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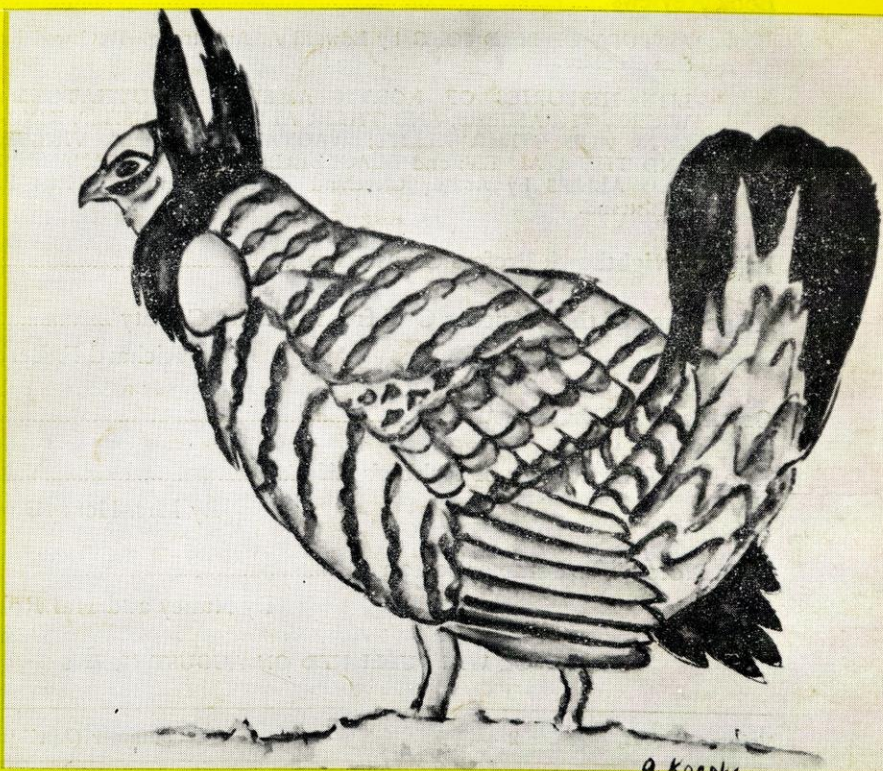
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The Passenger Pigeon



Summer 1965

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The Dickcissel Invasion of 1964 in Southern Wisconsin

By JOHN T. EMLEN and JOHN A. WIENS

Southern Wisconsin witnessed a heavy invasion of Dickcissels (*Spiza americana*) in the spring of 1964. In Fitchburg township of Dane county, where we have been conducting periodic roadside counts since 1952, a May 28, 1964, survey revealed about 30 to 40 times as many Dickcissels as had ever been recorded. Previously restricted to one small group of alfalfa fields along a railroad track, Dickcissels were found singing conspicuously at 18 of 25 observation stops. They were encountered in hayfields, oatfields, cornfields, and pasturelands as well as in all of the area's alfalfa fields. They even outnumbered the ubiquitous Western Meadowlarks and Red-winged Blackbirds, previously the two dominant roadside species of the township.

Impressed by this spectacular increase in our familiar survey area, we undertook a series of surveys in other parts of southern Wisconsin and enlisted the cooperation of other observers to bring together as much information as possible on the extent and scope of the invasion. The results are summarized in this paper.

Methods

Following a general plan of roadside surveys modified from those used by Lanyon (1953) in his study of Meadowlarks, we cruised selected sections of roadway in an open car, stopping every 0.2 miles (with variations as required to avoid meaningless stops in towns, woods, farmyards, construction areas, etc.). At each stop the observer stepped a few yards from the car to permit full vision and hearing in all directions, and then, for one minute, counted all the birds he could detect by sight or by hearing. Some species, such as the Western Meadowlark, have songs which obviously carry farther than others, such as the Grasshopper Sparrow, but no attempt was made to translate the calls and songs recorded into figures of absolute or relative population density. The figure obtained at each stop was purely an index, admittedly biased as a sampling of actual population numbers, but perfectly reliable for comparing relative numbers in different areas and on different dates.

A few roadside counts following this prescription could easily give a false picture by chance, so 25 consecutive counts were made in a series of observation stops along a mapped stretch of road. Such a series of stops we have termed a survey. Highways with noisy traffic were avoided, as were construction areas and the suburbs of towns. An attempt was made to standardize these surveys by conducting them in the early morning, but afternoon surveys were made on occasion. All of the counting was done between June 24 and July 16 in order to minimize the complications of possible changes in song activity or of population shifts late in the breeding season.

In addition to the bird counts, a record of the vegetation was made at each of the observation stops. Visual or "eye-ball" estimates were made of the relative extent of fields of various types within a roughly gauged 200 yard radius of the observer. Fields were classified into ten categories: forbs (alfalfa, clover, peas, etc.), hayfields with grasses predominating, grainfields (mostly oats), mixed grasses and forbs (as in many fallow fields), cornfields (maize), pasturelands (relatively short grass), plowland with little vegetation, brushland, woodland, and built-up areas (farmyards and suburbs). Types present at each stop were checked on the tally sheet with from one to four plus signs to reflect the relative extent of occurrence of each .

The senior author made 13 surveys (321 stops) in southern and southeastern Wisconsin in late June and early July while the junior author was making intensive studies of grassland birds in the Fitchburg area of Dane county. These records were supplemented by 47 surveys (905 stops) and 15 reports submitted by members of the Wisconsin Society for Ornithology and others in response to a questionnaire distributed through the Society's Research Committee in late June. Further data were obtained through special correspondence and interviews with selected observers. The study thus represents a cooperative effort of about 30 field observers. The authors regret that it is not feasible to acknowledge all of the many contributors in this paper.

Tabulations of survey data are available from the authors on request.

Extent and Scope of the Invasion

The distribution of the Dickcissel in Wisconsin in June-July, 1964 as revealed in this survey is shown in Figure 1. The invasion apparently entered the state from the southwest, flooding out over the grassland farming areas of the south-central and west-central counties. The absence of reports from the northern counties leaves a regrettable gap in the record, but it seems reasonable to assume that the birds were scarce or absent through most of this forested region. Small to moderate numbers were reported from the Green Bay area, but reports from the Fox River Valley and south to Milwaukee indicate that the birds were rare or absent in this broad intervening belt.

The abundance of Dickcissels throughout the area of the invasion was evaluated in terms of (a) the number of birds per observation stop and (b) the proportion of Dickcissels in the total of roadside birds recorded. The former index provides a basis for regional comparisons. Six surveys from widely separated localities in southern and western counties produced tallies of more than 50 Dickcissels (i.e. an average of more than two per observation stop), and seventeen more gave averages in excess of 1.0 per stop. The locations of these surveys plus five reports which indicated comparable abundance without using the standard survey procedure are indicated by + marks and bounded by a line marked A-A on the map (Figure 1). This is indicated as the area of Dickcissel abundance in 1964. Localities from which Dickcissels were reported in numbers less than 1.0 per stop are indicated by dots on the map and bordered by lines marked B-B and B'-B' to define the area of occurrence in moderate or low numbers in 1964. Localities from which no Dick-

cissels were reported in standard surveys of 25 stops or after equivalent search are indicated with open circles.

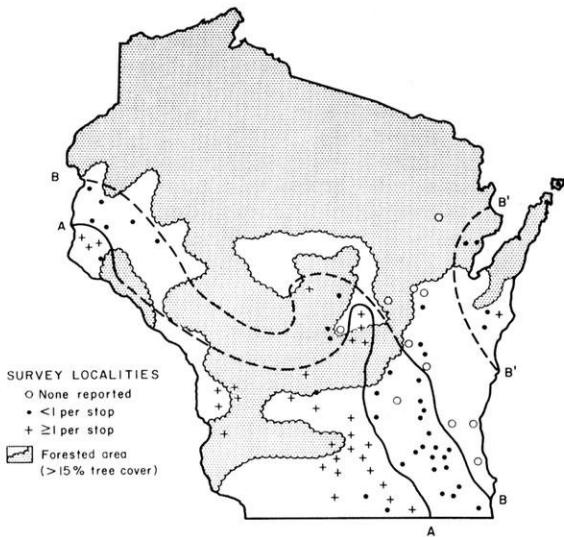


Figure 1. Distribution of Dickcissels in Wisconsin in 1964. Line A-A borders the area of abundance (more than one bird recorded per stop); Lines B-B and B'-B' enclose the areas of occurrence in moderate or low numbers (less than one bird recorded per stop). Boundaries of the forested area are simplified from Stone and Thorne (1961) and Wisconsin State Department of Public Instruction (1962).

The index of abundance provided by the proportion of Dickcissels among the total of roadside birds is relatively free of the biases associated with time of day, season, or weather insofar as the other species respond to these factors comparably; it has the disadvantage of having an unfixed and rather unstable denominator. In general, the map based on this index closely resembles that of the birds per stop. Dickcissels comprised, on the average, 27 percent of the roadside birds in the area of 1964 abundance (A-A on map), while in the area of moderate or low numbers (B-B on map), they averaged 9.5 percent of the roadside avifauna.

The absolute numbers of birds involved in the invasion must have been tremendous. On the 3½ square miles of the Fitchburg study area the actual number of singing males varied from none to four or five during the years 1957 to 1963. Our best estimates for 1964 would place the number at about 200 to 225, a fifty fold increase. If this intensively studied area was representative of the rest of Dane county—and the roadside surveys suggest that it was—the number in the 1200 square miles of the county must have been in the order of 70,000 birds. Carrying these calculations to the total range of the invasion, it seems that there may have been close to one million birds in the area of abundance and another quarter million within the area of moderate to low numbers.

Past History of Fluctuations and Increase

The Dickcissel, generally regarded as a rare or uncommon species in Wisconsin, has, nevertheless, been known to build up locally to considerable numbers in certain years. Early records are spotty and often confusing, but it seems clear that numbers were relatively high in the late 1860's and again in the 1890's. Taber (1947), in summarizing the published literature up through 1946, detected peak numbers in 1922, 1928, 1934, 1940 and 1946, and suggested the possibility of a six-year cycle of abundance. Observations reported in the Field Notes section of **The Passenger Pigeon** and in **Audubon Field Notes** suggest further peaks in 1950, 1956, and 1959. These, together with the spectacular invasion of 1964, seem to lend some support to Taber's proposal of cyclic fluctuations, and suggest that the current eruption, although the most spectacular on record, may prove to be short-lived.

Beyond Wisconsin the Dickcissel is notorious for its fluctuating numbers. In its central range from Illinois west and south through Nebraska and Oklahoma, the bird appears to be relatively stable, although in Illinois it has shown some rather strong fluctuations during the past fifty years (Graber and Graber, 1963). Striking fluctuations of range have been known to occur along the Atlantic seaboard. Rhoades (1904) says that Dickcissels were common in the Delaware Valley in the 1850's, but decreased markedly until they were rare in the 1870's and disappeared entirely shortly thereafter. A recent report by Bagg (in litt.) indicates that at least in some of this eastern area the Dickcissel is showing a slow recovery at the present time. This recovery, however, is characterized by light post-breeding season dispersions rather than by mass spring invasions of the type experienced in Wisconsin in 1964.

Dickcissels have also shown an interesting numerical instability along the western boundary of their range. Here they meet and possibly compete with another grassland species, the Lark Bunting (**Calamospiza melanocorys**). Recent reports in **Audubon Field Notes** (Vol. 18, pp. 518-519) suggest that the current advance of Dickcissels in Wisconsin coincides with a reduction in numbers in certain areas of the Dakotas and Nebraska where Lark Buntings have increased. The coincidence of these changes is suggestive of competition and replacement but cannot be properly interpreted without intensive local study.

Little was reported in Wisconsin or neighboring Illinois and Minnesota in 1962 and 1963 to herald the spectacular invasion of 1964. Moderate increases were reported in 1963 at a few localities along the central portion of Wisconsin's southern boundary, and numbers were apparently above average in and around Dodge county about 60-80 miles northwest of the state's southeast corner, an area which reported little if any further increase in 1964. These conditions were reported by local observers in retrospect, however, not being conspicuous enough to warrant published comment at the time. It appears that any preparatory build-up to the 1964 eruption was of modest scope if it existed at all.

The spring arrival of Dickcissels in 1964 was, apparently, a week or more later than normal for the area. The first birds were reported on May 16 in Dane county and May 17 in Sauk county, and large num-

bers were seen on the 21st. They must have settled down rapidly, for nests with complete clutches were found in the Fitchburg area of Dane county on May 28 and 29. Arrival dates in the same localities in 1965

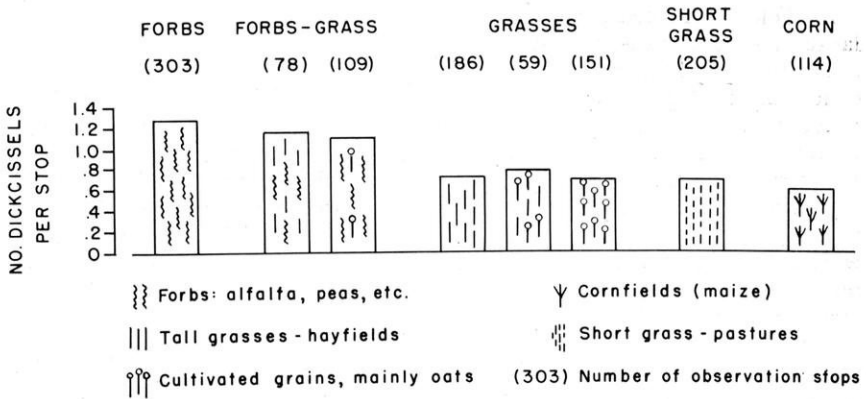


Figure 2. Abundance of Dickcissels with relation to field vegetation types.

were about 10 days earlier for Dickcissels, while other grassland migrants arrived on about the same dates or slightly later than in 1964.

It is possible that the 1964 Dickcissel invasion was triggered, at least in part, by the extremely dry climatic conditions in Illinois and Wisconsin during the spring months. Taber reported that Dickcissels increased greatly in abundance in many areas of Wisconsin during the drought years of the early 1930's. If dryness does play a role in Dickcissel range fluctuations, however, its effects must be quite variable, for Dickcissels remained scarce in the southern part of the state during the dry years in the early 1950's, and were common in 1940 and 1950, both fairly wet years.

Habitat Selection

It is not surprising that the Dickcissel, a grassland species, stopped short of the primarily forested regions of the state. Of considerable interest, however, are the details of distribution in the broad forest-farm-land ecotone zone and the selection of vegetation types in the area of invasion.

Figure 2 shows the relative abundance of Dickcissels according to the vegetation of the fields in or near which they were observed. At stops where alfalfa, red clover, peas, or other forbs dominated within the roughly estimated 200 yard radius, we recorded an average of 1.30 Dickcissels. Where tall grass or grains dominated, the average count was 0.70 per stop. Where forbs and grasses were both well represented, the counts were intermediate—1.10. Cornfields and grazed pastureland areas had 0.60 and 0.65 respectively, and it was only in wooded areas and brushlands that the birds were completely absent. Surveys made in the boundary zone where Dickcissels were relatively uncommon revealed this preference for alfalfa and clover fields as did those on the intensively studied plots in the areas of maximum abundance.

Elsewhere in its range the Dickcissel appears to occupy a fairly broad range of farmland habitat types. In southwestern Ohio they nest most frequently in lush meadows, particularly alfalfa (Dambach and Good, 1940); in Illinois the preferred habitats are edge shrubs or hedgerows, fields of mixed grasses and forbs, clover fields, and ungrazed grasslands (Graber and Graber, 1963). For unknown reasons, Illinois Dickcissel populations were markedly lower in alfalfa fields than in other hay or legume types. Hedgerows and roadside shrubs have been noted as features of optimal habitats in Arkansas (Meanley, 1963) and Oklahoma. In the intensively studied Fitchburg area in Wisconsin, Dickcissel territories usually included some shrubby vegetation, providing elevated singing perches for males. In some fields (including lush alfalfa) which lacked this type of edge growth, Dickcissel populations were low in comparison to shrub or tree-bordered fields. Unfortunately, no consistent records of the presence or absence of trees and shrubs were made in our roadside surveys in other areas.

While alfalfa and clover seemed to be the Dickcissel's preferred habitats in those areas of Wisconsin where the birds settled in 1964, the spread of the birds over the state showed poor correlation with the incidence of alfalfa and clover fields as reported by the U.S.D.A. Wisconsin Crop Reporting Service (1954, pp. 54, 72). Several counties with large alfalfa and clover acreage in the southern half of the state (Ozaukee, Washington, Dodge, Fond du Lac, Winnebago) were apparently not invaded, while several others with relatively little alfalfa or clover (Columbia, Marquette, Waushara) experienced substantial Dickcissel increases.

Association With Other Species

The songbirds of Wisconsin farms and grasslands can be roughly grouped into four categories: tree inhabitants (Kingbirds, Shrikes, Starlings, Bluebirds, etc.), thicket and hedgerow inhabitants (Song Sparrows, Indigo Buntings, Goldfinches, Field Sparrows, etc.), marsh border inhabitants (Red-winged Blackbirds, Yellow-throats, Swamp Sparrows, Short-billed Marsh Wrens, etc.), and the low-foraging, low-nesting species of the ground vegetation to which the Dickcissel belongs. Nine species fall into this latter category in southern Wisconsin with several others irregularly occurring to share the economy of the grasses and forbs at or near ground level. Seven of the nine (Bobolink, Western Meadowlark, Eastern Meadowlark, Savannah Sparrow, Vesper Sparrow, Grasshopper Sparrow, and Dickcissel, together with upland-nesting Red-wings), dominated the scene over most of the area under survey, and attention is directed to these species and their relative abundance throughout the range occupied by the Dickcissel in 1964. The remaining two species (Henslow's Sparrow and Horned Lark), although locally common, were generally inconspicuous and occurred too infrequently in the survey observations to warrant consideration as Dickcissel associates.

An index of association between species, based on the frequency with which two species occurred together at observation sites compared with the frequency with which they would be expected to occur together by chance (Cole, 1949), reveals that Dickcissels were most closely associated in their 1964 areas of abundance with Bobolinks, Eastern Meadow-

larks, Red-winged Blackbirds, Savannah Sparrows, and Western Meadowlarks (in that order), and were negatively associated with Grasshopper Sparrows and Vesper Sparrows (Table 1). The closeness of association between Dickcissels and Bobolinks and Red-wings can probably be attributed to the preference of these species for alfalfa fields and other lush herbaceous or mixed vegetation. The greater association with Eastern than with Western Meadowlarks may be an expression of the preference of the former for somewhat lusher vegetation, while the negative association of Dickcissels with Grasshopper and Vesper Sparrows probably

Table 1. Association of Dickcissels with other grassland species.

In this system +1.000 would indicate absolute or complete positive association, -1.000 would indicate absolute or complete negative association, and 0.000 would indicate absence of any positive or negative association.

	Western Meadowlark	Eastern Meadowlark	Red-wing	Bobolink	Savannah Sparrow	Grasshopper Sparrow	Vesper Sparrow
in areas of Dickcissel abundance (A area on Figure 1)	+ .008	+ .296	+ .267	+ .397	+ .053	- .038	- .057
in areas of relative scarcity of Dickcissels (B area on Figure 1)	- .115	+ .107	+ .151	+ .066	+ .041	+ .031	+ .011

reflects the predilection of these latter species for sparsely vegetated fields and grazed pasturelands which are low in the preference scale of Dickcissels.

In areas where Dickcissels were uncommon in 1964 (dots in Figure 1) the picture differs slightly. Here they are most closely associated with Red-wings and Eastern Meadowlarks, and were negatively associated with Western Meadowlarks.

Another way of looking at the composition of this grassland avifauna is to compare species representations in whole surveys instead of representations at single survey stops. The data presented graphically in Figures 3 and 4 reveal that Eastern Meadowlarks, Western Meadowlarks and Bobolinks were about as numerous in survey areas of Dickcissel abundance as in areas of Dickcissel uncommonness. Red-wings and Savannah Sparrows, which showed positive correlations in the single stop analyses, now show a clear negative correlation, being best represented in surveys where Dickcissels were relatively scarce (Figure 4). Such distributions may in part be the result of regional differences in habitat availability or differences in the ecological amplitudes of the different species. They may also suggest, however, that factors other than simple habitat preferences were involved in the broader aspects of Dickcissel dispersion. They imply, as does the poor correlation between Dickcissel and alfalfa distribution noted in the preceding section, that the mechanisms of range extension in this sudden eruption of 1964 may have been somewhat insensitive to the inherent habitat responses of the birds.

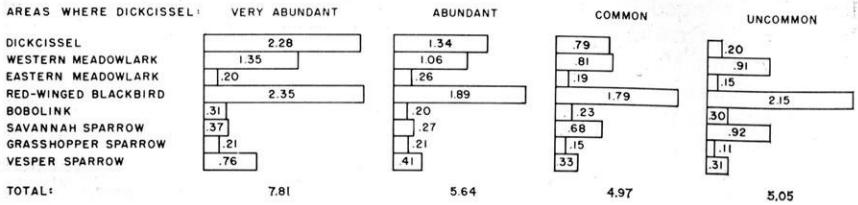


Figure 3. Representation (individuals per stop) of eight species of grassland birds in southern Wisconsin in June-July, 1964. Dickcissel very abundant = more than 1.7 individuals per stop (7 surveys; 140 stops); Dickcissel abundant = 1.0 to 1.7 individuals per stop (14 surveys; 315 stops); Dickcissel common = 0.5 to 1.0 individuals per stop (14 surveys; 322 stops); Dickcissel uncommon = less than 0.5 individuals per stop (18 surveys; 422 stops).

The circumstances of a sudden heavy invasion of a formerly uncommon species, such as that under discussion, provides an interesting opportunity for exploring the possible occurrence of competitive exclusion or replacement. Did the sudden influx of Dickcissels into southern Wisconsin affect the status of the more stable resident species? Since we had no adequate indices of abundance of roadside birds before 1964, we could not tackle this problem directly. Indirect evidence suggesting species replacement can be seen in the inverse relationship of Dickcissels with Red-wings and, particularly, with Savannah Sparrows (Figure 4). On the other hand, the overall increase in total birds recorded in the areas of Dickcissel abundance suggests that the Dickcissel influx was superimposed on top of the resident bird population. Further evidence for superimposition and against replacement was found in studies of habitat responses in the area of intensive study in Dane county. Repetition of surveys in the same areas in 1965 and in subsequent years should provide data for a more direct answer to this biologically important but evasive problem.

Summary

Roadside surveys of farmland birds revealed a mass invasion of Dickcissels into southern Wisconsin in the spring of 1964. The increase over

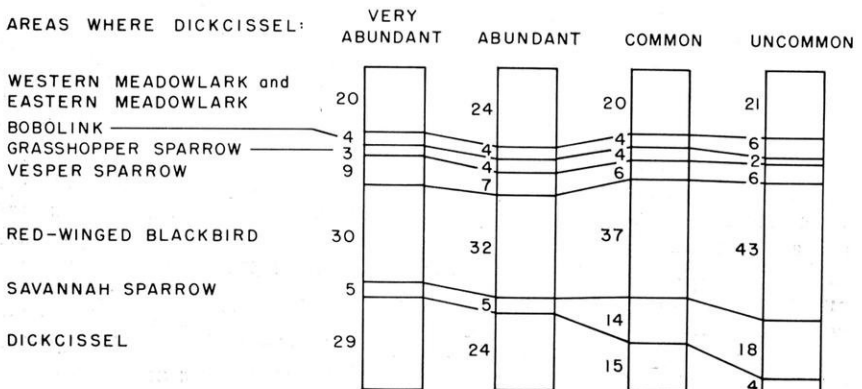


Figure 4. Per cent representation of dominant species of grassland birds in southern Wisconsin in June-July, 1964. Categories of Dickcissel abundance as in figure 3.

1963 was of the order of 50 fold in the south central counties and raised the status of the species from decidedly uncommon to the top or next to top position of abundance, well ahead of the ubiquitous Western Meadowlark. The birds were most numerous around alfalfa and clover fields but were encountered in all types of farmland.

Interspecies associations at observation sites were closest with the Bobolink, Red-winged Blackbird and Eastern Meadowlark and remotest with the Vesper Sparrow. Measures of interspecies association on a broader geographic level and correlations of distribution with the availability of alfalfa and clover fields suggest that the dispersion of the birds was not regulated entirely by habitat availability. Competitive replacement of resident species was not demonstrated.

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NEST CARD PROGRAM

The North American Nest Card Program is winding up the 1965 nesting season and many cards have already been returned. There are still many cards in the hands of observers that should be returned as soon as possible. The data will then be transferred to IBM cards. A large bulk of material is needed for the first run.

WSO members should return their cards to Arol C. Epple, Wisconsin State University, Stevens Point 54481. He will forward them to the Laboratory of Ornithology at Cornell University after necessary information has been obtained from the cards.

Variation in Red-Winged Blackbird Eggs

By JAMES R. BEER

While studying the nesting behavior of the Red-winged Blackbird (*Agelaius phoeniceus phoeniceus* (Linn.)) in the vicinity of Madison, Wisconsin (Beer and Tibbitts, 1950), many nests with their eggs were examined. It was apparent that there was a considerable amount of variation in size, shape, ground color and pattern of markings of the eggs. In order to obtain a better appreciation of this variation, 246 eggs from 72 nests were examined and measured. These observations were made on May 29, 1947. Most of the nests examined were first nestings. My observations on the area suggested that not more than 10 percent of the nests and 5 percent of the eggs were from re-nesting attempts.

Color

All of the eggs were compared with Ridgeway's (1912) colors charts. The eggs ranged in background color from deep bluish glaucous to a light mineral gray with most of the eggs being between bluish glaucous and light mineral gray. The shades encountered included court gray, hothi gray and mineral gray.

Superimposed over this was a design covering a varying amount of the surface. This design was often composed of bold, sharply outlined spots, streaks and splotches and a shadow design of similar nature. The heavier design ranged from black to fuscous black and blackish brown, and the secondary or shadow designs included pale neutral gray, light vinaceous drab, light mouse gray, light brownish drab, pale medice gray, pale quaker drab, deep quaker drab and brown. The secondary designs were quite variable in color.

Not only is there variability in the color of the markings on the eggs but also on the amount and placement of the design. This may best be seen in the eggs selected for illustration (Plates I, II, and III). In general, the design is concentrated around the large end of the egg. This is well illustrated in Plate I, A; Plate II, B, H, and K, and Plate III, F and G. It must be remembered that the eggs illustrated were selected to show a maximum amount of variability. Some hens lay eggs with little or no pattern as illustrated by the clutch shown in Plate I, B and Plate III, C. Other individuals lay eggs with the design covering the entire egg as shown by Plate I, D and Plate II, L. In general, they are spotted, blotched, marbled and streaked, mostly about the larger end with different shades of black, brown, drab and gray, presenting great variation in amount, character and style of markings. Rarely an un-

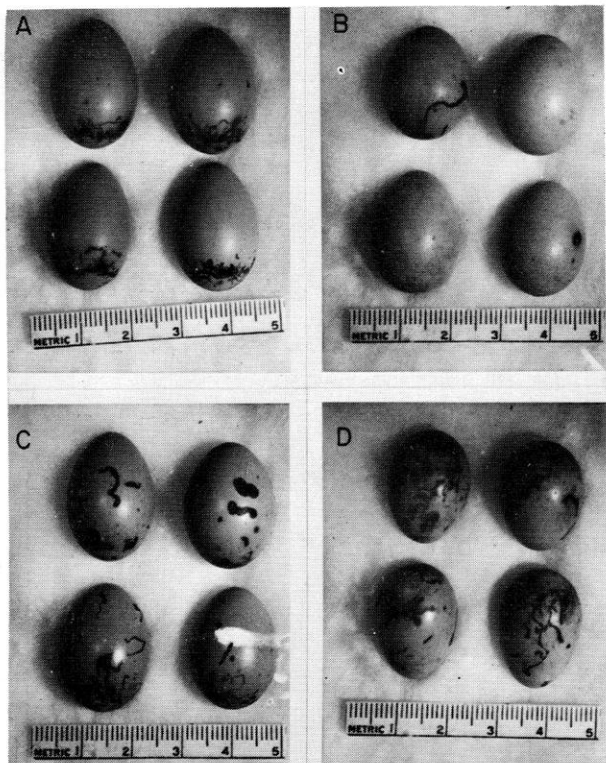


PLATE I. FOUR CLUTCHES OF EGGS SHOWING THE GENERAL CONTINUITY OF PATTERN AND SHAPE OF EGGS WITHIN A SINGLE CLUTCH AND THE DIFFERENCES IN PATTERN FOUND BETWEEN CLUTCHES.

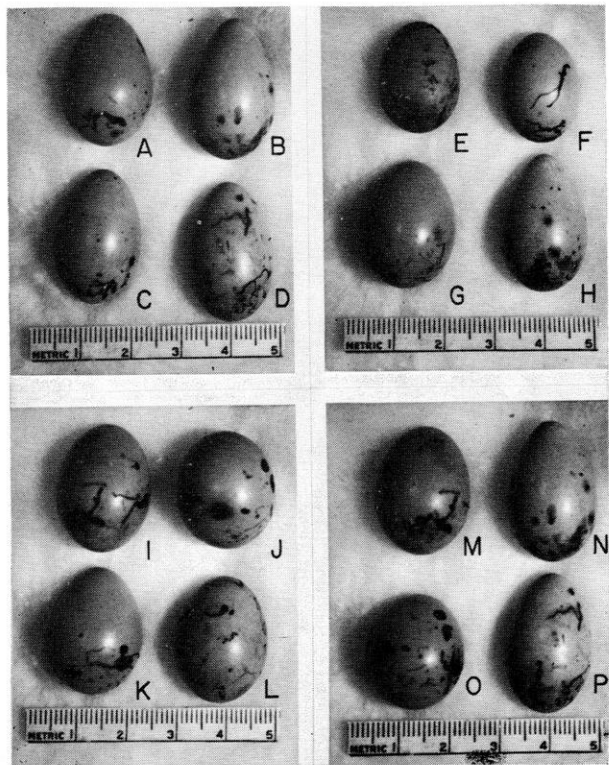


PLATE II. EGGS FROM 16 DIFFERENT CLUTCHES OF EGGS SELECTED TO SHOW THE MAXIMUM AMOUNT OF VARIATION IN SIZE AND SHAPE.

marked egg is found. The most typically marked eggs are shown in Plate I, A; Plate II, B, D, H, J and L, and Plate III, F and G.

While there is considerable variation in the color pattern when many eggs are examined there is usually only a moderate amount of variation among the eggs of a single clutch. Plate I, A shows the tendency for a uniform pattern in the eggs of a single clutch while Plate I, C shows about the maximum amount of variation found in a single clutch. The minimum and maximum amount of coloration is shown in Plate I, B and D. These clutches also show the tendency for eggs of a single clutch to be similar in the type and extent of pattern.

Size and Shape

Not only do we find considerable variation in color and markings in Red-wing eggs but we also find differences in the size and shape of the eggs. The eggs examined varied in length from 21.8 to 27.4 mm with an average of 24.7 mm and a standard deviation of 0.99, and in width from 16.3 to 19.9 mm with an average of 17.9 mm and a standard deviation of 0.74. The bulk of the eggs ranged in length from 22.7 to 26.7 mm and in width from 16.2 to 18.6 mm (Table 1).

More dramatic than the variation of the major and minor diameters of the egg is the variation of shape. This variation in shape is best expressed by comparing egg shape indexes. The egg shape index is the $\frac{\text{minor diameter}}{\text{major diameter}} \times 100$. This index varies from 62, a long narrow egg,

Table 1. Frequency Distribution of Red-winged Blackbird Egg Measurements

Major diameter in mm	Minor diameter in mm										Total
	16.2	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	
21.8	1										1
22.2		2	1		1						4
22.6			1		1	1					3
23.0		1	2		2					1	6
23.4			3	7	4	5					19
23.8		1	4	6	10	3	3	1			28
24.2			4	8	7	5	4	2			30
24.6			8	10	10	10	6	2			46
25.0			4	3	10	9	7		3		36
25.4				5	4	13	5	2			29
25.8				3	8	3	7	2			23
26.2				1	5	1	2	2	1		12
26.6				2		1					3
27.0			1		1		1				3
27.4			1	1	1						3
Total	1	4	29	46	64	51	35	11	4	1	246

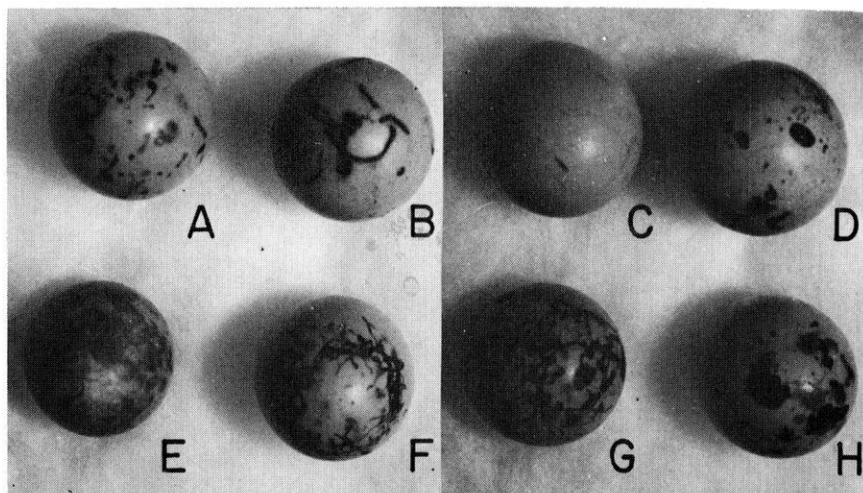


PLATE III. THE LARGE END OF EIGHT EGGS FROM DIFFERENT CLUTCHES SHOWING THE VARIATION IN COLOR PATTERN FOUND.

to 86, a very spherical egg. This difference is well illustrated by comparing the eggs shown in Plate II, D and J. An average of index figures is 72.67 with a standard deviation of 3.28. Most of the eggs are found to have index figures of between 66.1 and 79.2 (Figure 1). This indicates that there is normally considerable variation in shape as well as size.

As in color and pattern there is a trend for individual hens to lay eggs of a particular size and shape. This constancy in size and shape is quite well illustrated in the four clutches of eggs shown in Plate I. This consistency in shape and size of eggs normally produced by a single hen is shown when we compare the variation found within the clutches with the total variation. About half (51.6%) of the average variation found in length in the total sample is due to individual variation of eggs, produced by a given hen. The other half of the variation is due to variation between clutches. Only about 43.0% of the total average variation in width can be attributed to variation within clutches while 57.0% is due to variation between clutches. The egg shape, as measured by the egg index, shows a higher degree of variability within the clutch (55.1%). These figures suggest that a given hen lays eggs of similar diameters and that variation in size, as would be indicated by weight or volume, is reflected mainly by the length of the egg.

Discussion

The reason for the variation observed is not clear, but by comparing the results with data from chicken eggs (Romanoff and Romanoff, 1949) it is possible to make some suggestions. In chickens, the egg is usually smallest during the first year and largest from the second to fourth year after which the size decreases. However, there is considerable difference

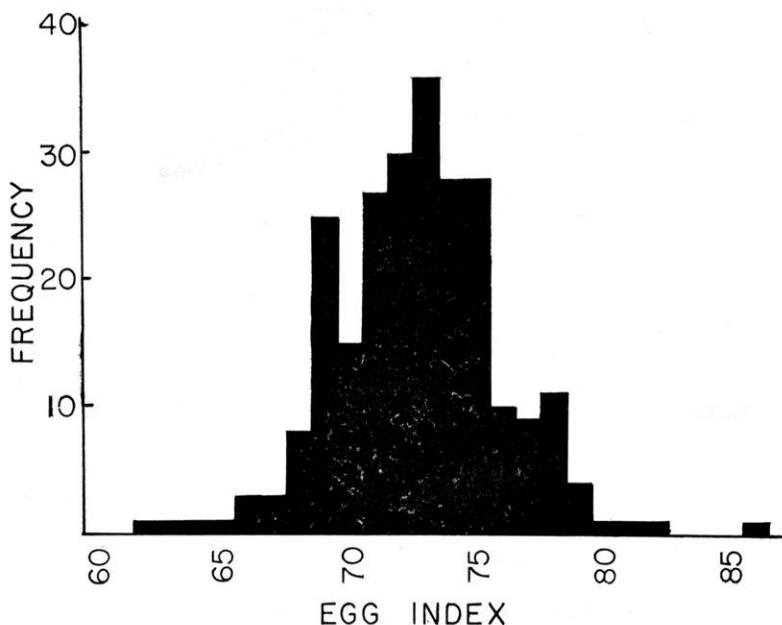


FIGURE 1. DISTRIBUTION OF EGG SHAPE INDEXES BASED ON 246 EGGS.

in size of the eggs produced by different individuals. None of the eggs examined were from Red-wing hens of known age so that it is not possible to differentiate between individual variation and possible age variation.

It seems logical that a larger egg would produce a stronger and better developed young and thus enhance its chances for survival. On the other hand, a larger egg places a greater drain on the energy reserves of the female. Probably the exact shape of the egg of a bird that builds a nest such as a Red-wing has little survival value. If the eggs are somewhat pointed at one end and are three or four in number they will fit together better in the nest possibly allowing for easier incubation.

The color and pattern help to hide the eggs. The eggs without the pattern of darker markings appear to be seen more easily and presumably are more vulnerable to predation.

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By the Wayside...

Grackles and Moth Balls. While visiting our son in Falls Church, Virginia, in June, 1964, we experienced an incident which may interest WSO members.

People in Falls Church place moth balls in their gardens to discourage dogs. I don't know how effective they are for dogs, but grackles have found a use for them.

While sitting on the porch, I saw three grackles, and the first one picked up a moth ball and placed it on his wing where it joins his body. It rolled off and he began picking at the spot, then moved on and the second one moved up and stood beside the moth ball and began picking at the same spot. He moved on and the third stepped up and picked up the moth ball and placed it on the same spot and, as it rolled off, he picked at the wing.

On several occasions afterwards we observed the grackles putting moth balls on their backs, rumps, and holding them against their breasts.

I expect this is the modern "bird anting" with man's chemicals.

I would be interested to know if anyone else has witnessed such a performance.—Mrs. E. R. Smale, 1431 Deane Blvd., Racine.

Blue-winged Warbler in Burnett County. While fishing the Clam River in Burnett county where it crosses county highway H, I heard a Blue-winged Warbler on June 27, 1964, at 5.00 a. m. I didn't track him down, but, of course, his song shouldn't be mistaken; I have heard this bird at Vasa, Minnesota, and saw and heard (simultaneously) the one that came to the Roberts Bird Sanctuary, Minneapolis, in the spring of 1963 (as reported in *The Flicker*). I slept in my car that night (just south of the bridge) and awoke to hear several Whip-poor-wills, Song Sparrows, a Phoebe, and this "bee-bzz." This is a brushy meadow piece of country. The bird was on the west side of county highway H and south of the Clam River, and seemed to be about 100 feet from each.—Douglas D. Campbell, 4917 Russell Avenue South, Minneapolis 10, Minnesota.

Franklin's Gull in Madison. On June 17, 1964, I noticed among the Ring-billed Gulls summering near the University dump in Madison several birds of the Franklin's-Laughing type. None were in complete adult plumage, although one had a dark head which appeared black. The wing pattern was neither typical Franklin's nor typical Laughing, as nearly as I could tell. I frankly did not wish to commit myself as to their identity.

The plumage of the obviously immature birds was that described by Peterson for the Franklin's, but even he, of course, injects a word of caution about immature plumage. Other sources indicate that it may take three years for a bird to acquire full adult plumage. The one near-adult bird simply had a wing pattern which did not fit any description a person might reasonably run across. Opinion as to the identity of these birds was divided.

On the basis of the overall appearance, I'm certain that a novice who took Peterson's word seriously probably would have identified these birds as Laughing Gulls, even though they didn't look quite right for it. When the birds were sitting, Franklin seemed more likely; while they were flying, they superficially resembled the Laughing, even the "adult", although on occasion a very thin line of white seemed to cut off a bit of black at the tip from the major dark portion of the wing (nothing like the very conspicuous wide strip of white depicted in Peterson, however).

John Wiens of the University Zoology Department collected one of the birds, and it proved to be a Franklin's. I view this encounter as indicating a need for extreme caution in identification of Laughing Gulls in Wisconsin; there are some birds which simply do not possess "typical" plumage. Four birds were present through June 18 at least, with one "adult" still present June 24 and 25.—Tom Soulen, 2297 Standish Street, Saint Paul, Minnesota.

A Ruby-crowned Kinglet Nest in Oneida County. On the morning of June 26, 1964, I was walking along a relatively dry and open path through a portion of a black spruce bog one mile south of the village of Three Lakes in Oneida county when I noticed at least two distinctly different Ruby-crowned Kinglets, one very trim, neat plumaged, with a yellowish wash on the flanks, the other rather "frayed" looking and completely devoid of yellowish. I passed the area several times while walking back and forth along the path, noticing one or the other bird each time, sometimes both.

Between 7:15 and 7:30 I noticed one bird carrying an insect in its bill. Within the next twenty minutes I saw both birds carrying food to about the same spot at least six times. A little maneuvering brought me within view of the actual nest, which was about 15 feet from the ground in a black spruce about 18-20 feet tall. The spruce was in a small group of spruce and tamarack separated somewhat from neighboring trees. The nest was 6-8 inches from the trunk and was fairly well concealed by branches with many needles, making it very difficult to discern the actual shape of the nest. The branches surrounding the nest were 14-18 inches long. The young in the nest emitted notes very similar to the single ones given frequently on cold winter days by Golden-crowns. I could see at least two young in the nest, although little other than their big red mouths was visible from my angle of view.

One adult once fed the birds while "on the wing" (fluttering). The adults were not too vocal, although one did sing briefly. One adult was considerably more cautious than the other. I was finally noticed at close range by one of the birds, then the other. They both scolded within 3-4 feet of me, and here, of course, the crown became visible. I then left, not wishing to disturb the birds further. I am quite sure that this constitutes the first Wisconsin nesting record of the Ruby-crowned Kinglet.—Tom Soulen, 2297 Standish Street, Saint Paul, Minnesota.

Three Evening Grosbeak Nestings in Wisconsin. During the latter part of May, 1964, I was at the home of Chandler Osborn, which is

located on the Brule River about four miles south of the village of Brule, Wisconsin. At that time I noticed two pairs of Evening Grosbeaks still feeding on sunflower seeds from a bird feeder. I told Mrs. Osborn to keep a record of the date when the birds left the site of her home. In 1963 they left on June 3.

I didn't visit with the Osborns again until the last week of July. They then told me that the two pairs of Grosbeaks did not leave at all, but that the birds raised eight young ones. One of the young birds was first seen on July 9, 1964, with one of the male adults. On July 10 eight young birds were at the sunflower feeder with the two adult males. According to Mrs. Osborn the adult males fed the young birds by actually cracking the sunflower seeds and feeding the mealy part of the seeds to the young birds. When the birds sat on the bird bath it appeared as if the adult males would try to teach the young ones how to drink by taking a drink, but all the young ones would do at first was to fall head first into the pan of water.

On July 13 one of the young birds appeared as if it was hurt. It hopped into the underbrush and that was the last the Osborns saw of it.

The adult males fed the little birds for about two weeks. The two adult females did not show up until August 2. On August 4 one of the young birds flew into a window and was found dead by the Osborns. That bird I have in the freezer.

On August 10 fourteen new birds appeared at the feeders. On August 16 I saw all 24 of the birds on the lawn in front of the Osborn home.

We never did find the two nests, but when the young birds were first sighted their wings were very weak, and like Mrs. Osborn stated, "They had on just their baby clothes".—Bernard Klugow, Brule, Wisconsin.

At least one pair of Evening Grosbeaks was at a feeder at the John Juda residence in Cable, Wisconsin, during the summer of 1964. Juda had about 25 Evening Grosbeaks visiting his feeder during the winter. I was at his home early in August and saw three immature Evening Grosbeaks, two females and one male. Did not see the adults but Mr. Juda reported six young and the parents were around. He reported the adults feeding the young in the same manner as described by Klugow. I looked for nests in the spruce trees in the neighborhood but was unable to find them. Mr. Juda lives within the city limits of Cable—in fact he is only two blocks from the center of town.—Arol Epple, Wisconsin State College, Stevens Point, Wisconsin.

I came to Wisconsin in August, 1963. A most pretty sight presented itself to me; a whole family of Evening Grosbeaks on the gravelled road in front of the rectory, the babies begging for food. Then in 1964, a pair built a nest in the tree opposite and the young came off successfully. Since in my ignorance I thought this was commonly done, I must confess I did not investigate too scientifically, but the old ones were about here all through the season.—Father Reinhold, St. Anthony's Church, Menominee county, Neopit, Wisconsin.

Summer Seasonal Editor's Note: Coincidentally, Minnesota also had its first definite breeding records in 1964 (*The Loon*, December 1964, pp. 115-118).

BOOK REVIEWS

A STUDY OF BIRD SONG. By Edward A. Armstrong. Oxford University Press, London, 1963. 335 pp., illustrated. \$10.50

The advent of the electronic age has opened up virtually unlimited possibilities for the investigation of the voices of birds, and the behavior which is related to songs and call notes. More and more is certain to be written on the subject with each passing year.

This is one of the most comprehensive analyses of the entire scope of bird song yet published, and—fittingly enough—comes from the pen of England's most renowned ornithologists and prolific writers, who began writing about bird song over forty years ago. The thoroughness of Edward Armstrong's research into the literature on bird song is made vivid by an index that lists 1,031 references spanning three continents and three centuries.

It is hardly a volume for the rank beginner. If a person is able to recognize only the "drink-your-tea" of the Rufous-sided Towhee and the "Old-Sam-Peabody" of the White-throated Sparrow and a handful of other distinctive songs of our most familiar birds, he may be at sea in the discussion of "sub-song", "territorial song", "threat song", "incongruous song", "song flight", "female song", "duetting", etc. The reading of the sound spectrographs, offered for various species to describe various types of vocalization, may be difficult.

Armstrong's work is better suited as a textbook for an ornithology course, or as a stimulus and guide for additional research by serious-minded investigators. Exciting possibilities for further research are suggested in the chapter on "The Development and Learning of Song," in which the author explores the extent to which bird sounds are learned through environment and/or are innate at birth. Among the significant contributions to this discussion are the Meadowlark studies which Wesley Lanyon began as part of a WSO project several years ago.

When a WSO reader tackles Armstrong's work, he will experience difficulty in sorting out references to European, Asiatic and American birds; and if he is unfamiliar with the birds of other continents (as is this reviewer) many of the comments in the various chapters will mean little. But if he sticks with it, he is sure to gain many new insights into the whole field of bird behavior. Over and over again the author delves into the purpose behind the various forms of bird song which can be described. The bird's purpose in emitting sounds can be gauged only by observing behavior—the actions of the singer and those of other birds reacting to the sounds. This book is filled with a multitude of glimpses into bird behavior that will reward any ornithologist who is willing to do the "digging" the book requires.—Sam Robbins.

LIFE HISTORIES OF NORTH AMERICAN NUTHATCHES, WRENS, THRASHERS, AND THEIR ALLIES. By Arthur Cleveland Bent. Dover Publications, Inc., New York, 1964. x + 475 pp., 90 plates. \$2.75.

LIFE HISTORIES OF NORTH AMERICAN THRUSHES, KINGLETS, AND THEIR ALLIES. By Arthur Cleveland Bent. Dover Publications, Inc., New York, 1964. viii + 542 pp., 51 plates. \$2.75.

LIFE HISTORIES OF NORTH AMERICAN WAGTAILS, SHRIKES, VIREOS, AND THEIR ALLIES. By Arthur Cleveland Bent. Dover Publications, Inc., New York, 1965. v + 411 pp., 48 plates. \$2.75.

LIFE HISTORIES OF NORTH AMERICAN BLACKBIRDS, ORIOLES, TANAGERS, AND ALLIES. By Arthur Cleveland Bent. Dover Publications, Inc., New York, 1965. x + 549 pp., 37 plates. \$2.75.

With the publication of these four volumes, Dover has completed the republication of Bent's Life Histories Series. All 17 volumes, six of which are in two parts, are sturdy, paperbound books.

These books were originally published under the auspices of the Smithsonian Institution. One final volume on sparrows is still to be published by the Institution. Mr. Bent was not able to complete it before his death on December 30, 1954, but a committee was set up to finish this work from the author's notes and papers.

Life Histories of North American Nuthatches, Wrens, Thrashers, and Their Allies was originally published in 1948. Species covered in this volume include the nuthatches, wren-tits, thrashers, wrens, creepers, mockingbird and dipper.

Thrushes, Kinglets and Their Allies covers thrushes, bluebirds, gnatcatchers, kinglets, wheatears and solitaire. It was first published in 1949.

Wagtails, Shrikes, Vireos and Their Allies includes the following species: wagtails, pipits, waxwings, phainopepla, shrikes, starlings and vireos. It was first published in 1950.

Blackbirds, Orioles, Tanagers, and Allies was originally published in 1958 under the title, **Life Histories of North American Weaver Finches, Blackbirds, Orioles, and Tanagers**. Species covered in this volume are English Sparrow, European Tree Sparrow, meadowlarks, orioles, blackbirds, grackles, cowbirds and tanagers.

Ornithologists and bird students now have available at reasonable price all of the famous Bent Life Histories Series.—Nils P. Dahlstrand.



INJURED NIGHTHAWK PREFERS CIVILIZATION

Reprinted from the Antigo Daily Journal

An injured Nighthawk, brought back to health by Marjorie Cahak, daughter of Mr. and Mrs. Clarence Cahak of Antigo and a sophomore at Antigo high school, is the subject of a report to the **Antigo Daily**

Journal by Robert L. Dana, local naturalist and member of the Antigo Audubon club.



MARJORIE CAHAK AND SNOOKIE.

Mr. Dana tells how the bird, now a family pet called "Snookie," has voluntarily changed its eating habits in "captivity," preferring domestic foods to its natural food of insects. Plans are, this spring, to repeat attempts to release the bird, which seems to choose its present way of life rather than freedom.

"The rescue of a sick or injured bird may prove to be an interesting and rewarding experience," Mr. Dana states. He goes on to say:

"On August 4, 1962, I rescued this very sick and injured young female bird. Its upper and lower mandibles showed considerable damage at their tips. The cause of injury I do not know. I knew that something must be done and fast,

too, before Miss Nighthawk departed for happy birdland.

"Not being qualified as a doctor of sick or injured birds, help would have to come from—question—whom? I knew of but one person, a teenage girl, 13 years old, named Marjorie Cahak who had on several occasions succeeded in restoring sick or injured birds back to good health. So, I phoned her. All I said was, I'm bringing you a very sick bird.

"As I hurried over to the Cahak residence, I was far from sure whether the bird would be accepted, knowing that the Nighthawk's food consists, apparently, entirely of insects. However, Marjorie was delighted and thanked me for bringing the bird.

"With the wonderful cooperation of her parents, she lost no time in starting treatment. First she fed the bird a blood aid and pep tonic. It took a week to revive Snookie. It was two days before the bird opened its eyes. It was force fed for a week.

"The bird eats commercial bird food and lean ground round steak which must be steamed. It eats three or four times each day. It takes

the food from one's fingers but often helps itself to food which is kept in a dish. It is almost unbelievable how this bird has changed its eating habits.

"During the day, Snookie has the run of the house. At night she is put into a cage. As may be expected, Miss Nighthawk is loved by the Cahaks.

"The plan was to release the bird at the proper time during the spring, hoping it would return to the wild. Snookie had no interest in the outside world.

"The following spring the Nighthawk was given another chance for its freedom, but as before refused to leave. Another bird of the same species might react entirely different.—Who knows?"



A Specimen of the Glaucous Gull from Douglas County

By RICHARD F. BERNARD

The Glaucous Gull (*Larus hyperboreus*) is generally considered to be an accidental or casual visitor to the Great Lakes area (**A.O.U. Checklist**, 1957:217). In Wisconsin the species is listed as a rare winter visitant (**Birds of Wisconsin**, 1951:5).

Previous records of this species include three procured at Milwaukee on January 8, 12, and 14, 1895 (no collector listed), and one taken at Cedar Grove, Sheboygan county, on May 18, 1930, by C. S. Jung.

On February 14, 1965, a Glaucous Gull was collected by James Palmer at Wisconsin Point, Superior, Douglas county, Wisconsin. The bird was one of two observed among a group of Herring Gulls (*Larus argentatus*). To my knowledge, this represents the first specimen of the Glaucous Gull collected on the Wisconsin border of Lake Superior. The specimen is now in the Wisconsin State University-Superior bird collection, SSU-61.

There are several recent sight records of this species in northern Wisconsin: Douglas county, Superior, one observed March 28, 1964, by the author; three seen by the author on February 6, 1965, at Wisconsin Point; four observed on February 8, 1965, by Bernard Klugow at Wisconsin Point (probably the same birds); and one at the same location on April 23 and 27 was observed by Ted Staupe, Richard Wright and the author. Bayfield county, Bayfield, one seen March 19, 1965, by Bernard Klugow. Ashland county, Ashland, two observed on April 3, 1965, by Bernard Klugow and Mark Baillie.

A survey of reports from neighboring states shows that the Glaucous Gull has rarely been taken on Lake Superior although several sight records of this species have been reported from the Lake Superior borders of Michigan and Minnesota.

In Michigan, Zimmerman and Van Tyne (**A Distributional Check-list of the Birds of Michigan**, 1959:24) list the Glaucous Gull as a rare visitant. Two Michigan records exist (February 27, 1943, Monroe county; December 27, 1958, Cheboygan county). However, no specimens have been recorded from the Lake Superior area of Michigan.

The situation in Minnesota is somewhat similar in that Roberts (**Birds of Minnesota**, 1932:541) describes the Glaucous Gull as a rare winter visitant along the Lake Superior shore. Two specimens from Minnesota have been taken. One was collected near Grand Marais, Cook county on February 9, 1929, by W. J. Breckenridge, and the other was taken on April 9, 1927, in Spruce township, Roseau county, about 15 miles west of Lake of the Woods by P. O. Fryklund. Roberts also lists several sight records for the Glaucous Gull at Two Harbors and at Duluth.

The paucity of records for the Glaucous Gull in Wisconsin and the difficulty in discriminating between this species and the Iceland Gull (**Larus leucopterus**) has created some confusion as to the status of both species in Wisconsin. Hence, additional reports of either species are required in order to help establish the correct seasonal status for these birds.

In my opinion, more careful observations during the winter season may eventually show that the Glaucous Gull is of limited but regular occurrence along Lake Superior in winter.

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ORIOLE'S NEST DISMANTLED

Reprinted from the Antigo Daily Journal

With the help of Robert L. Dana, local naturalist and member of the National Audubon Society and the Wisconsin Society for Ornithology, two teenage girls, Margie Cahak and Carol Meagher completely dismantled a Baltimore Oriole's nest.

The nest of the Baltimore Oriole, a beautiful orange and black bird, is an unusually built nest and resembles a hanging basket. It is frequently found in an elm tree, about 20 feet from the ground. Dr. Winsor M. Tyler of the Smithsonian Institution in Washington says, "The Baltimore Oriole is probably the best artisan and architect of all North American birds."

Miss Cahak and Miss Meagher report:

"The dismantled nest was $5\frac{1}{4}$ inches long and had a $1\frac{1}{2}$ -inch opening. The bottom of the nest wall was about $\frac{3}{4}$ inch and it grew thinner as it neared the top. The reason for this is that when the young birds are first hatched they need the warmth and protection of the thicker bottom. As they grow they don't need as much warmth and therefore

the top is woven like a mesh. The thinner top also affords needed ventilation.

"The materials consist mainly of string, yarn, and amazingly enough, fishline. The fishline was used along with the string to anchor the nest. Of course, there was also an amount of plant and wood fibers.

"Before the nest was dismantled we guessed the amount of string, yarn and fishline in the nest, and came up with 10 feet, 10 feet, and 25 feet, respectively.



CAROL MEAGHER, MARJORIE CAHAK AND ROBERT DANA EXAMINE A NEST OF A BALTIMORE ORIOLE.

"After two hours of untangling the mess and measuring the pieces, we discovered that our guesses were off by about 56 feet. The total length of the material was 81 feet and 1 inch and didn't include the plant or the wood fibers.

"The longest piece of string was 4'-6". The longest fishline was 6 feet. Of course, the majority of the pieces were only a few inches and many were only a fraction of an inch.

"A surprise discovery was that inside this intricate nest was another well built nest. The inner nest had almost no man-made materials but consisted entirely of fine grasses, plant and wood fibers and also particles of wool.

"This amazing feat (of nest building) is accomplished by the female, using only her shuttle-action beak as a work tool, in from 4-7 days.

"At various times the male oriole may bring a few pieces of something, but his greatest contributions are his handsome plumage and his song for the drab little female bird as she builds the nest."



The First Three Years of Robbie's Life

By MRS. HENRY KOENIG

On June 2, 1961, a baby Robin about a month old came to live with us.

He had been taken home by a little girl when just out of the nest. After two weeks another child broke his leg and a few days later he was brought here. Fortunately, the break was not in the joint and my husband was able to set the leg. After a week Robbie, which was the name given him by the children, could step on the foot and his toes were no longer curled up and useless. Two weeks later the splint was removed and Robbie could walk, but the foot did not line up quite right.

We had expected to release the Robin but wanted to have him banded first. An ornithologist from Madison came out in September to band Robbie. He was given an aluminum band on the right leg and a red plastic one for quick identification on the left. He paid no attention to the bands. For various reasons we were advised not to release him at this time and by spring it had become evident that he was in no condition to fend for himself.

Robbie has now lived with us for 3½ years. I shall attempt to give an account of his life in captivity.

Food

It was no problem to feed the bird for he readily opened his bill wide to accept worms, cherries, strawberries and doughnut crumbs. He fluttered his wings like all young birds do until he was three months old. Robbie usually gave a little cry before each bite of food and this he has continued to do. He soon learned to hunt for worms in a dirt pan and eat them by himself. But toward the latter part of July, 1961, he no longer was fond of worms so his diet was supplemented with raw ground beef. For a time he ate only meat but by December he had tired of that. In desperation we again tried worms, the small Canadian variety purchased at bait stations, and for a time he relished them. When Robbie found tiny stones in the soil he had a dear little habit of putting them on the floor under the kitchen table.

Robbie's fondness for worms tapered off in June and by mid-July, 1962, he was again on a diet of raw ground beef and has continued on it to this date (fall 1964). We always kept worms on hand which he hunted but did not eat. After the first summer Robbie refused cherries and berries but liked grapes and coffee cake plus whole wheat bread crumbs. He was and still is most reluctant to try an unfamiliar food. He was accustomed to red grapes and when they were off the market it was some time before he accepted the green variety.

Robbie soon realized that his food was kept in the refrigerator so he perched on my arm or hand when I went there for his meat, which was hand fed in little balls the size of small peas.

In June, 1962, when Robbie had been with us one year, my husband installed a bug attracting light. We froze the bugs and fed them as needed. Robbie refused hard shelled ones but he liked moths. This



ROBBIE AND MRS. KOENIG.

food we put out for him whenever we had to be gone for hours and he could help himself. I was always kept busy feeding him and wiping up the droppings. One may wonder how it is possible to live with a Robin at large in the home, so I shall try to explain.

The New Decor

After the arrival of Robbie our rooms took on a different appearance. All blinds, door tops, and other perching places were covered with pieces of white cloth. Plastic covers were put on the backs of the kitchen chairs, on dressers, and the beds. We used a plastic table cloth, for Robbie usually came to eat a few crumbs at the table. At first my husband, Henry, objected, but he became used to having a Robin at the table. There was a weekly Robbie wash up and clean up, for our bird had the freedom of certain rooms.

A fiber glass screen was hung in the doorway from the kitchen into the living room and another from the bedroom into the living room. These screens restrained Robbie unless I failed to close them securely. If a tiny gap remained he found it and squeezed through. Robbie got into the forbidden rooms many times, and how he loved the soft carpet and furniture. When we tried to get him out he flew to the high blinds and seemed to laugh at us.

A Playful Companion

Robbie was my constant companion and followed me wherever he could. He sat on the division of the sink or on my shoulder while I washed dishes. When writing letters, he perched on my hand or on the pen. When sewing, he sat on my hand or pulled the thread and picked

up the thimble. Robbie was as playful as most young animals and I talked to him as one would to any pet.

Our bird liked to sit on the kitchen table or desk where he played with whatever was at hand and dropped it to the floor. It was a constant routine to pick up pens, pencils, letters, cards and even paper money. Robbie delighted in following the broom, and pecked the dust cloth and dish rag when I wiped the table. If I cleaned or opened a drawer he hopped into it. He was fascinated by the large desk with its many shelves and cubby holes. Robbie at times chased his shadow on the wall and also reflections made by shiny objects.

The first week in November, 1962, we took a short vacation so engaged a bird sitter. Upon returning Robbie sat on my hand for ten minutes while I talked to him. He perched there again while I set and then cleared the table. Often he alighted on my hand while I dressed or fixed my hair. He followed my feet as I walked about, and from the shoulder pulled my hair and pecked each ear.

Early one morning in November, I was shocked to see a rubber band in Robbie's bill. He had always been attracted to them so we had carefully kept them away from him. Less and less of the band showed. Fortunately, when I opened the birdroom door he flew into a large cage at the window where I caught him. Then I saw just a bit of the band and pulled it out. I thought it might kill him if he swallowed it. My aim had always been to keep the floors and all surfaces free of anything which might prove dangerous to Robbie.

One evening in June, 1963, we played cribbage on the patio. Of course, Robbie was there, too. Suddenly he grabbed a peg and flew off with it into the house where Henry recovered it.

Sleeping Habits

Robbie was never confined to a cage, but during the first summer he slept in a tree in a large open cage on the enclosed porch. Toward fall he wanted to sleep in the house. He didn't retire early and sometimes sang until 8:00 p. m.

In March, 1962, Robbie occasionally slept in the spare bedroom up high in a corner on a ledge where two doors met, so my husband made a three cornered shelf above the doors. Here Robbie slept every night thereafter, retiring much earlier than usual now that he had a definite place to go. In winter he had gone to bed as late as 8:30 but in April he retired at 4:10. The month of December, 1962, had many gloomy days and on one of them our bird went to bed at 2:30 which set a record.

Even in winter, when Robbie was in bed as long as 16 hours, he never soiled his shelf bed, which was amazing. Each morning upon arising he deposited a large dropping on the cloth of the bathroom blind which I removed as soon as possible to prevent him from stepping on it. But beginning in April, 1964, Robbie for the first time regularly soiled his bed, which was quite a surprise. When Henry daily took down the shelf for me to clean, Robbie attacked his hands and head. He seemed to defend the shelf like he might have a nest. Then suddenly in mid-July when he started to molt, his bed remained spotless as before.

Since Robbie's room is rather dark, I usually turned on the light so he could find his bed, especially when he stayed on the patio quite late. In summer, when Robbie was full of mischief, he liked to fly from his shelf again just about the time I was about to extinguish the light. One night he flew down three times!

Song, Molt and Tape Recordings

July 27, 1961, when Robbie had been with us almost three months, he made his first attempts to sing. For some time he sang very softly, but gradually his voice grew stronger. He often sat on my shoulder and practiced.

In August, he had pulled out most of his spotted breast feathers and only a collar of them remained. His throat became streaked with white and by the end of September he had a white eye ring and was beautifully smooth and well feathered all over. The following month his bill began to turn yellow.

In October, 1961, we made the first tape recording of Robbie's song. In early December he sang merrily as soon as he arose and sometimes sang until 8:00 p. m. It was not a true Robin's song, for he hadn't learned it from the adult birds.

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In January, 1962, we recorded more of Robbie's song. He whistled like a cardinal which he no doubt had learned from our friend, a University of Wisconsin professor of music, who, during the summer, had whistled like a cardinal to Robbie whenever he came to visit. This must have made a lasting impression on the bird. In February, Robbie was bubbling over with song and sang no matter what he was doing or where he was, often between bites of meat while I fed him. In May, he whistled so loudly that my ears hurt. Whenever we had guests, especially a group of ladies in the afternoon, Robbie sang at the top of his voice to make himself heard above their chatter.

During the summer of 1962 a screened patio was built adjoining the birdroom. At first Robbie didn't like it. Perhaps he didn't like the sun which came in through the fiber glass roof. Later, however, he took daily dips in the bird-bath and hunted bugs on the patio.

On the evening of July 19, 1963, three young screech owls were at the pool, and while the Robins in the neighborhood scolded, Robbie joined the chorus. A few nights later he was strangely quiet before retiring. He didn't give the loud "eek-eek" bedtime call while flying around. Instead, he soundlessly slipped away to bed. The next day he sang hardly a note and day by day grew more subdued. How I missed his cheerful song.

Molting time had again come to our Robbie and he lost the first large feather a few days later. As the days passed he scratched and pulled out feathers, molting heavily in August and on into September. But he began to sing again very softly. Even though he still molted in October, Robbie sang furiously. On the 17th he lost 172 feathers and by month's end I had saved and counted a total of 2,511 feathers.

In January, 1964, Robbie sang beautifully, including the slide down the scale, something he had done in the summer of 1962 but not in 1963. In spring and summer he sang as soon as he arose at about 5:00 a. m. and often continued for 12 hours with hardly a letup. At 5:00 one May morning we taped his song which had much variety. A bit of the Robin theme showed through at times, but it also reminded us of a Wood Thrush and a Cardinal, while the rest was his own composition.

When molting time came in 1964, I again saved and counted his feathers. When the period ended about September 29, I had a total of 2,709 feathers. He was first heard to sing again September 4, and sounded like a young bird making his first attempts. The result of his efforts was recorded on the 27th.

Imitations and Vocabulary

As mentioned before, in 1962 Robbie imitated the whistle of a Cardinal as given by our friend. He also whistled like a person, two notes, one high and the other lower, imitating me, I suppose. Robbie liked to sit on the plastic covers on top of the canary cages, and one day he began giving the call of the female canary. He had long ago imitated the warble I had whistled to the male canary. But in 1964 when I gave the call, Robbie sang it right with me, the same pitch and we did it in unison often. In early May, 1964, I noticed that Robbie began imitating the

squeaky water faucet in the kitchen. The sound he made was an exact duplicate and the two sounds were heard as one.

As said before, I had always talked to Robbie and we feel that he understands the meaning of such words as: meat, eat, bath, bed, coffee cake, worms, bugs and out. To these words I have given emphasis and he has shown a definite reaction. In September, 1962, when asked, "Robbie, do you want some MEAT?", he perched on my hand and we went to the refrigerator together. When I fed him I usually said the name of the food I was giving him. My notes contain many examples of the evidence of his word recognition too numerous and lengthy to quote here.

Color Consciousness and Fears

In September, 1961, Robbie showed indications of color consciousness, for he was afraid when I wore a black coat he had never before seen. In January, 1962, he feared my red dress and Henry's red plaid jacket which caused him to fly wildly away. When a woman came wearing a red blouse he noticed it immediately. He flew around the ceiling, spotting the walls and woodwork in his fright.

The little girl who had brought Robbie to us often came to see him, for her grandmother lived nearby while she lived seven miles away. In October, 1963, I saw the child's mother and invited her in. This was a mistake, for I had failed to notice the red plaid slacks she wore. Robbie flew wildly about and dashed out to the patio where he hit the screens several times before falling to the floor. The woman left at once and I picked up the bird without resistance. He seemed dazed and didn't want to leave my hand.

Robbie has always been afraid of the vacuum cleaner and leaves the room when I get it out. He is also frightened by the noise of opening the ironing board, but once it is open he perches on it.

When I keep my hands down or hold them quietly before me, I can come close to Robbie. Of course, he isn't at all afraid to be hand fed and prefers it to helping himself, but otherwise he associates the quick movement of my hands with being caught and is on guard. I believe no bird enjoys being caught or touched. We never catch Robbie unless there is good reason, such as to clip his claws and bill and occasionally to medicate his feet.

Instincts and Jealousies

During September, 1961, Robbie showed signs of the migration instinct. He circled the ceiling and sat on the blinds at night moving his wings as if in flight. During the three succeeding falls there was little if any evidence of a desire to migrate.

Robbie first displayed the mating instinct in September, 1961, by sitting on our hands and fluttering his wings. This he did occasionally in the years that followed but never during the molting season.

On July 8, 1962, some children brought a young Robin which I asked them to return to where they had found it. They insisted the mother had died, so to spare the bird from them we accepted it. Robbie was jealous of the newcomer. But he showed a bit of the feeding instinct

and loaded his bill with food, giving a little call. When the bird came he ran away and ate the food himself. Another day Robbie tried to put food into the hole of an empty spool of thread where the label had been removed. Again he ate the food. Four days later Robbie continued to fill his bill but did not feed the Robin. One day, Robbie caught it by the bill and I had to separate them. When I fed the newcomer, our bird snatched the worms and ate them. Robbie had become used to the Canadian variety of worms and would not eat the garden ones. Up to this point we had bought \$35.00 worth of worms since December, 1961. Later we banded and released the Robin. It is important to get young birds outside as soon as possible before they become too tame and also so they can learn to care for themselves.

Robbie often sat on the feeder roof on the patio. There he could keep an eye on the kitchen. If he saw me walk toward his bedroom and the porch where Eve Grosbeak and a Purple Finch lived, he came dashing in and arrived in the bedroom before I did. He sometimes thumped my head on the way, for he guarded the porch door and didn't want me to go out to the other birds. When I returned, he raced me to the kitchen.

Strange Behavior

Every spring Robbie has the habit of thumping our heads with his feet and also pecking us. He first began doing this in May, 1962. There were times when he pecked only my husband's head and at other times he acted strangely only toward me. Robbie's pecks on the head and the hammering of our hands often drew blood. Finally, in self defense I wore a small, green, felt hat which was easily knocked off by Robbie unless I pinned it on. No doubt he wanted to fight for territory and a mate, and we were the victims. This behavior stopped at molting time.

We put a fiber glass screen in the porch doorway so the door could be open in summer. One day in June, 1964, we rolled up the screen to bring in a large chair. When Robbie came pattering along on the floor, he stopped where the screen had been and fluttered in mid air near the doorway. We had expected him to walk or fly out, but the unseen barrier of habit must have stopped him. Even coaxing was ineffective.

Accidents

The agony of accidentally injuring a bird is beyond words. Robbie had two accidents, the first of which was in 1962 and the second in 1963. Both times his foot was pinched in a door. He lost much blood, went to bed and was an invalid several days. Even before this his feet had not been normal.

On November 17, 1964, he might have had a terrible accident if Henry had not heard his cry. While scratching his head, a claw became hooked in the skin around the eye and he was unable to move. Henry quickly helped to free his foot and Robbie was all right.

On the evening of July 18, 1964, while I rested on the patio, Robbie contentedly sat on my arm for about 20 minutes, and, of course, I didn't move until he left. He is trusting and unafraid and would be utterly unprepared for the outdoor world. This is the tragedy and penalty of

raising a baby bird and not releasing it as soon as possible during the first summer of its life.

Birds have ruled our lives for 14 years, particularly during the last six when I received a permit to care for injured birds. The last 3½ years have been devoted to Robbie who keeps us close to home most of the time. We have become acquainted with many species of birds as patients, but Robbie, who knew no life in the wild other than as a fledgling, has lived closest to us and therefore is most precious.

215 Jackson St.
Sauk City, Wisconsin 53583



FIELD NOTES

By NANCY and HAL ROBERTS

Summer Season

June 1-August 15, 1964

During the summer season of 1964, many areas of the state, particularly in the west and central regions, experienced severe drought. In Sam Robbins' area some of the farmers called it the worst drought since 1936; some called it the worst since 1934; some said it was worse than either of those. The lack of rainfall had its effect on waterfowl and marsh birds as noted by many observers. In some cases, waterfowl populations tended to be concentrated in the remaining ponds. Also, there were changes in locations of nesting sites as were noted in the case of Yellow-headed Blackbirds.

The season produced its share of rarities and records; for example, the White-tailed Kite found in Portage county by the Hamerstoms (1965 **Passenger Pigeon 3-8**) and the new nesting records for the state of the Ruby-crowned Kinglet and Evening Grosbeak. See "By the Wayside."

As a matter of interest, several observers noted lower than usual hawk populations. This was mentioned by Mrs. Russell Rill in Clintonville; and Louise Erickson has the following report of the Racine area: "It seems to me the hawks are unusually weak. We seldom see any Red-tails even, much less the several more or less permanently resident." Viratine Weber in Viroqua says, "We see many less hawks—an occasional Red-tail is about all." Harold Lindberg in Marinette county notes hawks down in population there. On the positive side, Donald Hendrick

in Lincoln county reports more Red-tails flying than he had seen in any previous year, few Broad-wings; but Marsh Hawks and Sparrow Hawks about the same as in previous years.

Following is a summary of the more unusual records for the season. We wish to express our gratitude to Prof. and Mrs. Arol Eppele for their kind help in doing much of the preliminary work for the preparation of this summary.

Common Loon: Present in northernmost counties. Louise Erickson reports many dead loons along the shoreline of Green Bay. Mrs. C. Eaton found 12 on the north side of Washington Island and 590 were reported along the shore about 12 miles south of Escabana, Michigan. Preliminary investigation by the Michigan Conservation Department indicates the presence of Type E botulinum organism. More research is currently being conducted.

Red-throated Loon: One reported in Douglas county on June 27 (Prof. Richard Bernard). A dead bird in Manitowoc county on June 25 (Bill Weber, John Saetveit).

Horned Grebe: One report from Brown county on August 14 (Ed Paulson).

White Pelican: One in Superior on June 3 (Bernard) and one in Burnett county on July 22 (N. R. Stone, Mr. and Mrs. Raymond Caldwell).

Double-crested Cormorant: Three reports; one from Door county August 8 (Erickson), from Portage county where a rookery was located (Robert Whitmire) and one from Wind Point, Racine county, August 7 (Mr. and Mrs. R. E. Ohm).

Little Blue Heron: An unusual June 14 visitor in Douglas county (Bernard Klugow). Also was seen in Vernon county (Viratine Weber) and an immature bird at Horicon Marsh on July 25 (N. R. Barger).

Cattle Egret: Returned to Horicon Marsh where six were seen in 1962, none in 1963. One was seen there daily after June 24 (John Kurtz, assistant refuge manager).

Common Egret: An early summer report in Vernon county June 6 (Margaret Morse), fall visitors in Brown county on August 12 (Paulson, Thomas Erdman, Gary Henkelman) and in Dodge county on August 1 (Bargers, Roy Lounds).

Black-crowned Night Heron: One July 2 on Plum Island, Door county, was unexpected there (Erickson).

Yellow-crowned Night Heron: Mary Donald reported finding an immature bird in Douglas county on July 8. Only two birds seen in Racine county this season on July 7 (Jay and Dorothy Joslyn).

Least Bittern: One heard at Superior on June 15 (Bernard, Sam Robbins) was unusually far north.

Blue Goose: Was seen in Outagamie county (Alfred Bradford).

Gadwall: A female and seven young in St. Croix county in late July (John Lokemoln). Two July records in Brown county; July 6 (Erdman, Henkleman) and July 9 (Paulson). In Racine county on June 22 (Robert Fichweg and Erickson).

Pintail: June and early July reports from Burnett (Stone), Door (Erickson), Outagamie (Daryl Tessen), Brown (Erdman, Henkleman) and Dane (William Hilsenhoff) counties. Present August 12 to 15 in Racine county (Weber).

Green-winged Teal: Latest report during the summer season was July 15 in Racine county (Weber).

American Widgeon: In Douglas county on June 6 (Bernard) and June 16 (Robbins), Racine county on June 12 (Weber).

Shoveler: Four early June reports; June 10 in Burnett county (Stone), June 2 in St. Croix county (Robbins), June 3 in Adams county (D. Weidemans) and Dane county (Hilsenhoff).

Wood Duck: Not as abundant in Outagamie and Winnebago counties as the last two years although other ducks (Mallards, Blacks and Blue-winged Teal) seemed to be about as in previous years (Tessen).

Redhead: Twenty-five adults and young at Crex Meadows, Burnett county (Fichweg). One male in Sheboygan county was the first seen there during the summer season by Harold Koopman. A female and six young in St. Croix county (Lokemoln).

Ring-necked Duck: Reported in Douglas county (Bernard), Vilas (Bradford), Burnett (Stone, Audubon campers) and in Columbia county (Hilsenhoff).

Lesser Scaup: Early reports from Douglas (Bernard), Adams (Weidemans), Columbia and Winnebago counties (Hilsenhoff). One seen on July 11 in Brown county (Erdman, Henkelman).

Common Goldeneye: Reported in Douglas county from June 16 to 27 (Bernard), 17 in Door county on May 31 (Erickson) and one in Wausau on June 16 (Mrs. David Bierbrauer).

Bufflehead: Were seen in Douglas county June 16 (Bernard, Robbins). Robbins states that this is an unusual summer record and that to his knowledge is the state's only modern record later than June 3.

Ruddy Duck: Noted in St. Croix county on July 8 (Robbins), in Brown county on June 8 (Paulson), Dane county (Hilsenhoff), and Rock county on July 21 (Mrs. Joseph Mahlum).

Hooded Merganser: Sam Robbins reports a brood of seven in St. Croix county on July 6.

Red-breasted Merganser: Reports from Door county (Erickson), Adams county (Weidemans), Sheboygan county (Weber, Saetveit) and Dane county (Hilsenhoff).

Turkey Vulture: Farthest north reports came from Douglas county on June 16 (Robbins), Vilas county June 15 (Bradford) and Door county on July 6 and after feeding on dead fish in Detroit Harbor (Saetveit).

White-tailed Kite: Studied by Fran Hamerstrom and other observers in Portage county during June. See article in **1965 Passenger Pigeon 3-8**.

Sharp-shinned Hawk: One noted in Juneau county on August 15 (Mrs. Ralph Allan).

Cooper's Hawk: Reported in Vilas county on July 27 (Bradford) and in Grant county on June 16 (Tom Soulen).

Krider's Hawk: Two were found at Crex Meadows, Burnett county, where a pair was present in 1962, none in 1963 (Stone).

Broad-winged Hawk: Present in northern counties and as far south as Lincoln county (Robbins, Donald Hendrick) and Langlade (Lynn Schimmels). Also present in the University Arboretum, Madison, during the season (Hilsenhoff).

Bald Eagle: Several reports, all from northern counties; Vilas (Bradford, Robbins, Mrs. John Brakefield), Washburn (Fiehweg), Burnett (Audubon campers) and Lincoln (Hendrick).

Peregrine Falcon: One noted in Vilas county (Bradford).

Sharp-tailed Grouse: One bird noted in Bayfield county on August 7 (Fiehweg) and one in Burnett county on July 9 (Stone) and August 12 (Fiehweg). One also seen in Langlade county in June (Schimmels).

Bob-white: One at Crex Meadows, Burnett county, July 11 (Caldwells).

Gray Partridge: Farthest north report in Outagamie county (Tessen).

Sandhill Crane: Reported at Crex Meadows on July 9 (Stone) and August 13 (Fiehweg). Two heard in Jefferson county (Soulen), found in Adams county July 14 (Robbins), in Dane county (Rev. Howard Orians), and two in Waukesha county until at least June 21 (Peartree).

King Rail: Hilsenhoff reports hearing one at Dunn's Marsh, Dane county, on June 27. Only report.

Common Gallinule: Northernmost report came from Outagamie county (Tessen).

Semipalmated Plover: Last spring migrant noted in Douglas county June 15 (Bernard, Robbins). Earliest fall migrant noted on July 11, Dane county (Hilsenhoff).

Piping Plover: Several in Douglas county from June 3 to June 15 (Bernard).

Golden Plover: Only two reports; a late spring migrant in Dane county on June 3 (Hilsenhoff) and one seen in Racine county on August 7 (Mr. and Mrs. R. E. Ohm).

Ruddy Turnstone: A spring migrant in Adams county on June 3 (Weidemans). Fall migrants noted in Brown county on August 12 (Erdman, Henkelman) and in Racine county on August 1 (Weber). Twelve were noted in Racine on August 15.

Whimbrel: One in Racine county on July 28 (Judge Allan Simpson) was the only summer report. "Quite a few" there in May.

Solitary Sandpiper: Earliest fall migrant noted in St. Croix county on July 3 (Robbins). Next noted on July 9 in Waukesha (Bielefeldt). Spring migrant lingered in Door county until June 7 (Erickson).

Willet: One in Douglas county on June 2-6 (Bernard). One in Marinette county on July 14 (H. L. Lindberg), one in Milwaukee on August 1 (Mary Donald), two in Racine on August 12 (Weber) and two on August 15 (Prins).

Greater Yellowlegs: Earliest fall migrant in Burnett county on July 9 (Stone).

Lesser Yellowlegs: Lingered in Douglas county until June 27 (Bernard). Earliest fall migrant on July 8 in Lincoln county (Hendrick) and in Marinette county same date (Lindberg).

Knot: One sighting, in Racine county on August 3 (Weber).

Pectoral Sandpiper: Latest spring migrant noted in Dane county on June 3 (Hilsenhoff); earliest fall migrant in Racine county on July 16 (Weber).

White-rumped Sandpiper: Three June reports; June 6 to 27 in Douglas county (Bernard), June 2 in Columbia county (Hilsenhoff), 28 birds in Racine on June 12 (Weber).

Baird's Sandpiper: Spring migrants on June 3 in Adams county (Weidemanns) and June 3 in Manitowoc county (John Kraupa). Fall migrants on August 13 in Outagamie county (Tessen) and July 29 in Manitowoc county (Kraupa).

Least Sandpiper: Last June sighting on June 12 in Racine (Weber). Earliest fall migrant on July 7 in St. Croix county (Robbins).

Dunlin: Spring migrants lingered in Douglas county until June 27 (Bernard). A fall migrant in Brown county on August 12 (Erdman, Henkelman).

Dowitcher: Reported from seven counties, all presumably fall migrants. Earliest was on July 15 in Marinette county (Lindberg).

Stilt Sandpiper: One in Dodge county July 26 (Donald), two in Dane county on July 11 (Hilsenhoff) and one in Racine county on July 18, three there on August 1 (Weber).

Semipalmated Sandpiper: A few summered in Douglas county (Robbins, Bernard) recorded in Manitowoc county on June 24 (Saetveit). First fall migrant in Dane county on July 11 (Hilsenhoff).

Western Sandpiper: One noted in Racine county on July 15 (Weber). One in Outagamie county on August 15 (Tessen).

Hudsonian Godwit: Two present in Dane county on June 3 (Hilsenhoff).

Sanderling: Last spring migrant in Douglas county on June 3 (Bernard); 13 early fall migrants in Racine on July 15 (Weber).

Wilson's Phalarope: Farthest north record in Douglas county on June 16 (Robbins, Bernard). Earliest fall migrant on August 2 in Racine (Prins).

Northern Phalarope: One report in Brown county on August 12 (Erdman, Henkelman). (**Summer Seasonal Editor's Note:** This report needs further verification since the bird is considered a rare transient visitant.)

Herring Gull: Louise Erickson reports fewer birds on Washington and Plum Islands, Door county. Also fewer nests and young birds. Last year 120 dead birds were found, 30 this year.

Ring-billed Gull: Tom Soulen reports three dozen birds summered in University Bay, Madison. By mid-August, had increased to over 80 as the birds congregated.

Franklin's Gull. Four in Dane county on June 17 (Soulen) and June 18 (Ashman). Three noted in Racine county (Ohms). See "By The Wayside."

Bonaparte's Gull: Reported in Douglas (Bernard), Ashland (Robbins), Brown (Paulson, Erdman, Henkelman) and Racine (Ohm, Weber) counties.

Laughing Gull: One adult in Racine county on June 5 (Erickson) and an immature there on July 13 (Weber). Louise Erickson describes the adult bird as having a black head, dark mantle, wing tips all dark to end, white rump.

Forster's Tern: Reports from several lakeshore counties. An August 1 report from Racine (Prins).

Caspian Tern: Reported only in Douglas (Bernard, Robbins), Door (Erickson), Outagamie (Tessen) and Brown counties (Paulson, Erdman, Henkelman).

Barn Owl: One in Racine on August 24 (Donald).

Screech Owl: A number of reports from Brown county south. Dr. B. L. von Jarchow reports finding a nest with two adults and two young in Racine county.

Short-eared Owl: One report, Oconto county on June 7 (Fred Alyea).

Ruby-throated Hummingbird: Six were seen during June in Langlade county (Schimmels).

Pileated Woodpecker: Numerous reports throughout the state with the exception of the southeastern counties.

Red-bellied Woodpecker: Northernmost reports came from Vilas county (Robbins) and Burnett county (Stone).

Yellow-bellied Sapsucker: Mid-June and later reports from Douglas (Robbins), Vilas (Brakefield, Robbins), St. Croix, Ashland and Bayfield (Robbins) counties. An August 6 report from Manitowoc county (Kraupa).

Black-backed Three-toed Woodpecker: The nesting site near Brule continues to be occupied. See 1964 Passenger Pigeon 176. Two adults and five young were noted on June 25 (Bernard, Klugow, Donald).

Western Kingbird: Sam Robbins again reports a nesting near Hudson, St. Croix county. Two pairs and four half-grown birds were seen there on July 3. They were last seen on July 13. One nest was in the same spot the birds chose in 1961 and 1963. The other was three miles distant.

Yellow-bellied Flycatcher: Robbins found it present in Douglas county on June 16 and in Ashland county on June 15. Soulen found three in Forest county on June 26 and 27. He noted that this is fewer than he found on a date 11 days earlier in 1962. He also reports this bird was seen in Manitowoc and Door counties on June 20 by Fred Alyea and Chuck Sontag. Paulson reports a bird in Brown county on June 5.

Acadian Flycatcher: At least three in eastern Jefferson county on June 4, at least one still present there a month later, one in Waukesha county June 4 (Soulen). One in Waukesha county on July 5 (Peartree). Seven in Wyalusing Park June 16 (Soulen).

Olive-sided Flycatcher: Several reports from northernmost counties. All are before mid-June with the exception of an August 8 report from Door county (Erickson).

Bank Swallow: Started flocking in Outagamie county on August 3 (Bradford).

Gray Jay: Present in Vilas county (Bradford), Forest county (Soulen), and Sawyer county (Robbins).

Raven: Farthest south report was of seven in Langlade county (Schimmels).

Boreal Chickadee: One in Oneida county on June 26, one in Forest county on June 27 (Soulen).

Tufted Titmouse: Present in Douglas county (Bernard, Klugow), St. Croix county (Robbins), Door county (Weber, Sætevit), and Portage county (Becker, Newman). Several other reports from south and west part of the state.

Red-breasted Nuthatch: Farthest south report from Langlade county (Schimmels).

Brown Creeper: Noted in Douglas county June 16, Bayfield county June 15 (Robbins), Brown county June 3 (Paulson). An unusually far south observation on June 16 in Wyalusing Park (Soulen, Paul Krombholz).

Winter Wren: Seen in Douglas county June 16 (Robbins) and July 9 (Donald), Sawyer and Ashland counties June 15 (Robbins), six in Forest county June 26 (Soulen), eight in Langlade county where a nest was located (Schimmels), one in Shawano county July 19 and nine in Door county (Erickson, Weber, Sætevit).

Bewick's Wren: Only report was July 8 in Vilas county (Robbins).

Mockingbird: One in Marathon county feeding a young bird on July 9 (Donald), one in Rock county June 10 to 15 (Mahlum), one in Iowa county (Mrs. Joseph W. Vilas).

Hermit Thrush: Present in Douglas (Robbins), Bernard, Vilas (Bradford), Forest (Rill, Soulen), Oneida (Soulen), and Langlade counties.

Swainson's Thrush: In Douglas county June 16 (Robbins) and June 20 (Bernard), Forest county on June 28 (Rill) and Door county on May 30 (Erickson). One in Dane county on August 14 (Jim Zimmerman).

Robin: Many more than past few years in Waukesha county (Peartree). Up about 200% over last year in Racine (Erickson).

Bluebird: None in Sheboygan county to August 17 (Koopman). More abundant in Vernon county (V. Weber). Holding their own in Marinette county (Lindberg). Increase in numbers in Lincoln county (Hendrick).

Blue-gray Gnatcatcher: Found in Adams county on June 3 (Weidemans) and June 7 (Peartree), two in Jefferson county June 4, three in Wyalusing June 16 and one at

Tower Hill State Park July 29 (Soulen). Seen in Waukesha county until July 5 (Peartree).

Golden-crowned Kinglet: Observed in Douglas county June 16 (Robbins).

Ruby-crowned Kinglet: A nest found in Oneida county June 26 (Soulen). See "By the Wayside."

Loggerhead Shrike: Noted in St. Croix county (Robbins), Outagamie county (Tessen), Brown county (Erdman, Henkelman), Waukesha county (Bielefeldt) and Rock county (Bernice Andrews, Amy Gardner, Frances Glenn, Mr. and Mrs. Ron Douglas).

Bell's Vireo: Noted in Dane county on June 7 (Ashman) and one singing near Lake Koshkonong, Rock county on July 4 (Ohm).

Solitary Vireo: Observed in Douglas, Ashland and Vilas counties (Robbins), Forest county (Soulen), Brown county (Erdman, Henkelman).

Prothonotary Warbler: Three at Wyalusing Park on June 16 (Soulen).

Blue-winged Warbler: One banded on June 7 in Chippewa county—first in ten years (Dr. Charles Kemper). Noted in Adams county June 3 (Weidemans), Vernon county (V. Weber), four in Jefferson county on June 4 and three in Wyalusing Park June 16 (Soulen). Noted in Dane county (Hilsenhoff), nested in Waukesha county (Peartree). Song heard in Burnett county on June 27, but the bird was not seen so the possibility of a hybrid is not eliminated (Douglas Campbell).

Tennessee Warbler: An early fall migrant in Jefferson county on August 8 (Bielefeldt). Only report.

Nashville Warbler: In Douglas county June 3 (Bernard) and June 15 (Robbins, Bernard), Door county (Erickson, Saetveit, Weber), Outagamie county (Tessen) and fifty in Oneida and Forest county June 26 and 27 (Soulen).

Parula Warbler: A number of observations in northernmost counties.

Magnolia Warbler: Also found in northern counties.

Cape May Warbler: One in Langlade county in June (Schimmels).

Black-throated Blue Warbler: One singing in Douglas county on June 16, one in Ashland county June 15 (Robbins). One singing in Forest county June 27 (Soulen) and a pair in Forest county on June 28 (Rill).

Myrtle Warbler: Seen by Robbins in Douglas county on June 16, Vilas county on June 21, Sawyer, Ashland and Bayfield counties on June 15. Thirteen found by Soulen in Forest and Oneida counties on June 26 and 27.

Black-throated Green Warbler: A number of reports from northernmost counties and as far south as Langlade county (Schimmels).

Cerulean Warbler: At least one pair in Outagamie county (Tessen) was northernmost observation. Also noted in Adams county (Peartree), six in Dane county and six in Wyalusing Park (Soulen). Nested in Waukesha county (Peartree, Bielefeldt).

Chestnut-sided Warbler: This bird was reported present by many observers in nearly all but the southwestern quarter of the state.

Bay-breasted Warbler: Two early fall migrants in Washburn county on August 7 (Fichweg).

Pine Warbler: In Douglas county (Robbins, Bernard), Vilas and Bayfield counties (Robbins) and Adams county (Peartree, Weidemans).

Palm Warbler: One or two singing males in Oneida county reported by Soulen. These were in the same area where he found a pair in 1962.

Northern Waterthrush: A number of reports from northern counties. More unusual are the observations of four in Langlade county in June (Schimmels), one in Waupaca county on July 25 (Florence Peterson), one in Vernon county July 2 (V. Weber) and one in Rock county (Mahlum).

Kentucky Warbler: One report of two birds in Wyalusing Park on June 16 (Soulen).

Connecticut Warbler: Two in Oneida and Forest counties on June 26 and 27 (Soulen), last seen in Waukesha county on June 2 (Peartree).

Mourning Warbler: Many northern reports. Also seen in Oconto county (Richter), Outagamie county (Tessen), four in Jefferson county on June 4 (Soulen), nested in Waukesha county (Peartree), and noted in Racine on June 14 (Weber, Saetveit).

Yellow-breasted Chat: One in St. Croix county on June 30 (Robbins), one in Jefferson county on June 4 (Soulen). In Waukesha county the bird was on its apparent nesting area for the second year; it was last seen on July 5 (Peartree).

Canada Warbler: Many northern reports. A late spring migrant in Waukesha county on June 2 (Peartree), an early fall migrant in Outagamie county August 14 (Tessen).

Yellow-headed Blackbird: Several reports of changes in usual nesting sites, possibly caused by drought. A colony of ten pairs in Portage county was first seen there this year (Becker, Newman). Lindberg reports a pre-nesting population of twenty pairs in Marinette county, but predators and windstorms played havoc with the nesting.

Orchard Oriole: Observed in St. Croix county until July 1 (Robbins). All other reports are southeast; Winnebago county (Tessen), Waukesha county (Mrs. P. Hoffman), a nesting pair in Waukesha county (Donald), Rock county (Brakefield, Mahlum) and three in Racine including a nesting pair (Erickson, Fiehweg).

Dickcissel: Reports on the invasion this summer are included elsewhere in this issue of the **Passenger Pigeon**.

Evening Grosbeak: One in Douglas county on June 7 (Bernard) and July 24 at Solon Springs (Klugow). Three nestings are described in "By the Wayside."

Pine Siskin: Robbins reports these birds present in Douglas county on June 16, Vilas on June 22, Ashland on June 15. Also seen in Douglas county on June 3 (Bernard), Vilas county on August 7 (Bradford) and Brown county August 14 (Paulson).

Red Crossbill: Found in Ashland county on June 15 (Robbins).

White-winged Crossbill: Present near Brule in Douglas county on June 16 (Robbins).

Le Conte's Sparrow: One in St. Croix county on June 15, two on July 8 (Robbins).

Henslow's Sparrow: Northernmost report was from St. Croix county where the birds were seen until July 10 (Robbins). Other reports from Polk, Portage, Adams, Sheboygan, Waukesha and Rock counties.

Lark Sparrow: Noted in Adams county (Peartree, Weidemans), 16 in Richland county on July 18 (Weber, Sætevit) and a pair on nesting site in western Dane county (Alyca, Krombholz, Sontag, Soulen).

Slate-colored Junco: In Douglas county June 16 (Robbins), Vilas county (Bradford), and Lincoln county (Hendrick).

Clay-colored Sparrow: Southernmost reports were in Portage county (Becker, Newman) and Adams county (Weidemans).

White-crowned Sparrow: Only two reports; in Door county on July 2 (Erickson, Sætevit, Weber) and Waukesha county on July 11 (Hoffman).

White-throated Sparrow: In Douglas county June 2 and 16 (Bernard, Robbins). A good five dozen in Oneida and Forest counties on June 26 and 27 (Soulen), also seen in Forest county June 28 (Rill). Eight in Langlade county in June (Schimmels) and six in Door county (Erickson, Sætevit, Weber).

Lincoln's Sparrow: Only report from Soulen who found one singing male each in Oneida and Forest counties on June 26. A pair of birds, somewhat agitated, in a different spot in Forest county. According to Soulen, "This particular area of the Nicolet National Forest has had birds on it for at least five years now. Perhaps one of these times we'll have the good fortune to locate the nest, but the birds are very elusive and deceptive and the walking is definitely not easy."

BALD EAGLE PUBLICATIONS

The Southwestern Wisconsin Audubon Club recently released two publications on the Bald Eagle. The first, **Wintering Bald Eagles at Cassville, Wis. 1964-65**, is a report of the study the club sponsored this past winter. The report sells for \$2.00.

The second publication, **A Field Guide to Locating Bald Eagles at Cassville, Wis.**, is designed for the bird watcher and photographer. It contains maps that show the locations of roosting and feeding areas and also locations where eagle migrations may be observed. This publication sells for \$1.00.

Both of these publications may be obtained from Terrence N. Ingram, 155 N. Water Street, Platteville, Wisconsin 54818.

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