports until a dramatic spread across the state during the last week of April.

Clay-colored Sparrow: St. Croix county April 29 (Robbins); nine additional counties in May.

Field Sparrow: Noted in two counties March 19 (Dane, Hilsenhoff; Rock, Mahlum), in few other places until April 9. The major movement of this species took place during the week beginning about April 16.

Harris' Sparrow: Price county May 5-7 (Vincent); Burnett county May 7 (Stone); Rock county May 12-23 (Mahlum, Andrews, Glenn, the Dougans); Douglas county May 15-19 (Bernard); Oneida county May 13 (Fell).

White-crowned Sparrow: April 24-25 in Brown (Cleary and Paulson) and Outagamie (Bradford) counties. Quite a few arrivals May 3-6 as far north as Marinette county (Lindberg). By mid-month birds had left many areas, reached most others. Of the few who commented on abundance, a few in northeastern counties thought this species abundant, a few in other parts of the state found birds scarce. Still in Racine (Tessen) and Brown (Wierzicki) counties May 22.

White-throated Sparrow: There were a few arrivals March 27-30, a few more April 10-14, and a veritable flood the last 11 days of April. Peaks mentioned were April 30-May 1, 3, 5-7, and 12-15. Still present in many areas May 22.

Fox Sparrow: Noted in close to a dozen counties in the week beginning March 16, including some central ones. The period April 22-29 brought birds to several northern areas, saw the departure of the species from many parts of the state. Several May reports, the latest May 14 in Douglas county (Bernard).

Lincoln's Sparrow: Found in 12 counties from May 6 on.

Swamp Sparrow: Dane county March 19 (Hilsenhoff). General arrival in most central counties occurred during the last week of April, in several northern areas about May 5. Richter found a nearly completed nest in Oconto county May 17.

Song Sparrow: A few birds appeared during the first week of March, but the major batch of arrivals came March 16-24 statewide.

Lapland Longspur: Noted in seven counties, last in Winnebago May 14 (Tessen).

Snow Bunting: There were reports from 11 counties, mostly in March. Bernard's May 11 observation in Douglas county is very late.



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