

The Flicker

VOLUME 32

MARCH 1960

NUMBER 1



PUBLISHED QUARTERLY BY
THE MINNESOTA ORNITHOLOGISTS' UNION

PERMANENT ADDRESS
MUSEUM OF NATURAL HISTORY
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

TABLE OF CONTENTS

M.O.U. Growth or Stagnation — Editorial	1
A Bird Bath Count as an Indicator of Bird Populations by W. J. Breckenridge	2
Plover, Rail and Godwit Nesting on a Study Area in Mahnomen County by John P. Lindmeier	5
Seasonal Report By Mary Lupient	10
Owl Pellet Studies from Three Areas in Hennepin and Scott Counties by Ronald L. Huber	13
The Minnesota Bird Banders by Forest V. Strnad	14
Photo Story — "Sharptails" by John R. Tester	16
Mud Lake National Wildlife Refuge by Herbert H. Dill	18
Thief Lake Waterfowl Hunter Bag Checks by Robert E. Farnes	20
The Canadian Lakehead by A. E. Allin	24
Notes of Interest	29
Minnesota 1960 Purple Martin Colony Census	
(Inside Back Cover)	
Affiliated Clubs and Officers of the Minnesota Ornithologists' Union (Back Cover)	

THE FLICKER

Organ of the *Minnesota Ornithologists' Union*. Published quarterly in March, June, September, and December. *The Flicker* is sent to all members not in arrears for dues. Dues for members: Active, \$3.00, Sustaining, \$5.00; Life, \$50; Patron, \$100 or more. All articles and communications for publications should be sent to the editor. Subscriptions, memberships, and requests for back issues should be sent to the treasurer.

President — Douglas Campbell, 4917 Russell Avenue S., Minneapolis, Minnesota

Vice President — Rev. Forest V. Strnad, Kasson, Minnesota

Secretary — Loes P. Scott, 514 Fountain Street, Albert Lea, Minnesota

Treasurer — Mrs. Mary I. Lupient, 212 Bedford Street, SE, Minneapolis, Minnesota

Editor — Robert B. Janssen, 1817 W. 59th Street, Minneapolis, Minnesota

Associate Editors — Dwain W. Warner, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota, William H. Marshall, Division of Entomology and Economic Zoology, University of Minnesota, St. Paul, Minnesota, and Rev. Forest V. Strnad, Kasson, Minnesota

THE COVER

SHARP-TAILED GROUSE on booming ground, June 4, 1959, four miles north-east of Mahnomen, Mahnomen County, Minnesota. Photo by John R. Tester.

THE M.O.U. — GROWTH OR STAGNATION?

When your present editorial staff took over the job of editing *The Flicker*, it was apparent that there were many problems inherent to a publication such as this. On the other hand it was learned that there were many more serious problems confronting the Minnesota Ornithological Union as an organization. The latter problems need to be brought to the attention of all M.O.U. members.

In this day, when the study of birds, as a profession or as a hobby is gaining tremendously in popularity, the M.O.U. membership is remaining static and is even beginning to decline. Many pages could be written on the "whys" concerning this decrease. We offer only one probable answer: the failure of each individual member to get his friends and associates to join our organization.

The activities of neighboring state ornithological societies have been brought to our attention. The Wisconsin Society of Ornithology (publishing the Passenger Pigeon) has many active committees; they have purchased land and turned this into Greater Prairie Chicken habitat; they have, at present, several cooperative research projects being conducted concerning the distribution of certain species of Wisconsin birds, examples being the Evening Grosbeak Survey and a Robin Nesting Study. The Michigan Audubon Society (publisher of the Jack-Pine Warbler) has eighteen active committees, and is a very widespread organization gathering ornithological data on the birds of Michigan. On a more local level Fargo, North Dakota has a Christmas Bird Count Chairman. He organizes the count, keeps records, makes sure of accuracy of records where possible, etc. This latter point is one which many local Minnesota groups taking the count lack. More examples from activities in Iowa, South Dakota, Nebraska, and Saskatchewan could be cited but these are unnecessary.

We of your editorial staff feel, naturally so, that *The Flicker* is one of the best publications of its sort in this area and probably the nation. We feel that we are improving the magazine with the addition of an index, better and more informative articles, the gathering of more accurate data, and, we hope, the inclusion of more photographs.

The growth of *The Flicker* and also its very existence is dependent on the organization behind it, not upon the editors. We need an active and growing organization, not one that is decreasing in membership, discontinuing committees and activities, and does not actively supply information. Remember it costs approximately \$500 for each issue of *The Flicker*.

As suggestions we would like to see an active membership committee formed. Each individual should show interest and pride in the organization to which he belongs and should ask friends to become members. Each of us who is able should increase our membership from active to sustaining. The affiliated clubs should make it a point to report their memberships' observations regularly to our Seasonal Report Writer or to the Editor. Those records of special interest should be written up for the Notes of Interest section.

As positive suggestions the editorial staff would like to begin a special project concerning the reporting of the distribution of Purple Martin nesting colonies in the state. On the next page you will find the details of this project.

One other project which we would like to see started once again is the collection of nesting data. Certainly there are members who keep nesting records or would be interested in doing so.

Let us know your suggestions or criticisms on any of the above. Most important let us all begin to participate and make the Minnesota Ornithological Union a dynamic organization.

A Bird Bath Count as an Indicator of Bird Populations

by

W. J. Breckenridge

During the winter of 1957-58 the Metropolitan Mosquito Abatement Project was approved by Minneapolis and St. Paul and suburbs and with little delay it was activated in the spring of 1958. Much of the objection to the program came from those concerned about the destruction of song birds that the D.D.T. spraying and marsh treating might bring about. It was unfortunate that ornithologists did not have adequate warning of this undertaking enabling them to set up nesting bird surveys the previous year or two to supply the basic information as to what our nesting bird populations actually were previous to the abatement work. It was indeed shortsighted and ill advised on the part of those responsible for activating the project that, in spite of the director's appeal, no funds whatsoever were allocated for a check on the possible damage the poisoning might do.

Having no prespraying bird population data for the Twin City area, I felt that at least some small project should be undertaken which might indicate whether or not a drop in song bird numbers might be detected between the first and second years of the program. Accordingly I enlisted volunteer bird watchers to record the total numbers of birds by species that visited his or her bird bath over at least 10-15 one-hour periods during May and June. Seventeen watchers undertook the work in 1958 (total hours 254) and 15 continued to make similar counts in 1959 (total hours 247). These observers were located at widely scattered points throughout the area affected as indicated in the

list of cooperators at the end of this paper.

Reports on the first two years' observations are now in and have been studied and compared. In this study 41 species were reported in 1958 and 42 in 1959. However, 10 were reported in 1958 that did not appear in 1959 and 11 appeared in 1959 which were not observed in 1958. Thus, 31 species were reported in both years. The more common birds, of which 75 or more individuals were reported, were:

	1958	1959
House Sparrow	2194	2260
Robin	478	555
Blue Jay	472	571
Common Grackle	309	279
Catbird	151	128
Starling	101	167
House Wren	100	33
American Goldfinch	75	135
Mourning Dove	91	86
Brown Thrasher	82	65
Brown-Headed Cowbird ..	79	18

In this list, as in the remainder of the records, where a marked difference in numbers appeared between the two year's records, the totals were usually found to be strongly affected by one observer's report of many visits by the species in question. This probably was a single bird or pair which had acquired the habit of visiting repeatedly the same bath and doubtless did not indicate any significant population change. The one case where this may not have been true was that of the House Wren which dropped from 100 in 1958 to only a third of this number, 33, in 1959. In 1958, six observers reported House Wrens three of which listed 25, 20

and 18 visits while in 1959 of the seven observers reporting the three highest saw only 10, 10 and seven birds. This suggests a possible overall decline in this one species. The insect foods of this species come from very small territories near the nest sites in yards where private spraying was often added to the metropolitan abatement work. Under these conditions many nestling wrens might easily get

a lethal dose of insecticides. This in turn would result in a reduced breeding population the following year since there is a strong tendency for young to return to their place of origin to nest. We will watch with interest the House Wren populations in next year's observations.

A few of the more common song birds showed remarkably similar populations for the two seasons:

	<i>Birds per Hour</i>	<i>Change</i>
	1958	1959
Catbird .....	.466	.454 slight decrease
Brown Thrasher .....	.238	.238 identical
House Sparrow	8.352	9.768 slight increase
Baltimore Oriole .....	.230	.255 slight increase
Rose-Breasted Grosbeak .....	.088	.084 very slight decrease
Indigo Bunting .....	.031	.035 very slight increase
Chipping Sparrow .....	.084	.108 very slight increase

The total figures do not indicate that any significant change in the total bird populations has occurred. The 17 observers in 1958 reported 4608 birds, an average of 18.14 birds per hour, in 1959 the 15 observers reported 4,728, an average of 19.13 birds per hour. The difference of one bird per hour is not significant and if one wished to consider it so, it would indicate a slight increase in 1959. These figures do not however give a conclusive answer to the question "Is the mosquito abatement program damaging bird life?" This survey covered only those song birds frequenting yards and gardens and even here considerable destruction might have gone undetected by this type of study. It is a well-known fact that many unmated birds drift about the countryside during the nesting season and very soon will take the place of individuals that are killed. A pertinent study by R. E. Stewart and J. W. Aldrich (*AUK*, Vol. 68 1951 pp. 471-482) reported where during a nesting season an attempt was made to eliminate all nesting birds on a small area. In some species as many as four males were taken where only one

mated pair occurred originally. Thus in the present study many nesting birds might have been destroyed and replaced by drifting non-mated birds

SEEDS and FEEDS

for

Your Feathered Friends

Everything

To Make Them Happy — Even
Peanuts for the Squirrels.

A Variety of
MIXED GRAINS
SUNFLOWER SEEDS

or

We'll Mix Your Own Formula

ROBBINSDALE FARM & GARDEN SUPPLY

Robbinsdale 22, Minn.

Kellogg 7-4371 — We Deliver

without the observers being aware of this loss and replacement. This study did not extend seasonally into the period when young would begin appearing at the baths, so the production of young was not recorded. If, however, heavy destruction of young had occurred in 1958 an appreciable reduction in nesting pairs of numerous species in addition to the House Wren would have been anticipated and this does not appear to have happened. This study will continue through 1960 and after a third season's records become available, some of the other species may also show significant trends which are not evident in our current data.

In addition to my own observations carried on along the Mississippi River in Brooklyn Park, the following observers contributed records. My thanks go to them for this cooperation.

Helen B. Curry — Bloomington
Miss Ann Dougherty — White Bear Lake

Rudolph Franzen — Richfield
Mrs. Ed Harms — Bloomington
Mrs. Fred Hedberg — Richfield
Mrs. Lyle Hoff — St. Paul
Mrs. Arthur C. Johnson — Minneapolis
Mrs. Robert Leach — So. St. Paul
Mrs. Stowell D. Leach — Minneapolis
Edna Moore — St. Paul
Lillian E. Parsons — Bloomington
Mr. & Mrs. R. A. Peloquin — White Bear
Mrs. Elizabeth Savage — So. St. Paul
Mrs. Elizabeth Schraeder — Minneapolis
Mrs. A. C. Tomlinson — Richfield
Mrs. Helen Waldo — St. Paul Park
Dr. & Mrs. H. M. N. Wynne — Minneapolis

I would also like to acknowledge with thanks the assistance of Mr. John Tester and Mr. William Nelson for suggestions on interpreting these data and for mathematical calculations. — *Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.*

M. O. U. SPRING FIELD TRIP

May 21 - 22, 1960

Albert Lea, Minnesota

Registration, Saturday luncheon, dinner and evening program will be held in the Spanish Dining Room of Hotel Albert.

Saturday Luncheon & Dinner — \$4.00

If you wish a box lunch for Sunday noon, please add 50c to the above and so indicate when making reservations. Coffee will be furnished by the Albert Lea Audubon Society.

Reservations MUST be in by May 8, 1960. Please send your reservation, with check, to Loes P. Scott, 514 Fountain St., Albert Lea, Minnesota.

You will be responsible for your own overnight accommodations. Hotel Albert will be headquarters. However, the Bel-Aire, Cozy Rest and Itasca Court Motels are also convenient.

Helmer Myre State Park, approximately 6 mi. from the city has a camp ground for those desiring to camp out. There is a park attendant on the grounds at all times.

Saturday luncheon will be from 12:00 to 1:00 p.m. and Saturday night dinner will be at 7:00 p.m. SHARP.

Registration will begin at 8 a.m.

There will be scheduled field trips Saturday morning beginning at 6 a.m. All field trips will originate from Hotel Albert.

Plover, Rail and Godwit Nesting on a Study Area in Mahnomen County, Minnesota

by

John P. Lindmeier

While making a detailed waterfowl nesting study on a 1600 acre plot in northwestern Minnesota, nests of Upland Plovers, Sora, Virginia Rail, and Marbled Godwits were located. As the original nesting study was based upon the relationships of land use and production of waterfowl, detailed information on nests and the conditions affecting nests were recorded in detail for all nests found.

DESCRIPTION OF THE AREA

Location

The study area consists of 1,600 acres in Chief Township, Mahnomen County. The two and one-half square mile plot is located forty miles north of Detroit Lakes. The many potholes which dot the area are in the transition zone between the true prairie to the west and the wooded areas to the east.

Topography and Soils

The area lies in an outwash plain of a moraine belt where the numerous water areas were formed by the melting of ice blocks. The soil is of the Winger-McIntosh type and lies about 1,225 feet above sea level. (The Winger-McIntosh type is a dark colored, imperfectly drained calcareous glacial soil).

Climate

The area is typified by extremes of temperature (-48° to 110° F.) with an average of 40° F. Moisture (22 inches annually) is usually plentiful enough during the growing season to produce good small grain crops. Al-

though the moisture was below the long term mean each winter of 1957, 1958 and 1959, the late spring and summer rains maintained fair water levels in the potholes.

Upland Vegetation

The native upland vegetation of the region is of the tall and mid-grass prairie types. Little and big bluestem (*Andropogon scoparius* and *A. Gerard*), Indian grass, (*Sorghastrum nutans*), June grass (*Koeleria cristata*), satin grasses (*Muhlenbergia asperifolia*, *M. racemosa*, *M. Richardsonis*), and the panic grasses (*Panicum capillare*, *P. Leebergii*, and *P. virgatum*) are among the most important. At least part of the area has never been plowed. Such forb indicators of undisturbed natural prairie as goat chicory, (*Agoseris glauca*), leadplants, (*Amorpha canescens*, *A. nana*), milk vetches, (*Astragalus canadensis*, *A. caryocarpus*, *A. goniatus*), small white lady slipper, (*Cypripedium candidum*), wild licorice, (*Glycyrrhiza lepidota*), white and purple prairie clovers. (*Petalastimum candidum* and *P. purpureum*) and white camas (*Zigadenus elegans*) are common in most of the grassland areas. Tree growth is limited to a few clumps of aspen, (*Populus tremuloides*), willow, (*Salix spp.*) and a few oak (*Quercus spp.*) and cottonwood, (*Populus deltoides*).

Wetland Vegetation

The vegetation of the potholes seemed to conform to the natural con-

John P. Lindmeier is a Game Biologist with the Minnesota Division of Game and Fish. Work accomplished on Minnesota Pittman-Robertson Project W-11-R-20.

ditions as found on other relatively undisturbed areas where whitetop grass (*Scholochloa festucea*), hardstem bulrush (*Scirpus acutus*), and cattail (*Typha latifolia*) are common. The water chemistry seemed to be quite uniform for the area based upon the relatively similar species for water areas of like physical characteristics.

Bird Species

Waterfowl. The Mallard, Blue-winged Teal and Ring-necked Duck were very common breeders in the area. The Canvasback, Redhead, Pintail and American Coot were common breeders. The Shoveler, Lesser Scaup and Ruddy Duck and Wood Ducks were rare breeders.

Other water and shorebirds breeding on the area were Pied-billed Grebe, Virginia Rail and Sora, Upland Plover, Marbled Godwit, Killdeer and Wilson's Phalarope.

Upland Game Birds. Greater Prairie Chickens were very common and nests and young were often seen. A few Ring-necked Pheasants were found nesting. Sharp-tailed Grouse had a dancing ground and a few Gray Partridge were seen.

Birds of Prey. Great Horned Owls, Marsh Hawks and Burrowing Owls nested on the area. Common Crows and Short-eared Owls were commonly seen.

Small Birds. Bobolinks, Redwinged and Yellow-headed Blackbirds, Short and Long-billed Marsh Wrens, Western Meadowlarks and several species of sparrows nested on the area.

Mammals

Skunk, raccoon, badger and fox were plentiful as were their prey, jack rabbits, pocket gophers and Franklin's ground squirrels. Jumping, field and deer mice were present. Mink and muskrats were rare.

Land Use

Over 390 depressions with aquatic vegetation were present and made up about 28% of the total surface

area. An additional 32% of the total was of an unused prairie type. The remaining 40% was in crop (22%), hay, fallow lands and soil bank.

Purpose of Study

The original purpose of the study was to determine breeding populations of waterfowl and the relationship of land use to nesting. The study was started by Robert Farms in 1957. In 1958 and 1959 the study was carried on by the present writer. Although waterfowl investigations have been the main purpose of this study, interesting information was collected on the nesting habits of Upland Plover, Virginia Rail, Sora and Marbled Godwit. It is the purpose of this paper to report on the nesting of these birds.

Upland Plover

Pairs of Upland Plover arrived on the study area May 1 to 6 each year about three weeks after the ice went out of the water areas. The pairs each choose a breeding area almost immediately. Roughly two weeks after the arrival, nests were started. Nesting extended over a relatively short period of time, 10-14 days. Very few cases of renesting were observed and consequently all of the eggs hatched over a very short period of time.

A total of 43 Upland Plover nests were located over the three year period. Twenty-nine were followed to termination and of these 18 or 63% were successful. In 1957, and to a degree in 1958, only general information was recorded on the nesting data forms regarding vegetation types. The 3-5 egg clutches were all deposited in depressions made in grassy areas. In 1959 the species of vegetation and its density were recorded for each nest. Of the twenty-two nests located in 1959, twenty were in the shorter prairie grasses such as little bluestem, June grass and satin grass and the remaining two were in an alfalfa field. The height of the vegetation at the nests located within the first ten days after the first egg was laid averaged



Upland Plover Nest — June 6, 1958 — Mahnomen County

about ten inches. Most of the cover was made up of the previous year's litter. Although the range of vegetation heights ran from 7 to 21 inches, the cover was uniformly thin as was shown by light intensity readings ranging from 12 to 32 candles per square foot. As a reference point, 130 candles/square foot was the maximum reading obtainable on smooth bare ground. A series of Blue-winged Teal nests ranged from 6-16 candles/square foot with an average of 9 candles/square foot from measurements made during the first ten days of the nest. The light intensity average of twelve plover nests was 20 candles/square foot.

The incubation period of the Upland Plover is given variously as 17 days in Bent's *Life Histories of North American Shore Birds* and 21 days in Roberts' *The Birds of Minnesota*. Only four of my nests were found in early stages of laying and were followed closely enough to get accurate date of hatching. Three of the nests took 23

days to hatch at least half of their eggs. The fourth took 24 days. The measurements of eggs from ten clutches averaged 1.76 x 1.30 inches which were very comparable to Roberts' average measurements of 1.80 x 1.30 inches.

The number of pairs of Upland Plover using the Mahnomen study area for nesting was believed to be between 30 and 40 or 12-16 pairs per square mile in 1957 and 1959. In 1958, as a result of severe fires on May 12 and 16, the number of breeding pairs which attempted to nest was reduced to between twenty and thirty, probably due to about a 75% reduction in nesting cover.

Sora and Virginia Rail

The rails were not as vocal or as obvious on their arrival as the Upland Plover. They apparently arrived about the first week of May each of the three years and some had started building nests by May 10 in 1958. Nesting is spread out over a relative-

ly long period and large clutches and renesting are quite common. The eggs are incubated as they are laid and consequently both young and eggs are common in nests around the second and third weeks of June. Both the Virginia Rail and Sora nest over water in the same general habitat types of hardstem bulrush and cattail. Only fourteen nests were located usually while making waterfowl population counts on the larger potholes in 1958 and 1959. Only five nests were definitely identified as to species — three Sora and two Virginia Rails. Of the seven nests which were followed to hatching, six were successful. Estimates of breeding populations are very difficult to establish for such retiring species and none will be made. Clutch size and egg measurements obtained agree with the data given in Roberts' *The Birds of Minnesota*, namely Sora, 10-12 eggs and 1.24 x .90 inches; and Virginia Rail, 7-12 eggs and 1.26 x .96 inches.

The fires of May 12 and 16 caused

losses of nests and adults in 1958. At least three nests and two adults were destroyed in the May 16th fire. The nests contained 3 to 6 eggs and showed little sign of incubation. The two adults found dead after the fire were apparently killed by smoke. Their feathers were not burned. They were found in charred areas, apparently having flow back over the fire.

Only three nests were checked within the first ten days of nest construction, and the height of vegetation averaged 24 inches. The light intensity reading for these nests averaged 12 candles per square foot.

Marbled Godwit

A very small population of Marbled Godwits was found on the area. About one per square mile would probably be an accurate figure of breeding density. Only one nest was found each year of the three year study and only one nest hatched. The 1957 nest held 4 eggs; the 1958 and 1959 nests held 3 eggs each. Incubation of the eggs



Marbled Godwit Nest and Eggs — June 5, 1958 — Mahnomen County

was spread over a 23 or 24 day period. Marbled Godwits apparently nest in cover which is even sparser than that used by Upland Plover. The height of the vegetation in 1958 was 5 inches on a burned area and only 8 inches in 1959. The 1957 nest was located on an area pastured the previous year. The light intensity reading in 1959 in the sparse little bluestem where the godwit nest was located was 16 candles/square foot.

SUMMARY

1. Incidental to a waterfowl nesting study in Mahnomon County, Minnesota, life history information was collected on Upland Plover, Sora, Virginia Rail and Marbled Godwit in 1957 through 1959.
2. Upland Plovers arrived the first week of May, chose an area and were nesting in about two weeks. The 3-5 eggs (usually 4) were laid in relatively thin grassy areas and hatched in 23 to 24 days. Little renesting occurred. Between 12-16 pairs/square mile used the area.
3. The Sora and Virginia Rail arrived the first week of May and started nests within a week, building in cattail and bulrush type marshes. Nesting was spread over a relatively long period and large clutches and renesting was quite common.
4. The Marbled Godwits arrived in the area after the first week of May and nests were located in the last week of May. The three to four eggs were laid in very thin grassy depressions and hatched in 23 to 24 days.
5. From the data collected during the past three years it seems that the Upland Plover, Sora, Virginia Rail and Marbled Godwit require a relatively undisturbed area for successful nesting. All of the rail and godwit nests and the greater majority of the Upland Plover nests were found in the totally undisturbed areas. — *Department of Conservation, St. Paul, Minnesota. Current Address: Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.*

NATURE PHOTOGRAPHY EXHIBITION

The Hamilton Naturalists' Club is sponsoring an International Exhibition of Nature Photography in April 1960. One of the purposes of this venture is to bring to the attention of the public the need of saving our few remaining natural beauty areas. We hope to have photography from many parts of the world. It is hoped that readers of *The Flicker* interested in nature photography will enter their photographs. Entry forms may be obtained by writing to:

Mr. John Giles, Exhibition Chairman,
International Exhibition of Nature Photography
Hamilton Naturalists' Club,
Main Post Office, Box 384,
Hamilton, Ontario, Canada.

Seasonal Report

by

Mary Lupient

Winter set in early. The first snow storm occurred November 5 which dropped only 4.2 in. in the Twin Cities but was heavy in other parts of the state especially in the north and west. The temperature moderated about the middle of December and remained so through most of the month. A record breaking high of 46 above was reported December 27. The first part of January was severely cold and at this time snow covered the state. A damaging storm occurred along the north shore of Lake Superior from Duluth, St. Louis County, to Grand Marais, Cook county. In most parts of the state there was a paucity of birds and they were difficult to find, especially in January. Margaret Lachore sent a newspaper clipping which stated that there were practically no birds in the Wadena County area. Some Christmas Counts were not taken, due to heavy snow. All season most birds were found around feeders although many reports came in stating that large flocks of Common Redpolls roamed about the state. Flocks of American Goldfinches were observed also.

Several hundred ducks, mostly Mallards occupied small areas of open water on Lakes Calhoun and Harriet in Minneapolis, Hennepin County until the severe weather in January. Kathryn Greyson and Gladys Point checked on this flock with a scope November 22 and saw Hooded and Common Mergansers, Lesser Scaup, Buffleheads, American Widgeon and Black Ducks besides the Mallards. Walter Jiracek reported hundreds of ducks in Lake Pepin, December 2. There were about 400 Common Mergansers along the Mississippi River from Winona, Winona County to Hastings, Dakota County, December 24.

Robert Janssen reported two Greater Scaup in a flock of Lesser Scaup on Lake Vadnais, Ramsey County, November 8. He observed Oldsquaws on Lake Superior near the outlets of French and Knife Rivers, Lake County, January 23. Dr. W. J. Breckenridge reported that Common Goldeneyes were wintering on the Mississippi River north of Minneapolis again this year. Hunters brought two Common Eiders that had been shot on Lake of the Woods to the Museum of Natural History.

Canada Geese were still migrating during the first half of November but the migration was about over by the end of the month. Rev. Forest Strnad reported 2100 on Silver Lake, Rochester, Olmsted County, at Christmas time. Mrs. R. E. Whitesel, Minneapolis, reported three flocks of Canada Geese flying south over the city January 6.

Ten Mourning Doves spent the winter in Washington County reported by Dean Honetschlager. January 20 there were 13 and January 26 there were 8 at a feeder in South Minneapolis reported by Mrs. C. E. Sandvig.

Flocks of Ring-billed Gulls were still present on the Minnesota River south of Minneapolis, November 18. Robert Janssen reported 11 Glaucous Gulls near Duluth, January 23.

A few Rough-legged and Red-tailed Hawks were reported along the Minnesota River through most of the season. Mrs. W. C. Olin saw two Red-shouldered Hawks near Shakopee, Scott County, January 2. Dean Honetschlager reported an immature Red-shouldered Hawk in Washington County, November 19. Robert Janssen also reported Red-shouldered Hawks near Hastings, Dakota County.

There were several reports of Bald Eagles. Dr. W. J. Breckenridge saw one near his home north of Minneapolis Christmas week. Walter Jiracek saw nine near Lake Pepin, Goodhue County December 2. The following interesting report was received from Colleen Nelson: six Bald Eagles fishing, perching and flying near Newport, Dakota County; three at Hastings and one flying north of Winona, December 6. On December 24 there were four adults singly at points along the Mississippi River from Winona to Hastings.

There were only a few Snowy Owl reports as follows: one by W. R. Luwe near Mapleton, Blue Earth County, December 5; one by Mrs. John Feehan south of Plainview, Wabasha County, November 29; one by Rev. Forest Strnad near Kasson, Dodge County, November 28; two by Robert Janssen at Grand Marais, November 28, one west of Duluth, January 23, one Dr. W. J. Breckenridge, Northern Pump Plant, Anoka County, February 3, 1960.

A few Red-headed Woodpeckers wintered in the state, notably one at Glenwood, Pope County reported by Mrs. E. R. Selnes. Mrs. Lee Payne, Willmar, Kandiyohi County had one at her feeder December 8, also a Red-bellied Woodpecker December 10 and a Cardinal December 19. These species are only occasionally found in the western part of the state in winter. Very few Red-breasted Nuthatches were reported. Mrs. Ray Fuller, Hopkins, Hennepin County, said one that came to her feeder was so tame that it fed from her hand.

There were a few Brown Creepers and Golden-crowned Kinglets observed in the south half of the state.

Large flocks of Rusty and Red-winged Blackbirds roamed the cornfields along the Minnesota River in Scott County during the fall. However, Delmar Holdgrafer wrote that large flocks of these birds normally present were absent in Stevens County this fall probably due to the

drought there and to the west during the past summer. There were two Rusty Blackbirds at Mrs. Harlow Hanson's feeder in Bloomington, Hennepin County during January. Wintering Brown-Headed Cowbirds were observed in January near Etter, Dakota County by Robert Janssen.

Apparently there was a fair abundance of Cardinals. They were reported in numbers from several areas in the state, even in northerly sections. Mrs. P. A. Becker, Walker, Cass County, wrote that Cardinals appeared there in goodly numbers. As many as seven fed for a month at the Earl Thomas home, and other residents in the above vicinity reported from two to three Cardinals. Mrs. Becker reported also that Pine Grosbeaks were much more abundant this season and that Evening Grosbeaks were as numerous as ever. Both Pine and Evening Grosbeaks were apparently scarce in the Twin Cities and adjacent areas. However Robert Janssen stated



EXCELO
WILD BIRD FOOD

Excelo Quality Wild Bird Food is a balanced blend of peanut hearts, sunflower seeds, other seeds and grain. No screenings or fillers. Prepared especially for wild birds. Bird tested and proven. None finer. Order a supply today.

EXCELO WILD BIRD FOOD	
5 lbs.	\$1.50
10 lbs.	\$2.50
20 lbs.	\$4.50
EXCELO SUNFLOWER SEED	
5 lbs.	\$1.60
10 lbs.	\$2.60
20 lbs.	\$4.60

Prices Postpaid

Excelsior Farm Store
Box 354 — Dept. 5
Ph. Greenwood 4-7030, Excelsior, Minn.

that Pine Grosbeaks were abundant around Duluth. He also saw a flock of Evening Grosbeaks at Jacobson, Aitkin County, on January 23. Dean Honetschlager reported a small flock of Evening Grosbeaks in Washington County in early January.

Three hardy Robins appeared at Florence Messer's feeder in Minneapolis January 7 when the temperature was 18 below zero. Mrs. Donald Barr, Minneapolis had a Robin at her feeder January 22.

At the Minnesota Ornithologist's Union meeting in December it was reported that there was a flock of Chukars at Ely, St. Louis County. Bobwhite were seen by Robert Janssen in the Fisher Lake area, Scott County, on January 1.

During the season the following interesting records were received: six Common Ravens south of Carlos Avery Game Refuge, Anoka County, during October by members of the State Conservation Dept.; a Gryfalcon flew through a net being used in Oc-

tober by Ross Olson on the north shore of Lake Superior; in Bloomington a Boreal Chickadee frequented the Fred Harms feeder for several weeks during the season; the Avifaunal Club checked a Catbird, White-throated Sparrow and Red Crossbills during their Christmas Count in Hennepin County; Red Crossbills in Minneapolis, November 1, were reported by Brother Theodore, on October 31 he observed a Smith's Longspur in the company of a flock of Lapland Longspurs; Robert Janssen saw about 1500 Snow Buntings at various points on highways 65 and 210 from Minneapolis to Duluth, one flock was perched in a tree; a Mockingbird in Hennepin County near the Minnesota River was reported by Kathryn Robertson and Gladys Point; in Minneapolis a Winter Wren was reported by Fred Kedney November 7 and a Carolina Wren was seen in Hopkins, January 9 by Ray Glassel. A White-throated Sparrow at her feeder in Glenwood was reported in December by Mrs. E. R. Selnes. — 212 Bedford Street, Minneapolis, Minnesota.

NESTING INFORMATION FOR 1960

It is requested that all interested people make plans to keep Minnesota nesting records for the 1960 breeding season. Your editorial staff would again like to carry a yearly nesting summary in *The Flicker*. Information desired would indicate date nest found, exact location, number of eggs, number of young, etc. Send this information to the editor. This data will be published in the December issue.

CORRECTION

On page 135, Volume 31, No. 4, it is stated in the article *Prairie Falcons* in Mahnomen and Pennington Counties, that *Prairie Falcons* were found nesting at Mounds Springs State Park by Gunderson. This should be corrected to read that Gunderson thought the birds may have been nesting because of the month of observation which was June 1949.

Owl Pellett Studies from Three Areas in Hennepin and Scott Counties

by

Ronald L. Huber

Owl pellets from three areas were studied: Areas A and B are located on the J. W. Wilkie property, Eden Prairie Township, Hennepin County, Minnesota (SE $\frac{1}{4}$ Sec 36, T116N, R22W). These areas are situated along County Highway 37, ten miles south of Edina, a suburb of Minneapolis. Area C is located in Scott County, Minnesota (SW $\frac{1}{4}$ Sec 1, T115N, R22W) along Minnesota Highway 101, four miles west of Savage.

Area A is primarily deciduous hardwood (Oak) situated on the bluff overlooking the Minnesota River. The area is bordered on the west by a cornfield, on the north and east by a deep creek ravine covered with hardwoods, on the south by the same creek ravine and the Minnesota River. Spruce, Norway Pine and other ornamental evergreens are scattered on the west edge of the area. Mammals observed in this area were: White-tailed Deer, Red Fox, Raccoon, Cottontail Rabbits, Red, Gray and Fox Squirrels.

Area B, located one half mile west of Area A, is largely an ornamental evergreen planting surrounding a home. This area is also located on the bluff overlooking the Minnesota River. The area is bordered on the north by a cornfield, on the west by the grass-covered bluff, on the south by a steep grassy slope and the Minnesota River, and on the east by the grass-covered bluff and tangled brush. Cottontail Rabbits and Red Squirrels were the only mammals observed.

Area C is located two miles south of area B, within the Minnesota River

Valley. The area consists of a dense stand of Norway Pine bordered on the north by a brushy grassland, Fisher Lake and the Minnesota River, on the east by a small stream flowing through a swampy area into Fisher Lake, on the south by scattered evergreens, grassland and Highway 101, and on the west by a low lying brush area and a dirt road. The mammals observed in this area were Cottontail Rabbits and Common Meadow Mouse. Muskrat houses dot Fisher Lake, deer tracks were found throughout the area and a dead Mink was found.

The above three areas were previously referred to in *The Flicker*, Vol. 31, No. 2, p. 62, Long-eared Owls in Scott and Hennepin Counties.

Pellets in areas A and B were collected March 15, 1959 by Robert B. Janssen. Pellets in area C were collected March 8, 1959 by myself and March 9, 1959 by Robert W. Dickerman and Robert B. Janssen.

The overall skull-pellet ratio was approximately one skull per pellet, ranging from zero to four skulls per pellet. Identifications of the less common species were verified by Harvey Gunderson of Minnesota Museum of Natural History staff. The pellets were analyzed as follows:

Area A — Hennepin County Two Long-eared Owls

Species of Mammal	No. of Occurrences
Common Meadow Vole	100
Northern Deer Mouse	2
Harvest Mouse	3
Red-backed Mouse	1
Totals: Four species	106 skulls

Area B — Hennepin County

4 Long-Eared Owls, 1 Saw-Whet Owl
Long-Eared Owl Pellets

Species of Mammal	No. of Occurrences
Common Meadow Vole	31
Masked Shrew	2
Harvest Mouse	1
Totals: Three species	34 skulls

Also found in a Long-eared Owl pellet from this area were the skull and remains of a skeleton of an unidentified species of sparrow.

Saw-Whet Owl Pellets

Masked Shrew	1
Totals: One specie	1 skull

Only three pellets from the Saw-Whet Owl were found.

Summary of areas A and B: Five species of mammals were represented by 141 skulls. Evidence is afforded that the Harvest Mouse and Red-backed Mouse may occur in Hennepin County although previously unreported from there (see range maps, *Mammals of Minnesota*, H. L. Gunderson and J. R. Beer, Minnesota Museum of Natural History, University of Minnesota, Occasional Papers: Number 6, 1953).

Area Area C — Scott County

2 Screech Owls, 10 Long-Eared Owls
Screech Owl Pellets

Species of Mammal	No. of Occurrences
Common Meadow Vole	8
Harvest Mouse	5
Deer Mouse (Species-?)	2
Totals: Three species	15 skulls

Long-Eared Owl Pellets

Common Meadow Vole	1,049
Harvest Mouse	31
Deer Mouse (Species-?)	9
Northern Deer Mouse	7
Prairie Deer Mouse	1
Short-tailed Shrew	4
Masked Shrew	2
Prairie Vole	1
House Mouse	1
Totals: Eight species	1,105 skulls

Summary of area C: Eight species of mammals were represented by 1,120 skulls. Evidence is afforded that all eight of the above species may occur in Scott County, although previously unreported from there (Gunderson and Beer, loc. cit.). — 1231 N.E. 5th Street, Minneapolis, Minnesota.

The Minnesota Bird Banders

by

Forest V. Strnad

A year has passed since this section first appeared in *The Flicker*. In that time your writer has written literally dozens of letters to persons in Minnesota who at one time held a Federal bird banding permit. The list that was printed in the March 1959 issue of *The Flicker* has been corrected and added to and we now know something about these persons who hold a recent Federal bird banding permit. When we look at these banders scattered across the State of Minnesota we find that they are located in every part of the state although

there are some wide gaps between banders.

At a meeting of the banders which was held at the home of Mr. and Mrs. Orwin A. Rustad, St. Paul, in connection with the M.O.U. winter paper session we found a good deal of interest aroused as we shared experiences with each other about our bird banding activities.

Several suggestions came out of the meeting that we would like to share with the banders who were unable to be present.

First, we would like to encourage all inactive banders to become active

during 1960. The active banders who live near by the inactive ones expressed a willingness to help them become active by helping with suggestions on traps; how to use Japanese mist nets, or by encouraging them to activate the traps they now have.

Second, we suggest to the Patuxent Research Station, Laurel, Maryland, that if persons holding a Federal bird banding permit are not active for the next three years that the permit be withdrawn and the bands surrendered. That way, the banders felt, a large number of bands would not be tied up with persons who are no longer interested in banding birds.

Third, this past year some of the banders were able to get together for netting and banding demonstrations and the group suggested more of this type of activity. One such project was held on Rice Lake, Dodge County on May 1 and 2; a second at Fox Lake, near Sherburn, Martin County, on September 9, and a third at Whitewater Refuge Nursery, Winona County, in October. At the last two the banders netted birds for the purpose of helping Dr. Theodore Olson of the University of Minnesota, Department of Public Health, secure blood samples to test for encephalitis (sleeping sickness). After blood samples were taken the birds were banded and released. Dr. Olson has already written to Carl Johnson of Rochester requesting the banders to work with him sometime in late April or early May this year on a similar project, probably in southeast Minnesota. If you are interested feel free to write to Carl or myself for date and place. The fourth project was held in Duluth, September 19-21 during the hawk flight. We would like to make this last one an annual affair. We can always net birds even though it is cloudy and the hawks are not flying.

As those of us who have banded birds for several years know, some of the birds that we get in traps or nets may be unusual for our part of

the state. Dr. Walter J. Breckenridge of the University of Minnesota, Museum of Natural History would like to know about these birds before they are released. "Some of these birds may be more important as bird skins than as free banded birds", said Dr. Breckenridge. As most banders do not have scientific collecting permits it is technically illegal for them to kill a migratory bird for scientific purposes. However, most banders are within a short distance of an educational institution or a member of the Minnesota Department of Conservation. These people will cooperate in getting the specimen to the University of Minnesota.

At the M.O.U. winter paper session Robert Dickerman discussed the difficulties that face the bander and field birder in identifying certain plumages and age groups. Banders are especially aware of this difficulty and usually take special precaution to insure proper identification. When an experienced bander is puzzled by the identity of the bird caught it is probably one in which the museum is interested. Each bander must depend upon his training and judgment in determining which birds should be saved as specimens. Cooperation between banders and ornithologists will jointly add to the knowledge of our avifauna.

During 1959 six new persons received Federal bird banding permits. We have a goodly number of reports on 1959 banding coming in at this time, January 24, and a complete report of bird banding in 1958 in Minnesota will be ready for the June issue of *The Flicker*.

If there are other banders in Minnesota or surrounding states with a Minnesota permit I would appreciate knowing about them and putting them on our mailing list.

Plans are in the making for a banding demonstration in connection with the M.O.U. field trip to Albert Lea in May. We hope to see you then. — Kason, Minnesota.



Sharp-tailed Grouse are common in the brushlands of northwestern Minnesota and are found in lesser numbers in semi-open habitat throughout most of the northern part of the state.



In early spring each cock establishes a dancing ground. The boundaries are sharply defined and adjacent to each other across the bound

"SHARPTAIL



Not the inflated air sacs of this dancing cock. Hens are attracted to the dancing ground and then to an individual cock by the vigor of the dancing and calling.



Dancing grounds are usually on brushlands but may be on plowed or cultivated land.



establishes his own territory
limits of this territory are
t cocks frequently "eye"
lary.



Most of the dancing takes place in the early morning
in one or two places within the territory. The vegeta-
tion in the spot used by this cock has been worn
away by the rapid stamping of his feet.

S'' by John R. Tester



located on open prairies
cultivated land.



Sharptail habitat is characterized by patches of woods
and brush interspersed with grassy openings. The
birds feed in the openings and roost along the edges
of the woods and brush. Burning frequently improves
his habitat.

Mud Lake National Wildlife Refuge

by

Herbert H. Dill

Mud Lake National Wildlife Refuge comprises about 61,000 acres in Marshall County, in the northwest corner of Minnesota. It was established in 1937 as a link in the chain of refuges in the Mississippi Flyway extending from Canada to the Gulf of Mexico. The refuge is administered by the Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service, Department of the Interior.

In 1909 an attempt was made to drain Mud Lake and the surrounding area, which was a paradise for waterfowl and other wildlife. The drainage benefited some farmland, but the soil was mostly peat. Often the quick runoff through the ditches produced severe floods, so little additional land came into cultivation. Development work commenced on the refuge in 1937 and water was again impounded.

Mud Lake originally covered about 4,500 acres. It reached a depth of four feet, contained much aquatic vegetation, and was surrounded by extensive marshes. The bottom generally was peat and muck, but fires burned out some of the peat, exposing mineral soil and hardpan. Dikes now hold water at a slightly higher level than the original Mud Lake marsh and, together with 13 adjacent pools, provide 24,000 acres of shallow marsh.

A variety of plants are found in much of the marsh, including broadleaf and blue cattails, softstem bulrush, phragmites, big burreed, white-top, common spikerush, and hardstem bulrush. Several tons of cattail fluff are harvested by permittees on the marsh in the fall and winter. At a nearby plant this fluff is processed for insulating material, kapok substitutes, pillow stuffing, and casket linings. Pondweeds, coontail, watermil-

foil, star duckweed, and other water plants grow in the pools.

Drainage wrought changes in most plant communities, and willows and aspens became abundant. Numerous islands persisted, however, where there are groves of hardwoods composed of green ash, American elm, bur oak, and some white birch. Approximately 3,500 acres of conifers, mainly spruce and tamarack, exist in the north-central part. In this bog are the only small lakes that did not dry up following the initial drainage.

Before it was drained, Mud Lake produced many thousands of ducks each year, and many more stopped during the migration. Muskrats were abundant, but fish were scarce. After it was drained few nesting ducks remained, but muskrats and mink continued to use the ditches and ditch banks. Since reflooding, ducks again nest by the thousands, and muskrats have become generally abundant, with more than 8,000 trapped in one season. Mink, skunks, beaver, and moose are now common, and there are many white-tailed deer. Black bears are sometimes seen in the fall feeding on blueberries and wild plums. Deer and moose abundance is due principally to the great amount of browse available. Fish come into the pools each spring from the Thief River, but most of them freeze out during the winter.

In the early days of restoration ducks quickly started repopulating the marsh. Now as many as 40,000 have been seen on the refuge in the spring and there have been 600,000, more than half of them Mallards, in the fall. Canada Geese are fairly common, both spring and fall, and introductions from the Seney National Wildlife Refuge in Michigan have re-

sulted in some nesting. Approximately 100 goslings are now produced each year. Snow and Blue Geese are common in the fall, and shorebirds are abundant in summer on their southward migration. The principal nesting ducks are Mallards, Blue-winged Teal, Gadwalls, Shovelers, Ring-necked Ducks, Redheads, and Ruddy Ducks. Two hundred seventeen species of birds have been recorded on the refuge between 1937 and 1958.

Canada Geese are encouraged to nest by improvement of habitat, which has included construction of nesting islands to provide isolation and to curtail predation. To maintain high production of ducks, most of the pools are drawn down about once in six years on a rotation basis and left dry for a year. This is done to rejuvenate the marsh through aeration and subsequent chemical action, which encourages growths of cattails, bulrush, and other marsh plants. Such cover is essential for diving duck and American Coot nesting and for brood cover for all waterfowl. Sago and other pondweed growth are also stimulated

by the drawdown and aeration processes.

Natural food is augmented by cultivated grains on limited areas of arable soil. Refuge personnel farm up to 300 acres and local farmers sharecrop about 1,500 acres annually. Permits are issued for timber cutting, haying, grazing, bee keeping, and fur trapping when such uses will not interfere with the primary purpose of the refuge. Twenty-five per cent of the cash revenue received by the government through the sale of such surplus products reverts by law to Marshall County for school and road purposes in lieu of taxes.

The development and preservation of marshlands such as Mud Lake becomes more important in view of the increased drainage of private marshlands in the Dakotas and Minnesota. Every acre of wetland that can be saved from drainage, either by federal or state organizations, is valuable in the struggle to preserve our waterfowl for the use and enjoyment of future generations. — *Refuge Manager, Holt, Minnesota.*

Information Requested on Chestnut-Collared Longspur

Mr. Herbert Krause of Augustana College, Sioux Falls, South Dakota is collecting data on the Chestnut-Collared Longspur for publication in the Bent's Life History series. Very little is known about this bird throughout its range and this is especially true of Minnesota. He would like to have just about any type of information about this species, occurrence, migration dates, nesting etc., either previous or any new records that may be gathered this spring or summer.

Please send these records to the Editor and they will be forwarded to Mr. Krause. These records would also be very useful in bringing the status of the Chestnut-Collared Longspur in Minnesota up to date.

Thief Lake Waterfowl Hunter Bag Checks

by

Robert E. Farnes

Thief Lake is a State-Owned Game Refuge and Public Hunting Grounds located 38 miles northeast of Thief River Falls in northwestern Minnesota. The lake contains 7,100 acres and is about 5 miles long and 3 miles wide with a regular shoreline. It has an average depth of about 3 feet and a maximum depth under 5 feet. Approximately 3,000 acres of the lake is sanctuary; the remainder is open to public hunting and trapping. The Moose River enters the lake from the east and the outlet, the Thief River, is on the west. The entire proposed Refuge and Public Hunting Grounds contains about 33,000 acres. Acquisition is about two-thirds completed. It is anticipated that all but about one thousand acres of private land will be in Game and Fish ownership within a year.

In 1900 Dr. Thomas S. Roberts visited Thief Lake and found it to be an excellent diving duck nesting area "nowhere over 4 feet deep." In comparing it with Heron Lake in southern Minnesota he believed Thief Lake to be the better diving duck area. In 1908, former Conservation Commissioner E. V. Willard visited Thief Lake and found it to be a "mass of reeds, rushes and cattails swarming with wildlife." Mr. A. W. Martin of Port Arthur, Ontario, Canada, tells of hunting Thief Lake in October of 1913 or 1914. The principal ducks were Canvasbacks, Redheads and Pintails (letter).

In 1915 or 1916 the lake was drained by the construction of Judicial

Ditch 21 with the intent of developing it for agriculture. Few crops were taken off the area and the lake bed soon became overgrown with emergent vegetation. In years when rainfall was sufficient, many small open water areas were scattered over the lake bottom and local hunters tell of excellent duck hunting at times. Soon after drainage sportsmen began asking for the restoration of Thief Lake and spearheaded by the late Dr. Paul Hagen of Crookston, efforts to restore the lake were started in 1929. The dam was completed in July 1931 and dedicated in June 1932 by the I.W.L.A. at their 9th annual convention held in Crookston.

The years immediately preceding and following the construction of the dam were exceedingly dry and no water was impounded. Many people thought the lake never would be restored. In the spring of 1937, five years after completion, it started to rain and 28 inches fell from May to September. The lake filled to one foot over the crest of the dam and the surrounding area was flooded. Local farmers threatened to dynamite the dam as was done at Mud Lake to the south. In February 1938, eighteen inches was cut from the crest of the dam and stop-logs were used. In 1951, the stop logs were removed to obtain a more desirable aquatic habitat and they have not been used except for short emergency periods since that time.

The Refuge and Public Hunting Grounds was established primarily as

Robert E. Farnes is Area Game Manager at Thief River Falls for the Minnesota Division of Game and Fish. Work accomplished on Minnesota Pittman-Robertson Projects W-11-R and W-38-R

Table 1. Waterfowl Hunter Bag Checks — Thief Lake

	'49	'50	'51	'52	'53	'54	'55	'56	'57	'58	'59	Totals
No. hunters in party	117	161	206	390	416	781	553	1,011	1,087	980	714	6,416
Man-hours hunted	490	787	816	1,409	2,163	3,515	2,326	4,582	4,786	4,229	2,887	27,990
Ducks lost	31	66	44	203	238	209	226	554	550	565	321	3,007
Ducks	240	297	246	669	643	714	877	1,539	1,909	1,788	1,187	10,109
Geese	0	5	..	13	0	9	9	17	23	0	44	120
American Coot	0	0	..	4	9	24	7	22	27	34	10	137
Mallard	51	90	69	237	88	184	190	528	644	717	300	3,098
Pintail	8	3	7	36	7	12	30	65	15	51	38	272
Shoveler	6	0	2	4	5	3	15	15	5	20	9	84
American Widgeon	6	5	17	29	31	31	15	20	21	85	17	277
Gadwall	1	3	5	12	2	18	15	15	16	38	10	135
Black Duck	0	0	1	5	1	1	1	11	7	4	8	39
Blue-winged Teal	27	17	7	20	46	80	41	145	37	39	36	495
Green-winged Teal	3	5	2	31	18	24	20	21	11	59	32	226
Redhead	16	36	39	114	131	61	262	227	510	126	54	1,576
Canvasback	39	61	49	52	21	86	40	82	93	26	20	569
Lesser Scaup	73	29	15	56	67	64	86	143	308	218	428	1,487
Ring-necked Duck	3	16	22	36	21	50	59	89	112	247	103	758
Common Goldeneye	1	1	2	4	3	3	3	12	4	8	9	50
Bufflehead	1	8	1	4	2	15	11	22	5	31	30	130
Muddy Duck	1	0	2	1	10	5	12	7	13	13	4	68
Rergusner	1	3	1	1	1	0	1	4	1	2	0	15
White-winged Scoter	3	0	..	0	0	2	0	0	0	4	0	9
Ducks/Hunter	2.05	1.84	1.19	1.72	1.54	.92	1.59	1.52	1.76	1.82	1.66	1.58
Ducks/Hour	.49	.38	.30	.38	.30	.20	.39	.34	.40	.42	.41	.36

a waterfowl production and hunting area. This is still the primary objective. An important secondary management objective is the improvement and development of Sharp-tailed Grouse habitat. Lesser development and management measures will be directed to improvements for deer, Ruffed Grouse, moose and furbearers.

Since the major objectives of the area are to provide optimum habitat for wildlife and to provide recreation for the public, a measure of the use made of the area, both by wildlife and the public is necessary for good management. It gives the refuge manager a means of evaluating his work and unit needs and is also of interest to the public.

Waterfowl hunter bag checks were started on the area in 1949 and have been continued every year since. In each of these years we have obtained the following information: average number of ducks, geese and American Coots bagged per hunter per day, average number of hours required to bag a duck, number of ducks shot down but not retrieved and the species of ducks shot. (See Table 1). In most years sex and age data also have been collected.

In addition special checks have been run several years. In 1955, for example, a test was given hunters to determine how well they could identify ducks. Eighty-seven hunters were asked to identify 467 ducks and they identified 323 or 69 per cent correctly. Ring-necked Ducks gave the most trouble; most hunters called them "Bluebills". Redheads and Canvasbacks were also missed quite often. Mallards gave the least trouble.

Up until 1957, no attempt was made to obtain total hunting pressure and waterfowl kill on the area; only a sample of the hunters using the area was contacted.

Since 1957 the check has been set up so as to obtain information on the total use and harvest. The system used is as follows: car counts are made in the morning and evening each week end and at least two days during the week. It has been determined that each car averages 2.5 hunters. Thus total number of hunters can be calculated by using the average number of hunters present on week days for those days when no car counts are made. By contacting a sample of the hunters on the area to obtain information on numbers and

species of birds killed, the total kill can be calculated.

During the 11 years checks have been made on the area, game men have contacted 6,416 hunters who had bagged 10,109 ducks in 27,990 hours of hunting for a success ratio of 1.58 birds per hunter day and .36 birds per hour. The crippling loss has been 3,007 ducks which is 23 per cent of the recorded kill. The most successful year was 1949 when hunters averaged 2.05 ducks per day, and the poorest year was 1954 when the average bag was only .92 ducks per hunter. (Table 1). This year (1959) the total estimated hunting pressure and kill was 1,860 hunter days and 3,069 ducks for an average of 1.6 ducks per hunter day and .41 ducks per hour. The average hunter lost nearly half (.45) a duck per day or a total of 837 birds. This gives a calculated kill including crippling loss of 3,906 birds. Of the 1,860 hunters estimated to have used the area, 714 were actually checked by game personnel. Of the 284 hunting parties checked, 69 or 24 per cent had a daily limit of ducks.

Total hunting pressure and kill was down considerably from the past two years and probably was the lowest of the 11 year check. Several factors may be responsible for this. Hunting on the lake was not quite as good as

the past two years. There was exceptional goose hunting for about a two week period, and many hunters pursued geese in the fields rather than hunt ducks on the lake. The goose population peaked at about 2,000 birds; they rested on the lake and fed in the fields in the area. Most of them were the two smaller subspecies of the Canada Goose. A newly developed field in the sanctuary planted to winter wheat was used by 75 Canada Geese for about three weeks.

Forty-four geese shot by hunters were checked by game personnel in 1959, but this is only a small percentage of those shot since few of the field hunters come through the checking station.

The increase in the cost of the duck stamp plus the reduction in the bag limit are no doubt other factors that contributed to the smaller number of hunters on the area this year.

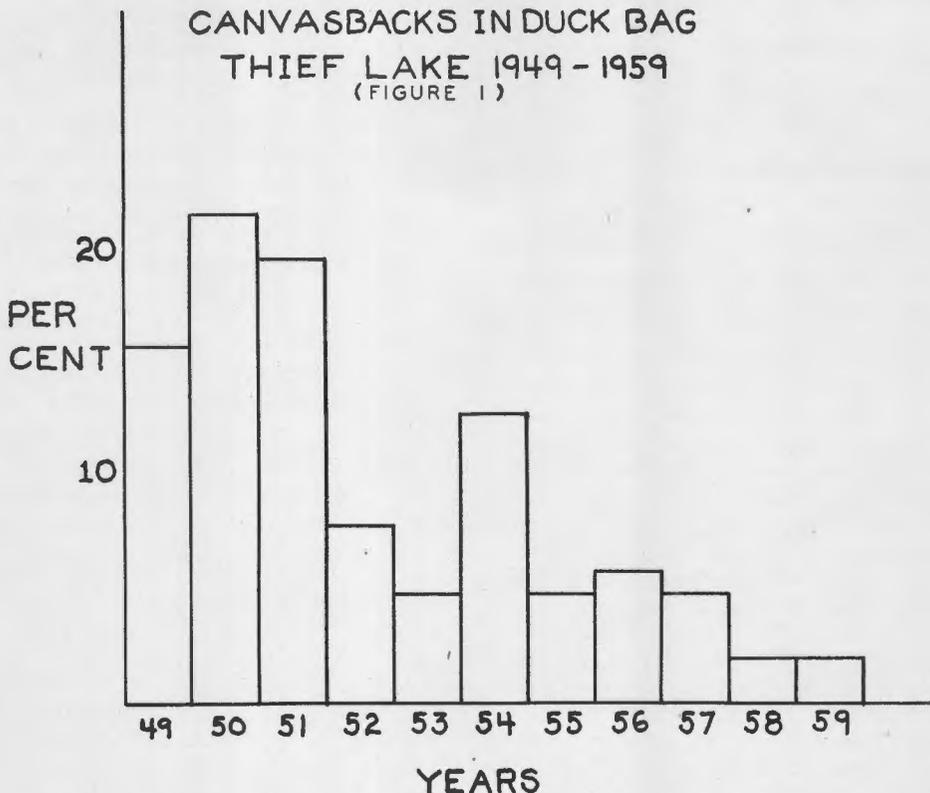
The most abundant duck in hunters' bags in 1959 was the Lesser Scaup which made up 39 per cent of the kill compared with a previous high of 31 per cent in 1949 and an 11 year average of 16 per cent. Scaup are normally the third most abundant bird in Thief Lake hunters' bags and only in one other year, 1949, were they first. The percentage of scaup shot generally increases as the season progresses

Table 2. Per Cent Composition of Duck Bag, Thief Lake, 1949-1959

Species	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	11 Yr. Average
Mallard	27	42	36	38	24	29	19	37	28	32	21	33
Pintail	3	3	1	5	4	2	2	6	3	1	3	3
Shoveler	1	1	..	1	1	..	1	..	1	0	3	1
American Widgeon	2	5	1	1	2	5	7	5	7	2	3	3
Gadwall	1	2	1	1	2	3	..	2	2	1	..	1
Black Duck	1	..	..	1	..	..	..	1	..	0	..	..
Blue-winged Teal	3	2	2	10	5	13	10	3	3	6	11	5
Green-winged Teal	3	3	1	2	2	4	4	5	2	2	1	2
Average Puddle Ducks	41	60	42	58	40	56	43	58	45	44	42	50
Redhead	5	7	28	16	33	10	29	18	16	13	7	17
Canvasback	2	2	5	6	5	13	5	8	20	22	16	6
Lesser Scaup	39	13	17	10	11	10	15	8	6	10	31	16
Ring-necked Duck	10	15	6	6	7	8	5	6	9	6	1	8
Common Goldeneye	1	..	..	1	..	..	..	..	1	..	..	1
Bufflehead	3	2	..	2	1	2	..	1	..	3	..	1
Ruddy Duck	..	1	1	1	1	1	2	..	1	0	..	1
Merganser	0	..	..	..	..	0	..	..	..	1	..	..
White-winged Scoter	0	..	0	0	0	..	0	0	0	0	0	..
Average Divers	60	40	57	42	58	44	56	41	53	55	55	50

.. Denotes less than .5 per cent.

CANVASBACKS IN DUCK BAG
THIEF LAKE 1949 - 1959
 (FIGURE 1)



and in 1959 amounted to 72 per cent the last week before freeze-up.

Mallards were second in abundance in hunters' bags and contributed 27 per cent of the kill which is below the 11 year average of 33 per cent. In 7 of the 11 years Mallards have been the number one bird killed. Ring-necked Ducks were third in abundance in the bag and contributed 10 per cent of the kill. They were fairly abundant the first five days of the hunting season, but fell off rapidly

Table 4. Calculated Hunting Pressure and Duck Kill* — Thief Lake

	1959	1958	1957
Number Hunters	1,860	2,604	3,028
Ducks Bagged	3,069	4,796	6,045
Ducks Per Hunter	1.6	1.8	2.0

* Does not include crippling loss.

after that. They have averaged 8 per cent of the kill the past 11 years.

The percentage of Redheads in hunters' bags has fallen off drastically the past two years. They made up only 5 per cent of the kill this year and 7 last year compared with the 11 year average of 17 per cent and highs of 29, 33 and 28 per cent in 1953, 1955 and 1957 respectively. In 1953 and 1955 Redheads were the number one bird in the bags. Of the 284 hunting parties checked in 1959 only 13 had the limit of Canvasbacks or Redheads so it appears that even if the limit had not been reduced to only one, the take would have still been very low

Table 3. Calculated Hunting Pressure And Duck Kill — Thief Lake

	1959	1958	1957
First Day			
Number Hunters	375	500	405
Ducks Bagged	638	1,205	761
First Two Days			
Number Hunters	575	788	743
Ducks Bagged	1,058	1,692	1,177
First Five Days			
Number Hunters	969	918	1,186
Ducks Bagged	1,733	1,905	1,871

as the opportunity to take many more just did not exist.

The kill of Canvasbacks has dropped even more than the Redhead. Canvasbacks were of major importance to the hunter on Thief Lake up until 1955. Many hunters have come from several hundred miles just to hunt "cans" but the past two years they have made up only 2 per cent of the kill compared with 16, 22 and 20 in 1949, 1950 and 1951 respectively. (Fig. 1.) The 714 hunters checked this year shot only 20 Canvasbacks.

Mallards, Redheads, Lesser Scaup, Ring-necked Ducks and Canvasbacks have accounted for 80 per cent of the kill since 1949. Twelve other species make up the remaining 20 per cent including: Pintail, Shoveler, American Widgeon, Gadwall, Black Duck, Blue-winged teal, Green-winged teal, Common Goldeneye, Bufflehead, Ruddy Duck, Hooded Merganser and White-winger Scoter. Hunters have shot almost equal numbers of puddle ducks and diving ducks. The per cent composition of the duck bag by species for the period 1949-59 is given in Table 2.

In order to compare the effect of a week day opening on ducks this year with the usual Saturday opening, the calculated kill and total number of hunters on the area for the first day, first two days and first 5 days of the season were compared for the last 3 years. (Table 3). In 1957 and 1958 the season opened on Saturday October 5 and Saturday October 4 respectively. In 1959 it opened on Wednesday October 7. Calculated hunting pressure and duck kill for the entire season the last 3 years is given in Table 4.

Car license numbers are recorded while making car counts to get an idea of the residence of hunters using the area. For this purpose the state was divided into eight areas. As would be expected, most hunters (38 per cent) come from the northwestern part of the state. The Twin Cities area, Ramsey, Hennepin and Washington Counties accounted for 34 per cent of the hunters and the northeastern part of the state 12 per cent. Hunters from 35 counties and 4 other states hunted on Thief Lake in 1959. — *Thief River Falls, Minnesota.*

The Canadian Lakehead

by

A. E. Allin

The mean temperature at Fort William in 1959 was 36.0° compared to a normal 36.8°. Following above average temperatures for July, August and September, that for October was 39.9° or 2.7° below normal. November proved to be a very severe month with a mean temperature of 18.3° which was 8.7° below the long term average. December, on the contrary, was mild with a mean of 21.1° compared to a normal of 13.7°. Precipitation was well below average for all three months. The snowfall totaled

26.8 inches at the end of December. The peculiar weather did not appear to have effected the late-fall and early-winter bird life. It is interesting to speculate on what the effect might have been if October and November had been the months above normal rather than December.

Geese and Ducks: The usual late flight of Mallards and Black Ducks failed to materialize. For some reason these two species were very scarce all fall. About 300 Lesser Scaup were

still present on Whitefish Lake on October 31 but moved out after the colder weather and snowflurries of November 1. On the same date we saw 20 White-winged Scoters. These usually rare ducks have been present since October 17. Ten Black Ducks were seen in Thunder Bay on November 15 and Common Goldeneyes remained until the harbor froze over. A few still remain on the open waters of the rivers. Mallards rarely if ever winter here but Mrs. Peruniak reported a drake at Atikokan in mid-January.

On December 29, we received a report of five "geese". In the next week there were several more reports of a small flock of geese at the Lakehead. Unfortunately they were not seen by naturalists or sportsmen who could identify them.

Hawks: A late Marsh Hawk was seen on November 1 but more surprising was a Red-tailed Hawk we saw near Pigeon River on November 29. It paid little heed to a Common Raven which was bothering it! A few Rough-legged Hawks were present at least until November 19. On December 26, the Allins saw a Pigeon Hawk. This is the third time the species has been seen on the annual census.

American Coot: These were very common all fall at Whitefish Lake. Twenty-five were still present on October 31.

Shorebirds: These were the surprise of the fall. On October 29, R. Robb observed a Ruddy Turnstone, a Killdeer and both American Golden and Black-bellied Plovers. We saw a Common Snipe and 17 White-rumped Sandpipers on November 1 but the snowflurries of that date apparently drove out the last of these birds locally. Mrs. Peruniak again reports a Common Snipe wintering at Atikokan.

Mourning Doves: — Mrs. Knowles reported that one was still present on November 26, a late date for the

species, which was seen on our 1954 Christmas Census.

Owls: This is an owl year. In addition to the Hawk-Owl seen by the Speirs at Kakabeka Falls on September 3, individuals were seen (and shot by grouse hunters) on October 12, 13 and 25. We saw another on November 22 and one on the Ontario bank of Pigeon River on January 17. Mrs. Hogarth saw one in Fort William on January 16 and T. Perrons observed two at Finmark on January 21. Snowy Owls common in Western Canada in the fall were uncommon here until mid-December but subsequently they have been very common. A Saw-whet Owl was seen at Atikokan in mid-November, two were taken by trappers at Schreiber, the last week of December and Mrs. Hogarth saw one at Chippewa Park on January 14. I believe these are the first local winter records for these diminutive owls.

Woodpeckers: Downy Woodpeckers are present in their usual numbers but the Hairy seems to be rather scarce. Mrs. Peruniak reports a Northern Three-toed Woodpecker present east of Atikokan. This is a rare woodpecker locally which we have seen but once in over 20 years of bird-watching.

Jays to Nuthatches: The Gray Jay is present in its usual numbers; no marked autumn movement was noted. Common Crows continue to be scarce winter residents. None was seen on the census although it had been previously absent only in 1942 and 1943. The Common Raven is again abundant. Twenty-five or more can be seen on a trip between the Lakehead Cities. A White-breasted Nuthatch has been present at Mrs. Knowles' feeder since November 26 and another frequents the Quackenbush's feeding station in Neebing Township. For the second time one was reported on the Christmas Census. On the other hand Red-breasted Nuthatches are very scarce. None was seen for the fifth

consecutive census although 23 were reported on the 1950 census. Boreal Chickadees are uncommon but at least 3 frequent the feeding station at Chippewa Park Headquarters.

Mockingbirds, Thrushes and Robins: A Mockingbird appeared at a Port Arthur feeding station on November 26 and remained until December 3. On December 6, probably the same bird was seen at a station about four miles away, and remained about a week. On December 25 and 27 and subsequently it reappeared at the original station. A belated Hermit Thrush was seen on November 8. In contrast to last winter, Robins have been very scarce. We saw our last Robin on November 22 but one is wintering at Vickers Heights.

Waxwings, Shrikes and Starlings: An injured Cedar Waxwing was given us on November 25. None has been seen since. Bohemian Waxwings have been quite common since Robert Robb reported the first of the season on October 23. Although Northern Shrikes have been common in Western Canada our only record is the one seen on the census. Starlings are very common.

Grosbeaks to Buntings: Evening Grosbeaks have been present all winter in small numbers. Pine Grosbeaks have been relatively common, although the crop of Rowan berries was exhausted early in the fall. On January 3, we observed a flock of 15 feeding on seeds of weeds showing through the snow. Some fed from the surface of the snow but a few clung to the slender weeds, a procedure we had not seen previously. Common Redpolls have been quite common and we identified 2 Hoary Redpolls on December 2. Three Pine Siskins were seen on November 21. Mrs. Knowles reported a Slate-colored Junco on November 26. Perhaps it was the same bird which appeared at her station on January 16, one of our few winter records. We saw 6 Snow

Buntings on January 3 and T. Perrons, a railroad engineer, reports a few are frequenting the C.P.R. line west of Fort William.

The Christmas Census was taken on December 26. It was still dark, and no birds were moving by 9:00 a.m. It drizzled all day, a rare occurrence at this time of year. Outside the cities the roads were too icy for driving. Nevertheless 16 observers in 11 parties covered 258 miles by auto and 5 on foot. The total of 23 species observed compared favorably with the average of 21 species reported on the previous 19 censuses and the 4,535 individuals has been exceeded on only 2 previous occasions.

The following is a list of the species seen with number of individuals: Common Goldeneye, 4; Pigeon Hawk, 1; Ruffed Grouse, 1; Herring Gull, 669; Ring-billed Gull, 2; Snowy Owl, 2; Hairy Woodpecker, 3; Downy Woodpecker, 16; Gray Jay, 3; Blue Jay, 27; Common Raven, 108; White-breasted Nuthatch, 1; Black-capped Chickadee, 78; Boreal Chickadee, 3; Robin, 1; Bohemian Waxwing, 30; Northern Shrike, 1; House Sparrow, 1,813; Evening Grosbeak, 19; Pine Grosbeak, 59; Common Redpoll, 103; Starling, 1,095; Rock Dove, 496.

No new species was added to the list of 53 which have been seen on the Christmas Census taken since 1938. Unfortunately the Mockingbird could not be found on the census day. As yet we have never seen the Oldsquaw, Northern three-toed Woodpecker or the American Goldfinch on a census although they have been seen during the census period. The Gray Jay and Pine Grosbeak are our only native birds reported on every Christmas Census. The Herring Gull and Black-capped Chickadee have been absent from one list and the Blue Jay and Common Redpoll from two.

The Thunder Bay Field Naturalists' Club had a very successful year. Regular indoor meetings were held throughout the winter months. The

Annual Spring Day held on May 23 at Sibley Provincial Park was very successful. 87 species of birds were observed including the first Long-billed Marsh Wrens for Thunder Bay District. Several members studied a Bald Eagle on its nest high in a White Pine. A photo of this bird on her nest by Harold Lockwood, Fort William, is a feature of the winter number of *The Naturalist*. A successful Fall Field Day was held at High Falls, Pigeon River, on October 18. The Christmas Census was held on December 26.

As usual, the joint meeting with the M.O.U. at Grand Marais on February 21 was enjoyed by all who attended. These international get-togethers of Minnesota and Thunder Bay Naturalists have done much to stimulate an interest in Natural History on both sides of Pigeon River. Several members of the M.O.U. visited the Lakehead during the summer. Several members of the Thunder Bay Field Naturalists' Club visited Frontenac in mid-May and attended the M.O.U. meeting on September 20 at Duluth to observe the Hawk migration. The Muries and the Allins also attended the winter meeting at Minneapolis on December 5.

In late August, the Robbs, Denis's and Allin's traveled from the Canadian Lakehead, across Minnesota, South Dakota and Wyoming to Yellowstone Park. There the Allins were well shaken up by the earthquake of August 17 which took the lives of nearly 30 visitors. From Yellowstone, the trip continued north across Montana, through Glacier and Waterton Parks to Banff and Lake Louise and back past Calgary to Regina to attend the annual meeting of the American Ornithologists' Union. There they renewed acquaintances with many American friends, and listened to numerous excellent papers. The highlight of the field-trip was the sight of some 5,000 Sandhill Cranes. Those interested in an abbreviated account of the 4,265 mile trip made by the Allins, and the 124 birds and 17 animals

observed, should refer to *The Kingfisher* (9:4: 3, 4, Dec. 1959).

We have always felt that naturalists must do more than spend time in the field and attend meetings. They must record their observations if succeeding generations are to be able to compare their findings with conditions of earlier days. The Club produced four numbers of *The Newsletter* in which they attempted to record the day by day observations of its members. Mr. Denis brought out a supplement in which he listed the information available on the mammals which have occurred in Thunder Bay District. Mr. Denis also had published the long anticipated *Canoe Trails of the Quetico* (The Quetico Foundation, University of Toronto Press, 1959). To commemorate the tercentenary of Radisson and Grosseilliers' visit to Lake Superior the winter number of *The Naturalist* is devoted to Lake Superior. In our contribution, "The North Shore's Changing Wildlife", we attempted to review, at least superficially, the various changes which have occurred in the wildlife of the region, between Duluth and Marathon since the area was first visited by Europeans. Observations, principally dealing with birds were contributed to *Audubon Field Notes*, and to *The Bulletin*, official organ of the Federation of Ontario Naturalists.

For the past two years, the Thunder Bay District Fish and Game Association has sponsored a conservation program, "News and Views on Conservation" every second Monday over Television Station CFCJ-T.V. The main portion of the program is usually devoted to an item vital to the conservation of our natural resources. Recently this has been preceded by a five-minute nature talk of particular interest to children. On several occasions the sponsors have turned over complete programs to the naturalists and on other occasions club members have conducted the nature corner.

Lakehead naturalists, and other conservationists mourned the passing on May 22, 1959, of Lieut-Colonel L. S. Dear. Many M.O.U. members met the elderly gentleman at Grand Marais or on one of the visits the M.O.U. has paid to the Lakehead. Born in England in 1883, Dear came to Fort William in 1905 and remained here until his death except for the period 1914-1918 when he served overseas in World War I and for a few years afterwards when he worked in Saskatchewan. During that long period, he spent every spare hour hunting, fishing, or studying the bird life of an area extending 40 miles east of Port Arthur to Saganaga Lake 80 miles to the southwest. During much of that time extreme northeastern Minnesota was a *terra incognita* insofar as its bird life was concerned. This is evident if one compares the first edition of Roberts' *Birds of Minnesota* with Dear's brochure *Breeding Birds of the Region of Thunder Bay, Ontario* which appeared in 1940. In it he listed 144 species which he believed nested locally. He probably was the first to discover the Clay-colored Sparrow nesting in Ontario when he found a local nest in 1911. On July 1, 1912 he discovered a Red-throated Loon's nest with two eggs off Thunder Cape. His nests of the Red-necked Grebe at Whitefish Lake, June 18, 1933 and of the Western Meadowlark in Paipoonge Township, May 30, 1934 were also firsts for the province.

In his earlier days he was associated with J. D. Jacobs, a game-warden, later to drown in Eva Lake. Also a keen naturalist, Jacob found southwest of the Lakehead a nest of the Northern Three-toed Woodpecker, May 27, 1904 and a nest of Wilson's

Warbler on June 18, 1906, as well as nests of the Gohawk, Hooded Merganser, and Sharp-tailed Grouse. In the "thirties," Dear was associated with Claire Watson, particularly in studies of the Gray Jay. Dear studied 11 nests of this species. For the last 20 years of his life I was privileged to be his constant field-companion. During that period we found the first Ontario nest with eggs of the Barred Owl and the first nest of Brewer's Blackbird for Ontario, as well as establishing local breeding records for Spruce Grouse, Upland Plover, Mourning Dove, Common Raven, Rough-winged Swallow, Catbird, Brown Thrasher, Palm Warbler and Indigo Bunting.

Dear was a leader in organizing the Thunder Bay Field Naturalists' Club and for many years was its Honorary President. He was a member and Director of the Federation of Ontario Naturalists and a co-founder of the Canadian Conservation Association. He was a member of the A.O.U. and the Wilson Ornithological Club. An avid hunter and fisherman, Dear was active in the formation of the Thunder Bay Fish and Game Protective Association. In 1957 he received the "Sportsman of the Year" award of the Westfort Kiwanis Club and the Reg. Windsor award as the member of the Thunder Bay Fish and Game Association who had contributed most to the cause of conservation in the district.

In addition to his brochure on the breeding birds, Dear was the author of 12 brief papers dealing with various aspects of local wildlife. His adequate library and outstanding egg collection were willed to his writer. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

Notes of Interest

RECORDS OF WHITE EGGS LAID BY EASTERN BLUEBIRDS IN MINNESOTA — The thrushes of the United States and Canada, in general, lay blue or bluish-green eggs. The shade of color varies from rather light in the Eastern Bluebird to deep in the Robin and *Hylocichla* thrushes. Varied, Swainson's and Gray-cheeked Thrushes have brownish spots over-laying the blue while the eggs of Robins, Veerys, and Hermit Thrushes occasionally or rarely have any spots. Apparently only Robins and Eastern Bluebirds have been recorded as laying pure white eggs. There are only a few records for such Robins although clutches of white eggs of Eastern Bluebirds are found yearly in certain areas.

Color phases in birds, such as the red and gray phases of the Screech Owl, Ruffed Grouse or Song Sparrow, are well known and occur in varying ratios in different parts of the species range or only one phase may be present in an area. In New York a red phase Screech Owl is a rarity. In Minnesota one-fifth to one-fourth of the population may be red. This might be the case with the normal colored and white eggs of Eastern Bluebirds. Mrs. Laskey studied Eastern Bluebirds utilizing nest boxes in a large city park in Nashville, Tennessee in 1942. She found that 9.1% of 774 eggs laid were white (Bent, A. C. 1959, *Life Histories of North American Thrushes, Kinglets and Allies* U. S. Nat. Mus. Bull. 196).

Two sets of white Eastern Bluebird eggs from Minnesota are in the collection in the University of Minnesota Museum of Natural History and a record of another set is on file. The oldest set was taken by Franklin Benner May 28, 1880 in Minneapolis, Hennepin County. It consisted of four eggs. Bernard Bailey took the second white set containing five eggs at Elk River, Sherburne County, June 4, 1916. A third instance of white Eastern Bluebird eggs was noted by Myron Chase who found a nest containing white eggs about seven miles northeast of Anoka, Anoka County, June 1958. The eggs hatched, but the nest was destroyed by a storm the first week of July. In another nest forty feet north of the first site a clutch of five white eggs was found. The last egg of this set was laid July 11. One egg was removed. The four remaining eggs hatched July 23. The young birds appeared normal in color.

The Museum's files contain records of 17 clutches of Eastern Bluebird eggs with five additional sets in the egg collection. These range in size from 2 to 7, an average of 4.08. This is somewhat lower than that reported by Bent. The two-egg set was partially incubated and so must be considered a full clutch. Seven is the largest number recorded laid in a single clutch by Eastern Bluebirds, and is very uncommon.

The question of what causes white eggs in a species normally laying blue eggs is fascinating. Mrs. Laskey (as cited above) found birds hatched from normal eggs that layed white eggs and vice versa. In fact, she found daughter and granddaughter of a white-egg laying female laying blue eggs, while a female hatched from a blue egg laid 19 white eggs one season and ten white eggs the second. Eastern Bluebirds have a high fidelity to a given area and may return and reuse the same nest box a second year. Offspring, in future years, may return to nest in the immediate vicinity of their home nest. This is an ideal situation for a long term study of white-egg laying in relation to Eastern Bluebird geneology. It would be of interest to all people who have Bluebird houses with hinged tops for easy access to check the eggs laid during the breeding season. Even though a project as extensive as Mrs. Laskey's

probably could not be carried out, records of a larger number of clutches of eggs would at least give us an indication of the frequency of white eggs in our region. Special notes might be taken of success of clutches of white eggs and a nesting record of birds found to have white eggs. — *Robert W. Dickerman, Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.*

* * *

WINTER BIRD COUNT OBSERVATIONS — On December 26, 1959, the Avifaunal Club held their annual Christmas count in their usual area of Minneapolis and its west suburbs. Somewhat unusual for the day was the fact that a greater part of the count was taken in the rain. Of the 33 species recorded on the count, several were of special interest. More details on two of these species, the Catbird and White-throated Sparrow, are given in this note of interest.

A Catbird was seen in Golden Valley, Hennepin County, just west of the Glenwood Parkway area commonly known as Artificial Falls. The bird was giving its cat-like call from the top of a hedge of bushes. Among the plantings in the hedge were buckthorn and bittersweet vine, both of which still had abundant fruit. The same area was again visited during a heavy snowfall on January 1, 1960. There, seemingly to wait out the snowfall, was the Catbird with a Robin perched three or four feet away. No extensive search through the ornithological literature was made, but conversation with other birders revealed several other records of wintering Catbirds. Ray Glassel recorded seeing a Catbird at the Bass Ponds, Hennepin County, on November 17 and December 15, 1957. Likewise, in the area just north of the Bass Ponds, George Fisher saw a Catbird on January 17, 1953. This latter bird could possibly be the same one recorded by the St. Paul Audubon Society on their 1952 winter bird count.

* * *

The White-throated Sparrow, an immature, was seen in the Eloise Butler Wildflower Garden at Theodore Wirth Park, Hennepin County. The bird was evidently coming to the feeding station. Harding Huber saw an immature White-throated Sparrow in the same area on November 22, 1959. Mrs. Edward Harms of Bloomington, Hennepin County, has had an immature White-throated Sparrow coming to her feeder since November 27, 1959. The bird was still at the feeder at the time of this writing (January 2, 1960). Previously, in the winter of 1955-56, Mrs. Harms had two immature White-throated Sparrows feeding at her station. Ray Glassel recorded a White-throated Sparrow at Lake Vadnais, Ramsey County, on December 6, 1953. Finally, the 1936 edition of T. S. Roberts' *Birds of Minnesota* gives eight additional winter records for the White-throated Sparrow.

This compiling of winter records for the Catbird and White-throated Sparrow is not complete, especially for the latter species. Further additions and notes from the readers of *The Flicker* should give a more complete record. — *J. S. Fitcher, 2723 Irving Avenue North, Minneapolis, Minnesota.*

* * *

CAROLINA WREN AT HOPKINS, HENNEPIN COUNTY — On the afternoon of January 3, 1960 Miss Ruth Holden of 12740 Excelsior Blvd. in Hopkins observed a Carolina Wren at her backyard feeder. She saw it again on January 9 when it came to her feeder at four different times in the afternoon. I saw it during its second visit to the feeder on that day. Miss Holden reports it has not been seen since then, up to the time of this writing, February 2, 1960. — *Raymond A. Glassel, 8219 Wentworth Avenue, Minneapolis, Minnesota.*

GREATER SCAUP AND WESTERN GREBE IN FILLMORE COUNTY — While birding in the Spring Valley, Fillmore County area on August 8, 1959 I had occasion to stop at a taxidermist shop in Spring Valley. He showed me several specimens brought to him by hunters. Of special interest were a Greater Scaup (female), and Western Grebe. The taxidermist told me that the two birds had been shot during September 1958, just south of Spring Valley. Both records would seem to be unusual locations for these species. The Greater Scaup is rare even on Lake Superior, where it is most likely to occur. The September date would also be early for the Greater Scaup to appear. The Western Grebe record would constitute an easterly occurrence for this species in Minnesota. — *Ronald L. Huber, 1231 N.E. 5th Street, Minneapolis, Minnesota.*

* * *

SMITH'S LONGSPUR AT BUSH LAKE, HENNEPIN COUNTY — October 31, 1959, proved to be a red-letter day in my "birding" life. While stopping to observe some small birds along the roadside, I heard a longspur approaching. As luck would have it, the bird landed on a telephone pole just above me. The bird was buffy underneath, not light-colored; it had prominent outer white tail feathers, like the Vesper Sparrow, more faint wingbars than the Lapland Longspur, and a lightly streaked breast. The bill was not sharply pointed as the Water Pipit but shorter and more conical. After studying the bird for several minutes it flew on again giving the characteristic longspur flight song. I concluded that the bird must have been a Smith's Longspur. — *Brother Theodore, F.S.C., Benilde High School, St. Louis Park, Minnesota.*

* * *

BELL'S VIREO EXTENDS RANGE — On August 17, 1959 Mr. and Mrs. J. Milton Dahm of Winona, drove me to the Richard Dorer pools in the White-water State Refuge near Weaver, Wabasha County. Among other interesting birds, we saw the Bell's Vireo. On August 21 when I revisited the pools, I heard and saw three singing males. Although I had covered the area several times before the pools were constructed, this is the first time I had seen this vireo. Since the pools are in Wabasha County, and all my previous records are in southern Winona County, the Bell's Vireo seems to be moving northward in Minnesota. — *Brother Theodore, F.S.C., Benilde High School, St. Louis Park, Minnesota.*

* * *

GYRFALCONS IN THE DULUTH AREA — While attempting to mist net Robins and Yellow-shafted Flickers near my home on October 25, 1959 I saw a large gray hawk suddenly drop to the earth at a rapid rate of speed. It was diving towards my nets, which at the time contained three Yellow-shafted Flickers. As it approached the net it suddenly swooped upward so that it cleared the net by about a foot. It was a Gyrfalcon in the gray phase. It had flown within twenty feet of my face. I saw two more Gyrfalcons in the white phase the same day. On October 31, a cold and blustery day, I saw two more Gyrfalcons. These were in the gray phase. Ross Olson, a well known observer of raptors, told me that he saw two Gyrfalcons this fall, both in the gray phase. Both Mr. Olson and I agree that more of the gray phase birds are probably present than is presently known. A gray phase bird could at a distance be misidentified as a Duck Hawk. I saw a white phase Gyrfalcon on the outskirts of Duluth in February, 1955. — *G. C. Kuyava, 1611 North Seventh Avenue East, Duluth 5, Minnesota.*

DULUTH WHITE-THROATED SPARROW RETRAPPED IN SASKATCHEWAN — An adult White-throated Sparrow, banded at Duluth, St. Louis County, on May 10, 1959, was retrapped by Maurice G. Street, on September 18, 1959, at Nipawin, Saskatchewan, Canada. Nipawin is approximately 700 miles west-northwest of Duluth. After corresponding with Mr. Street I learned that my White-throated Sparrow was not the first that he has recovered from east of the Mississippi. He has retrapped two others of which the first was banded May 13, 1946 at Collegeville, Indiana and retrapped at Nipawin on October 3, 1946; the second was banded October 6, 1949, at Minneapolis, Minnesota, and retrapped September 28, 1950, at Nipawin. Other species banded in the Midwest east of the Mississippi and recovered or retrapped by Mr. Street were two Evening Grosbeaks, a Red-tailed Hawk, Tennessee Warbler, and Harris' Sparrow. He states that "Nearly all our migrants fly southeast from here." Also he states that, "We have very few recoveries from west of the Mississippi." By the above data it can be safely concluded that many of the migrants which travel through the Midwest, east of the Mississippi, then turn westward when they reach a certain point, possibly located somewhere in Minnesota. To find the approximate location of this point more banding recoveries must be analyzed. — *G. C. Kuyava, 1611 North Seventh Avenue East, Duluth 5, Minnesota.*

* * *

BLACK-CAPPED CHICKADEEE MIGRATION, FALL 1959 — For as long as the Duluth Bird Club and the Minnesota Ornithologists' Union have been observing and recording fall hawk migration on the hills of Duluth, St. Louis County, some migration of the Black-capped Chickadee has occurred every year. This year, however, the fall migration of chickadees was almost unbelievable. Chickadees were found where they were never before recorded. Some were recorded in the center of large fields feeding among the short grasses which were at least one-quarter of a mile from the nearest chickadee "habitat." In two mist nets which I had set up, one behind the other about fifty feet apart, I caught over thirty chickadees in one day. In normal years, I might not catch an unbanded non-resident chickadee in a month of steady banding at this station. On November 14, 1959, I banded eighteen. To give some idea of the scope of the movement, on September 23, I counted well over 1,200 while working within a six block area near the University of Minnesota Campus at Duluth. There was a steady buildup of migrating chickadees up to this date and a rather uneven decline in numbers after September 23. — *G. C. Kuyava, 1611 North Seventh Avenue East, Duluth 5, Minnesota.*

* * *

BALD EAGLE NEST AT MUD LAKE NATIONAL WILDLIFE REFUGE — A pair of Bald Eagles arrived at the Mud Lake National Wildlife Refuge, Marshall County on March 28, 1959. A nest was built on the top of an Aspen tree located on a large island in the Webster Pool. One young was observed, which reached flight stage. This is the only nest known to be in this area and no other adults or immatures were seen during the breeding season. — *Herbert H. Dill, Refuge Manager, Mud Lake National Wildlife Refuge, Holt, Minnesota.*

Minnesota 1960 Purple Martin Colony Census

Throughout most of its breeding range the Purple Martin now utilizes as nest sites the numerous multiple apartment houses furnished by man. In Minnesota and elsewhere probably only a small part of the total population continues to nest in holes in trees and rocks. This obvious and attractive species with its close association with man thus lends itself so easily to relatively complete census that in this year of the national census we could readily include a Minnesota Purple Martin Colony Census.

Two conditions suggest the need for a census. The Purple Martin population in Minnesota is occasionally subject to sharp drops in numbers as a result of cold weather in May, such as occurred in 1950 when a high mortality was observed. Secondly, houses are continually increasing in number. Martin house builders want to know their chances of successfully attracting Purple Martins to new houses. Will new houses draw birds away from long-used houses? Let's find out by periodic statewide censuses starting this spring of 1960.

Please note the following on all Purple Martins observed during the nesting season:

1. Exact location of colony.
2. Number of adult males and females.
3. Dates of spring arrival and summer departure.
4. Number of eggs laid and young fledged (if possible).
5. Number of years colony has occupied site.
6. Exact location of unoccupied Martin house.
7. Number of years house has been present and occupied or unoccupied.

Please send whatever data you may obtain to: Dwain W. Warner, Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.

Affiliated Clubs and Officers of the Minnesota Ornithologists' Union

Albert Lea Audubon Society

President: Loes P. Scott
514 Fountain Street
Albert Lea, Minnesota

Vice President: Helen Johnsrud
307 W. Hawthorne Street
Albert Lea, Minnesota

Secretary: Paul N. Nelson
1505 Sunset
Albert Lea, Minnesota

Treasurer: Joseph A. Janson
322 Vine
Albert Lea, Minnesota

M.O.U. Representative: Loes P. Scott

Avifaunal Club

Coordinator: William R. Pieper
2702 Kentucky Avenue N.
Minneapolis, Minnesota

M.O.U. Representative: Robert B. Janssen

Duluth Bird Club

President: P. B. Hofslund
Biology Department
University of Minnesota, Duluth
Duluth, Minnesota

Vice President: Gary C. Kuyava
1611 N. 7th Avenue E.
Duluth, Minnesota

Secretary: Mrs. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

Treasurer: Mr. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

M.O.U. Representatives: Mrs. Harvey Putnam
J. K. Broncoel

Mankato Audubon Society

President: Helen Alder
304 N. 4th Street
Mankato, Minnesota

Vice President: Mrs. Grace Carter
422 W. 6th Street
Mankato, Minnesota

Secretary: Violet Panzram
302½ S. Front Street
Mankato, Minnesota

Treasurer: Mrs. Harvey Polchow
938 Charles Avenue
Mankato, Minnesota

M.O.U. Representative: William R. Luwe

Minneapolis Audubon Society

President: Mrs. R. E. Whitesel
5707 Bryant Avenue
Minneapolis, Minnesota

Vice President: Mrs. Myrtle M. Mahoney
5609 Pleasant Avenue
Minneapolis, Minnesota

Corresponding

Secretary: Mrs. W. H. Lonney
3116 Irving Avenue S.
Minneapolis, Minnesota

Treasurer: Mrs. W. H. Sowden
2853 Hayes Street N.E.
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Mary Lupient

Minneapolis Bird Club

President: Arthur Anderson
1975 James Avenue
St. Paul, Minnesota

Vice President: Mox Lindquist
3423 Pleasant Avenue
Minneapolis, Minnesota

Secretary: Clara Belle Thoresen
4112 28th Avenue S.
Minneapolis, Minnesota

Treasurer: Melvin Stenrud
2930 Yosemite Avenue
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Boyd M. Lien

Minnesota Bird Club

President: Robert B. Janssen
1817 W. 59th Street
Minneapolis, Minnesota

Vice President: Robert Nordgren
79 Seymour Avenue S.E.
Minneapolis, Minnesota

Secretary: Mrs. Jane Olyphant
4000 Hidden Bay Road
St. Paul, Minnesota

Treasurer: Beth Doeringsfeld
943 17th Avenue S.E.
Minneapolis, Minnesota

M.O.U. Represent.: Dr. Walter J. Breckenridge

St. Paul Audubon Society

President: Berghild M. Berntsen
312 Summit Avenue
St. Paul, Minnesota

Vice President: Ella M. Hodnett
108 Pierce Street,
St. Paul, Minnesota

Corresponding

Secretary: Harriet Sewall
1295 N. Cleveland Avenue
St. Paul, Minnesota

Treasurer: Ellen L. Manke
168 Summit Avenue
St. Paul, Minnesota

M.O.U. Representative: Joseph H. Reisinger

The Flicker

VOLUME 32

JUNE 1960

NUMBER 2



PUBLISHED QUARTERLY BY
THE MINNESOTA ORNITHOLOGISTS' UNION

PERMANENT ADDRESS
MUSEUM OF NATURAL HISTORY
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

TABLE OF CONTENTS

The President's Page	33
Unusual Waterfowl Records for Minnesota by Forrest B. Lee	34
La Salle Trail Bird Census by Robert W. Seabloom	38
Seasonal Report by Mary Lupient	41
Experimental Marking and Dyeing of Ring-necked Pheasants by John P. Lindmeier	43
The Use of Recorded Bird Songs as a Bird-Censusing Technique by Virginia and Louise Oech	46
The Minnesota Bird Banders by Forest V. Strnad	48
The Canadian Lakehead by A. E. Allin	56
Notes of Interest	
Book Review	68
Nesting Distribution of the Greater Prairie Chicken and Sharp-tailed Grouse (Map, Inside Back Cover)	

THE FLICKER

Organ of the *Minnesota Ornithologists' Union*. Published quarterly in March, June, September, and December. *The Flicker* is sent to all members not in arrears for dues. Dues for members: Active, \$3.00, Sustaining, \$5.00; Life, \$50; Patron, \$100 or more. All articles and communications for publications should be sent to the editor. Subscriptions, memberships, and requests for back issues should be sent to the treasurer.

President — Douglas Campbell, 4917 Russell Avenue S., Minneapolis, Minnesota

Vice President — Rev. Forest V. Strnad, Kasson, Minnesota

Secretary — Loes P. Scott, 514 Fountain Street, Albert Lea, Minnesota

Treasurer — Mrs. Mary I. Lupient, 212 Bedford Street, SE, Minneapolis, Minnesota

Editor — Robert B. Janssen, 1817 W. 59th Street, Minneapolis, Minnesota

Associate Editors — Dwain W. Warner, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota, William H. Marshall, Division of Entomology and Economic Zoology, University of Minnesota, St. Paul, Minnesota, and Rev. Forest V. Strnad, Kasson, Minnesota

THE COVER

Original drawing done from specimens by W. J. Breckenridge. COMMON EIDER, immature male, collected near Warroad, Roseau County on October 25, 1959. Specimen No. 15812. HARLEQIN DUCK, immature male, collected on Lake Superior, Lake County, April 16, 1932. Specimen No. 7829. OLD-SQUAW, adult female, collected at Grand Marais, Cook County, December 11, 1954. Specimen No. 11511.

THE PRESIDENT'S PAGE

You, the readers of this magazine are, I know, united in concern that our bird fauna not be diminished any more than necessary by habitat modifications in the name of "progress". I am sure we all agree that man must actively cultivate and encourage the full profusion of plant and animal neighbors for practical as well as aesthetic reasons. In order to do anything about this cultivation we have to come to grips with specific habitat changes now taking place and we must show actual data to indicate that such changes do affect the bird population. This all leads up to the necessity for studying nesting records.

The most stable and critical part of a bird's experience is his nesting and territorial activity and therefore, here is the best place to census them to find out how changes affect these habitats. If we are to have any substantial answers to questions such as: Are insect-eaters really declining? Where are the Purple Martins? — we'll do well to find our answers where the birds in question have nested for years.

So the action that is urged is that we develop a continuity of recorded information about bird nesting. Interpreting such data by relating it to ecological conditions is, of course, the next step. But Step One has to be that of noting whether birds nest now (and next year, and so forth), where they have nested year after year.

The study of Purple Martin nesting, initiated in the March, 1960 *Flicker*, is an ideal example from which other species studies may be made in the future. The Purple Martins are widely distributed, they "like people", and their needs seem quite understandable. Let us begin our study of bird nesting with them. As many of us as possible are invited and urged to make a project of answering this question: Are there Purple Martins nesting in my house or houses this year?

We also urge each one of you to keep nesting records on all species of birds. We would be especially interested in your noting any changes in breeding bird populations. These should be sent to the Editor for publication.

Dwain Warner, eminent professional, and Bob Janssen, enthusiastic amateur ornithologists are hoping for and expecting our union-wide participation in this project and hope to put together a sizeable and significant report.

A special suggestion to our individual birders: Form new clubs, and also join as many presently active clubs as you can. Social birding has tremendous advantages both to you and to each club you join. I will welcome correspondence with any person or group who would like to go in this direction. If you write to me, I will put you in touch with other individual members in your area and try to help you in every way possible.

Your continued cooperation and enthusiasm are needed to enlist more members in the M.O.U. Surely not too much effort need be used to "sell" such a fine organization and matchless magazine. "A word to the wise is sufficient."

Douglas Campbell

UNUSUAL WATERFOWL RECORDS FOR MINNESOTA

by

Forrest B. Lee

This article was prompted by a discussion with Robert Janssen concerning the Division of Game and Fish records of the more unusual waterfowl species for Minnesota that should be published in *The Flicker*. Mr. Janssen suggested that we go further and include any such records that had not been published. As a result considerable information was supplied by Mr. Janssen and others. Mr. Dickerman of the Minnesota Museum of Natural History supplied the data on the two Common Eiders shot at Lake of the Woods last October.

The records range from some of the very rare species for Minnesota such as the Common Eider, Harlequin Duck, Surf Scoter and Common Scoter to the less unusual White-winged Scoter and Oldsquaw. It is interesting to note that some of the White-winged Scoter observations were made during the breeding season even though there was no evidence of breeding. The Oldsquaw records are all of birds occurring away from Lake Superior where it is a common wintering duck.

Common Eider

November 7, 1955 — One bird of this species was observed in the inner harbor at Grand Marais, Cook County, by William Pieper.

October 25, 1959 — Two Common Eiders were shot on this date along the south shore of Lake of the

Woods, near Warroad, Roseau county. The specimens were sent to the Museum of Natural History. Following are excerpts from Dr. John M. Larson's letter to Dr. Breckenridge.

"The two specimens were first observed flying together, both very low over the water out in front of our blind. The one bird was shot dead and the other crippled. This occurred in the early morning on October 25 on the south shore of Lake of the Woods about 2 miles distant from the village of Warroad. The next day Mr. Olson brought me the skin. He had tried to pluck it but had given up and skinned it. Not knowing what it was he tried to eat it. Needless to say it was very unpalatable. This second specimen was shot on the afternoon of the 25th about 5 miles from the first and was already crippled according to Mr. Olson. We are all of the opinion that this bird was the same one we had crippled earlier in the morning."

The race of Common Eider of these two specimens has not been determined as yet.

November 6, 1959 — One Common Eider was shot on this date at Squaw Lake, Itasca County. It was taken from a flock of seven ducks which appeared similar in flight. The partially plucked specimen was obtained by Game Warden Robert Grieg who turned it over to Regional Game Manager Milton Stenlund.

The work of compiling these waterfowl records was accomplished on Minnesota Pittman-Robertson Project W-11-R-20.

The exact race of Common Eider of this specimen has not been determined as yet. A photograph of the head was sent to Dr. John W. Aldrich of the U. S. Fish and Wildlife Service, and he thought it would appear to be of the race *v. nigra*. The specimen has been given to the Minnesota Museum of Natural History and it will be studied further for determination of race along with the two previously described specimens.

Harlequin Duck

June 5, 1956 — On this date a Harlequin Duck in what appeared to be female plumage was observed on the St. Louis River eight miles southwest of Eveleth, St. Louis County. The observation was made by Biologists Milton Stenlund and Forrest Lee while on a waterfowl survey of this stream. These observers returned on June 7 to study the bird some more to be completely certain of its identification. It exhibited the peculiar behavior described in the literature of seeming to fly out of the water after diving. It is interesting to note that this bird was observed on a swift stretch of stream with many rapids and boulders, much like the breeding habitat described for this species.

February 23, 1957 — A Harlequin Duck was observed by Dr. Breckenridge at the Cascade River in Cook County. This observation has been previously reported in *The Flicker*.

March 1960 — Raymond Naddy of Duluth claims to have observed a pair of these ducks in Tofte Bay, Cook County on February 22, 1960. This should probably be regarded as an unverified report but it does seem worthy of mention.

Surf Scoter

November 7, 1953 — One duck of this species was observed at Grand Marais by William Pieper.

May 11, 1954 — Fifteen Surf Scoters were seen in open water of Mille Lacs Lake near Garrison, Crow Wing County by Biologist Dale Lundgren.

October 8, 1954 — Four of these birds were examined in a hunter's bag at Trellippi Lake, Cass County by Biologist Walter Peteraborg. These ducks were photographed and the photos are contained in Division of Game and Fish files.

October 11, 1954 — One specimen was examined at a locker plant in Brainerd by Biologist John Zorichak. The location where the duck was killed is not known.

November 13, 1954 — One bird was observed at Grand Marais by Ray Glassel. Another bird of this species was observed at Duluth, St. Louis County on November 14, 1954 by Mr. Glassel.

October 29, 1955 — Biologist Maynard Nelson examined the head, wings, and feet of a Surf Scoter at a duck cleaning plant in North Mankato. The bird had been shot on that day at Lura Lake, near Mapleton, Blue Earth County.

October 6, 1957 — Four birds of this species were examined in a bag check of hunters at Aspinwall Lake, Mahanomen County by Biologist Robert Jessen. Photos are contained in Division of Game and Fish files.

Common Scoter

November 7, 1953 — Two birds observed at Grand Marais by William Pieper.

November 7, 1957 — One bird shot on Big Marine Lake, Washington County by Biologist Robert Jessen. Specimen in Museum of Natural History.

November 22, 1958 — One bird seen at Grand Marais by William Pieper.

May 2, 1960 — One bird observed on Diamond Lake, Hennepin County (5 miles west of Champlin) by Robert Janssen.

Cinnamon Teal

May 2, 1954 — One bird was seen near Cedar Avenue Bridge in Hennepin County by William Pieper.

April 15, 1955 — One bird was seen near Danvers, Swift County by Arthur Adams, Norman Blixt and Robert Micklus.

Oldsquaw

November 11, 1951 — An Oldsquaw was shot in Yellow Medicine County by Biologist Gerald Bue. The specimen is in the Natural History Museum.

October 11, 1957 — One bird was examined in hunter bag checks at Blackduck Lake, Beltrami County by Biologist John Lindmeier and Warden Leo Manthei.

December 7, 1957 — One bird observed at Bass Ponds in Hennepin County by Ray Glassel.

October 27, 1958 — One bird shot by Biologist Robert Jessen in the Mississippi River just above Lock and Dam No. 3 in Goodhue County.

November 1958 — Head and wings of an Oldsquaw were examined in a Twin City locker plant. Hunter said duck was shot at Squaw Lake, Itasca County.

March 12, 1960 — Injured bird found on highway three miles east of Barnum, Carlton County, Minnesota. Specimen later died and was sent in by Area Game Manager LeRoy Angell.

April 12, 1960 — One bird was seen at Coon Rapids Dam in Hennepin County by David Pierson. (See Notes of Interest, page 66).

European Widgeon

April 22 and 23, 1942 — Two birds observed by Nestor M. Hiemenz on the Mississippi River near Sartell, Stearns County.

May 31, 1942 — Two birds observed by Nestor M. Hiemenz at Mud Lake Refuge, Marshall County.

April 20, 1949 — One bird was observed near Frontenac, Goodhue County.

May 19, 1949 — One bird seen at Duluth.

June 15, 1954 — One bird observed at Mud Lake Refuge.

White-winged Scoter

July 7, 1949 — One bird seen at Thief Lake, Marshall County by Biologists William Longley and Forrest Lee while making a waterfowl brood count.

September 16, 1949 — Three birds observed on Thief Lake by Biologist Robert Farmes.

September 30, 1949 — Four birds observed on Thief Lake by Biologist Robert Farmes.

SEEDS and FEEDS

for

Your Feathered Friends

Everything

To Make Them Happy — Even

Peanuts for the Squirrels.

A Variety of

MIXED GRAINS

SUNFLOWER SEEDS

or

We'll Mix Your Own Formula

**ROBBINSDALE FARM &
GARDEN SUPPLY**

Robbinsdale 22, Minn.

Kellogg 7-4371 — We Deliver

- October 22, 1949 — Seventeen birds observed on Thief Lake by Biologist Robert Farmes.
- October 22, 1949 — One bird examined in hunter's bag at Leech Lake, Cass County by Game Warden Alvin Hoger.
- October 22, 1949 — Three birds examined in hunter's bag at Thief Lake, by Biologist Robert Farmes.
- July 10, 1950 — One bird seen on White Oak Lake, Cass County, by Biologist Vernon Gunvalson.
- October 28, 1960 — One bird examined in hunter's bag at Ten Mile Lake, Ottertail County, Minnesota by Biologist Norman Ordal.
- July 12, 1951 — Five birds seen on Upper Rice Lake, Clearwater County by Biologist Vernon Gunvalson while making waterfowl brood count.
- October 12, 1951 — One bird was shot near Perham, Ottertail County, Minnesota as reported by Game Warden Paul Krueger.
- November 11, 1951 — One bird was examined in a hunter's bag in Ottertail County by Game Warden F. H. McArdle.
- October 22, 1952 — One bird examined in hunter's bag at Rice Lake, Steele County by Game Warden George Huber.
- May 25, 1953 — Three birds seen in the vicinity of Duluth by William Pieper.
- November 7, 1953 — One bird was observed on North Long Lake, Crow Wing County by Biologist Dale Lundgren.
- May 25, 1954 — Six birds seen at Duluth by William Pieper.
- August 25, 1954 — One bird observed on Pool 3 of Roseau River Refuge, Roseau County by Biologist John Idstrom.
- October 7, 1954 — One bird examined at hunter bag check at Thief Lake by Biologist John Tester.
- October 16, 1954 — One bird checked in hunter's bag at Thief Lake by Biologist Robert Farmes.
- April 12, 1956 — Eight birds were seen on Ottertail Lake near Perham, Ottertail County, by Area Game Manager Gordon Nielsen.
- October 6, 1956 — One bird examined in hunter's bag at Roseau River Refuge, Roseau County by Biologist Lester Magnus.
- November 7, 1956 — One bird examined in hunter's bag in Beltrami County by Game Warden Leo Manthei.
- December 1, 1956 — One bird seen at Lake Harriet, Hennepin County by Ray Glassel.
- October 26, 1957 — Area Game Manager Charles Knedel obtained the head and wings of a specimen taken at Middle Lake, Nicollet County.
- November 14, 1957 — In a letter of this date Regional Game Manager Hiram Southwick states: "Recently three White-winged Scoters were shot on Lake Shetek north of Currie, Murray County."
- April 23, 1958 — One observed at Mothers Lake, Hennepin County by Ray Glassel.
- November 22, 1958 — One bird was observed at Duluth by William Pieper.
- Research Biologist, Minnesota Division of Game and Fish, St. Paul, Minnesota.*

LaSALLE TRAIL BIRD CENSUS

by

Robert W. Seabloom

The following is a report of a census of breeding birds along LaSalle Trail, Itasca State Park, Clearwater County, Minnesota. The period of study was June 19 to July 15, 1959. This project was a continuation of that originated by Kendeigh (1956) and carried on by ornithology students since 1956 (Wood, 1956; Ryder, 1957; Marrs and Palmer, 1958).

The objectives of the project were (1) to obtain estimates of the species populations of birds along LaSalle Trail; (2) to identify the territories of breeding birds along the trail; (3) to compare these data with the results of previous ornithology projects along the trail, and therefore determine the extent of shifts in population density and species composition in the area.

Methods

Previous workers had prepared a cover map and marked the trail with 42 numbered stakes, spaced 50 meters apart. Most of the stakes were still present on the trail but some needed to be replaced. Recent cutting practices along certain areas of the trail necessitated some revision of the cover map. The revised cover map is presented in Figure 1.

As in the previous student projects, the census was conducted by walking slowly along the trail and stopping for several minutes at each numbered stake. Singing males were identified through visual observation and song identification. When possible, adjacent territories were identified by listening for the two males singing simultaneously. Males were also located by taking bearings on the same singing bird from two different points.

The trip observations were plotted on a prepared ditto map of the trail. These were later transcribed to spe-

cies maps, and territories were delineated around the clusters of observations.

A total of 14 trips were made along La Salle Trail (Table I). Eight trips were made between 0430 and 0700 hours, three from 0800 to 1100, two from 1300 to 1600, and one from 1900 to 2100. It was not possible to census the entire trail on all trips, so those portions of the trail covered on a given trip are also included in Table I. The time required to cover the entire trail varied from 1.5 to 3.0 hours. Because of the time lag from one end of the trail to the other, several trips were made starting at the far end and at the middle. This was to help eliminate bias due to changes in bird activity over that long a period.

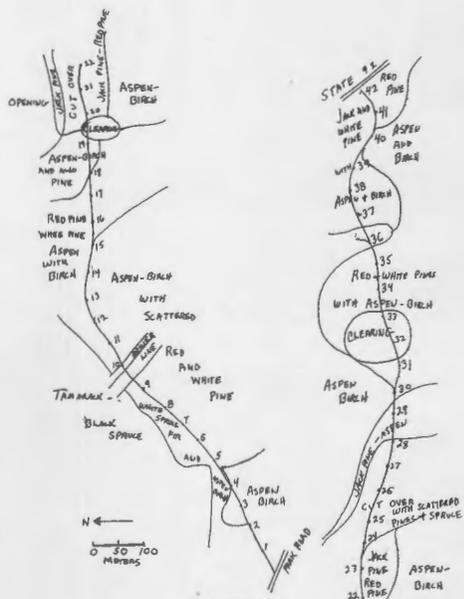


FIGURE 1
COVER TYPES ALONG LASALLE TRAIL

Census Efficiency

The efficiency of this census technique varied considerably from one trip to another. Census efficiency was determined by dividing the number of individuals of a species observed on a trip by the total number of territories known on the area covered. The census efficiency of two of the most common species, the Least Flycatcher and Red-eyed Vireo, is presented in Table II. On the average, the census of the Red-eyed Vireo was more efficient than that for the Least Flycatcher. There was a great amount of variability in efficiency between given dates for the same species and for the two species on the same date. This variability could have been due to any of a number of factors including weather, time of day, individual bird behavior, and the inexperience of the observer. The latter factor was probably most important.

Table I
Summary of Activity on the Study Area

Date	Time	Stations	Weather
June 19	1330-1600	1-42	Bright & Clear
June 24	0515-0745	1-42	Cloudy; wind 5-10
June 26	0430-0625	1-30	Cloudy; still
June 27	1330-1500	25-42	Scattered clouds; wind 10-15
June 28	0525-0700	1-42	Bright and clear
June 29	0510-0620	1-28	Cloudy; cold; windy
July 1	0450-0600	21-42	Bright and clear
July 1	1915-2000	1-21	do; wind ca 15
July 4	0830-1130	1-42	Cloudy bright
July 7	0550-0630	1-20	Bright and clear
July 8	0750-1030	1-42	Overcast; had rained
July 11	0530-0645	1-19	Bright and clear
July 11	0915-1030	20-42	do
July 15	0500-0645	15-42	Cloudy to clear

Table II
Relative Efficiency of Morning Censuses

Date	Singing Males	Known Territories*	Per Cent Efficiency
Least Flycatcher			
June 24	5	14-17	29-36
June 28	9	14-17	53-64
June 29	5	5	100
July 1	10	10-12	83-100
July 4	6	14-17	35-43
July 7	1	3-4	25-33
July 8	11	14-17	65-78
July 11	7	14-17	41-50
Average	6.8	11-13	52-62
Red-eyed Vireo			
June 24	8	10	80
June 28	3	10	30
June 29	8	8	100
July 1	3	3-4	75-100
July 4	3	10	30
July 7	4	6-7	57-67
July 8	6	10	60
July 11	9	10	90
Average	5.5	8-9	61-68

* Based on portion of the trail covered.

TABLE III
Species Identified Along La Salle Trail

Species	Number Observations	Known Territories
Great Blue Heron	1	—
Turkey Vulture	1	—
Ruffed Grouse	3	(2 broods)
Barred Owl	2	—
Ruby-throated Hummingbird	2	2?
Yellow-bellied Sapsucker	3	1
Great Crested Flycatcher	3	—
Least Flycatcher	69	14-17
Eastern Wood Pewee	29	6+
Blue Jay	1	—
Common Crow	2	—
Black-capped Chickadee	9	1-2?
Red-breasted Nuthatch	4	—
Brown Creeper	4	—
House Wren	1	—
Catbird	2	—
Robin	1	—
Veery	33	7(+?)
Yellow-throated Vireo	1	—
Red-eyed Vireo	46	10
Black and White Warbler	6	1
Nashville Warbler	8	1
Parula Warbler	6	1?
Black-throated Green Warbler	6	1 (Probably)
Blackburnian Warbler	8	—
Chestnut-sided Warbler	8	2
Pine Warbler	14	1-2
Ovenbird	32	7-8
Mourning Warbler	15	1-2
Yellowthroat	20	3
American Redstart	10	3?
Brown-headed Cowbird	2	—
Scarlet Tanager	4	1?
Rose-breasted Grosbeak	3	—
Purple Finch	1	—
Slate-colored Junco	1?	—
Chipping Sparrow	43	6-8
White-throated Sparrow	30	5

RESULTS

The species identified along LaSalle Trail are listed in Table III. A total of 38 species were identified along the trail. Two species, the Great Blue Heron and Turkey Vulture, were observed flying over the area and of course could not be considered residents. Eight species were observed only once and therefore may have been transients or residents.

The nine most abundant species were the Least Flycatcher, Red-eyed Vireo, Ovenbird, Veery, Chipping Sparrow, Eastern Wood Pewee, White-throated Sparrow, Yellowthroat and American Redstart. These are listed in their order of abundance in Table IV and compared with their status in previous years.

Enough observations were obtained on 19 species to get some delineation of territories. Isolated observations were not counted as breeding terri-

TABLE IV
RELATIVE ABUNDANCE OF SPECIES

Species	1959		1958		1957		1956		1955
	Rank	Pairs	Rank	Pairs	Rank	Pairs	Rank	Pairs	Rank
Least Flycatcher	1	14-17	2	12	3	10	2	24	1
Red-eyed Vireo	2	10	1	13	1	20	1	26	2
Ovenbird	3	7-8	6	6	4	9	4	12	5
Veery	4	7+	4	9	2	17	3	17	3
Chipping Sparrow	5	6-8	5	9	9	5	5	11	7
Eastern Wood Pewee	6	6+	7	7	5	8	8	5	4
White-throated Sparrow	7	5	8	6	—	—	—	—	—
Yellowthroat	8	3	3	10	6	10	7	6	—
American Redstart	9	3?	—	—	—	—	—	—	—

tories. During the last week of the study, there was some indication of the breakdown of territories and movement to new areas. This is substantiated by an increase of isolated observations occurring along the trail during that period.

DISCUSSION

It is difficult and perhaps presumptuous to draw conclusions on species population trends on the basis of these data. Several points might be noted, however. There seems to have been a steady increase in the Least Flycatcher population since 1957, both in absolute numbers and rank of abundance, as compared to the other common species.

The Red-eyed Vireo has decreased in abundance since 1956. The drop over the past two years might be attributed to the logging operations on the trail, resulting in unsuitable habitat conditions. An area including several territories reported by Marrs and Palmer (1958) has now been logged over. One other species, the Yellowthroat, has decreased in abundance since last year, both in rank and absolute numbers. The American Redstart has apparently increased in abundance in that it had not previously been reported in the top nine. The other common species appear to have fluctuated slightly, if at all over the past 2-3 years.

Several suggestions might be made to improve the efficiency of this method of census. (1) If possible, the observer should maintain a regular schedule of hours of census. The best period of the day for this would prob-

ably be between 0430 and 0700. (2) The census should be run with both ends of the trail alternating as starting points. (3) When an observation is made on a singing male, a special attempt should be made to locate those on adjacent territories at that time.

SUMMARY

1. A census of the breeding birds on LaSalle Trail, Itasca State Park, Minnesota, was run from June 19 to July 15, 1959.

2. Census efficiency varied from 25 to 100 per cent for any one day for two of the most common species.

3. The most abundant species included the Least Flycatcher, Red-eyed Vireo, Ovenbird, Veery, Chipping Sparrow, Eastern Wood Pewee, White-throated Sparrow, Yellowthroat, and American Redstart.

4. A total of 38 species were identified. Territories were delineated for 19 species.

5. There has been little fluctuation in abundance of most of the common species in the past 2-3 years.

LITERATURE CITED

- Kendeigh, S. C. 1956. A trail census of birds at Itasca State Park, Minnesota. *Flicker*. 28: 90-104.
- Marrs, B. and J. Palmer. 1958. The 1958 bird census along LaSalle Trail. Unpub. ornith. proj. rep., Itasca For. and Biol. Sta., Minn.
- Ryder, C. H. 1957. A bird census along LaSalle Trail. Unpub. ornith. rep., Itasca For. and Biol. Sta., Minn.
- Wood, Patricia. 1956?. Census of LaSalle Trail. Unpub. ornith. rep., Itasca For. and Biol. Sta., Minn.

SEASONAL REPORT

by

Mary Lupient

Although precipitation was about normal except in the Twin Cities area where snow was scarce, Minnesota experienced a cold hard winter. March of this year was the second coldest on record. This writer spent most of April in Tucson, Arizona and so could not observe the weather but reportedly temperatures were below normal and lakes in the southern part of the state were still ice bound during the first part of the month. In some northern sections there was a snow fall of up to four inches on April 29.

The unseasonable weather delayed the migration from ten days to two weeks. Whistling Swans were reported in small numbers and they left soon after arrival. Earliest report was from A. C. Rosenwinkel who saw ten on Lake Vadnais, St. Paul, Ramsey County, April 15. There were nine in the Minnesota River bottoms April 21 reported by R. E. Cole. Except in the western part of the state where ducks and geese migrate in large numbers there were few reports elsewhere. Canada Geese arrived in Mud Lake Refuge, Marshall County, March 31 reported by E. Marvin Mansfield, Refuge Manager. A flock of about thirty Blue Geese was seen by A. C. Rosenwinkel April 23. Brother Theodore reported a Common Scoter on Diamond Lake, Hennepin County, May 2. The bulk of the duck migration in Eastern Minnesota was about over by May 1. A few still lingered on the lakes, many of them on Diamond Lake, Minneapolis, Hennepin County where this writer saw two Red-necked Grebes, May 2, pulling vegetation from the bottom of the lake. Horned Grebes were on Twin City Lakes for several days the last of April.

There were several April reports of

Common Egrets which may indicate an increase of nesting. Sally Wangenstein saw two south of Afton, Dakota County, April 22. Two were seen near St. Paul April 4 by A. C. Rosenwinkel and there were three near Shakopee, Scott County, April 28. Dr. Woodward Colby called to say that several were coming again to roost in the company of Great Blue Herons in the trees on an island in the Mississippi River near Fort Snelling.

Four Bonapartes' Gulls on Lake Como, St. Paul and about 300 Ring-billed and Herring Gulls on Pig's-Eye Lake, St. Paul were reported by A. C. Rosenwinkel, April 4. Franklin's Gulls were seen on Diamond Lake, Hennepin County, May 2 by Brother Theodore.

A mature Red-shouldered Hawk was observed in Stillwater, Washington County, February 11 by Dean Honetschlager. On April 23 Robert Janssen and others saw a large migration of hawks, mostly Sparrow Hawks and Marsh Hawks when they made a trip to Salt Lake, Lac Qui Parle County.

At Salt Lake they saw a goodly number of shore birds. Notably, there were two Piping Plovers among them. At Rothsay, Traverse County there were Sandhill Cranes and Marbled Godwits and at Lake Traverse there were many White Pelicans. In Southern Minnesota Lesser Yellowlegs were not reported until the last ten days of April and then in small numbers.

William McLane saw a Snowy Owl near Osseo, Hennepin County, March 15 and Roy G. Olstad saw one in the northeast outskirts of Minneapolis, February 19.

There was a heavy migration of Tree Swallows April 26. Purple Mar-

tins, Rough-winged Swallows, Barn Swallows and Eastern Phoebes in numbers arrived in late April.

Robins, Eastern Bluebirds and other thrushes were late in appearing. For the Hermit Thrush, A. C. Rosenwinkel sent in the earliest record for this spring, April 12.

A few Myrtle Warblers were seen during the latter part of April. There was a good migration May 2, a few Palm Warblers were with them. Dr. W. J. Breckenridge, Minneapolis, and Mrs. Murray Olyphant, St. Paul, found Myrtle Warblers at their suet feeders during the cold days in late April.

Brown Thrashers, Ruby-crowned Kinglets and Yellow-headed Blackbirds appeared during the last ten days of April.

There was a heavy migration of White-throated Sparrows May 3 reported by Mrs. Edward Rogier, Hopkins, Hennepin County, and Douglas

Campbell Jr. saw several White-crowned Sparrows in Minneapolis on the same date. An albino Slate-colored Junco came to a feeder in Virginia, St. Louis County April 24 reported by Mrs. Roy Pottsmuth.

A Mockingbird was found in Carlos Avery Refuge by Dave Pearson, April 23.

The following notes were received from Marvin Mansfield, Refuge Manager of Mud Lake National Refuge: Sharp-tailed and Ruffed Grouse were seen all winter. A hen Ring-Necked Pheasant was seen occasionally at headquarters. Horned Larks came back February 21. Black-billed Magpies and Common Ravens were common all winter. Snow Buntings left about the end of February. One Peregrine Falcon was seen February 11. Golden Eagles were common all winter. The first Bald Eagle was seen March 9 sitting on the nest. A Brewer's Blackbird was seen March 29, Canada Geese, Great Blue Herons and Western Meadowlarks arrived March 31.

The report that follows dated May 2 was submitted by Dr. Arnold B. Erickson, Game Research Supervisor, Section of Research and Planning. "On April 28, 1960, I drove out to the Lac Qui Parle Refuge and Public Hunting Grounds on the Minnesota River near Appleton, Minnesota. On Marsh Lake which is a part of this area I saw 40 White Pelicans and about 40 more White Pelicans on Lac Qui Parle Lake. The only shore birds that I noted were a mixed flock of 25 Black-bellied Plovers and Golden Plovers. I saw one Marbled Godwit in a small pond and near the pond two Upland Plovers. In another pond I saw two female and one male Wilson's Phalaropes, plus some Lesser Yellowlegs. There were quite a number of Blue-Winged Teal and Ring-necked Ducks in and about the Lac Qui Parle Refuge. In addition, I saw Mallards, Shovelers, Green-winged Teal, Pintails, Lesser Scaup, Gadwall, six Redheads but no Canvasback.



EXCELO
WILD BIRD FOOD

Excelo Quality Wild Bird Food is a balanced blend of peanut hearts, sunflower seeds, other seeds and grain. No screenings or fillers. Prepared especially for wild birds. Bird tested and proven. None finer. Order a supply today.

EXCELO WILD BIRD FOOD	
5 lbs.	\$1.50
10 lbs.	\$2.50
20 lbs.	\$4.50
EXCELO SUNFLOWER SEED	
5 lbs.	\$1.60
10 lbs.	\$2.60
20 lbs.	\$4.60

Prices Postpaid

Excelsior Farm Store
Box 354 — Dept. 5
Ph. Greenwood 4-7030, Excelsior, Minn.

Ducks on the date of our trip, for the first time had become somewhat abundant in the prairie country although their number seemed few compared to several years ago."

This item appeared in the Cook County News-Herald, Grand Marais January 7 and was submitted by Marie Aftreith: A colorful Cardinal has been enjoying a sunflower seed feast at the Art Allens. The Allens who have a bird feeding station and had planted sunflowers for food and have a large number of bird boarders.

The annual meeting of the Minnesota Ornithologists Union and the the Thunder Bay Naturalists was held again at Grand Marais on the week end of Washington's birthday. About one hundred-sixty attended the dinner and were entertained by a very fine program presented by the Thunder Bay Naturalists and which consisted of colored motion pictures. One was of Canada's Quetico National Park and one depicted life to be found in

marshes. A composite list of thirty-eight species of birds seen on that day was tallied at the dinner.

Dr. A. E. Allin reported that on the way to the meeting he saw a dead Great Gray Owl and a live Hawk-Owl on the Minnesota side of Pigeon River. This writer and party drove up the next day and were fortunate enough to find the Hawk-Owl perched on the top-most twig of an evergreen.

Lake Superior was open only in spots which provided a place for Oldsquaw. We saw only a few of them. There was a concentration of about two thousand Ring-billed and Herring Gulls at Two Harbors, Lake County. Among them were two Glaucous Gulls.

Common Redpolls were abundant along the way. There were two flocks of Snow Buntings and several flocks of both Evening and Pine Grosbeaks on Highway 23 between Duluth and Sandstone. 212 Bedford Street S.E., Minneapolis, Minnesota.

EXPERIMENTAL MARKING AND DYEING OF RING-NECKED PHEASANTS

by

John P. Lindmeir

The development of methods for marking animals for identification in the field is of prime importance in the research and management of a species. The investigation of the various methods of marking are being carried out at the Carlos Avery Game Farm, Anoka County. Game farm pheasants were used in these investigations because of their availability.

Bill markers on adult pheasants.

At the close of the 1957 breeding season on the Carlos Avery Game Farm 20 adult female Ring-necked Pheasants were placed in two holding

pens. On July 12, 1957, ten birds were bill marked (five in each pen) and the remaining ten were kept as controls. Adult males were not used because separate pens would have been required for each individual.

The insertion of the bill marker on the pheasant calls for the perforation of the septum in the nostril. If the pin is worked through the valve in the frontal parts of nares, the septum is very easily pierced and the pin passes through the valve on the opposite side of the bill. Bleeding occurred only when the pin was inserted

Experimental work completed under Pittman-Robertson Project, W-11-R-18, Minnesota Division of Game and Fish, St. Paul 1, Minnesota.

Table 1—Bi-weekly average percentage weights of bill marked and control female pheasants, July 12 average weights equal 100. (Average weight in ounces.)

	July 12	July 31	August 12	August 26	September 12
Bill marked	100(33.9)	88(29.7)	86(29.0)	89(30.0)	90(30.6)
Controls	100(38.2)	84(32.0)	82(31.2)	82(31.4)	83(31.6)

toward the posterior portion of the external nares and the valve covers were pierced.

Conditions and facilities were equal for marked and unmarked birds. One bill marked and one control bird were found dead (cause unknown) the first week of the period and were not used in the weight comparisons. Two bill marked and two control birds escaped from one pen just prior to the last day of weighing.

Both marked and unmarked birds were checked for condition and weight every two weeks until September 12. The bill marker did not appear to inconvenience the birds or cause any irritation to the bill or nostril. Average percentage weight changes of the marked and unmarked birds is given in Table 1.

In summary the bill marker did not cause any significant differences in weight in the birds tested and does show a good deal of promise for marking purposes.

Bill Markers on Juvenile Pheasants

Two 3 week old pheasants were bill marked, studied and compared with 3 week old controls for a period of two weeks. At the end of this period the marked and unmarked birds' weight and condition were directly comparable to the controls.

As the 3 week old birds were not of sufficient size to hold a leg band, it was decided that actual testing would commence on 4 week old birds. A total of 90 young pheasants were used in the experiment. Nine birds were held in each pen — seven marked and two controls. Fourteen birds were bill

marked each week through the 8 week old age group. Marked and control birds were weighed each week until the age of 8 weeks when they were weighed every two weeks until they reached the age of 12 weeks. The average weights in ounces for each group by sex is given in Table 2 (males), and Table 3 (females).

No birds were incapacitated or died due to the bill markers. In summary, bill markers when properly applied to pheasants of four weeks of age or older do not significantly affect the weight or condition of the birds.

Dip-dying of day old pheasant chicks

Day old pheasant chicks were dip-dyed in three solutions each containing 6.5 grams of dye per 600 cc of water. The dyes were Amaranth, brilliant blue FCF and fast green FCF. The solutions were maintained at 100° Fahrenheit during the dipping.

With the Amaranth solution it took 12 to 15 minutes to dye each chick. A teaspoon of dry detergent (Vel) added to the brilliant blue and fast green dye solutions reduced the time needed to dye the chicks to a five second period. The dyed chicks were returned to the hatcher to dry and then received the same care as normal birds. No deaths were noted in the hatcher. There was no differential death rate between the dyed chicks and the "normal" chicks in the brooders or in the field to the sixth week of age when the last bit of dyed down could not be seen except when the birds were in the hand. The dyed birds were easily identified through the fourth week by the retention of

Table 2—Average weights of bill marked and control male pheasants at various ages.

No. of Birds	Age In Weeks							Average Weight in Ounces
	4	5	6	7	8	10	12	
10 Control	7	9	11	15	19	27	34	
10 Marked	7	9	11	15	18	27	34	
8		9	12	15	19	28	33	
6			13	16	20	30	37	
8				14	18	27	33	
8					19	28	33	

Table 3 —Average weights of bill marked and control female pheasants at various ages.

No. of Birds	4	5	6	7	8	10	12	Average Weight in Ounces
4 Control	7	9	12	13	17	24	26	
4 Marked	5	7	8	11	13	21	25	
6		9	10	13	17	23	26	
8			12	15	18	24	28	
6				12	17	23	25	
6					18	24	27	

colored down on the cheek and neck. The last patch of dyed down to disappear was the cheek patch. Loss of color was attributed mostly to molting. Some difficulties were experienced in identification of blue and green dyed pheasants because the brilliant blue had a greenish tinge.

From the information collected it is suggested that detergents be used in the dyes to speed application. Five and one-half or .6 grams of brilliant blue FCF should be used per 600 cc of water to help ease the identification of blue and green dyed chicks.

Dye injection of pheasant eggs during the last week of incubation

One hundred and twenty pheasant eggs incubated for 18 days were used in this experiment. Six days before hatching they were injected according to the method described by Evans in the *Journal of Wildlife Management*, 15(1):101-103.

Three dyes were used: Amaranth, brilliant blue FCF, and fast green FCF. The dyes were dissolved in 25 cc of distilled water in the following concentrations: Amaranth, 11.5 grams per 100 cc of water; brilliant blue FCF, 15.9 grams per 100 cc of water; and fast green FCF, 14.6 grams per 100 cc of water.

The dye solutions were put into 50 milliliter bottles with loosely fitting caps. The bottles were placed in water and maintained at 180 - 185° Fahrenheit for a period slightly over

seventy minutes for sterilization. This method prevents harm to the temperature sensitive dyes. Hypodermic needles and syringes for injection of the dyes were sterilized in boiling water. Temperature in the room where the eggs were injected was maintained at 75-80° Fahrenheit. Hypodermic syringes were used to insert the dye solutions between the shell membrane and the shell.

The dyes, concentrations used, and hatchability of dye-injected and control eggs are given in Table 4.

The controls and dye injected eggs were out of the incubators for a period of 35 - 40 minutes. It is quite obvious that the .15 ML dosage is dangerous to use and definitely is not necessary for good color. It is believed that it would be well to use a .08 dosage for the concentrations used and thus maintain the hatch at a normal level and still get good color results. No additional loss of the chicks in the hatcher was noted. The death rate of the dyed chicks did not increase over the normal mortality found for undyed chicks. Dyed birds were well colored on the cheeks and necks to the fourth week when fading of the dyes and feather growth made it difficult to distinguish experimental from control birds. During the entire observation period the dyed chicks acted normally. *Division of Game and Fish, Minnesota Department of Conservation, St. Paul, Minnesota.*

Table 4 —Percentages of control and dye-injected eggs which hatched and those which contained dead embryos.

Dye	Dosage (ML)	Percentage	
		Hatched	Dead Embryos
Brilliant Blue	.15	50	50
Brilliant Blue	.10	88	12
Fast green	.15	38	62
Fast green	.10	70	30
Amaranth	.15	11	89
Amaranth	.10	56	44
Control	—	80	20
Entire hatch	—	88	12

THE USE OF RECORDED BIRD SONGS AS A BIRD-CENSUSING TECHNIQUE

by

Virginia and Louise Oech

The purpose of this project was to determine bird response to a tape recording, as a census technique. This method consisted of playing recorded songs of the same species of birds, as those to be censused.

The census was made on the La-Salle Trail, located in the northeast corner of Itasca State Park, Clearwater county. This trail has previously been censused and we would like to refer to the work of S. Charles Ken-deigh, 1955.

The six predominant species of birds in 1955, Least Flycatcher, Veery Red-eyed Vireo, Ovenbird, Mourning Warbler and Eastern Wood Pewee were used as the species to be censused at ten designated locations, 200 meters apart, corresponding to stake numbers 3, 7, 11, 15, 19, 23, 27, 31, 35, and 39 on the trail.

The procedure used at each of the stations during each of the ten censuses was as follows:

- a. A 2-minute census of the area before a recording was played.
- b. Playing of recording.
- c. Counting the singing birds from the start of the playing of the recording until 2 minutes after the end of the playing.

Other data recorded were time, temperature and wind conditions.

Trail Trip Number	Date	Time	Temp. F	Wind miles per hour
1.	June 29	1:45- 2:15 P.M.	64	10-14
2.	July 2	10:00-11:30 A.M.	74	4-8
3.	July 5	7:45- 9:15 P.M.	58	1-4
4.	July 6	10:00-11:30 A.M.	78	1-4
5.	July 6	4:00- 5:30 P.M.	79	15-20
6.	July 9	7:45- 9:00 P.M.	61	no wind
7.	July 10	5:30- 7:00 A.M.	41	1-4
8.	July 12	4:00- 5:30 P.M.	78	1-4
9.	July 13	5:30- 7:00 A.M.	48	no wind
10.	July 13	1:00- 2:30 P.M.	82	9-14

Table II Total Number by Species Heard Before Playing and After Playing Recording

Species	No. Heard Before	No. Heard After	Increase Factor
Ovenbird	10	47	4.7
Least Flycatcher	45	94	2.1
Eastern Wood Pewee	26	80	2.9
Red-eyed Vireo	64	100	1.4
Mourning Warbler	6	28	4.7
Veery	49	106	2.2
All species	200	455	2.3

Table II shows the increase factor of each species in relation to the total number of singing birds initially heard for each species, singing before and after the playing of the recording. The increase factor, as we use the term, is the number of birds heard before we played the magnetic tape, divided into the number that we heard upon starting our recording. Table III gives the data and increase factor of total bird response of all species in relation to time of year and hour of day.

The percentage of known efficiency is computed on Table IV. Total number of birds singing during each of these censuses was compared with the known bird territories within 50 yards on each side of the stake (52 total number).

Other observations were also made on the censuses: Eastern Wood Peewees on six or seven occasions in late morning or afternoon would come and perch on overhanging branches of trees directly on the trail and sing. Ovenbirds frequently gave several alarm notes but would not answer until three or four minutes after recording was played. On the morning of July 11, it was also noted that, in general, the birds responded immediately, for a short time, and then abruptly stopped singing.

Table III Total of all species by date and hour, heard before playing and after playing recording with increase factor.

Hours	5:00-6:30	10:00-11:30	13:00-14:30	16:00-17:30	19:00-20:30	Totals
June 29			13—38 2.9			13—38 2.9
July 2		17—35 2.1				17—35 2.1
July 5					25—56 2.2	25—56 2.2
July 6		25—66 2.6		4—13 3.3		29—79 2.6
July 9					24—49 2.0	24—49 2.0
July 10	24—68* 2.8					24—68 2.8
July 12				27—54 2.0		27—54 2.0
July 13	34—59 1.8		7—18 2.6			41—77 1.9
Total	58—127 2.2	42—101 2.4	20—56 2.8	31—67 2.2	49—105 2.1	200—456 2.3

* High increase factor probably is due to the cool damp weather conditions on that day.

Summary and Conclusions

From this method of gathering, compiling, and evaluating the data of this report there appears to be an inverse relationship between bird density and their singing.

Bird	Number Heard Before	Increase Factor
Mourning Warbler	6	4.7
Ovenbird	10	4.7
Eastern Wood Peewee	27	2.9
Veery	49	2.2
Least Flycatcher	45	2.1
Red-eyed Vireo	64	1.6

Bird singing in relation to time of day, given in Table III, corresponds with the generally known frequency pattern of bird singing. The induced singing frequency thus suggests that birds can be made to respond to a tape recording at times when they would usually be quiet.

The variation in observational efficiencies (25% to 131%) may be attributed to time of day and to weather conditions, particularly wind velocity influencing the distance at which the recording could be heard by the birds and also from what distance the birds could be heard by the observers. Efficiencies over 100% suggests that the birds were at a distance greater than 50 yards from the stake.

This preliminary project is subject to experimental error.

Table IV Percentage of Known Efficiency for all Species by Date and Hour**

Hours	5:00-6:30	10:00-11:30	13:00-14:30	16:00-17:30	19:00-20:30
June 29			13—38 73%		
July 2		17—35 67%			
July 5				25—56 104%	
July 6		25—56 132%		4—13 26%	
July 9					24—49 94%
July 10	24—68 131%				
July 12				27—54 104%	
July 13	34—59 113%		7—18 33%		

** Percentage determined by the known total number of territories (52) of each of these species extending 50 meters from each side of the stake.

Bibliography

- Kendeigh, Charles S.
1956 A Trail Census of Birds at Itasca State Park, Minnesota
The Flicker, 28:90-104
- American Bird Songs
Volume I and Volume II
A Division of Cornell University Press
124 Roberts Place
Ithaca, New York
- Songs of Warbler of Eastern North America
Volume IV
Federation of Ontario Naturalists
187 Highbourne Road, Toronto
Route 2, Winona, Minnesota

THE MINNESOTA BIRD BANDERS

by

Forest V. Strnad

It is a real joy to bring to you this second annual report on the banding of birds in the State of Minnesota. During 1959 there were banded and reported a total of 18,489 birds of 189 species and two sub-species. This exceeds by twenty the total species in 1958 and about four thousand more birds banded.

The report for 1959 includes the reports of twenty-nine persons and/or offices which is two more reports than last year. I tried to incorporate all the banding done by students under the professor for which he was doing his particular study. This has eliminated some columns this year and given the professors the credit for the work of their students.

With the beginning last year of this type of reporting of the activity of bird banders in our state it was gratifying to be quoted in *The Ring* and to have requests for our report from Canada. This ought to point out to all of the banders in Minnesota that their report is very essential to the total picture no matter how many or how few birds they band in a year.

The listing is compiled in numerical order as given in the 1957 A.O.U. Check list of North American Birds. If you do not have this book you may want to check with your list from the Banding Office in Washington to find the former name of some of the birds listed in this report, as there are some new names used which may be unfamiliar to you.

Some reflections on the 1959 banding report will show that some interesting banding took place throughout the area. The Long-billed Dowitcher by Cohen; the Dunlin by Johnson; the Whimbrel by Cohen; and the unusual

number of Sharp-shinned Hawks by Cohen. The latter were caught in mist nets and is but the beginning of what may come in the years ahead at this hawk flyway in Duluth.

Gary Kuyava's hawks are worthy of mention: Cooper's, Goshawk, Red-tailed and Rough-legged, and the Long-eared, Boreal, Saw-whet and Great Horned Owls. Of the eight Red-tails banded by Dr. P. B. Hofslund, he indicated that at least one was a Harlan's. The Pigeon Hawk banded by Cohen was caught in a net on the mud flats of the St. Louis River during the week end of September 19-22 when the banders were carrying on their demonstration. The hawk had attacked a "peep" in the nets and was caught.

The Pileated Woodpecker banded by Carl Johnson was caught in a small mesh net he had set on Island 42 in the Mississippi River for Carolina Wrens. When Carl found the net it was knocked over and the woodpecker was under it, but not really caught in it. The net was not even torn which is unusual for having caught so large a bird.

It was good to have so many Chimney Swifts banded again this past year by Dr. Harry Goehring and David Grether at St. Cloud.

The seven Pine Grosbeak were unusual for the state and the first recorded in the two years of this type of report.

A goodly number of Purple Finches were banded but not an unusual amount across the state.

The Grasshopper Sparrows were banded on a sand prairie near Wabasha. Gary Kuyava's 622 White-throated Sparrows was the largest

number of ground feeding birds banded by one individual and only one less than the number of Chimney Swifts banded by Grether. The White-winged Junco banded by Corbin was very unusual. Unfortunately no pictures were taken of this bird, nor was identification established by another birder.

You will notice that the Arctic Towehee (*articus*) is now considered a sub-species and not a full species as it used to be.

In the swallow family the Purple Martins were banded in only three places in the state: Kasson, Madison and Minneapolis. In as much as a special study is to be made of Purple Martins in Minnesota during 1960 it would be well if we could get more of this species banded during 1960.

1959 was definitely a Bohemian Waxwing year and Carl Johnson has a thrilling story to tell of his banding in an apple orchard east of Rochester.

Twenty-seven species of warblers were banded in 1959, the same number as in 1958. The MacGillvray's Warbler by Kuyava at Duluth was unusual. Carl Johnson was able to net and band two more Yellow-breasted

Chat's in the Whitewater Refuge area to add to his one during 1958. It may prove that this bird is more numerous in this part of our state than we had believed before.

The two Long-billed Marsh Wrens banded by Johnson and Strnad were banded at Rice Lake in the western part of Dodge County.

Carl Johnson's four Blue-gray Gnatcatchers were the first to be banded in the southeastern part of the state to the knowledge of this writer. When we get the index published for *The Flicker* we may find that they were the first banded in the state.

Gary Kuyava carries the honors for having banded the largest number of individual birds by a single person: 2590; Carl Johnson has the honors of banding the largest number of species: 139 and 1 sub-species.

By the time you read this the year will be half over and I hope you will be having a good time banding some new species perhaps and many nestlings and adult birds. If you are among the inactive banders we would like to encourage you to become active for you may be the only bander in your locality. *Kasson, Minnesota.*

A.O.U. Number—Species	Cohen, Robert R.	Corbin, Kendall W.	Findley, J. Scott	Geehring, Dr. Harry H.	Grether, David	Gullion, Gordon W.	Hanson, Harold	Hofslund, Dr. P. B.	Holden, Mrs. David J.	Jenssen, Robert	Jiracek, Walter A.	Johnson, Carl M.
2—RED-NECKED GREBE												
4—EARED GREBE												
6—PIED-BILLED GREBE												1
51a—HERRING GULL								400				
59—FRANKIN'S GULL												
70—COMMON TERN	19											
77—BLACK TERN												3
131—HOODED MERGANSER												
132—MALLARD			2									25
133a—BLACK DUCK												
137—AMERICAN WIDGEON												
139—GREEN-WINGED TEAL												
140—BLUE-WINGED TEAL												3
142—SHOVELER												
143—PINTAIL												
144—WOOD DUCK												2
146—REDHEAD												
147—CANVASBACK												
149—LESSER SCAUP												
150—RING-NECKED DUCK												
151a—COMMON GOLDENEYE												
167—RUDDY DUCK												
172—CANADA GOOSE												2
190—AMERICAN BITTERN												
191—LEAST BITTERN												1
201—GREEN HERON												1
212—VIRGINIA RAIL												2
214—SORA												
221—AMERICAN COOT												2
228—AMERICAN WOODCOCK												
230—COMMON SNIFE												60
232—LONG-BILLED DOWITCHER	1											
233—STILT SANDPIPER												2
239—PECTORAL SANDPIPER												18
241—BAIRD'S SANDPIPER												
242—LEAST SANDPIPER												6
243.9—DUNLIN												1
246—SEMIPALMATED SANDPIPER	4											3
248—SANDERLING												1
255—LESSER YELLOWLEGS												1
256—SOLITARY SANDPIPER	2		1									2
263—SPOTTED SANDPIPER	8											5
265—WHIMBREL	1											
270—BLACK-BELLIED PLOVER												
273—KILLDEER	1											11
274—SEMIPALMATED PLOVER	2		2									2
309.1—RING-NECKED PHEASANT				1								
316—MOURNING DOVE	1	2									3	5
331—MARSH HAWK								1				
332—SHARP-SHINNED HAWK	24											1
333—COOPER'S HAWK												
334—GOSHAWK												
337—RED-TAILED HAWK								8				1
347.9—ROUGH-LEGGED HAWK												
357—PIGEON HAWK	1											
360—SPARROW HAWK	1											
366—LONG-EARED OWL												
371—BOREAL OWL												
372—SAW-WHET OWL												
373m—SCREECH OWL												1
375—GREAT HORNED OWL						2						1
376—SNOWY OWL												
388—BLACK-BILLED CUCKOO	1											2
390—BELTED KINGFISHER			1									7
393—HAIRY WOODPECKER						1						6

Bander's Name	Cohen, Robert R.	Corbin, Kendall W.	Findley, J. Scott	Goehring, Dr. Harry H.	Grether, David	Gullien, Gordon W.	Hansen, Harold	Hofstund, Dr. P. B.	Holden, Mrs. David J.	Jensen, Robert	Jracket, Walter A.	Johnson, Carl M.
A.O.U.												
Number—Species												
394—DOWNY WOODPECKER	3	2	1									19
402—YELLOW-BELLIED SAPSUCKER	1											2
405—PILEATED WOODPECKER												1
406a—RED-HEADED WOODPECKER												2
409—RED-BELLIED WOODPECKER												1
412a—YELLOW-SHAFTED FLICKER	3		1	2								3
420—COMMON NIGHTHAWK	1											1
423—CHIMNEY SWIFT		1		268	623							1
428—RUBY-THROATED HUMMINGBIRD												2
444—EASTERN KINGBIRD												2
452a—GREAT CRESTED FLYCATCHER												14
456—EASTERN PHOEBE												2
459—OLIVE-SIDED FLYCATCHER												1
461—EASTERN WOOD PEWEE												2
463—YELLOW-BELLIED FLYCATCHER	2											1
466a—TRAILL'S FLYCATCHER	5	1	1									30
467—LEAST FLYCATCHER	10	3		1								27
—EMPIDONAX												
477—BLUE JAY	3		1	8		6					14	11
488—COMMON CROW												
493—STARLING	2											12
494—BOBOLINK												
494—BROWN-HEADED COWBIRD	35		1				3					20
497—YELLOW-HEADED BLACKBIRD			1									12
498—REDWINGED BLACKBIRD	6	1	16				7					26
501—EASTERN MEADOWLARK												1
501.1—WESTERN MEADOWLARK												2
506—ORCHARD ORIOLE												
507—BALTIMORE ORIOLE	2			2			1					15
509—RUSTY BLACKBIRD												5
510—BREWER'S BLACKBIRD	1											
511b—COMMON GRACKLE	3	2	1	1			9				4	19
514—EVENING GROSBEAK	30					6	166					1
515g—PINE GROSBEAK							2					
517—PURPLE FINCH	7	2		1			113					90
528b—COMMON REDPOLL												1
529—AMERICAN GOLDFINCH	96	9	5									127
533—PINE SISKIN	1											
540—VESPER SPARROW		1										9
542f—SAVANNAH SPARROW	3		1									1
546—GRASSHOPPER SPARROW												5
552—LARK SPARROW												1
553 HARRIS' SPARROW	3						31					5
554—WHITE-CROWNED SPARROW	1						10					8
554a—WHITE-CROWNED SPARROW	8											17
558—WHITE-THROATED SPARROW	35		18	2			54					60
559—TREE SPARROW	19		8									8
560—CHIPPING SPARROW	9			5								22
561—CLAY-COLORED SPARROW	1			6								3
563—FIELD SPARROW		3	1									33
566—WHITE-WINGED JUNCO		1										
567—SLATE-COLORED JUNCO	80	42	18	18			52	1		3		115
567f—OREGON JUNCO	2	3										1
581u—SONG SPARROW	12	12	12	1								139
583—LINCOLN'S SPARROW	2		3	2			1					23
584a—SWAMP SPARROW	2		1									52
585—FOX SPARROW	2		7				10					18
587—RUFIOUS-SIDED TOWHEE		1										2
588—ARCTIC TOWHEE (Arcticus)												
593—CARDINAL			9	1								27
595—ROSEBREASTED GROSBEAK	1	1		1								18
598—INDIGO BUNTING		1										16
611—PURPLE MARTIN											2	2
612—CLIFF SWALLOW												1
613—BARN SWALLOW								2				2

Kuyava, Gary C.	Lien, Boyd M.	Marshall, Dr. Wm. H.	Minn. Dept. of Conservation, Forrest B. Lee	Mud Lake Nat. Wildlife Ref., H. H. Dill, Mgr.	Olyphant, Mrs. Murray Jr.	Orke, Donald	Peterson, Mrs. C. E.	Pratt, Walter E.	Rustad, Orwin A.	Selnes, Mrs. E. R.	Smith, J. Morton	Strnad, Forest V.	U.S. Fish & Wildlife Ser. Wm. J. Ellerbrock, Jr.	Upper Mississippi Fish & Wildlife Ref. Don Gray, Mgr.	Woolverton, Edwin M.	Culbertson, Mrs. G. H.	Totals
4	14																128
1	1																2
									1	1		4					6
6	2				1		5		2	2		18				1	45
1												7					4
												1					894
1												3					3
	1											1					4
2	2								1			5					24
	2								4			3					10
1	3									2		1					9
21												2					23
17	7								1			3					65
43	6								10			3					103
							1										1
25	8				6	6	9	2	21	27	1	18				5	171
1			1														2
61	2								4			44					125
									5								6
34	1									2		7					103
				7								1					21
12	4									10		13					95
												3					3
							1										1
1	3						2			4		1					81
1												1					2
																	1
41	19		5	2			43	15	14	41	2	163					325
4	1																263
161	1				1		4	13	3			16					412
1						1						8					9
95	49						4	4	31			86					506
1																	2
									1			1					12
7									1			1					14
												1					3
20	1						2		4		8	4					78
42									1		3						43
												5					35
622	9				1		23		47	44	14	45				3	977
9	5								1			12				1	63
20							5		2	2		2					23
23							2					1					23
	5								7			19					26
																	1
352	42				24	6	5	24	14	169	26	121				15	1,127
2												2					10
93	23						2		18	5		64				13	394
20	4						27		2	2	7	9					102
12	14						1		5	1		13					101
36	1								5			19					98
1	1								1			1					2
																	1
3	5								2	1		14					62
9	1						3			2		1					37
	3											6					26
												28					26
												30					237
							53		2			36					85

Bander's Name

A.O.U.

Number—Species

	Cohen, Robert R.	Corbin, Kendall W.	Findley, J. Scott	Goehring, Dr. Harry H.	Grether, David	Gullion, Gordon W.	Hanson, Harold	Hofstund, Dr. P. B.	Holden, Mrs. David J.	Janssen, Robert	Jiracek, Walter A.	Johnson, Carl M.
614—TREE SWALLOW	17					10						6
616—BANK SWALLOW	15											8
617—ROUGH-WINGED SWALLOW		1										1
618—BOHEMIAN WAXWING	1	9					8					80
619—CEDAR WAXWING	3	9	14									14
621a—NORTHERN SHRIKE												1
622e—LOGGERHEAD SHRIKE												5
624—RED-EYED VIREO	3	1	1									1
626—PHILADELPHIA VIREO												10
627—WARBLING VIREO			1									1
628—YELLOW-THROATED VIREO												1
629—SOLITARY VIREO			1									1
636—BLACK AND WHITE WARBLER												3
641—BLUE-WINGED WARBLER												5
645—NASHVILLE WARBLER	1			3								6
646—ORANGE-CROWNED WARBLER				6								2
647—TENNESSEE WARBLER	3		9									1
650—CAPE MAY WARBLER												23
652—YELLOW WARBLER	3		4									12
654—BLACK-THROATED BLUE WARBLER				33								1
655—MYRTLE WARBLER	3		4									1
657—MAGNOLIA WARBLER	1											3
659—CHESTNUT-SIDED WARBLER	1			1								1
660—BAY-BREASTED WARBLER			1									1
661—BLACKPOLL WARBLER												1
662—BLACKBURNIAN WARBLER												1
667—BLACK-THROATED GREEN WARBLER												4
671—PINE WARBLER												1
672—PALM WARBLER	1		4	3								27
674—OVENBIRD	1						1					1
675a—NORTHERN WATERTHRUSH	1	2		1								1
678—CONNECTICUT WARBLER	1											2
679—MOURNING WARBLER												2
680—MACGILLIVRAY'S WARBLER												46
681—YELLOWTHROAT	1	2	8									2
683—YELLOW-BREASTED CHAT					1							12
685—WILSON'S WARBLER												2
686—CANADA WARBLER												20
687—AMERICAN REDSTART	1			1								1
688.2—HOUSE SPARROW												1
697—WATER PIPIT	1		1									1
703—MOCKINGBIRD	1											1
704—CATBIRD	4	35	18	3			2					96
705—BROWN THRASHER	1	4		2						2		11
721—HOUSE WREN	5	3	1	4								8
724—SHORT-BILLED MARSH WREN												5
725—LONG-BILLED MARSH WREN												1
726—BROWN CREEPER			1	1								2
727—WHITE-BREASTED NUTHATCH			1	2								9
728—RED-BREASTED NUTHATCH	3											1
731—TUFTED TITMOUSE			2									5
735—BLACK-CAPPED CHICKADEE	19		16	10		9						39
740—BOREAL CHICKADEE												2
748—GOLDEN-CROWNED KINGLET												7
749—RUBY-CROWNED KINGLET	1			9								4
751—BLUE-GRAY GNATCATCHER												1
756—VEERY	1											7
757—GRAY-CHEEKED THRUSH	1											8
758a—SWAINSON'S THRUSH	1		1	3								3
759—HERMIT THRUSH	2			1		1						18
761—ROBIN	11	23		66		5					18	21
766—EASTERN BLUEBIRD	4											10
TOTAL SPECIES	76	29	40	34	2	6	17	4	1	1	6	139
TOTAL SUB-SPECIES	1											1
TOTAL BIRDS BANDED	569	178	193	477	625	33	475	410	2	3	43	1765

Koyava, Gary C.	Lien, Boyd M.	Marshall, Dr. Wm. H.	Minn. Dept. of Conservation, Forrest B. Lee	Mod Lake Nat. Wildlife Ref., H. H. Dill, Mgr.	Olyphant, Mrs. Murray Jr.	Orke, Donald	Peterson, Mrs. C. E.	Pratt, Walter E.	Rustad, Orwin A.	Seines, Mrs. E. R.	Smith, J. Morton	Srnad, Forest V.	U.S. Fish & Wildlife Ser. Wm. J. Ellerbrock, Jr.	Upper Mississippi Fish & Wildlife Ref. Don Gray, Mgr.	Woolverton, Edwin M.	Culbertson, Mrs. G. H.	Totals
37	5									23		6					104
13									1			12					88
1	1											4					7
3	2						7			1		10					110
1												11					44
												4					5
32	5						1					3					37
												1					3
	4								1			1					17
1							1										4
5							1		1			5					15
																	5
8	1								1	1		2					23
3							5										16
11							5		2			2					33
							1										1
7	23						4			1		4					69
					1												1
4	6						5		2	9		5					85
2												4					6
2												1					4
1							1					1					5
1							2										4
							1										1
1																	1
9	2								1			3					29
14							3		1		1	3				1	26
4	1								2			4					42
																	3
7							2				1	1					13
1																	1
16	5						10		5			13					106
1							1		1								16
2							1										5
10							2					12					46
											8						8
2	1								1			1					4
																	2
52	23						13		5	2		39					312
15	1		1				13		9	2		6				5	72
12	5						15		3	30		90					176
												1					6
												1					3
5	1									1		1					12
9						31	2		2	15		30					101
3												1			1		9
	2					1						3					9
124	27				71	12	14		23	21	6	106			2	5	504
1																	1
1							1										4
9	1						4		5	1		5					42
																	4
47	2						4		1								56
12							3			2		2					29
35							19		4	1		5					77
3							2		2			1					15
82	1		6		1	89	3	34	10	2	115						487
18	10									3	36						81
106	61	1	26	12	12	7	50	6	54	35	13	110	1	5	3	9	189
1							1					1					2
2590	389	10	4699	1523	152	36	442	61	330	478	80	1783	800	262	4	49	18,489

THE CANADIAN LAKEHEAD

by

Dr. A. E. Allin

Following a very mild December the mean temperatures for January and February were 2.2° and 1.8° above normal. March, however, was cold with a mean temperature 5.9° below the average. Snowfall for all three months was much below normal, the winter's total of 46.2" being little more than half the usual 82.5". All three months were unusually sunny. Rains commenced in the second week of April and now, in the middle of the month, streams and rivers are in flood. Only small patches of open water are present in Thunder Bay although there is open water beyond the Welcome Islands. Groundhogs were first noticed on March 29 and we saw our first butterfly, a Compton Tortoise Shell, on April 12.

Bird observations for the winter months were not unusual except for the flights of Bohemian Waxwings, Snowy Owls and Hawk-Owls. Bohemian Waxwings first appeared on October 23 and have been present throughout the winter but in smaller numbers than in the major incursion of a year ago. A flock of 15 was still present on April 17. Mr. Denis collected reports of 27 Snowy Owls between November 26 and January 15. He speculated the observations concerned at least 11 individuals. A few were present in late winter. Three were seen on April 22, a late date. The flight of Hawk-Owls was spectacular, following a good movement a year ago. Subsequent to the Speirs report of one present on September 3, at least 25 individuals have been recorded in the district. Five were present on March 27 but none has been seen subsequently.

Few Northern Shrikes have been seen locally this past winter but vis-

itors to Cook County regularly reported their presence until April 10. Common Ravens were very common all winter and a few still remain both here and along the highway to Grand Marais. Blue Jays were at least as common as usual.

This was really a Common Redpoll winter in contrast to last year when we did not see a Common Redpoll until March 22. Dorothy Allin reported one very large, very dark individual in a flock which fed in our garden throughout March. A few Hoary Redpolls were also present. Flocks built up to peak numbers by April 12, after which none was reported. Mr. Perrons noted flocks of Snow Buntings along the Canadian Pacific Railway west of the Lakehead throughout the winter. The first local flock this spring was seen on April 16. Small numbers of Evening Grosbeaks were present all winter. Pine Grosbeaks were never abundant but small groups were seen until the end of March. Dr. Quackenbush reported the only Red Crossbill on February 28. At least two White-breasted Nuthatches wintered here but Red-breasted Nuthatches were conspicuous by their absence.

Few summer residents were reported this past winter. Only a single Robin was recorded in contrast to the great flocks of 1958-59. A Pigeon Hawk was seen on several occasions. The Red-tailed Hawk seen by the Allins on February 14 was the first winter record for this species at the Lakehead. The Mockingbird which appeared on November 26 remained throughout December. Early in January it was trapped and kept in captivity until April 15 when it was released. A Slate-colored Junco appeared at Mrs. Knowles' feeding station in

February and C. E. Garton saw one on the Minnesota side of Pigeon River on February 20.

The first migrants may have been Tree Sparrows, two of which were seen by T. Perrons at Raith on March 11. A Herring Gull was seen on March 16 and the first Common Crows appeared on March 21 but neither species was common until the end of the month. A Bald Eagle was seen in late March and a Slate-colored Junco on April 1. Norman Denis reported the next migrant, a Great Blue Heron, on April 9. A flock of Canada Geese was heard on April 11. A Common Grackle was seen on April 12. Robins, Golden-crowned Kinglets and a Mourning Dove were seen on April 13. Common Goldeneyes winter here in small numbers. By April 10, they were frequenting newly-opened waters. On April 15, Mrs. Hogarth reported Mallards, Black Ducks and Pintails. We observed our first Common Mergansers on April 16 and a beautiful male Hooded Merganser on April 18.

When we saw a Sparrow Hawk on April 10, the first migrant hawk of the season, we little realized it was the forerunner of the greatest spring movement of hawks that the Lakehead had witnessed in our experience. On April 12, Mrs. Hogarth reported the presence of several Rough-legged Hawks as well as a few Marsh Hawks. T. Perrons, reported at least 70 Rough-legged Hawks on April 14 including several very dark individuals and Dorothy Allin observed many hawks west of Nipigon on the same date. During the next few days Rough-legged and Sparrow Hawks were reported in numbers as well as a few Marsh Hawks. K. Denis reported two Pigeon Hawks on April 16 and we saw the first Red-tailed Hawk of the season on April 17 as we commenced a trip to Lutsen. On this trip we also saw 12 Sparrow Hawks, 3 Marsh and 8 Rough-legged Hawks. The majority of these were seen north of Pigeon River but on the return trip a Sparrow Hawk, 2

Marsh and 3 Rough-legged Hawks were seen in Minnesota. It would seem the flight was keeping back from the shore-line as no hawk was seen where the highway followed the lake. More Bald Eagles have been reported than in previous years.

The Thunder Bay Field Naturalists' Club has been fortunate in having members who are interested in the various branches of Natural History. C. E. Garton has spent several summers studying the Botany of the region and plans to continue these studies during the coming years. In time his knowledge of the plant life of the Lakehead will be as complete as that of Dr. Lakela for Northeastern Minnesota.

Last August Mr. Donaldson reported a Flying Squirrel at Shebandowan. There are not many local records for this interesting nocturnal species. Mr. Donaldson also reported a Gray Squirrel in Fort William on September 2. This was probably the same squirrel David Allin saw cross a busy thoroughfare on September 6. This resulted in a tail-end collision when a driver slammed on her brakes to avoid the Squirrel! In the summer of 1958, a Thirteen-lined Ground Squirrel was brought to Sibley Park and released. It survived the winter and was seen in late May 1959, by K. Denis and by David Allin a Park Naturalist. It was not seen later in the summer. This animal does not occur naturally closer to our area than south of Duluth.

A few Woodland Caribou still persist northeast of the Canadian Lakehead. Six were seen in the fall at Long Lac by K. Zroback. In the hinterlands to the north they were apparently increasing as there are expectations that a small number of licenses may soon be issued for the hunting of these animals despite a fear a few years ago that they were decreasing to a dangerous level.

Only a few years ago our Club urged that the season on Moose be closed. This was granted, to be reopened a few years later. Not due to

the temporarily closed season but rather to conditions generally favoring the Moose, the population has increased until it may well be approaching the maximum which the range can carry. It is believed there are at least 107,000 Moose in the Province of which 56,150 occur in Northern Ontario. In 1958, the Ontario kill totalled 6,787 Moose at an average cost of \$540.00 per animal.

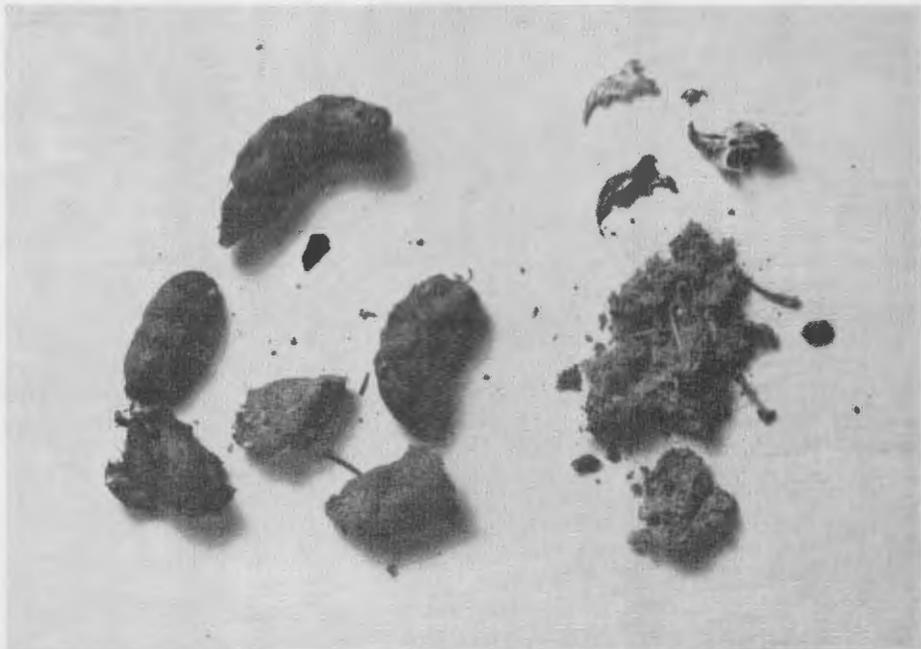
David Allin collected Golden Shiners in Lake Marie Louise, Sibley Peninsula, June 28, 1959. Our only previous record for this species in Thunder Bay District was one taken in the same lake by M. Porter on July 11, 1957. David also took a Largemouth Black Bass from Ponsford's Lake; the first to be caught there since they were introduced several years ago. That introduction probably explains reports of their capture two years ago in Black Bay. The Smallmouth, introduced into Lake Marie Louise, on the Sibley Peninsula escaped through Sibley Creek into Lake Superior. The Black Crappie introduced into Addison's Lake has also escaped into Black Bay.

The *Cottids* from this general area are proving unusually difficult to identify. Some, at least, appear intermediate between *cognatus* and *bairdii*. The Muskellunge does not occur near the Lakehead but a few have recent-

ly been taken at the mouth of the Big Pic River at Marathon. An Alewife was taken in Black Bay during the summer of 1959, the second local record for this species, long present in Lake Ontario and presently extends its range up the Great Lakes. In September we examined two Silver Redhorse Mulletts taken in the Kaministiquia River. Previously we had only identified the Northern Redhorse locally.

Although the region is remote from the Lakehead, introductions by the Ontario Department of Land and Forests of two species of Pacific Salmon are of interest. With the hope they might thrive, and provide an additional source of food for the native Indians and Eskimos of the northern portion of Patricia District, Chum and Pink Salmon were introduced in 1955 and 1956 into rivers flowing into James Bay. A million Chum Salmon eggs were obtained from Washington State. Five hundred thousand eyed-eggs were introduced into the Winisk and Mishamattawa Rivers and 500,000 locally hatched fry into the Attawapiskat River in the spring of 1955. In the spring of 1956, 750,000 eggs of the Pink Salmon were introduced into Goose Creek, actually a river not far from the Severn. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

NOTES OF INTEREST



SAW-WHET OWL PELLETS — A Saw-whet Owl remained in Eden Prairie, Hennepin County from January to March 31, 1959. At that time I was preparing to study some 1300 owl pellets (see *The Flicker* Vol. 32 no. 2, p.13) and hoped to include a few from the Saw-Whet Owl. Unfortunately, I could obtain only one pellet, but it did contain a Masked Shrew skull. When the owl was reported in the same area again this year (January 30, 1960), I made it a point to check regularly for pellets. Two were collected January 31, eight February 7, three March 6, two March 20, and twelve on March 27. The owl was last seen on March 20. The twenty-seven pellets contained four lower left and four lower right mandibles and five maxillary-molar portions of the Northern Deer Mouse. This would indicate at least five occurrences for this species. The pellets also contained nine lower left and seven lower right mandibles and seven maxillary-molar portions of *Microtine* mice. This indicates at least nine occurrences for the *Microtine* family. The accompanying photograph shows the pellets and the mammals remains. Thus there were 14 occurrences, all of mammals, from the 27 pellets or approximately one occurrence for every two pellets. The owl was in the vicinity for at least 51 days. The discovered number of mammal occurrences, then, would indicate that on the average the owl consumed approximately one mouse every three and a half days. Despite the owl's diminutive size, I wonder if it could exist on such a scant diet or if an alternate roost somewhere in the area was used which would have revealed additional pellets. No such roost was ever found. The owl roosted about eleven feet from the ground in a dense stand of about fifty Scotch Pine trees. It sat next to the trunk and always on the same limb. During the day, whenever I visited the area, it seemed quite unconcerned with my presence. Ronald Huber, 1231 N.E. Fifth Street, Minneapolis, Minnesota.

PRAIRIE GROUSE DISTRIBUTION IN MINNESOTA — It is difficult to plot the present day distribution of the Greater Prairie Chicken and the Sharp-tailed Grouse in Minnesota and even more difficult to plot its distribution during various periods in the past. The distribution of the two species has been modified over the years by hunting, by changes in agricultural practices and by plant succession.

Some 20 years ago the Sharp-tailed Grouse was much more abundantly distributed in the north central and northeastern counties than it is today. At that time there was more brushland. In recent years, however, both the deciduous and evergreen forests have been maturing, particularly balsam fir which has come in abundantly in many areas. These conditions restrict the range of Sharp-tailed Grouse. At the present time the "sharptail" is most abundant in the northwestern counties but also occurs across the state from Pine County in a northwesterly direction. The ranges of the Sharp-tailed Grouse and the Greater Prairie Chicken overlap in a large segment of the state as shown on the map on the back cover of this issue of *The Flicker*. In general, it can be said that the distribution of the Greater Prairie Chicken is more southern than that of the Sharp-tailed Grouse. As far as we can determine, the range of the Greater Prairie Chicken has shrunk in the north and northeast just as the range of the Sharp-tailed Grouse has shrunk. Likewise, the ranges of the two birds in recent years have shrunk on the southern edge of their distribution. This is much more true of the Greater Prairie Chicken than of the Sharp-tailed Grouse.

In the early years of the 20th century the Greater Prairie Chicken occurred over much of Southern Minnesota. As late as 1938 or 1939 it still occurred in Anoka County, but now the southern counties are Mille Lacs, Benton, and possibly Northern Sherburne County. The bird may occur in Chisago, Pine, Isanti and Kanabec Counties, but we do not have positive recent records.

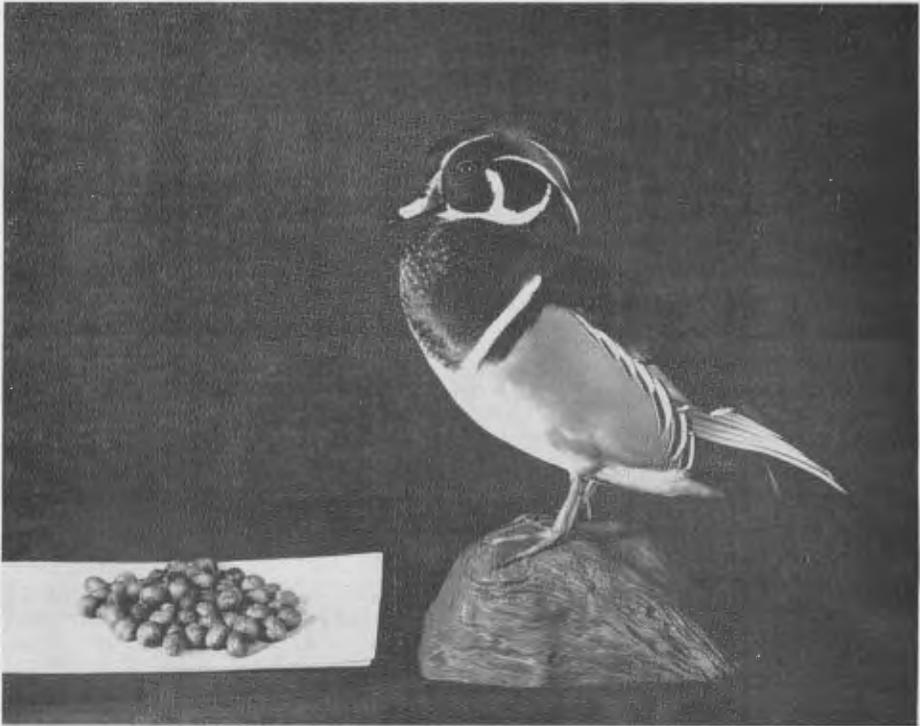
The present day distributions of the two prairie grouse have been determined from a number of sources. They include data from Distribution and Breeding Record Cards on file in the Division of Game and Fish from 1940 onward and observations by game biologists and game managers stationed in various parts of the state. In addition, a questionnaire was sent out in February, 1960 to all of the wardens in which they were asked to inform us whether they had seen or heard any prairie grouse in their particular counties during the past several years. The information from this questionnaire has been compiled and used in this report. There are, of course, large areas within the ranges as shown on the map that do not have prairie grouse.

There is one other source of information that has not been used in the compilation and this is the roadside count of prairie grouse made by the rural mail carriers in spring, 1959 and spring, 1960. These counts are made by the mail carriers over a period of 6 days as they make their regular mail deliveries. For the most part the mail carrier reports give a pattern of distribution similar to that shown on the map. In addition, the mail carriers report prairie grouse in some outlying counties which we are not sure about and therefore have not included in the present ranges. Some recent observations by Conservation Department personnel of large flocks of Sharp-tailed Grouse and Greater Prairie Chickens may be of interest. These are for the winter of 1959 and the spring of 1960. For example, Leon Johnson saw a flock of 40 Sharp-tailed Grouse in Beltrami County; Jay Haroldson saw a flock of 65 Sharp-tailed Grouse in Marshall County; Jack Jensen saw a flock of 60 Sharp-tailed Grouse in Roseau County; and Roger Lehmann saw a flock of 35 Sharp-tailed Grouse in Beltrami County.

Gordon Nielsen made the following observations on Greater Prairie Chickens on several state-owned refuges in January and February, 1960: Sixty-five birds on the Barnesville Refuge, 150 birds in a cornfield near town of Rollag, 76 birds on the Clay Wildlife Unit, 34 birds on the Bjornson Wildlife Unit, 200-250 birds on the Magnusson Unit, 40-50 birds on the Felton Unit and 16 birds on the Ulen Unit. These areas are all in Clay County. Gordon Nielsen also saw flocks of Greater Prairie Chickens numbering 200-250 birds on the Rothsay Refuge and the Atherton Wetlands Unit in Wilkin County. The observations in Wilkin County were made from an airplane.

Bird students can make a contribution to our knowledge of the distribution of prairie grouse in Minnesota by checking the south, north and north-east fringes of the range during spring months when the birds are on their dancing grounds. Additional observations are needed before we can state definitely that Greater Prairie Chickens and/or Sharp-tailed Grouse do or do not occur during the breeding season in the various fringe counties. — *Arnold B. Erickson and Robert E. Farms, Minnesota Department of Conservation, St. Paul, Minnesota, Minnesota P-R Projects W-11-R-20 and W-36-D-6.*

* * *



FOOD HABITS OF THE WOOD DUCK — During October, 1959, Mr. Jerry Green shot a male Wood Duck near Henning, Otter Tail County, Minnesota. In skinning out the specimen, 56 acorns were removed from the throat and crop. Volume of space acorns occupied was 130cc., the water displaced was equivalent to 45cc. The acorns were of the Bur Oak (*Quercus macrocarpa Michx.*) *John A. Jarosz, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota.*

RECENT NESTING OF THE WHITE PELICAN IN THE LAKE OF THE WOODS AREA — (*Editor's Note*: The following information was received from Mr. Magnus in response to an inquiry concerning the nesting of the White Pelican in Minnesota. It has been many years since this bird has been found breeding in this state. Even though this nesting record is for Ontario it is so close to Minnesota that it is possible the birds will nest in Minnesota in the very near future if they have not already done so. Mr. Magnus was formerly employed with the Minnesota State Conservation Department located in Baudette, Lake of the Woods county, area. Mr. Parker, who flew Mr. Magnus over the area, is presently employed as a game warden-pilot at Warroad, Minnesota. An attempt will be made by Warden Parker during the summer of 1960 to locate any possible nesting of the White Pelican in Minnesota.) "Game Warden John Parker and I flew over the nesting colonies of pelicans on Lake of the Woods during the summer of 1956 and we gathered the following information: My recollection of distances is vague but I believe the rock island group where the pelicans nested was about two miles east of Bear Island which is just inside Ontario. The closest island in Minnesota is Hay Island. The rock islands in the group varied from a few feet in size to an acre or more. White Pelicans, flightless young, occurred on two of the islands, one small one and one large one. There were 50 young on the larger island. Other islands in the group had nesting colonies of gulls, terns, and cormorants. Most of the herbaceous vegetation on the larger island, used by the pelicans, had been destroyed. We did not locate nor did we receive any reports of White Pelicans nesting in Minnesota in 1956. I do not believe that White Pelicans nested on Lake of the Woods in either 1957 or 1958 as we did not get any reports of White Pelicans and did not see any on the lake. The adult White Pelicans hunted (fished) the entire Minnesota portion of the lake. They were present near and around fish nets and traps to the point that the commercial fishermen were somewhat agitated." — *Lester T. Magnus, 7314 Dartmoor Avenue, Greendale, Wisconsin.*

* * *

WINTER BIRDS IN BELTRAMI AND LAKE OF THE WOODS COUNTIES — On December 20, 1959, Richard Oehlenschlager, Harding Huber and I were birding in the Kelliher, Beltrami County area. About six miles north of Kelliher, on Highway 72, just inside the Pine Island Forest, we saw two Great Gray Owls sitting alongside the road, in the snow. They flew in a circle as we stopped near them, and they finally landed in the tops of some White Cedars. As we got out of the car, the owls peered down at us in a curious manner, with their heads cocked to one side. When we crossed the road for an even closer look, they flew back into a Cedar swamp. We examined the area where they had been sitting in the snow and found an injured Common Meadow Mouse. The mouse was still alive, and as we watched it spinning in the snow, another one emerged from its runway beneath the snow and darted to a new runway. Just after crossing the Lake-of-the-Woods County line, we saw a flock of about forty Sharp-tailed Grouse perched high in the treetops. This species was seen frequently throughout the day in scattered portions of Beltrami and Lake-of-the-Woods Counties. Also seen in these two counties were Rough-legged Hawk, Ruffed Grouse, Great Horned Owl, Gray Jay, Common Raven, Black-billed Magpie, Pine Grosbeak, Common Redpoll, Northern Shrike and Snow Bunting. One flock of Snow Buntings contained at least 450 birds and rose from the highway like a great, swirling cloud. Hoary Redpolls dotted most of the Common Redpoll flocks; and in one flock of ten Redpolls, seven of them were Hoarys. *Ronald L. Huber, 1231 N.E. 5th Street, Minneapolis, Minnesota.*

A BALD EAGLE EXPLOIT — In the Columbia Heights Record of December 31, 1959 the following account appeared. The plate accompanying the article revealed that the "Black Eagle" was an immature Bald Eagle.

DOG RESCUES COLLIE
ATTACKED BY EAGLE

"An Eagle swooped down over a farm belonging to a former Columbia Heights building contractor near Strawberry Lake, Minn., recently and snatched a 40 lb. dog from the ground.

"Another dog leaped to its companion's rescue, wounding the bird before it could carry off its prey.

"Willis Cummins, owner of the dogs, gave this account of the attack.

"A Black Eagle, which later measurement showed had a wing span of 7 ft. 4 in., dived on one of the dogs, a Collie named Lassie.

"Gripped between the Eagle's talons, the dog was lifted some 4 ft. off the ground when a husky 50 lb. Labrador leaped to its rescue.

"The dog caught the bird by its neck, Cummins said. Its prey released, the wounded bird dropped into a nearby lake after a flight of some 150 ft.

"The Labrador completed the kill after swimming out to the wounded Eagle.

"Cummins lives on a farm east of Omega, Minn., within sight of a state game refuge."

Feeling that the part of the story where the bird lifted the 40 lb. Collie 4 feet off the ground was beyond doubt incorrect, I wondered how much more of the tale might have been invented by an enterprising reporter. Some checking first revealed that the location was Ogema not "Omega". This happened to be near the Waubun Prairie Research Area which John Tester and I visited frequently and it was not difficult to find Mr. Cummings' farm on Strawberry Lake. A visit with him personally brought out the fact that the story was essentially true except that the bird did not lift the collie from the ground but simply pounced on its head leaving several gashes in its flesh. Also Mr. Cummings aided the dogs in dispatching the bird.

In late fall just before the freezeup one would not suppose that food would be particularly scarce and hunger would drive the bird to such a bold attack. However, a young bird with little hunting experience may have had difficulty securing sufficient food. At any rate it is surprising that this bird would attack prey as large as a collie dog. *W. J. Breckenridge, Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.*

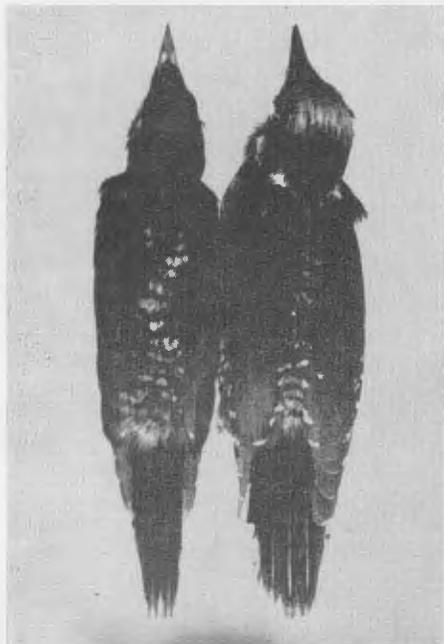
* * *

AITKIN COUNTY OBSERVATIONS — On Sunday, November 20, 1959, I observed a Cardinal in our garden at our home, located on the north shore of Mille Lacs Lake, in Aitkin County. The individual was an adult male. He fed on asparagus seeds, perhaps 50 feet from our house, but refused to come to our feeding stations. On Tuesday January 14, 1959, a pair of Cardinals came to the feeding station, within 15 feet of our house. The birds remained around most of the forenoon. On May 5, 1959, my father and I observed an European Widgeon on Elm Island in Aitkin County. The bird, a single male, was in company with a flock of a half dozen or more American Widgeons. We were in our car on a hill overlooking the lake, about 75 yards from the ducks. On first sighting the bird we mistook it for a Redhead but on closer examination with field glasses it proved to be the European Widgeon. *Douglas Hall, Route 1, Aitkin, Minnesota.*

THE CHUKAR IN MINNESOTA — The Chukar was first released in Minnesota on September 3, 1937 in Martin County. That same month they were also released in Olmsted, Ottertail, Itasca and Pine Counties. During the next ten years, some 85,000 Chukar's were released throughout all of Minnesota's 87 counties. They appeared to take hold, at first, in Stearns, Benton, Sherburne, Wright, Hennepin, Anoka, Chisago, Pine, Itasca, St. Louis, and Lake Counties (1942). By 1951, they had dwindled to two small flocks at Ely, St. Louis County, and Larsmont, Lake County. At present, they appear to be surviving only at Ely. Factors in favor of the bird surviving in Minnesota are: (a) they can withstand temperatures of 45 degrees below zero if food is adequate, (b) the Minnesota strain of Chukar appears to be immune to the common cold and "blackhead" (a disease of fowl) and (c) the average egg clutch numbers sixteen. However, the bird falls prey to cats, dogs, hawks, owls, and humans. Also it acts quite tame and a heavy toll is probably taken. The largest depletion factor, however, is lack of winter food. During the summer, insects and worms supplement the weed seed diet. During the winter, ragweed, dock, evening primrose, cherry, dogwood and raspberry are eaten when not covered by snow. Artificial feeding has apparently been the sustaining element in the survival of the Chukar at Ely, since the townspeople and the men in the mines supply food for the birds. On November 7 and 28, 1959 and March 26, 1960, members of the Minneapolis Avifaunal Club observed at least 30 Chukar's at Ely. The birds favored the outlying border of the residential district, the woodpiles on the brink of the pit mine, and the yards of the railroad station. *Ronald L. Huber, 1231 N.E. 5th street, Minneapolis, Minnesota.*

* * *

NORTHERN THREE-TOED WOODPECKER SPECIMEN — There have been few valid recent records for the Northern Three-toed Woodpecker in



Minnesota. On February 22, 1960 I collected a male of this species in the Northwest Angle, Lake of the Woods County. It was feeding in a grove of White Spruce and Red Cedar. The bird, when prepared, weighed 55.0 grams, and had very little fat. It measured in total length, 22 mm. and in wing spread, 360 mm. Compared to other specimens of the species from Minnesota this individual has a marked reduction in the white barring of the back. The white markings are so reduced as to give the bird the appearance of having a black back, as can be seen in the accompanying photograph. The measurements, however, are completely typical of this species, as are the barrings of the rump area. *Robert W. Dickerman, Museum of Natural History, University of Minnesota, Minneapolis, 14, Minnesota.*

AN OWL TRAP — To bird banders who can easily capture almost any species of bird the owls are a frustrating group. It is easy to band the young in the nest, but how does one capture the adults and flying young?

It was with this thought that I began to try an idea familiar to many bird banders. This is the Bal-chatri Hawk Trap which is really no more than a box of screen (hardware cloth) with many snare-like loops on the upper surface. Inside of this box is placed a rat, House Sparrow or Starling. When baited the trap is placed in a likely spot or is dropped from a moving car under a hawk which is sitting on a pole. The hawk, upon seeing the moving animal dives on it and its feet become entangled in the many snares.

When this trap was tried on owls it was an utter failure at my banding station. Not to be discouraged, I thought that I would try a modification in the size of the trap and the type of bait used.

I built a screen box, one foot square and one foot deep and tied a series of snares on the top surface. For bait I used a small rabbit. With this bait inside of the trap I put it in a rather open part of my back yard at dusk. In an hour, hearing a noise in the vicinity of the trap, I investigated. I found a Long-eared Owl tangled in the snares. The rabbit was unharmed so I released it. It was some time before I was able to use the trap again, but when I did I caught two Great Horned Owls within an hour of each other. At the end of 1959, I had banded 5 species of owls. These were four Great Horned Owls, one Long-eared Owl, one Saw-whet Owl, one Boreal Owl and one Snowy Owl.

Needless to say, I think this trap is quite successful. If any interested banders would like to have the construction details for this trap I would be most happy to supply them. *Gary C. Kuyava, 1611 North Seventh Avenue East, Duluth, Minnesota.* * * *

THE HARRIS' SPARROW AND RUBY-CROWNED KINGLET WINTER AT SAUK RAPIDS — After a snowstorm on December 24, 1959, Mrs. Rudolph Misho saw a Harris' Sparrow at her feeding station on the south side of her home, about a mile east of Sauk Rapids, Benton County. The bird flitted about the bushes, then hopped down and helped itself to the mash, mostly oats and corn. It was contented to eat with the Slate-Colored Juncos, Black-Capped Chickadees, House Sparrows and even a Cardinal. The St. Cloud Bird Club observed the bird on its winter bird count, January 2, 1960. The bird has remained about the premises to the date of this writing (March 1) and still comes to the feeder daily. During the winter bird count of the St. Cloud Bird Club on January 2, 1960, a Ruby-Crowned Kinglet was seen in the same area that the Harris' Sparrow was observed. The kinglet did not go to the feeder for food. The bird was not observed after the above date. *Monica Misho, Sauk Rapids, Minnesota.* * * *

RED-SHOULDERED HAWK COMES TO FEEDING STATION — On January 31, 1960 I was just getting out of the car when I heard what I thought to be a Blue Jay imitating a Red-Shouldered Hawk. I went into the house and looked at my feeders from the living room window. There sitting on a large piece of suet was a Red-Shouldered Hawk. The bird was tearing the suet apart to get at the kidney which was contained within it. I went to get my camera but my sudden movement scared the hawk away. The bird returned February 2 and 4. Each time, because of the proximity of the feeders to the house (15 feet), the hawk was scared away by the slightest movement. Because of this I was unable to obtain any pictures. The bird did not return after February 4. *David Pearson, 8844 Mississippi Boulevard, Minneapolis 21, Minnesota.*

GREATER PRAIRIE CHICKENS IN WADENA COUNTY, MINNESOTA — On February 28, 1960, Richard Oehlenschlager, Harding Huber and I were birdwatching near Nimrod, Wadena County, shortly after dawn. Due east of Nimrod, about a mile from the Cass County line, we observed a single Greater Prairie Chicken perched atop a small tree. Richard had observed this behavior previously and said the bird was acting as sentinel for a flock feeding nearby. This behavior would probably be unique to that part of the bird's range which extends into woodland areas. Current literature makes no reference to this behavior but Dr. Warner of the museum staff has also observed this behavior.

About two miles east of Nimrod, a flock of seventeen Greater Prairie Chickens were seen feeding in an open field. Richard said the birds arrive there every morning about nine.

During T. S. Roberts' time, the Greater Prairie Chicken was scattered around the state, including Beltrami County, the Mesabi Iron Range, and the North Shore. At that time the bird was still extending its range northward and westward in Minnesota. At present, if one wishes to see this bird, the best locations are Rothsay, Wilkin County; Waubun or Mahnomen, Mahnomen County; and Nimrod, Wadena County. *Ronald Huber 1231 N.E. 5th Street, Minneapolis, Minnesota.*

* * *

OLDSQUAW SEEN IN MINNEAPOLIS AREA — On April 6, 1960 I was birding by the Coon Rapids Dam, Anoka County, when I noticed a lighter duck in with some Lesser Scaup and Ring-Necked Ducks. After observing it for about fifteen minutes, I decided it was a female Oldsquaw still in its winter plumage. The next morning the Anoka Ornithology Class took a field trip to the dam where the duck was again seen with the aid of a 20x scope. I watched it a total of about seven hours the next two days. On Sunday April 10 Dr. Breckenridge and I saw it again and he positively identified it as a female Oldsquaw. I last saw the bird on Sunday afternoon, April 10. *David Pearson, 8844 Mississippi Boulevard, Minneapolis 21, Minnesota.*

* * *

COMMON RAVEN NESTING IN MINNESOTA — On April 12, 1960, Mr. Lloyd Nelson and Mr. Mike Evanochek of Ely, found and removed intact, a Common Raven's nest, from a cliff in the taconite quarry at Babbitt, T60N R12W S19, St. Louis County. It would have been destroyed by the next blast. It contained three eggs and the female was sitting on the eggs at the time. The nest was situated under an overhanging rock 25 feet from the base of the quarry and 10 feet from the top. One egg was broken during the removal. The nest was given to me by Refuge Patrolman Walt Rohl of Ely and it will be delivered to the Museum of Natural History, University of Minnesota. The bulk of the nest was made up of stout sticks and roots and the part containing the eggs was lined with rags and bark. *Milt Stenlund, Regional Game Manager, 111 Golf Course Road, Grand Rapids, Minnesota.*

* * *

BOREAL OWL BANDED AT DULUTH — On November 22, 1959, about an hour after dark I caught a Boreal Owl near my home. The bird was caught in a specially designed owl trap which I have used successfully in connection with my banding operation. What surprised me about the capture was that this very small owl had tried to catch a cottontail rabbit which was the bait inside of the trap. This bird is probably the first of its kind to be banded in the north central portion of the United States. *G. C. Kuyava, 1611 North 7th Avenue, East, Duluth, Minnesota.*

THE NATURE CONSERVANCY

by

Sigurd F. Olson

The Nature Conservancy believes it is worthwhile to preserve ample plots of undisturbed nature all over the United States, places which still retain some semblance of the primeval.

Sir Julian Huxley said recently: "The important ends of man's life include the creation and enjoyment of beauty, both natural and man made, the preservation of all sources of pure wonder and delight like fine scenery, wild animals in freedom, or unspoiled nature and through these the attainment of inner peace and harmony."

The Nature Conservancy believes with Sir Julian that it is important to preserve wherever possible places of pure wonder and delight in the world of nature and that by so doing man's enjoyment of the earth will be increased as well as his ability to survive in a world of growing artificiality, tension and confusion.

This organization is of national scope with a recently organized Minnesota Chapter whose aim is to preserve small areas all over the state, bits of native prairie, creek bottoms where rare species such as the Trout Lily still bloom, patches of undisturbed woodland where the moccasin flowers grow or arbutus. The larger wilderness regions of the national forests or parks it leaves to other groups or agencies, the little places that are almost forgotten being its major concern, places close to towns and cities and roadsides that can be studied and enjoyed by all.

In this era of population explosion,

the expansion of our industrial system and the elaborate network of super-highways and airfields, these little places are threatened as never before. All of us can remember places of beauty and charm that have been sacrificed within the last few years to progress.

The Nature Conservancy believes with Luther Gulick, the city planner, that within the pattern of the urban sprawl "we must provide places of recreation for many, contemplative opportunities for a few, and glimpses of beauty for all." It is in the interests of all that this organization is working, trying to provide for this generation and for all those to come, glimpses of beauty and inspiration. These areas need not be large, a few acres of undisturbed creek bottom, hillside, or prairie land, small islands, little bays or lakes or swamps, stands of old trees, all of which can be places of delight and wonder.

Such places need many friends. They must be acquired before it is too late. Acquisition takes money and so does an educational campaign to inform the public of their need of protection. So far the movement to preserve the little places has just begun in Minnesota. Anyone who remembers what has happened to wild places they have known and loved can work with the Minnesota Nature Conservancy to save those that still exist before it is too late. *Minnesota Nature Conservancy, W. H. Tusler, Chairman, 133 Foshay Tower, Minneapolis 2, Minnesota.*

BOOK REVIEW

The Ring, International Ornithological Bulletin

You might see THE RING or hear of it. Here are some facts and information on it. THE RING is an international, quarterly bulletin devoted entirely to bird banding and bird migration studies. Its main aim is to bring news and information on all the aspects of bird banding everywhere, either theoretical or practical. Since its first issue in October 1954 THE RING has published articles and notes by 134 authors from 47 countries, listed 1093 papers and studies in its bibliographical section, and reviewed 77 books of special selection. Besides the articles the permanent sections: 'Various Problems', 'How They Work', 'Notes and News', 'Recoveries', etc., supply a mass of interesting information referring to important banding problems, banding and trapping techniques, achievements and results obtained by all the banding schemes, events and news from all the parts of the world and most interesting and important recoveries of banded birds.

Bird banding is international in its aims and scope. It does not matter where you are living or banding, you need information on methods applied by others, results obtained elsewhere, and problems facing different stations or schemes. THE RING will keep you up to date in this respect, will link you with other banders throughout the world and will give you opportunities to share your experiences and troubles with them.

As a source of reference THE RING is invaluable and its 'Recent Liter-

ature' section is the most comprehensive and as complete as possible. Among others this is the reason for which THE RING should be kept by every general zoological or ornithological library.

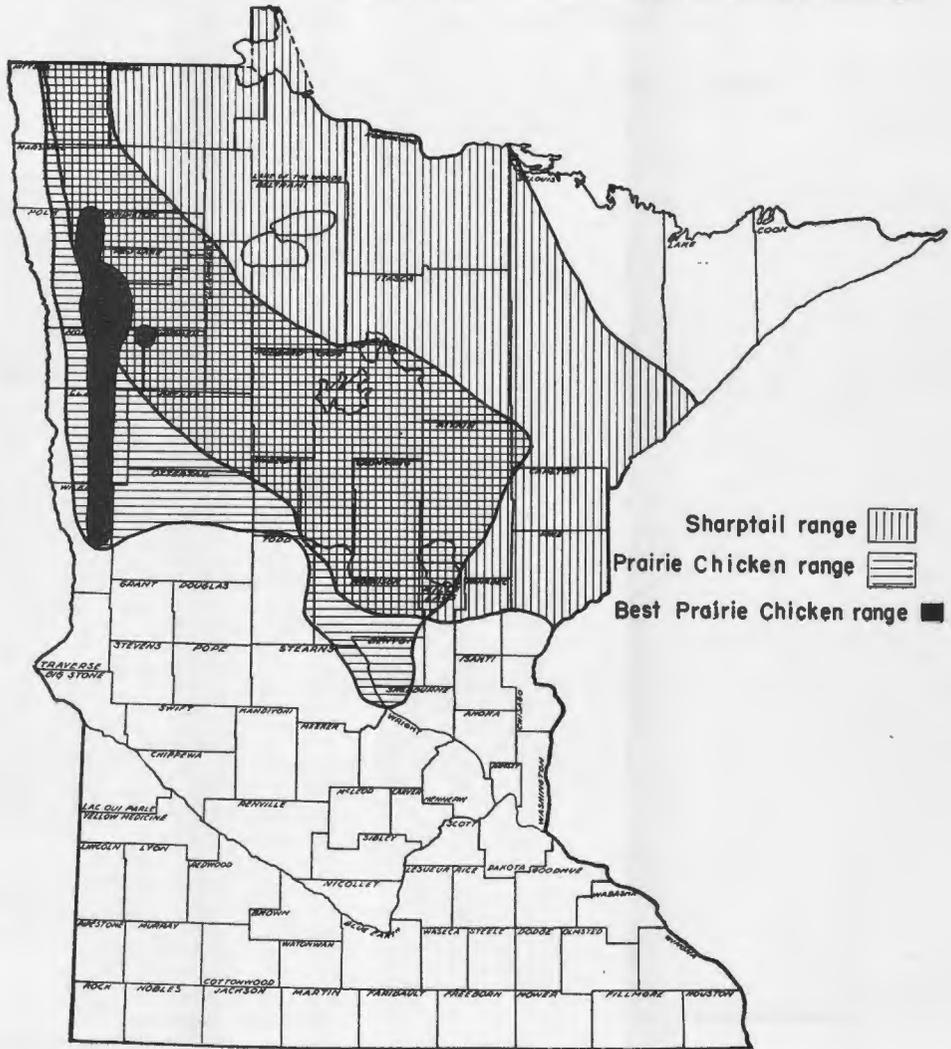
Last year THE RING was adopted by the International Committee for Bird Ringing as the medium of publication for all official recommendations and announcements of the committee. This makes it indispensable for everyone interested in the international aspect of bird banding. THE RING covers the entire banding world and its co-editors situated in various countries keep it well informed.

THE RING is self-supporting. It is not sponsored or financed by any institution or organization thus is entirely independent. However, like every periodical of its kind THE RING depends on support given to it by its subscribers. The more subscribers the better, especially as every new subscriber is expected to become also a contributor.

You are invited to join the circle of readers of THE RING. Individuals, institutions and libraries should be interested in the permanent supply of the issues of THE RING. Its annual subscription amounts to 20 shillings or \$3.00 post free. Why not give it a trial by subscribing for a year? Do it, you certainly will not regret it!

THE RING is edited by Dr. W. Ryzewski and can be ordered either directly from: 1 Altyre Road, Croydon, Surrey, England, or through any book agency everywhere.

NESTING DISTRIBUTION OF THE GREATER PRAIRIE CHICKEN AND SHARP-TAILED GROUSE



In 1932 Thomas Roberts described in *The Birds of Minnesota* the migrations of the Greater Prairie Chicken and Sharp-tailed Grouse based on all available historical material and his own observations. Even with this wealth of information it is difficult to draw boundary lines showing the ranges of the birds at any particular date from 1858 onward. In 1955 Aldrich and Duvall (*Distribution of American Gallinaceous Game Birds*, U. S. Fish and Wildlife Service, Circular 34) presented distributional maps that must be regarded as extremely generalized. The present map is based on the latest available data as described on page 60 of this issue of *The Flicker*. — Robert E. Farnes, Arnold B. Erickson, Milton H. Stenlund, Minnesota Department of Conservation, St. Paul, Minnesota.

Affiliated Clubs and Officers of the Minnesota Ornithologists' Union

Albert Lea Audubon Society

President: Loes P. Scott
514 Fountain Street
Albert Lea, Minnesota

Vice President: Helen Johnsrud
307 W. Hawthorne Street
Albert Lea, Minnesota

Secretary: Paul N. Nelson
1505 Sunset
Albert Lea, Minnesota

Treasurer: Joseph A. Janson
322 Vine
Albert Lea, Minnesota

M.O.U. Representative: Loes P. Scott

Avifaunal Club

Coordinator: William R. Pieper
2702 Kentucky Avenue N.
Minneapolis, Minnesota

M.O.U. Representative: Robert B. Janssen

Duluth Bird Club

President: P. B. Hofslund
Biology Department
University of Minnesota, Duluth
Duluth, Minnesota

Vice President: Gary C. Kuyava
1611 N. 7th Avenue E.
Duluth, Minnesota

Secretary: Mrs. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

Treasurer: Mr. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

M.O.U. Representatives: Mrs. Harvey Putnam
J. K. Bronoel

Mankato Audubon Society

President: Helen Alder
304 N. 4th Street
Mankato, Minnesota

Vice President: Mrs. Grace Carter
422 W. 6th Street
Mankato, Minnesota

Secretary: Violet Panzram
302½ S. Front Street
Mankato, Minnesota

Treasurer: Mrs. Harvey Polchow
938 Charles Avenue
Mankato, Minnesota

M.O.U. Representative: William R. Luwe

Minneapolis Audubon Society

President: Mrs. R. E. Whitesel
5707 Bryant Avenue
Minneapolis, Minnesota

Vice President: Mrs. Myrtle M. Mahoney
5609 Pleasant Avenue
Minneapolis, Minnesota

Corresponding

Secretary: Mrs. W. H. Lonney
3116 Irving Avenue S.
Minneapolis, Minnesota

Treasurer: Mrs. W. H. Sowden
2853 Hayes Street N.E.
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Mary Lupient

Minneapolis Bird Club

President: Arthur Anderson
1975 James Avenue
St. Paul, Minnesota

Vice President: Mox Lindquist
3423 Pleasant Avenue
Minneapolis, Minnesota

Secretary: Clara Belle Thoresen
4112 28th Avenue S.
Minneapolis, Minnesota

Treasurer: Melvin Stenrud
2930 Yosemite Avenue
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Boyd M. Lien

Minnesota Bird Club

President: Robert B. Janssen
1817 W. 59th Street
Minneapolis, Minnesota

Vice President: Robert Nordgren
79 Seymour Avenue S.E.
Minneapolis, Minnesota

Secretary: Mrs. Jane Olyphant
4000 Hidden Bay Road
St. Paul, Minnesota

Treasurer: Beth Doeringsfeld
943 17th Avenue S.E.
Minneapolis, Minnesota

M.O.U. Representative: Dr. Walter J. Breckenridge

St. Paul Audubon Society

President: Berghild M. Berntsen
312 Summit Avenue
St. Paul, Minnesota

Vice President: Ella M. Hodnett
108 Pierce Street,
St. Paul, Minnesota

Corresponding

Secretary: Harriet Sewall
1295 N. Cleveland Avenue
St. Paul, Minnesota

Treasurer: Ellen L. Manke
168 Summit Avenue
St. Paul, Minnesota

M.O.U. Representative: Joseph H. Reisinger

The Flicker

VOLUME 32

SEPTEMBER 1960

NUMBER 3



PUBLISHED QUARTERLY BY
THE MINNESOTA ORNITHOLOGISTS' UNION

PERMANENT ADDRESS
MUSEUM OF NATURAL HISTORY
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

TABLE OF CONTENTS

The President's Page	69
Cora Alta Corneia — In Memoriam	70
by Meribeth J. Mitchell	
A Study of Harbor Island, Duluth	73
by Robert R. Cohen	
Seasonal Report	76
by Mary Lupient	
1959 Minnesota Christmas Bird Count	79
by Loes P. Scott	
Minnesota's Birdwatching Opportunities	85
by Ronald L. Huber	
The Plains Pocket Mouse in Minnesota	89
by Edmund A. Hibbard and James R. Beer	
The Canadian Lakehead	95
by A. E. Allin	
Notes of Interest	99
List of Minnesota Bird Banders	104
Location of Minnesota Bird Banders (Map, Inside Back Cover)	

THE FLICKER

Organ of the *Minnesota Ornithologists' Union*. Published quarterly in March, June, September, and December. *The Flicker* is sent to all members not in arrears for dues. Dues for members: Active, \$3.00, Sustaining, \$5.00; Life, \$50; Patron, \$100 or more. All articles and communications for publications should be sent to the editor. Subscriptions, memberships, and requests for back issues should be sent to the treasurer.

President — Douglas Campbell, 4917 Russell Avenue S., Minneapolis, Minnesota

Vice President — Rev. Forest V. Strnad, Kasson, Minnesota

Secretary — Loes P. Scott, 514 Fountain Street, Albert Lea, Minnesota

Treasurer — Mrs. Mary I. Lupient, 212 Bedford Street, SE, Minneapolis, Minnesota

Editor — Robert B. Janssen, 1817 W. 59th Street, Minneapolis, Minnesota

Associate Editors — Dwain W. Warner, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota, William H. Marshall, Division of Entomology and Economic Zoology, University of Minnesota, St. Paul, Minnesota, and Rev. Forest V. Strnad, Kasson, Minnesota

THE COVER

Photo of a live YELLOW RAIL taken by Robert B. Janssen. This bird was captured alive in a marsh in Becker County, Minnesota. See Notes of Interest, page 102.

THE PRESIDENT'S PAGE

Everyone talks about incentive these days. As in any other human enterprise, the activity of bird-watching is kindled and sustained by our incentives. So it seems to me to be worthwhile to study these incentives.

Any of our higher incentives can be discussed in terms of our attempt to discover, understand and participate in those eternal absolutes: TRUTH, BEAUTY AND LOVE! In these terms I write of bird-watching.

In man's search for Truth it is a generally accepted tenet that "The Universe Is Knowable." To the deist this is evidence of God's orderly creation. To the agnostic, no sure evidence at all. But it is not easy to find a modern man of either sort who will deny that precise knowledge of our environment is available. I think we watch birds to collect a body of knowledge, a variety of experiences. Our life lists, locality lists, bird counts, habitat studies, and even the songs whose singer we can name are collections of knowledge recognized by others. Thus, we watch birds to know TRUTH.

Beauty is difficult to define. It is, I think, subjective and conditioned by experience. Most people see beauty in a gull, a warbler, a thrush's song. I think we bird-watchers also feel that there is beauty in the powerful drive of a narrow V of Canvasbacks, the wild music of Loons, the muted elegance of the Sora's plumage. Can anyone think of an undeniably ugly bird? Turkey Vultures, even, are beautiful when they are soaring far in the sky. In watching birds we widen our opportunity to sense BEAUTY.

The greatest incentive of all, as in all things, is LOVE. The possibility of loving birds necessitates our ascribing a personality to them. (You can't really love a house or a car!) That we do personify birds seems evident to me. We apply personal adjectives to the notes of birds: cheery, triumphant or lonesome, and we are likely to presume that notes waking a like response in us are evidence of the bird's feelings and response to his environment. It is at least difficult to watch territorial behavior, care of progeny or courtship without feeling that, however dim their intellect, birds show personality and willingness strikingly like our own. Such anthropomorphism conflicts sharply with the fundamental assumptions of scientific disciplines and can not be the subject matter of science. However, bird-watching is recreation and renewal for most of us and at times even for the professional ornithologist. At such times, we are Lovers, not scientists, and we revel in the experience.

Douglas Campbell

CORA ALTA CORNIEA – IN MEMORIAM

1889-1958

by Meribeth J. Mitchell

Cora Alta Ray was born in Albany, Missouri of Virginian stock. Her ancestors had migrated to Missouri earlier via Kentucky. Her avid interest in history was further heightened by this personal background. During her childhood her family moved to Kansas and as a young woman she came to Minneapolis where she did clerical work until her marriage to Dr. A. D. Corniea.

Only in hearing one after another describe her in similar terms does one realize what an unusual person she was. One could not but be impressed by the number of people who described her boundless enthusiasm, her tireless energy and vitality, her warm out-going cheerfulness and her wren-like manner. People interested her and she loved children. She was a person who derived much pleasure in finding small ways of making life more pleasing for those around her.

Her keen mind and unusually excellent memory revealed themselves in her varied activities. She was an ardent student and extremely widely read. She particularly delighted in histories, biographies and varied scientific works. She enjoyed browsing through second-hand bookstores and several people related how she had located for them a certain rare volume he or she had been seeking.

Her wide reading led to the collecting of antiques. Several acquaintances commented on her almost professional knowledge of both antique furniture and glassware. They recalled trips with her in search of antiques which were hardly ever without adventure because of her inborn sense of humor and her forthright manner.

She and her husband shared their

many interests and were active in a number of organizations. Through the Archeological Society she became further interested in the early history and Indians of this region. She participated in many of the Geological Society's field trips and in listening to others reminisce one again heard frequent mention of her lively sense of humor. She also belonged to the Minnesota Botanical Club and was rather well known in this group as an amateur mycologist.

She was a charter member of the Minnesota Bird Club and also a member of the Audubon Society. Participants in the annual Christmas Bird Census at the Cedar Creek Natural History Area remembered her entertaining the group each year at her cabin, providing them with hot coffee and delicious food. They also recalled how the birds would always single her out of a group and perch on her hand to be fed individually. They seemed to recognize in her a true and devoted friend. She fed them throughout the year and often walked into the area through the snow to replenish the feeding stations.

Both she and her husband were charter members of the Natural History Society of Minnesota. In the early years of the organization she was particularly active in recruiting new members. Many people laughingly recounted that they first joined literally in self-defense, so ardent was her zeal for promoting the infant organization.

The role for which she will be remembered the longest, however, is the important part she played in the establishment of the Cedar Creek Natural History Area located north of Minneapolis. Originally discovered

independently by Cooper, Rosendahl and Butters in the early thirties, she learned of the area and in 1937 purchased an 80-acre tract in the heart of the area. Soon she envisaged the addition of many more acres, all of which would be preserved in their natural condition for study by future generations.

Certain members of the Minnesota Academy of Science including the discoverers of the area were also interested in such a project. During the summer of 1937 she invited the membership of the Academy out to her cabin in order that they might see the area personally and thus be persuaded to support the Academy's desire to save the region. This was only the first of many groups and individuals she entertained in order to interest them in the project.

In 1939 she made the first of many subsequent additional purchases of land as desirable parcels became available. In 1940 she was made a member of the Academy Committee for the Preservation of Natural Conditions. She studied the tax delinquent lists assiduously and her correspondence reveals dozens of communications from the county auditors of both Isanti and Anoka Counties. These letters show that they also became interested in "her" project and sometimes took it upon themselves to notify her when land in which she might be interested was to become available.

These purchases were made and the land held by her until the Academy could take it over and reimburse her for it. In some cases this meant holding the land for many years. The importance of these purchases lay in the fact that the land could be saved from lumbering and other undesirable use only by buying it as it was put on the market or allowed to go for taxes. A search through the records reveals that she personally bought parcels of land totaling about

600 acres which were eventually added to the natural area.

She furthered the development of the project in three ways. First she helped sell the value of preserving this area to the local people. Though some were hard to convince, she had a knack for understanding people and getting to know them. Through her convincing arguments she persuaded more than one farmer to deed land to the Academy for inclusion in the tract "for the sum of one dollar and other good and valuable considerations." Her success was due to her deep interest in people and her unbounded enthusiasm for the area.

A second way in which she helped establish the refuge was through interesting other people and organizations in the project and persuading them to buy the land and deed it to the Academy. The National History Society, for example, through her efforts bought a tract of land and presented it to the growing preserve.

The third way in which she stimulated the growth of the area was through helping to keep the Academy and later the University informed of new parcels of land which might be available. Her correspondence indicates that farmers in the locality whom she had interested in the project kept her informed about land which was to be sold before it was put on the open market. Interviews and records indicate that it is a conservative estimate to say that another 500 acres were added to the area through her influence as described above.

She had three great fears for the area —fire, depletion of wildlife and lumbering. In order to cut down the hazard of fire and protect the wildlife, she was instrumental in getting the area declared a state game refuge. To make it even more effective, however, she personally circulated petitions among the farmers who owned adjacent land which asked that their land also be included in

the game refuge. This greatly increased the acreage for the refuge and thus the safety of the animals. Lumbering she tried to prevent by early purchase of the land and by apprehending poachers. The writer remembers several hilarious (but successful) adventures with her while tracking down leads on timber poachers.

The Cedar Creek Natural History Area thus has grown from a nucleus of 80 acres originally purchased by her in 1937 to over 4,200 acres at the present time. Following the Fleischmann Foundation Grant of \$250,000 which resulted in most of the additional increase in area, a research laboratory was built and formally dedicated during the summer of 1957.

Cora Alta Corniea provided the foresight, dynamic drive, persistence and enthusiasm which are necessary to get such a project successfully under way. At the time of her death

she was already working on the preservation of another natural area near Kenyon and had made the first contact with the owner of one of the tracts in which she was interested. Yet she did all of this in such an unassuming and matter-of-fact manner that many never fully realized the extent of the role which she played. However, as Dr. W. S. Cooper, Dr. Donald B. Lawrence, Dr. Arthur N. Wilcox and others have commented, without her efforts it is doubtful that there would be a Cedar Creek Natural History Area today. Her early purchases including the land deeded to the area by her husband and herself constitute the very heart of the tract.

To characterize such an individual briefly is difficult. Perhaps it is just best to say that she was an inspiration and friend to many and particularly a friend of the land. — *Department of Biology, Western Washington College, Bellingham, Wash.*

CORRECTION FOR HARLEQUIN DUCK RECORD

In my article for the June 1960 issue of *The Flicker* I listed a report that Mr. and Mrs. Roy Naddy of Duluth had seen a Harlequin Duck on Tofte Bay. I stated that this report should probably be considered as unverified. Since this I have had correspondence with Mrs. Naddy to verify this observation. The pair of Harlequin Ducks were seen on February 22, 1960 on Tofte Bay at a distance of only about twenty feet. This is surely an authentic record. — *Forrest B. Lee*

A STUDY OF HARBOR ISLAND, DULUTH

by

Robert R. Cohen

There is something fascinating about an island. Much of this probably lies in its unity and its isolation. One need not wonder as to its extent and its isolation can produce interesting effects on the development of the nature and distribution of flora and fauna populations.

Harbor Island, in St. Louis Bay off Minnesota Point, St. Louis County was created in 1934 by dredging operations in the bay as a fairly flat mass of sand of 0.35 mi. maximum length N-S and 0.25 mi. maximum width E-W. The lower areas, mainly off the northeast coast, acquired vegetation first, in the form of willows, alder, and balsam poplar.

The island was first studied by birders in 1945, when it was discovered that Piping Plovers were nesting there in significant numbers. The Minnesota Point area had been one of two known Minnesota nesting areas for this species, although breeding numbers in years just previous to 1945 had been low and many nestings unsuccessful. The discovery of eight nesting pairs on the island in 1945 must have been very heartening. Dr. Olga Lakela wrote at this time, however, ". . . the wet sand is closing in with sand-bar willows and marsh vegetation, leaving but a small area of higher dry terrain suitable for nesting ground."

The following years saw the island become the only major nesting area of Piping Plovers and Common Terns in the Duluth area. A decrease in plover population after 1947, when there were at least ten pairs, was accompanied by an increase in number of terns to a maximum of over 87 pairs in 1953. Killdeers nested among them in small numbers. The rising

and extending vegetation in these periods supported growing populations of Yellow Warblers, Redwinged Blackbirds, Catbirds, Brown Thrashers, and Song Sparrows. Also nesting there, in small numbers, were Veerys, Yellowthroats, Clay-colored Sparrows, and Blue-winged Teal. Spotted Sandpipers were quite common. A Black-billed Cuckoo nest was found in 1954 and another in 1955, during the tent-caterpillar influx. The inevitable decrease in number of nesting terns took place in the years after 1954, to only a few recently. Thus the island was abandoned by the birds of the open and became increasingly the home of those of the brush and woods.

On the days of June 20-26, 1960, a study was made by the author to determine the breeding populations of the birds on the island and their distributions, and, in correlation, the nature and distribution of the island's vegetation. The study was made along E-W lines approximately fifty yards apart, stopping every fifty yards along the line for ten to fifteen minutes to record and map the plant and bird life present in the fifty yard square area directly to the north. Nest location was attempted only in a few cases. Because of the lateness of the study, the island was covered but once.

The map represents a pictorial summary of the study, which was made in somewhat greater detail than the map illustrates as to specific nesting vegetation and detailed vegetation types. Relative elevations were recorded; height of vegetation and elevation of land tend to correlate inversely in interior areas. Types of vegetation, and their heights, are

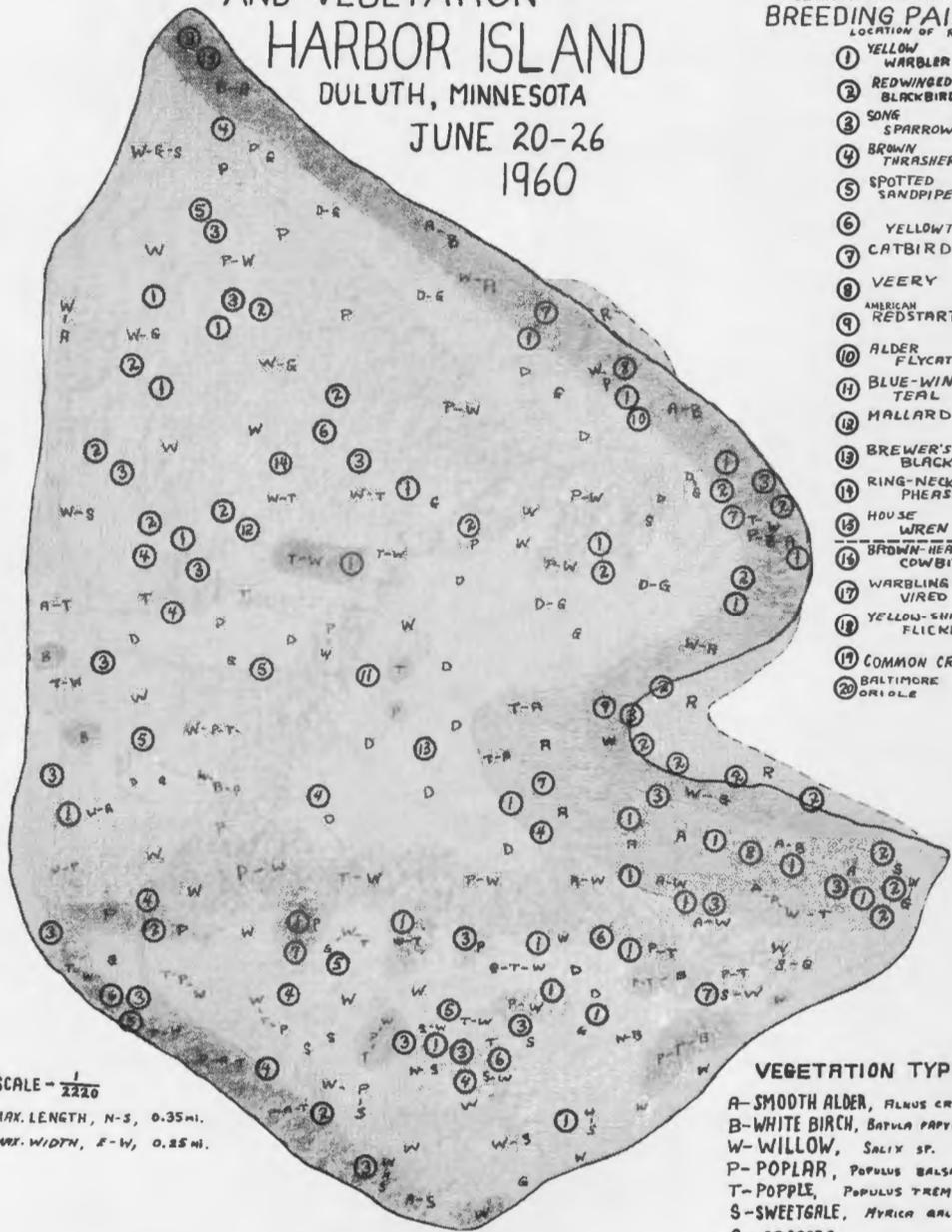
DISTRIBUTION OF BREEDING POPULATIONS AND VEGETATION

HARBOR ISLAND

DULUTH, MINNESOTA
JUNE 20-26
1960

DETERMINED OR INFERRED BREEDING PAIRS- LOCATION OF RANGES

- 1 YELLOW WARBLER
- 2 REDWINGED BLACKBIRD
- 3 SONG SPARROW
- 4 BROWN THRASHER
- 5 SPOTTED SANDPIPER
- 6 YELLOWTHROAT
- 7 CATBIRD
- 8 VEERY
- 9 AMERICAN REDSTART
- 10 ALDER FLYCATCHER
- 11 BLUE-WINGED TEAL
- 12 MALLARD
- 13 BREWER'S BLACKBIRD
- 14 RING-NECKED PHEASANT
- 15 HOUSE WREN
- 16 BROWN-HEADED COWBIRD
- 17 WARBLING VIREO
- 18 YELLOW-SHAFTED FLICKER
- 19 COMMON CROW
- 20 BALTIMORE ORIOLE



SCALE - $\frac{1}{2220}$
MAX. LENGTH, N-S, 0.35 mi.
MAX. WIDTH, E-W, 0.25 mi.

VEGETATION TYPES

- A-SMOOTH ALDER, *ALNUS CRISPA*
- B-WHITE BIRCH, *BETULA PAPERIFERA*
- W-WILLOW, *SALIX* SP.
- P-POPLAR, *POPULUS BALSAMIFERA*
- T-POPPLE, *POPULUS TREMULUS*
- S-SWEETGALE, *MYRICA ALE*
- G-GRASSES
- R-REEDS
- D-DEAD BRUSH, MOSTLY WILLOW

COMBINATIONS INDICATE MIXTURES

AVERAGE HEIGHT OF VEGETATION, FEET



indicated on the map. Several species of willow, genus *Salix*, are present on the island. The high willow the the eastern side is mostly Crack Willow, *Salix fragillis*. Very common on most of the island is Sandbar Willow, *Salix interior*, growing to a height of six feet in a portion of the south-central area, and up to three feet in most other areas. Hoary Willow, *Salix candida*, and Peachleaf Willow, *Salix amygdaloides*, are also very common. Sensitive Fern, *Onoclea sensibilis*, is abundant in the thick alder stand south of the small bay of the eastern side.

Very little bare area remains, and, as a consequence, no Common Terns, Piping Plovers, or Killdeers nested on the island this year. With the variation of vegetation types and heights, Yellow Warblers, Song Sparrows, and Redwinged Blackbirds were quite abundant, and several pairs of Brown Thrashers were scattered over the area. (The reader can gain a more striking impression of the distribution and abundance of these species by coloring in the numbered circles in contrasting colors.) Emphasis should be placed on the presence of Sweetgale, *Myrica gale*, in many areas, since it has been found that most of the Redwinged Blackbirds and Yellow Warblers in these areas use this species for nesting. It is a thick bushy shrub, three to five feet in height, with a very dense crown.

Six Spotted Sandpiper nesting areas were found, although the number of breeding pairs was probably nearer to nine. Seven drake Blue-winged Teal were seen at one time, and eleven teal were seen flying at one time, indicating that as many as seven pairs of teal may have been nesting on the island. One nest was found, accident-

ally. Although only one Mallard brood was seen and one nesting area found, evidence and reports point to approximately four pairs being present. One Ring-necked Pheasant nest was found, but two crowing cocks indicate the possibility of two pairs on the island.

Common Crows had completed their nesting by this time, and it is certain that at least one pair nested on the island. No nesting areas were found for the Warbling Vireo, Yellow-shafted Flicker, and Baltimore Oriole; but almost constant evidence of their presence indicates the nesting of at least one pair of each. Between ten and twenty Brown-headed Cowbirds inhabited the island, and young were seen being fed by Song Sparrows and Yellow Warblers.

A Swamp Sparrow was sighted on two occasions, searching for food, and probably nested in the inlet on the east side. A Robin was seen once on the ground in the eastern area. A pair of Lesser Scaup were seen, and may have been nesting on the island. American Goldfinches and Cedar Waxwings were present in small numbers, and may have nested later.

Other species seen in the area while the study was being made are as follows: Common Loon, Bufflehead, Hooded Merganser, Bonaparte's Gull (quite unusual), Common Tern, Black Tern, Killdeer, Belted Kingfisher, Chimney Swift, Tree Swallow, Purple Martin, Bank Swallow, Blue Jay, and Common Grackle.

Efforts will be made in future years to make similar studies of the island. The continued rise and extension of vegetation and the corresponding trends in breeding bird life will be interesting and valuable to study. — 719 East Sixth Street, Duluth 5, Minnesota

SEASONAL REPORT

by
Mary Lupient

The weather in May was normal except for torrential rains which occurred May 21 and 22 causing disastrous floods in some areas. The Arboratum in Northfield was completely inundated, lowlands were flooded, rivers and lakes were abnormally high. In eastern Minnesota these rains brought to earth thousands of migrating flycatchers, warblers, thrushes, vireos and other song birds. June weather was cool and pleasant. July was normal except for a few exceptionally hot days during the last week.

Horned Grebes were fairly numerous in waters around the Twin Cities and other areas during the first two weeks in May. Dr. A. E. Allin reported seeing hundreds of them May 12 on Lake Superior from Hovland, Cook County south. An Eared Grebe appeared on Lake Harriet, Minneapolis, Hennepin County, May 15, reported by E. Hermanson. One was seen on Lake Owasso, Ramsey County, April 30, by A. C. Rosenwinkel. A Common Loon was observed south of Shakopee, Scott County, July 21 by Mrs. E. W. Joul. A pair of Red-necked Grebes and also a pair of Common Gallinules nested at Grass Lake, Minneapolis, reported by Mrs. R. E. Whitesel and Mrs. E. W. Joul.

There were several reports of Common Egrets along rivers and lakes during the entire season. Some of them may have nested. The only record of nests was received from Orwin Rustad who visited a heronry in Rice County which contained approximately 500 Great Blue Heron nests and five nests of Common Egrets. Dr. Willard Colby reported that about 25 Common Egrets were roosting again this spring with

Great Blue Herons on an island in the Mississippi near St. Paul, Ramsey County. In Whitewater Park, Winona County, 10 were flushed May 10 by Dr. Allin. Four Yellow-crowned Night Herons were observed by John A. Hall July 6 in Ramsey County. They were close enough to enable him to see all the distinguishing field marks.

A pair of Common Goldeneyes remained on Lake Como this spring reported by A. C. Rosenwinkel. First record of them was on May 14 after which he saw them on several later dates. After June 7 and up to date of his report July 26, he saw only the male which by then was in eclipse plumage. Mr. Rosenwinkel thinks something happened to the female while on the nest. He was unable to find the nest. Dr. P. B. Hofslund reported that ducks were definitely fewer around Duluth. St. Louis County. Several hundred Whistling Swans were in Duluth Bay in late April and early May. Dr. Hofslund saw thousands of White Pelicans on Lake Traverse, Traverse County, in May. Small flocks were reported at several points in western Minnesota by Dr. A. B. Erickson, Brother Theodore and Robert Janssen.

Mrs. C. L. Patchin reported that a Red-shouldered Hawk frequented the Minnesota River valley all spring and summer near her home in Scott County. A pair of Broad-winged Hawks on a nest was observed in Roberts Sanctuary, Minneapolis, Hennepin County, May 8 and also the first week in June. Dr. Allin reported that Broad-winged Hawks were common in Lake County, May 12. This writer saw a concentration of 16 Sparrow Hawks July 24, in Scott County.

The Bobwhite is becoming scarcer in Minnesota each year and observations are rare. Robert Janssen heard them calling July 10 in Scott County.

High water inundated so many mud flats that less than the usual number of reports of shore birds was received. A few Lesser Yellowlegs and small peeps appeared in widely scattered areas. A Wilson's Phalarope was observed in Ramsey County, July 3 by A. C. Rosenwinkel. He reported a King Rail in Ramsey County July 20. Mrs. R. E. Whitesel saw a few returning Lesser Yellowlegs at Grass Lake, July 24.

Ring-billed Gulls were on Lake Como, St. Paul July 9, seen by A. C. Rosenwinkel who also saw 12 Forster's Terns at the same place.

There was a heavy migration of Common Nighthawks over the Minnesota River valley May 22. A few individuals appeared May 19.

There was a large movement of flycatchers in eastern Minnesota, May 21. The following species were observed: Olive-sided, Least, Traills, Great Crested and Yellow-bellied. On July 18 in Washington County John Hall saw 18 Western Kingbirds in a short stretch of road. Many of them were immatures. They obligingly perched on a fence ten feet from the car so identification was assured. The next day he returned to the same area with A. C. Rosenwinkel and they counted 10 immatures and adults.

Fewer Purple Martins were reported and there were many unoccupied martin houses. Drew Simonson reported the nesting of only nine pairs of Purple Martins in four widely scattered localities. Swallows were as abundant as usual and began flocking in late July. This writer saw a concentration of hundreds of Bank Swallows in Scott County July 24. They were on a dirt road sunning and dust bathing.

The migration of Gray-cheeked and

Swainson's Thrushes was very heavy in eastern Minnesota, especially the last half of May. Robins and Eastern Bluebirds were as abundant as usual. Their nesting was somewhat late due possibly to late cold wet spring weather. On July 29 Harvey Gunderson found a Robin's nest containing three eggs in Winona County. He also found a Mourning Dove's nest in the same vicinity containing two eggs. There was not much change in the Mourning Dove population according to reports.

Marshes have been drained and dried up to such an extent that it was difficult to find marsh birds. Very few Marsh Wrens were reported. Several observers stated that they had not seen any. A Winter Wren was seen May 7 near St. Paul by A. C. Rosenwinkel.

On May 6, six Blue-gray Gnatcatchers were found where they formerly nested near Vasa, Goodhue County by

FINCHES

The latest of the famous
"SOUNDS OF NATURE"
series

Songs of Fringillids of Eastern and Central North America

Recorded and produced by
Dr. Donald J. Borror and
Dr. William W. H. Gunn for
the Federation of Ontario
Naturalists

★Order now from:
Federation of Ontario Naturalists
Edward J. Gardner
Don Mills, Ontario.

Please send me.....copies of Vol. VI.
FINCHES at \$5.95 per disc.

Name:

Address

Cash enclosed Bill me
 Send me your brochure
★ Shipped duty free from Conn.

Brother Theodore and Robert Jansen. One was seen in Hennepin County May 7 by Brother Theodore.

There was a large movement of Palm and Myrtle Warblers May 8, in southeastern Minnesota. Possibly because of the cold wet weather they fed on the ground where insects were more abundant. A great wave of nearly all species of warblers common to Minnesota occurred on May 21 and 22. A Worm-eating Warbler was observed by this writer in Scott County during this migration. Blue-winged Warblers and Cerulean Warblers were found near Vasa by Brother Theodore and Robert Jansen. Great numbers of all species of vireos that commonly migrate through Minnesota appeared during this movement of warblers.

A Black-billed Magpie was reported from Rock County June 6 by Mrs. Rachel Tyron.

Reportedly there was a large number of Common Grackles this season especially on lawns and in gardens in the cities. John Jarosz reported the nesting of Brewer's Blackbirds June 1. The nest was in the shrubbery in the yard around the Minnesota Museum of Natural History. A few Orchard Orioles were seen. One pair nested in Washington County near the home of Mrs. William Davidson. Scarlet Tanagers were more abundant in eastern Minnesota.

This writer thanks all those who sent records by letter and phone regarding the Dickcissel. Except for a very few instances only one or two individuals of this bird were seen at a time. Orwin Rustad found a goodly number in Rice County. Agnes Elstad saw several in Freeborn County

May 21. In Stevens County they appeared in large numbers where the acreage of alfalfa was greater than usual. This report was received from Delmar Holdgrafer. A Lark Bunting near Waubun, Mahnomen County was seen June 6 by John Tester.

There were great flocks of White-throated Sparrows in Hennepin County May 6 and 7. Some White-crowned Sparrows appeared with them. Harris' Sparrows were uncommonly abundant during the May migration. Flocks of them passed through the Twin Cities. Mrs. E. W. Joul reported that many Lark Sparrows were feeding young July 2 in Scott County.

A number of records of Mockingbirds was received, as follows: one, Scott County May 6, Mrs. Sophia Harms; one, Hennepin County May 1, Mrs. A. C. MacInnes; one, Hennepin County May 2, Mrs. Donald Barr; one, Anoka County April 23, David Pearson; one, Ramsey County July 1, Mrs. Robert Leach; and one at Northfield, Rice County, May 10-13, Mrs. R. A. Houston.

The annual spring meeting of the Minnesota Ornithologists' Union was held at Albert Lea May 21 and 22 and the Albert Lea Audubon Society was host. The Committee on Arrangements provided a fine dinner and program. The field trips were very rewarding in spite of the wet weather. About 125 species were tallied on the composite list. The meeting was most successful but was not as well attended as was expected due to the stormy weather, no doubt. Seventy participants were present.—*212 Bedford Street, S. E., Minneapolis, Minnesota*

1959 MINNESOTA CHRISTMAS BIRD COUNT

by

Loes P. Scott

We Homo Sapiens are tallied only once every ten years, but the Aves are counted every year, during the Christmas season in particular. Members of bird clubs and individual enthusiasts across the nation venture out, within the dates set, for the annual census taking of our feathered friends.

Minnesota was no exception, during the count period in 1959 111 observers traveled a total of 1,711 miles and counted 23,826 individuals of 79 species. In 1958, 151 observers trekked a total of 1,866 miles and reported 18,789 individuals of 82 species. In 1957, 78 observers charted 953 miles and tallied 13,320 individuals of 70 species.

The comparative open season with above normal seasonal temperatures for the entire state accounted, perhaps, for the higher number of birds sighted. There were 11 species of ducks reported, which is an exceptional record. There were many more Canada Geese sighted during 1959, 2,128 compared to 12 in 1958. The majority of Canada Geese in the 1959 count were found at Silver Lake in Rochester.

The Pigeon Hawk is an exceptional record, there were none reported in 1958 nor in 1956 or 1957. There were fewer Bohemian Waxwings in 1959, 181 sighted in the northern areas as compared with 587 in 1958, observed mostly in the central section. The Ruby-crowned Kinglets show a very unusual record, with perhaps only two or three previous winter records.

We have few previous winter records of the Harris' Sparrow of which two were counted in 1959. The Duluth Bird Club compiled an exceptional

showing in the number of ducks and owls counted.

This was definitely a year for Common Redpolls. 2,871 counted in 1959 compared to 106 in 1958, and 1,110 in 1956-1957 combined.

A few comparisons are given, as follows:

	1956-57 (Combined)	1958	1959
Mallard		420	1341
Ring-necked Pheasant	526	266	270
Herring Gull		704	1168
Eastern Bluebird		6	—0—
Starling		2289	1633
House Sparrow		5179	6434
Cardinal	187	236	165

The Chipping and Field Sparrows observed in the St. Paul North-East and Suburban count would appear to be errors in identification. It would be almost impossible for these birds to winter in our area due to their food habits, their diet consisting mainly of insects. Consequently, they are mentioned here, but not shown on the compilation chart. Audubon Field Notes states: Almost unbelievable.

For the most part, the reports sent in were very exact and complete. However, thanks to Audubon Field Notes, two counts are included in the write-up and compilation chart, for which tally sheets were not received by the writer.

The enthusiasm of the census takers is noteworthy and without these hardy fellow-birdwatchers we would not have this report for our state, so may I remind you, that in the future be sure to send your reports to the editor of *The Flicker* so that the reports can be made up and compiled and published in an earlier edition

of *The Flicker*. To be sure of the reports it has been the usual procedure to await the publication of Audubon Field Notes to make sure all counts are included in this report.

AFTON, MINN. Dec. 26, 1959 — 7:30 a.m. to 4:30 p.m. (All points within a 15-mile diameter circle, center Afton, making semi-circle on west side of St. Croix River; open farmland 70%, deciduous wooded river banks, hills and valleys 30%). Temp. 42° to 46°. Wind SE 12 to 17 mph. Overcast, fog, rain. No snow, St. Croix River open in spots. 5 observers in 1 party. Total party hours, 9 (5 on foot, 4 by car); total party-miles 65 (9 on foot, 56 by car). Seen in area during count period, but not on count day — Mourning Dove. Participants: Coy Asp, Oliver Charnley, Min Paro and Mr. and Mrs. Boyd M. Lien, co-compilers.

DULUTH BIRD CLUB — Jan. 2, 1960. 7:00 a.m. to 5:00 p.m. (St. Louis Bay and River, Lake Superior shore line to French River and several Duluth parks and the Duluth City Dump. Town suburbs 15%, parks and highways 70%, feeding stations 10% and dump 5%.) Temp. —10° to —25°. Sky overcast with wind North 5 to 10 mph. 15 observers in 8 parties. Total party-hours, 60 (23 on foot, 37 by car); total party-miles, 200 (20 on foot, 180 by car). Participants: Mr. and Mrs. Stanley Anderson, Mr. and Mrs. Harold Evans, J. K. Bronoel, Robert R. Cohen, Mr. and Mrs. P. B. Hofslund, Mr. and Mrs. Raymond Naddy, Mrs. Northrup, Mrs. Ernie Pappas, Mrs. Evelyn Putnam, Steven Shoberg with Gary C. Kuyava, compiler.

HIBBING — Jan. 2, 1960, 7:30 a.m. to 4:30 p.m. (All points within a 15-mile diameter circle, center St. Louis County Courthouse, Hibbing. Particular attention paid to feeding stations in area. Streets 5%, lake-shore lines 5%, open farmland 10%, balsam-tamarack swamp 20%, pine

forest 40%, poplar-birch forest 20%. Temp. 20° to 24°; snow flurries, wind N 5 to 10 mph. Overnight snowfall of 6" depth. 9 observers in 5 parties. Total party-hours 17 (14 on foot, 3 by car); total party miles 63 (24 on foot, 36 by car). Seen in count period, but not on count day: Pileated Woodpecker, Evening Grosbeak. Participants: Mrs. Dan Hayward, Wanda Lee LaTendresse, Miss Clara Lille, Mrs. Oscar McCracken, Catherine Micensky, Alton Parker, Jr., Mrs. John Micensky, compiler, Karen Pingatore (Little Swan 4-H Club).

MOORHEAD — Dec. 26, 1959. 7:45 to 1:00 p.m. (All points within a 15-mile diameter circle, center on the Red River 4½ miles north of Fargo, N. D., including the Red River Valley from River Oaks north of the confluence of the Red and Sheyenne Rivers, portions of both Sheyenne and Buffalo Rivers. City parks and cemeteries 52%, agricultural land 17%, flood plain deciduous growth 11%, oak wood and tree claims 8%, deciduous shelter belts 6%, city 4%, coniferous shelter belts 2%). Overcast and raining; temp. 45° to 36°; wind SSE 10 to 15 mph. Snow only in sheltered spots, smaller streams frozen. Red River open. 4 observers in 1 to 4 parties. Total party-hours 7 (4 on foot, 3 by car); total party-miles 50 (7 on foot, 43 by car). Participants: John Challey, James Dogger, Harold G. Heggeness, Frank Melton, Louise Melton, C'emens Nagel, David Noetzel, Howard H. Osborne, O. A. Stevens with J. Frank Cassel, compiler. Dr. Stevens incidentally took the first Christmas count in the Fargo-Moorhead area in 1909.

MINNEAPOLIS NORTH - MPLS. BIRD CLUB — Jan. 2, 1960, 8:00 a.m. to 4:30 p.m. (All points within a 15-mile diameter circle, center Coon Creek Dam; from Camden Park to Anoka, both sides of Mississippi River; open farmland 40%, town suburbs 44%, deciduous farm woodlots

12%, deciduous river banks and valleys 2%, marshes and sloughs 2%). Temp. 26 to 30. Wind SW 8 to 15 mph. Overcast, snow. Mississippi River open below dam. 14 observers in 4 parties. Total party-miles, 251 (10 on foot, 241 by car). Participants: Esther Burgardt, Paul LaPlant, Ralph LaPlant, Robert Rydell, Les Scheaffer, Mr. and Mrs. Melvin Stenrud, Meredith Stenrud, John Urseth, Frank Wood, Charles Wright, Kristin Wright and Mr. and Mrs. Boyd M. Lien, co-compilers.

CEDAR CREEK BOG — Jan. 3, 1960. 9:00 a.m. to 4:00 p.m. (All points within a 15-mile perimeter circle, center Cedar Creek Game Refuge. Same as last year. Temp 10° to 10° below F. Wind, WNW 10 to 15 mph. Clear to partly cloudy. Snow cover varied from 6" to 1' on ground. 4 observers in 2 parties. Total party hours 14 (5½ on foot, 8½ by car, approx.) Total party miles — not recorded. Participants: Douglas Campbell, Fred Kedney, Mr. and Mrs. Boyd Lien and Mrs. Murray Olyphant, Jr., compiler.

MINNEAPOLIS, WEST. AVIFAUNAL CLUB — Dec. 26, 1959, 8:00 a.m. to 4:30 p.m. (All points within a 15-mile diameter circle, centering on the Minneapolis Golf Course and extending to the junction of hwy. 55 and 101, Robbinsdale, Edina, Hopkins and including Theodore Wirth Park and Roberts Bird Sanctuary; (town suburbs 47%, open farmland 24%, deciduous woodlots 16%, lakes, marshes, and creeks 8%, city parks and golf courses 5%). Temp. 42° to 46°, wind SE, 12 mph. Overcast, intermittent drizzle. Small opening in Lake Calhoun, Mississippi River open. 12 observers in 6 parties. Total party-hours, 47¼ (13 on foot, 34¼ by car). Total party-miles, 336½ (17 on foot, 319½ by car). Seen in count period, but not on count day, 1 Wood Duck, 1 Pileated Woodpecker and 1 Robin. Participants: George F. Fisher, Raymond A. Glassel, Harding Hu-

ber, Ronald Huber, Robert B. Jansen, Norris Jones, John Menge, William R. Pieper, Bro. Theodore, F.S.C., Charles F. Wright, Frank H. Wood with J. S. Fletcher, compiler.

ROCHESTER AREA — Dec. 27, 1959, 9:30 a.m. to 4:30 p.m. (From Rochester via mostly gravel roads to Whitewater Area. The nursery, Applebys pond, the Richard Dorer ponds and the Shale Pit.) Temp. in the low 40's. Misty, showers and heavy fog in the high areas. Very little snow. The Whitewater completely open, but mostly other waters frozen. 2 observers in 1 party. Total party-hours, 7 (2½ by car, 4½ on foot; total party-miles, 85 (80 by car, 5 on foot). Mr. and Mrs. John Feehan, compilers.

ST. PAUL NORTH — Dec. 26, 1959, 8:15 a.m. to 4:45 p.m. (All points within a 15-mile diameter circle, center at Round Lake near Little Canada, same as in 1958). Pine forest 40%, spruce-balsam 15%, tamarack 5%, open field 10%, deciduous woods 15%, farm woodlots 5%, marshes 10%. Lakes ice-bound except where water canals empty into lakes. Water canals open. Temp. 44 to 46, wind SE 6 to 9 mph. Cloudy, foggy with intermittent drizzle. No snow on ground. 7 observers in 3 parties. Total party-hours, 24 (19 on foot, 5 by car); total party-miles, 40 (15 on foot, 23 by car). Seen in area during count period, but not on count day: Mallard, Common Goldeneye, Tufted Titmouse, Red Crossbill. Participants: Mrs. J. Bowes, Frank Kelley, Bill Litkey, Tom Meyer, Bro. Pius, Russel Van Vliet with A. C. Rosenwinkel, compiler.

ROCHESTER — Dec. 27, 1959, 7:00 a.m. to 5:00 p.m. (All points within a 15-mile diameter circle, center at KROC-TV tower, 2 miles west of Rochester; farm land 40%, open woodlot 30%, lake 20%, and town suburbs 10%). Temp. 43° to 45°. Wind from SE at 10 to 15 mph. Complete overcast, rained off and on all day.

Ground was bare except on east bay. 8 observers in 1 party. Total party-hours, 10 (6 on foot, 4 by car). Total party-miles, 97 (17 on foot, 80 by car). Seen in count period, but not on count day: Pine Grosbeak, Red-breasted Merganser and Goldeneye. Participants: Carl M. John, Ted Johnson, Don Orke, James M. Gunderson, Linda Strand, Rosamond Von Schroeder, with Kendall M. Corbin and Forrest V. Strnad, co-compilers.

NORTH-EAST SUBURBAN ST. PAUL — Jan. 2, 1960, 9 a.m. to 4:30 p.m. (All points within a 15-mile perimeter circle, center at Withrow, Minn. North to a line parallel with Marine-on-the-St. Croix. East to the St. Croix River, South to Lake Jane Rd. and County Rd. "B", West to Centerville Rd. Open fields — farmlands 43%, deciduous wood — evergreens 32%, river valleys 12%, lakes and marshes 13%). Temp. 24° to 28°, wind N 10 to 20 mph. Snow cover 6" — 2' in valleys. Overcast sky all day. 16 observers in 7 parties. Total party-hours, 30½ (13½ on foot, 17 by car); total party-miles, 278 (36 on foot, 242 by car). Participants: Mr. and Mrs. Joe Fitzpatrick, John Fitzpatrick, Mrs. Donald Gipple, Dale Haswell, Mr. and Mrs. Warren Lundgren, Mrs. Robert Merrick, Mr. and Mrs. Jean Nelson, Low Vokaty and Mr. and Mrs. Murray Olyphant, Jr., co-compilers.

PLAINVIEW — Dec. 20, 1959, 11:00 a.m. to 4:30 p.m. (From Plainview via highway 42 to Kellogg and the Mississippi River, thence to Weaver and the Whitewater Game Refuge and return). Temp. 20° to 25°. Wind NW at 5 mph. Clear to partly cloudy with only a trace of snow on ground. 2 observers in 1 party. Total party-miles, 45 (40 by car, 5 on foot). The Mississippi was completely open and we were disappointed in not seeing more ducks. Mr. and Mrs. D. C. Mahle, compilers. It was definitely a Redpoll year, as

we saw huge flocks of them and could only estimate the numbers. Incidentally, this is the first in many years that we have seen Redpolls.

NORTHFIELD — Jan. 2, 1960, 8:00 a.m. to 4:00 p.m. (All points within a 15-mile diameter circle, center same as last year). Temp. 24° to 29°; wind NW 5-15 mph. One observer. Total hours, 8 (6 on foot, 2 by car); total party-miles, 43 (8 on foot, 35 by car). Geo. N. Rysgaard.

WALKER — Jan. 1, 1960, 8:00 a.m. to 4 p.m. (All points within a 15-mile diameter circle, center highway intersection 5 miles south of Walker as in former years). Temp. 22° to 15°; wind NW 5 mph.; 5 to 8 in. snow, lakes frozen, few streams open. Two observers in 1 party. Total party-hours, 8 (3 on foot, 5 by car); total party-miles, 53 (3 on foot, 50 by car). Participants: Stan Oman with Harold R. Hanson, compiler.

ST. CLOUD — Dec. 26, 1959, 8:00 a.m. to 3 p.m. (Along the Mississippi River and Sportsmen's Island). Temp. 30°; mild, damp, rainy and snowy. 8 observers in 2 parties. Total party-hours, 8 (6 by car, 2 on foot); total party-miles, 40 (39 by car, 1 on foot). Participants: Mr. and Mrs. Geo. Lehrke, Mrs. Alys Misho, Loretta Rosenberger, Adella Glass, Cecye Bemis, Agnes Brohaugh and Monica Misho, compiler.

ST. PAUL (West) — Jan. 2, 1960, 9:00 a.m. to 5:00 p.m. (All points within a 15-mile diameter circle West St. Paul, including Mississippi River from Fort Snelling to Newport; 7 feeding stations. Temp. 25° to 20°; wind SW, 5-15 mph., snow over ice on ground, only main highways passable, river open. Two observers in 1 party. Total party-hours, 8 (5 on foot, 3 by car); total party-miles, 65 (5 on foot, 60 by car). Participants: Frank Kelley with J. A. Hall, compiler. — 514 Fountain Street, Albert Lea, Minnesota

Minnesota Christmas
Bird Count
1959 Compilation

	Afton	Duluth	Hibbing	Moorhead	Mpls. North	Mpls. West	Rochester-Silver L. Area	Cedar Cr. Bog	St. Cloud	Walker	St. Paul North	Plainview	N.E. Sub. St. Paul	Rochester-Water Area	Northfield	St. Paul West	Total
GREAT BLUE HERON														1			1
CANADA GOOSE							2100						28				2128
MALLARD	32	6				542	530		30				1			200	1341
BLACK DUCK						6	5										11
WOOD DUCK							1										1
GREATER SCAUP		3															3
COMMON GOLDENEYE	18	58			39	9			200			28				24	376
BUFFLEHEAD		2							25								27
HOODED MERGANSER	4											24					28
OLDSQUAW		250															250
WHITE-WINGED SCOTER		2															2
COMMON MERGANSER		1							15								16
RED-BREASTED MERGANSER		3										4					7
GOSHAWK											1		1				2
RED-TAILED HAWK	1	1				1	3							3	1	3	13
COOPER'S HAWK											1						1
BALD EAGLE	1				1							1					3
MARSH HAWK					2												2
PIGEON HAWK													1				1
SPARROW HAWK					3	3					1		3			2	12
RUFFED GROUSE		7	4							3			1				15
RING-NECKED PHEASANT		3		2	53	182	2	7			6	5	4		3	3	270
GLAUCOUS GULL		7															7
HERRING GULL		1168															1168
RING-BILLED GULL		12															12
SCREECH OWL							1							1	1		2
GREAT HORNED OWL		2				1			3		1					1	8
SNOWY OWL						1											1
HAWK OWL		1															1
BARRED OWL		1			1	3					1				1		7
GREAT GRAY OWL		1															1
SAW-WHET OWL		1															1
BELTED KINGFISHER					1		1				1	2		1			6
YELLOW-SHAFTED FLICKER													1				1
PILEATED WOODPECKER	1	4					1		1	1	1	1	3		1	1	15
RED-BELLIED WOODPECKER	1					2	4					1	6	1	8		23
RED-HEADED WOODPECKER						1									2		3

HAIRY WOODPECKER	8	7	7	5	1	13	6		3	13	5	1	14	2	2	6	93
DOWNY WOODPECKER	10	39	14	4	10	23	14	5	5	8	12	4	11	3	16	3	181
GRAY JAY		2	20							1							23
BLUE JAY	46	29	39	3	51	170	31	7	18	28	31	2	18	1	7	12	493
HORNED LARK					8								1			7	16
COMMON RAVEN		21	13														34
COMMON CROW	57	1			77	42	35	7			41	3	39	8	7		317
BLACK-CAPPED CHICKADEE	38	307	90	30	49	200	49	47	27	75	65	9	111	21		45	1163
BOREAL CHICKADEE		1	3							1							5
TUFTED TITMOUSE	2	2			1	2	6										13
WHITE-BREADED NUTHATCH	11	1	2	16	15	51	22	1	17	14	15	5	38	3	11	5	227
RED-BREADED NUTHATCH		1	1				2		1	4	2						11
BROWN CREEPER	1			7	2	2	3		1	3	1	1		1			22
CATBIRD					1												1
ROBIN							1			1							2
GOLDEN-CROWNED KINGLET							3				7						10
RUBY-CROWNED KINGLET									2								2
BOHEMIAN WAXWING		150							20	11							181
CEDAR WAXWING									15								15
NORTHERN SHRIKE		8	5							1	1						15
STARLING	3	741	30	19	91	345	90		8	6	35	70	46	85	13	71	1633
HOUSE SPARROW	64	2100	92	114	680	2183	165	31	62	23	69	265	402	24	60	100	6434
WESTERN MEADOWLARK				2													2
REDWINGED BLACKBIRD						2	1					60				1	64
COMMON GRACKLE		4					3										7
WEST BLACKBIRD		2															2
CARDINAL	9				9	25	50		2	2	14	8	14	15	15	2	165
EVENING GROSBEAK		148								265							413
PURPLE FINCH	3	2			9	47	30				40		56				187
PINE GROSBEAK		151	137		1					49	2						340
HOARY REDPOLL		3															3
COMMON REDPOLL		148	8	42	493	61	13	811	355	49	48	225	515	3	80	20	2871
AMERICAN GOLDFINCH	24				291	44	14	11	6		5	250	56		7	1	709
RED CROSSBILL		4				6											10
WHITE-WINGED CROSSBILL		1															1
SLATE-COLORED JUNCO	107	14		9	273	235	52	5	33	8	35	12	519	14	120	18	1454
OREGON JUNCO					1	2											3
TREE SPARROW	125				307	201	37			1	15	4	39	5	28	50	812
HARRIS' SPARROW									2								2
WHITE-THROATED SPARROW		2				1							3		8		14
SONG SPARROW					1	1											2
SNOW BUNTING						104											104
TOTAL INDIVIDUALS	566	5421	569	253	2470	4388	3275	932	850	565	458	985	1932	190	392	578	23,824
TOTAL SPECIES	22	46	16	12	27	33	31	10	22	22	27	23	27	16	21	21	79

Minnesota's Birdwatching Opportunities

by

Ronald L. Huber

To date, there have been 346 species of birds reported in Minnesota, including sight records as well as specimens. Of these, 296 species appear to occur regularly in Minnesota. The remaining 50 species are rare or accidental in Minnesota. In any given year, then, we might expect to have approximately 296 species reported in Minnesota, plus a few rare or accidental occurrences.

One can hardly expect to see such a total in his back yard. Excursions must be made to various parts of the state to seek out the rare species. Our feeder may give us some beautiful sights, but what of those elusive species, such as the Yellow Rail, Sprague's Pipit, Sharp-tailed Sparrow, Baird's Sparrow, etc.? We must search for them, and particularly in the areas where they have been known to occur.

This idea was followed through by Avifaunal Club members in 1959 with good results. In the month of May alone, four members each saw approximately 200 species, (highest was 204). For the entire year, two members had 276 and 273 species respectively, and three other members saw more than 250 species.

In 1959, I spent 309 hours (59 days of 38 different weekends) observing birds. During this time, I covered 11,059 miles in 79 of Minnesota's 87 counties. One or more of the following accompanied me on every trip: Harding Huber, Bill Pieper, Ray Glasel, Robert Janssen, Brother Theodore, George Fisher, Richard Oehlen-schlager, and Gary Kuyava. With the exception of the latter two, all are members of the Avifaunal Club.

During 1959, I observed 276 species and other members of the Avifaunal Club saw an additional five species for an Avifaunal Club total of 283 species. The five additional species seen by other club members which I did not see are as follows: Connecticut Warbler (Mpls., May 24, Harding Huber), Black-throated Blue Warbler (Mpls., August 29, Brother Theodore), Mockingbird (Blooming-ton, May 3, Robert B. Janssen), Cape May Warbler (Eden Prairie, May 9, Robert B. Janssen), and Smith's Longspur (Bush Lake, October 31, Brother Theodore).

Presented on the following pages is a log of my trips with a listing of the species I saw in 1959.

Date	Trip	Counties	Hours	Miles	No. Species	Species added for year
Jan. 1	Minneapolis-Shakopee -Minneapolis	Hennepin Scott Dakota	7	30	31	Harlan's Hawk, Mallard, Cardinal, Tree Sparrow, Short-eared Owl, Black Duck, Long-eared Owl, Mourning Dove, Common Snipe, Evening Grosbeak, Common Redpoll, Red-tailed Hawk, Rough-legged Hawk, Marsh Hawk, Sparrow Hawk, Starling, House Sparrow, Downy Woodpecker, Hairy Woodpecker, Rock Dove, Common Crow, Slate-colored Junco, Ring-necked Pheasant, American Goldfinch, Golden-crowned Kinglet, Purple Finch, Common Goldeneye, Brown Creeper, Blue Jay, White-breasted Nuthatch, Black-capped Chickadee
Jan. 2	Minneapolis-Rochester Wabasha- Minneapolis	Hennepin Dakota Goodhue Olmsted Winona Wabasha	10	280	22	Robin, Common Grackle, Rusty Blackbird, Brown-headed Cowbird, Redwinged Blackbird, Tufted Titmouse, Canada Goose, Common Merganser, Lapland Longspur

Jan. 10	Minneapolis-L. Vadnais Shakopee Minneapolis	Hennepin Ramsey Dakota Scott	8	60	36	Great Horned Owl, Red-breasted Nuthatch, Song Sparrow, Peregrine Falcon, Red-shouldered Hawk, Battered Owl, Bohemian Waxwing, Swamp Sparrow, Virginia Rail, Northern Shrike
Jan. 11	Minneapolis-Eden Prairie Minneapolis	Hennepin	6	20	15	Pileated Woodpecker, Red-bellied Woodpecker, Cooper's Hawk
Jan. 17	Minneapolis-Baudette Minneapolis	Hennepin Anoka Isanti, Beltrami, Aitkin, Kanabec, Itasca, Koochiching, Roseau, Lake-of-the-Woods	10	690	15	Hawk-Owl, Black-billed Magpie, Snow Bunting, Pine Grosbeak, Ruffed Grouse, Common Raven
Jan. 18	Minneapolis	Hennepin	4	15	10	Belted Kingfisher
Jan. 25	Minneapolis	Hennepin	4	15	10	None
Jan. 31	Minneapolis	Hennepin Anoka, Aitkin, Sherburne, Mille Lacs	9	320	5	Canada Jay, Horned Lark
Feb. 2	Minneapolis	Hennepin	2	15	13	Cedar Waxwing, Oregon Junco
Feb. 7	Minneapolis Eggleston Minneapolis	Hennepin Dakota Goodhue	6	85	15	Bald Eagle
Feb. 8	Minneapolis Shakopee	Hennepin Dakota, Scott	3	15	8	Screech Owl
Feb. 14	Minneapolis-Hill City Two Harbors Minneapolis	Hennepin Anoka, Lake, Isanti, Aitkin, Pine, Carlton, Itasca, Kanabec, Washington, Ramsey, St. Louis, Chisago	12	520	22	Black-backed Three-toed Woodpecker, Sharp-tailed Grouse, Herring Gull, Glaucous Gull, Oldsquaw
Feb. 21	Minneapolis Cedar Creek Shakopee	Hennepin Anoka, Scott, Carver, Dakota, Isanti	8	85	27	Gray Partridge, Western Meadowlark
Feb. 28	Minneapolis-Eggleston	Hennepin Goodhue, Dakota	6	85	29	None
Mar. 7	Minneapolis-Shakopee	Hennepin Dakota, Scott	5	15	13	None
Mar. 8	Minneapolis Shakopee	Hennepin Dakota, Scott	3	15	14	None
Mar. 14	Minneapolis-Eggleston Minneapolis	Hennepin Goodhue Dakota	6	85	17	Redhead, Bufflehead, Great Blue Heron
Mar. 15	Minneapolis-Eden Prairie	Hennepin	4	15	10	None
Mar. 21	Minneapolis-Eggleston Rochester Whitewater Wabasha Minneapolis	Hennepin Dakota Goodhue Olmsted Winona Wabasha	8	200	18	American Widgeon, Wood Duck, Hooded Merganser, Ring-necked Duck, Blue-winged Teal, Green-winged Teal, Killdeer, Lesser Scaup, Log-gerhead Shrike
Mar. 24	Minneapolis	Hennepin	3	15	10	Red-breasted Merganser, Goshawk, American Coot, Chipping Sparrow
Mar. 26	Minneapolis	Hennepin	3	15	18	Pied-billed Grebe, Ring-billed Gull, Pintail
Mar. 27	Minneapolis	Hennepin	1	10	10	Eastern Meadowlark
Mar. 28	Minneapolis Eden Prairie Minneapolis	Hennepin	6	18	12	American Woodcock, Eastern Bluebird, Fox Sparrow, Shoveler, Gadwall, Canvasback, Yellow-shafted Flicker, Brewer's Blackbird, Whistling Swan
Mar. 31	Minneapolis	Hennepin	4	15	10	Eastern Phoebe, Saw-whet Owl, Black-crowned Night Heron
Apr. 5	Minneapolis Shakopee Minneapolis	Hennepin Dakota Scott	6	20	15	American Egret, Ruddy Duck, Sharp-shinned Hawk, Lesser Yellowlegs
Apr. 8	Minneapolis	Hennepin	2	10	15	Common Loon

Apr. 13	Minneapolis	Hennepin	1	5	10	Tree Swallow
Apr. 14	Minneapolis	Hennepin	2	5	15	Hermit Thrush
Apr. 16	Minneapolis	Hennepin	2	5	20	Ruby-crowned Kinglet
Apr. 18	Minneapolis Rosemount Savage Minneapolis	Hennepin Dakota Scott	7	40	35	Red-necked Grebe, Horned Grebe, Double-crested Cormorant, White-fronted Goose, Greater Yellowlegs, Pectoral Sandpiper, Yellow-bellied Sapsucker, Rough-winged Swallow, Purple Martin, Winter Wren, Myrtle Warbler, Field Sparrow, Vesper Sparrow, Yellow-headed Blackbird, Snow Goose, Blue Goose
Apr. 22	Minneapolis	Hennepin	2	10	20	Forster's Tern
May 2	Minneapolis-Swan Lake Minneapolis	Hennepin Carver Sibley Nicollet	8	140	92	Chimney Swift, Barn Swallow, Upland Plover, Spotted Sandpiper, Dowitcher, American Golden Plover, Wilson's Phalarope, Black Tern, Franklin's Gull, Bonaparte's Gull, Red-headed Woodpecker, Least Flycatcher, House Wren, Long-billed Marsh Wren, Brown Thrasher, Water Pipit, Swainson's Thrush, Black and White Warbler, Orange-crowned Warbler, Yellow Warbler, Palm Warbler, Northern Waterthrush, Yellowthroat, Savannah Sparrow, Clay-colored Sparrow, Harris' Sparrow, White-throated Sparrow, Lincoln's Sparrow, Least Sandpiper
May 3	Minneapolis	Hennepin	2	10	80	Worm-eating Warbler, Whip-poor-will, Broad-winged Hawk, Pine Siskin
May 9	Minneapolis-Whitewater Frontenac Minneapolis	Hennepin Dakota Goodhue Wabasha Winona	9	200	105	Green Heron, Turkey Vulture, Sora, Solitary Sandpiper, Great Crested Flycatcher, Olive-sided Flycatcher, Bank Swallow, Cliff Swallow, Short-billed Marsh Wren, Catbird, Gray-cheeked Thrush, Blue-gray Gnatcatcher, Yellow-throated Vireo, Red-eyed Vireo, Warbling Vireo, Blue-winged Warbler, Tennessee Warbler, Cerulean Warbler, Blackpoll Warbler, Louisiana Waterthrush, Wilson's Warbler, American Redstart, Orchard Oriole, Baltimore Oriole, Rose-breasted Grosbeak, Indigo Bunting, Rufous-sided Towhee, Eastern Kingbird
May 15	Minneapolis	Hennepin	4	15	70	American Bittern, Common Tern, Ruby-throated Hummingbird, Veery, Magnolia Warbler, Pine Warbler, Ovenbird
May 16	Minneapolis Winona LaCrescent Reno Minneapolis	Hennepin Dakota Goodhue Winona Wabasha Houston	8	300	108	Hudsonian Godwit, Common Nighthawk, Wood Thrush, Bell's Vireo, Blue-headed Vireo, Prothonotary Warbler, Bobolink, Yellow-breasted Chat, Scarlet Tanager, Grasshopper Sparrow, Yellow-crowned Night Heron, Nashville Warbler
May 17	Minneapolis Hinckley Minneapolis	Hennepin Ramsey Chisago, Pine, Washington	6	180	60	Golden-winged Warbler, Blackburnian Warbler, Chestnut-sided Warbler
May 23	Minneapolis Salt Lake L. Traverse Minneapolis	Hennepin Carver McLeod, Meeker, Kandiyoji, Lac qui Parle, Chippewa, Big Stone, Grant, Traverse, Stevens, Stearns, Pope, Wright, Swift	10	350	106	Eared Grebe, White Pelican, Semi-palmated Plover, Black-bellied Plover, Ruddy Turnstone, Willet, White-rumped Sandpiper, Baird's Sandpiper, Dunlin, Sift Sandpiper, Semi-palmated Sandpiper, Marbled Godwit, Sanderling, Caspian Tern, Northern Phalarope, Western Kingbird, Western Grebe, American Avocet, Western Sandpiper, Burrowing Owl
May 26	Minneapolis	Hennepin	2	10	40	Eastern Wood Pewee
May 30	Minneapolis Duluth Minneapolis	Hennepin Ramsey Washington, Chisago, Carlton, Pine, St. Louis	8	320	106	King Rail, Piping Plover, Yellow-bellied Flycatcher, Bay-breasted Warbler, Mourning Warbler, Canada Warbler
June 6	Minneapolis Bethel	Hennepin Anoka	3	60	40	Lark Sparrow
June 7	Minneapolis-Sugar L. Sand Dunes	Hennepin Wright, Anoka, Sherburne	5	130	65	Dickcissel, Least Bittern, LeConte's Sparrow, Traill's Flycatcher

June 13	Minneapolis	Hennepin	2	10	30	Common Gallinule
June 20	Minneapolis Mahnomen Minneapolis	Hennepin Anoka, Sherburne, Benton, Morrison, Todd, Wadena, Stearns, Becker, Mahnomen, Clay, Wilkin, Norman, Ottertail, Douglas	12	480	81	Yellow Rail, Greater Prairie Chicken, Sharp-tailed Sparrow, Henslow's Sparrow
July 19	Minneapolis Carimona Reno Minneapolis	Hennepin Dakota, Goodhue, Olmsted, Winona, Fillmore, Houston, Wabasha	8	300	60	Bobwhite, Black-billed Cuckoo
July 25	Minneapolis Crosby Sebeka Itasca P. Mahnomen Minneapolis	Hennepin Sherburne, Anoka, Mille Lacs, Crow Wing, Cass, Wadena, Hubbard, Todd, Clearwater, Mahnomen, Becker, Morrison, Benton	12	440	60	Osprey, Parula Warbler
Aug. 8-9	Minneapolis Carimona Pipestone Wheaton Minneapolis	Hennepin Dakota, Scott, Olmsted, Fillmore, Mower, Rock, Freeborn, Martin, Faribault, Nobles, Jackson, Pipestone, Lincoln, Traverse, Rice, Yellow Medicine, Lac qui Parle, Big Stone, Grant, Douglas, Pope, Stearns, Wright, Dodge, Steele	22	700	85	Swainson's Hawk, Yellow-billed Cuckoo
Aug. 15	Minneapolis Mahnomen Grygla Thief River Minneapolis	Hennepin Anoka, Todd, Sherburne, Benton, Morrison, Clay, Polk, Wadena, Hubbard, Clearwater, Mahnomen, Norman, Pennington, Beltrami, Marshall, Red Lake	16	580	65	Prairie Falcon
Aug. 22	Minneapolis Itasca P. Mahnomen Minneapolis	Hennepin Anoka, Benton, Sherburne, Morrison, Todd, Wadena, Clearwater, Hubbard, Mahnomen	10	400	81	Black-throated Green Warbler
Sept. 6	Minneapolis	Hennepin	2	10	20	Kentucky Warbler
Sept. 7	Minneapolis Luverne Salt Lake L.Q.P. Lake Minneapolis	Hennepin Carver, Sibley, Renville, Redwood, Lincoln, Lyon, Rock, Pipestone, Yellow Medicine, Lac qui Parle, Chippewa, Kandiyohi, Meeke, McLeod	12	360	76	Sprague's Pipit, Buff-breasted Sandpiper
Sept. 12	Minneapolis Reno Whitewater	Hennepin Goodhue, Dakota, Wabasha, Winona, Olmsted, Houston	10	260	71	Bewick's Wren
Sept. 19	Minneapolis- Duluth Minneapolis	Hennepin Ramsey, Pine, Chisago, Washington, Carlton, St. Louis	10	330	61	Whimbrel, Jaeger (species ?), Pigeon Hawk, Philadelphia Vireo
Oct. 3	Minneapolis Sebeka Itasca P. Ada-Borup Minneapolis	Hennepin Anoka, Todd, Wadena, Sherburne, Benton, Morrison, Hubbard, Clearwater, Mahnomen, Norman, Clay, Becker	12	410	62	Red Crossbill, Sandhill Crane
Nov. 7-8	Minneapolis Two Harbors Ely-Baudette Roseau Sebeka Minneapolis	Hennepin Ramsey, Washington, Pine, Chisago, Carlton, St. Louis, Lake, Koochiching, Lake-of-the-Woods, Roseau, Polk, Todd, Marshall, Pennington, Hubbard, Clearwater, Anoka, Red Lake, Wadena, Benton, Morrison, Sherburne	24	880	36	Chukar, Golden Eagle
Nov. 28	Minneapolis Duluth, Ely Grand Marais	Hennepin Washington, Pine, Ramsey, Chisago, Carlton, St. Louis, Cook, Lake	10	675	31	Boreal Chickadee, Snowy Owl
Dec. 13	Minneapolis Eggleston	Hennepin Goodhue, Dakota	8	70	31	Greater Scaup
Dec. 20	Minneapolis Baudette Minneapolis	Hennepin Anoka, Cass, Todd, Roseau, Benton, Sherburne, Beltrami, Morrison, Wadena, Lake-of-the-Woods	8	680	20	Hoary Redpoll, Great Gray Owl
Dec. 26	Minneapolis	Hennepin	8	70	20	Christmas Count — None
Total	59 Trips	79 Counties	11,095 Miles	309 Hours	276 Species	

The Plains Pocket Mouse in Minnesota ⁽¹⁾

by

Edmund A. Hibbard and James R. Beer

The plains pocket mouse (*Perognathus flavescens perniger* Osgood) is a member of the family Heteromidae which is composed of the pocket mice in the genus *Perognathus*, the kangaroo mice in the genus *Microdipodops*, the kangaroo rats in the genus *Dipodomys* and the spiny pocket mice in the genera *Liomys* and *Heteromys*. This family is characterized by the presence of fur lined pouches which open on the sides of the cheeks and with the exception of *Liomys* and *Heteromys* greatly enlarged tympanic bullae.

The distribution of this family is for the most part restricted to North America west of the Mississippi River. It is found as far south as Ecuador, Columbia, and Venezuela and as far north as the northern edges of the great plains in Manitoba and Alberta. This group is definitely of North American origin with only a few species of the genus *Heteromys* being found in South America. This limited distribution in South America is undoubtedly due to a comparatively recent invasion. The several species in the genus *Perognathus* are distributed over the entire area except in those regions covered with forest and from southern Mexico on south (Hall and Kelson, 1949, Ellerman, 1940).

The pocket mice are so named because of their fur lined external cheek pouches and their mouse-like appearance. The pouches are used primarily for carrying seeds and other foods. In this respect they resemble the pocket gophers to which they are rather closely related (Hill, 1937). In Minnesota the plains pocket

mouse is the smallest and one of the least known rodents.

Description

The plains pocket mouse is a small brightly colored mouse with fur lined cheek pouches. The pelage is soft and not spiny as in some other members of the family. Typically the back and top of the head is cinnamon buff with a strong admixture of blackish-brown. The upper half of the sides are similar to the back except that there is less of the blackish-brown and more of the buff showing. The lower half of the sides and the belly are a clear cinnamon buff. In most specimens there are small irregular white areas on the belly. The post-auricular spot, the eye ring, the upper lips, lower cheek areas, and feet are a clear buff. There is considerable variation in the color of the back. Many individuals are much darker on the back and one specimen from Dakota County was black with only a faint indication of buff on the sides. Some specimens are much lighter on the back with only a light sprinkling of blackish-brown in the cinnamon buff.

The dentition consists of two pairs of incisors, two pairs of premolars and six pairs of molars. The upper incisors are deeply grooved on the anterior surface. The skull is characterized by the nasal bones extending well beyond the upper incisors, a comparatively large interparietal and large auditory bullae (Fig. 1). The greatest length of the skull varies from 21.0 to 21.8 mm with an average of 21.5 mm. The greatest width varies from 10.8 to 12.4 mm with an average of 11.6 mm.

1 / Paper No. 4418 Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

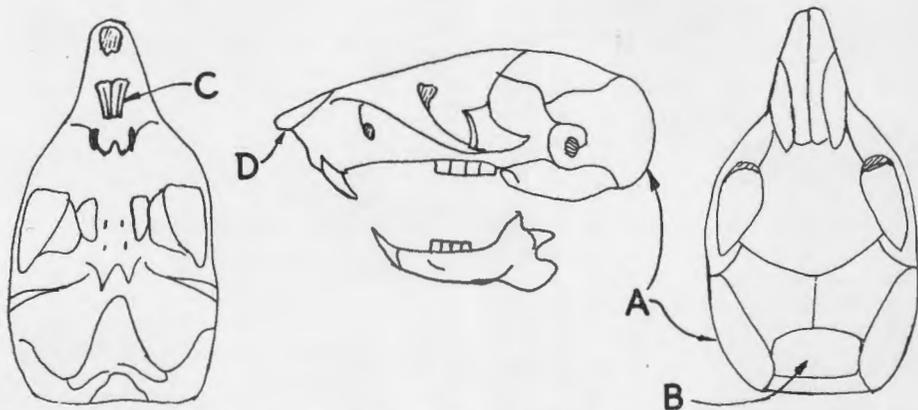


Fig. 1 Skull of the plains pocket mouse showing the (A) large auditory bullae; (B) large interparietal; (C) grooved upper incisors and (D) protruding nasal bones.

The males and females are about the same size. The average body length for the 48 adults examined was 120 mm varying from 110 to 132 mm. The tail averaged 54 mm with extremes of 49 and 60 mm. The hind foot averaged 16.8 mm and varied from 16 to 18 mm. The ear is short and averaged 6 mm and varied from 5 to 7 mm. There was a slight difference in weight between the sexes with the males averaging 9.2 gms and the females 8.8 gms. They varied from 6.9 to 11.5 gms. Both extremes in weight were for males.

Distribution

The plains pocket mouse is an animal of the prairie being found over much of the great plains of the central United States (Fig. 2). This includes southeastern North Dakota, southern Minnesota, the northwestern half of Iowa, most of Kansas, the panhandle of Oklahoma and Texas, the eastern edge of Colorado, most of Nebraska and the eastern two-thirds of South Dakota. It is hard to correlate this distribution with natural vegetational areas. However, they are found in the drier portions of the tall grass prairie and the wetter portions of the short grass prairie.

In Minnesota the plains pocket mouse is found only in those areas

which are open, and well drained. Those taken in Polk, Sherburne, and Anoka Counties were found on sandy soils. Those taken in Dakota County were found in areas with about 24 inches of sandy loam soil which overlaid sand and gravel. We have no data on the exact soil types for the areas from which the specimens were taken in Lac qui Parle, Lincoln, and Watonwan Counties but these are definitely prairie regions.

The number of localities from which this mouse has been taken gives a general, though not detailed, idea as to where the mouse occurs in Minnesota. It is probable that Polk County is about the northern limit in this state. From here south it should be found in all of the counties which originally had prairie vegetation on well drained soils.

The plains pocket mouse seems to prefer sparse grass and fields of small grain where there is an overstorey of grass or small grain but where the surface of the soil is, for the most part, bare and does not hinder movement.

Home Range

Home range can probably best be described as that area about an animal's established home which is traversed by the animal in its normal

activities of food gathering, mating, and caring for young (Burt, 1940). In order to estimate the average home range of pocket mice two fields in northern Sherburne County were live-trapped with the traps being placed out on a 30-foot grid. One area had 111 and the other 51 trap locations. When caught the pocket mice were marked and released at the

point of capture. The method of calculating home range was that described by Hayne (1949). A boundary line was drawn between the outlying points of capture. About this was added a strip 15 feet wide which is one-half the distance between trap stations.

In all, 32 pocket mice were handled. Four of these were handled four

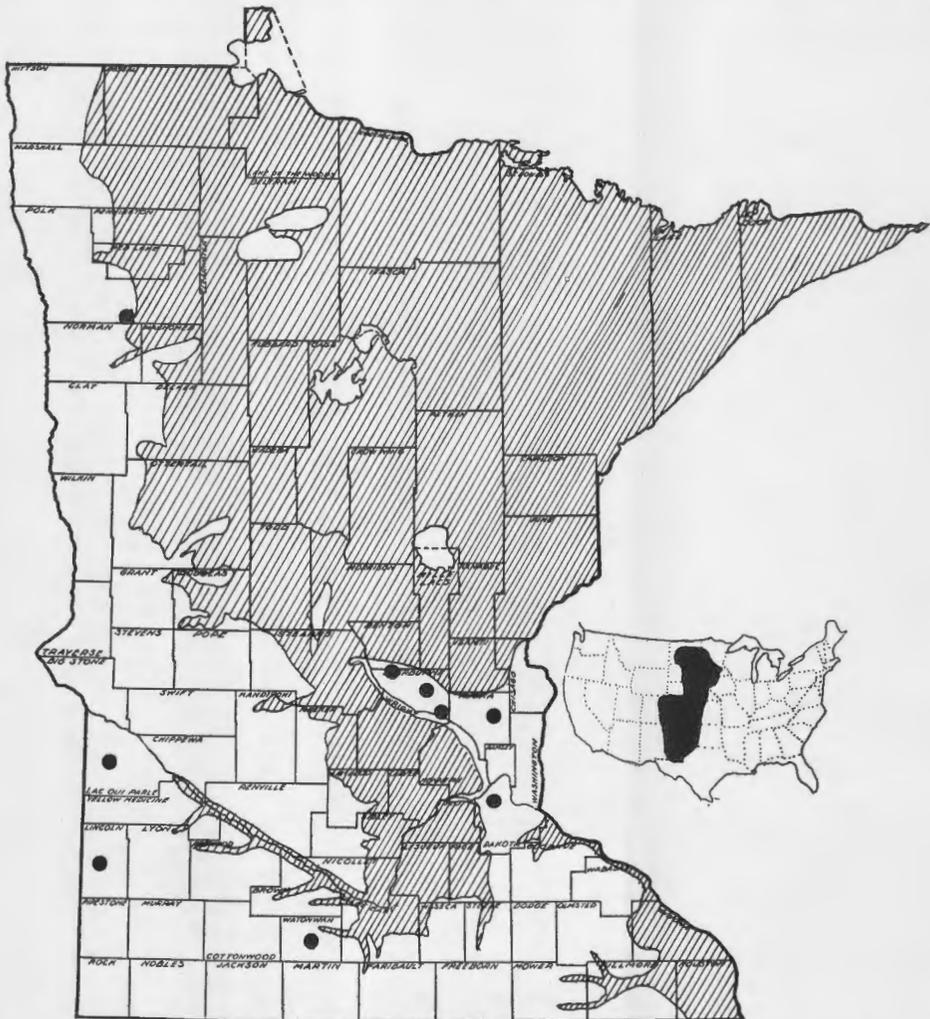


Fig. 2 Map showing the localities from which the pocket mouse has been taken in Minnesota and their relation to the prairie region. The cross hatched portion of the map represents the original forested areas and the rest prairie and savanna habitat. The inset map shows the known distribution of the species.

times and three, three times. These numbers of recaptures are too small to give an adequate estimate of home range but they are suggestive. The average size of the "trap revealed" home range was 0.08 acres with the smallest 0.06 and the largest 0.12 acres. The greatest distance that any animal was recorded as moving in 24 hours was 150 feet. Of 26 movements recorded only five were for distances greater than 20 yards. There are no other home range studies of this pocket mouse for comparison. In any case, the home range of the pocket mouse is quite small.

Food Habits

Data on the food habits of the plains pocket mouse were collected from two sources. Food caches were obtained by digging up burrow systems and by looking for those that had been plowed up. The second method was to examine cheek pouch contents of trapped animals.

Data from four caches dug up in the sand dune area near Fertile, Minnesota on August 14, 1949, were furnished by Dr. W. H. Marshall. These were all small caches containing from 0.68 to 5.56 grams of seeds each. Seeds of a sedge (*Carex* sp.) were the most important, being found in four of the caches and making up 49 per cent of the total by weight. Spiderwort (*Tradescantia* sp.) was second in importance being found in three of the caches and comprising 37 per cent of the total. Wild buckwheat (*Polygonum convolvulus*), puccoon (*Lithospermum angustifolium*) and yellow foxtail (*Setaria glauca*) made up 8, 5, and 1 per cent of the caches respectively and sweet clover (*Melilotus alba*) and switch grass (*Panicum virgatum*) were found in trace quantities.

During September of 1949, twenty-two food caches were discovered on the study area in northern Sherburne County while plowing two fields which totaled 18 acres. These food stores were situated at depths of

from four to eight inches in the soil so that the plow usually cut through the middle of the food cache. These were usually badly scattered by the plow but material from four caches, which appeared to be typical of those seen, were saved for analysis.

In the first of these the contents were completely recovered. This cache was composed of 532 grams, about one quart, of weed seeds. The great bulk of this cache, 88 per cent, was composed of yellow fox tail with seeds of green foxtail (*Setaria viridis*), wild buckwheat and oats making up 3.7, 6.1, and 2.3 per cent respectively. Trace quantities of ragweed (*Ambrosia artemisiifolia*) and knotweed (*Polygonum aviculare*) were also found.

Parts of three other caches were combined for analysis. These caches differed from the one just described primarily in that there was a smaller proportion of foxtail seeds and a higher proportion of wild buckwheat. Yellow foxtail and green foxtail seeds made up 65.3 and 1.5 per cent of the sample respectively with wild buckwheat comprising 33.2 per cent. Sweet clover, oats, and ragweed were found in trace quantities.

Seven of the mice handled on the Sherburne County study area had seeds in the cheek pouches. Not more than five seeds were found in any cheek pouch. Wild buckwheat, corn and wheat were found in the pouches of two mice while yellow foxtail, vetch (*Vicia angustifolia*) and sandbur (*Cenchrus tribuloides*) were found once each. Four of these were not found in the underground food caches examined from this area. Fourteen of the pocket mice examined from Rosemount, Minnesota, had seeds in their cheek pouches. Wild buckwheat seeds were found in ten, green foxtail seeds in seven, yellow foxtail seeds in four, and unidentified seeds in the cheek pouches of two pocket mice. The species of seeds found in the cheek pouches of the

pocket mice from Rosemount differ from those found in the cheek pouches of pocket mice from northern Sherburne County but agreed quite well with the materials taken from the food caches found in the latter area.

The food habits appeared to vary somewhat from area to area but this is undoubtedly due to the availability of the several seeds used for food. Bailey (1926) found this pocket mouse feeding extensively on sandbur in North Dakota while we found this to be a minor item. Since sandburs are common in the areas that we studied we interpret this to mean that this is not a preferred food but that when some of the other seeds are not readily available it is used extensively. Our findings suggest that foxtail, wild buckwheat, sedge and spiderwort seeds are of prime importance to this pocket mouse in Minnesota.

Free water is not needed by these animals in nature. They appear to be able to obtain all of the water they need through the metabolism of their food. Several animals were held in cages for over a month without water. Even these animals did not drink when given water. The only pocket mouse seen to drink was one held in a dry heated room. When given water, after being held for over three weeks without it, it stuck its nose and front feet into the water and then licked the water off its front feet. It did not appear to know how to drink water.

Winter Survival

Little is known of the winter activities of this species of pocket mouse. Bailey (1929) in speaking of this animal in Sherburne County, Minnesota, merely states that "it is active until the ground freezes in the fall." There is no indication that this pocket mouse is active above ground during the winter. It has been debated as to whether they hibernate or remain active underground living

on their extensive food caches during the winter.

Two female pocket mice were held in captivity for about 18 months. During this time it was noted that they were always active when the temperature was between 20 and 25° C for several days at a time but when the temperatures in the animal room fell to between 10 and 15° C for several days at a time one of the mice was usually and the other occasionally found in a lethargic condition. These mice were placed in a constant temperature cabinet and held for several days each at 15, 10 and 5° C. When held in the 15 and 10° C cabinets one or the other was occasionally found in a lethargic condition. When held at 5° C one mouse went into a deep torpor within 12 hours while the other behaved as it did while in the 15 and 10° C cabinets for about 72 hours before it went into a deep torpor. They were then cold to the touch and their body temperatures were not much above that of the environment. When placed in a warm room they became active in about an hour.

The evidence suggests that this pocket mouse hibernates through most of the winter but wakes up periodically and feeds. The pocket mouse does not appear to lay up a large quantity of fat so they must rely at least partially upon the stored seeds for energy to carry them through the winter.

Although at least a hundred feet of burrows were dug up in northern Sherburne County they were all shallow burrows parallel to the surface at a depth of from six to eight inches. These were presumably summer tunnels used primarily for escape. No nests, food caches or deep tunnels were found. Other species of pocket mice are known to have deep burrows which presumably go below the frost line and in which they spend the winter.

Bailey (1926) found that, especially in the fall, there would be a small mound of dirt at the entrance of the

burrow. The entrance was usually plugged. None of these mounds were found on the Sherburne County study area but several were found near Rosemount, Dakota County. These mounds, about four inches in diameter, reminded one of miniature pocket gopher mounds.

Digging was not noted in the field but when an animal was placed in a cage with a supply of dirt they would burrow into it immediately. They dig with the fore feet throwing the dirt back like a dog until they were in about the length of their body. They would then turn around and push the dirt out with the neck and chest, pressing the body close to the earth while doing so, or would push the dirt forward with the forefeet like a pocket gopher.

Reproduction

Very little is known about the reproduction of this mouse. Several of the mice collected were reproductively active. Six pregnant females taken between July 4 and August 12 had an average of 4 (3-5) embryos. That breeding starts earlier is indicated by the taking of a lactating female on June 26 and an immature mouse on May 26 in Sherburne County. Bailey (1929) records the birth of young on May 15.

These data show that the breeding season starts during the last of April and lasts well into August. This indicates that two or possibly three litters are born each year.

Summary

The plains pocket mouse (*Perognathus flavescens*) is a member of the family Heteromyidae. It is characterized by its external cheek pouches, small size, large auditory bullae and grooved upper incisors. The color is typically cinnamon buff with an admixture of blackish brown on the back and pure cinnamon buff on the underparts and feet.

It is found on well drained soils in the prairie regions of Minnesota. It has a home range of about 0.1 of an acre.

The food is made up primarily of seeds with wild buckwheat, foxtail, sedge, and spiderwort being the most important. This mouse hibernates in the winter but probably becomes active periodically to feed on its stored seeds.

On the average, four young are born at a time. The breeding season extends from the last of April to well into August.

Literature Cited

- Bailey, B. 1929. Mammals of Sherburne County, Minnesota. Jour. Mamm., 10:153-164.
- Bailey, V. 1929. A biological survey of North Dakota. U.S.D.A. No. Am. Fauna, No. 49:121-123.
- Burt, W. H. 1940. Territorial behavior and populations of some small mammals in southern Michigan. Mus. Zool. Misc. Publ. Univ. of Mich. 45:1-58.
- Ellerman, J. R. 1940. The families and genera of living rodents. British Museum (Nat. Hist.), London 1:xii 689.
- Hall, E. R. and K. R. Kelson. 1959. The mammals of North America. The Ronald Press Co., New York vol. 1, pp. 472-546.
- Hayne, D. W. 1949. Calculation of size of home range. Jour. Mamm. 30:1-18.
- Hill, J. E. 1937. Morphology of the pocket gopher mammalian genus *Thomomys*. Univ. Calif. Publ. Zool. 48:81-171.
- Upham, W. 1884. Catalogue of the flora of Minnesota. Johnson, Smith and Harrison, Minneapolis. 193 pp. *St. John's University, Collegeville, Minnesota and University of Minnesota, St. Paul, Minnesota*

THE CANADIAN LAKEHEAD

by

A. E. Allin

Temperatures for April, May and June were all above average. April was a dull month but both May and June were sunny. The precipitation for the quarter was about average. The latter half of May was very fine; the last sub-freezing temperature occurred on May 14 which was unusually early. This should result in a heavy crop of fruit since the buds escaped frost damage. There was no damage from frost in June but on July 14, the temperature fell to an official low of 39° and there was slight frost damage in low-lying areas west of Fort William. At this early date there is a heavy crop of cones on the spruce trees.

Despite the above weather conditions Thunder Bay was not open until May 6. My botanical tulips, *Kauffmannia*, did not bloom until May 8. By the same date the hillsides had become grey with the "color" of aspen catkins. At Nolalu we saw the first Bell's Turtle of the season. Wood Frogs, Swamp Tree Frogs and Spring Peepers were first heard on April 28. Dorothy Allin saw the first Little Brown Bat on May 25. More than usual Luna Moths were reported, commencing June 1. I saw only one Polyphemous and no Io Moths. The Prometheas and Cecropias are not found locally through Daphne Eoll has found the cocoon of the latter at Atikokan.

Migration produced few waves or surprises. Totals at the end of three periods, April 14, May 7, and May 14 exceeded numbers seen at the same dates for the past two decades with few exceptions. The hawk migration described in the June issue of *The Flicker* was probably the most interesting phenomenon of spring migra-

tion. Water-fowl migration was an average one but that for shore-birds was poor except for Greater Yellow-legs. Eastern Bluebirds and Bank Swallows were very scarce as were possibly Hermit Thrushes. Eastern Phoebes and House Wrens approached their former abundance.

Loons and Grebes: Common Loon and Pied-billed Grebes appeared in their usual numbers. On May 29 Dorothy Allin and I found a nest of a Red-necked Grebe at Whitefish Lake containing one egg. The first breeding records for the province were from this lake where the late L. S. Dear found two nests in 1933. The Horned Grebe was not recorded locally this spring but we saw an estimated 1,000 of these beautiful birds on May 12, between Hovland and Duluth. Associated with them were Buffleheads and Common Golden-eyes. The grebes were feeding near the surface, at the mouths of the North Shore streams. Was their prey the fry of Smelt?

Pelicans and Cormorants: The Double-crested Cormorant colonies in Thunder Bay have not been visited but a few adults appeared as usual in the Harbor at the end of April. A White Pelican was seen and photographed on the Kaministiquia River on July 10 and found dead the following morning. We have previous records of its occurrence locally. The last was in the late fall of 1947.

Swans, Geese and Ducks: A near-record number of Whistling Swans, 14, was seen on May 1. Two were still present on May 22, and one was seen by several observers in mid-June. Canada, Blue and Snow Geese passed through in small numbers. Most were seen during the third week of April.

The presence of a Snow Goose on May 20 was unusual as was that of a Canada on June 2.

The spring migration of ducks was satisfactory. Buffleheads and Green-winged Teal were unusually common. On May 1, K. Denis reported a Canvasback, one of our uncommon ducks. On May 22, I saw a single pair of Redheads. I saw none in 1959. A few years ago they were relatively common.

Mr. Benedet's home outside Fort William was visited by a brood of newly-hatched Hooded Mergansers on June 28. The previous breeding records for this District are from the southwestern portion where the late J. Jacobs found a nest at High Lake in 1931 and one at Saganaga in 1934.

Vultures, Eagles and Hawks: We observed a Turkey Vulture in Paipooze Township on April 24 and the Park Naturalists saw two over Sibley Park on July 1. We have a half-dozen previous records for the District. They are more common to the west of us and Mrs. Peruniak has frequently reported their presence at Atikokan. A Peregrine Falcon was seen on April 26 and Goshawks on April 30 and May 29. Bald Eagles have been reported frequently but the nest in Sibley Park was not re-occupied. In the June number of *The Flicker* we discussed the heavy migration of Rough-legged Hawks. They were still passing through in early May but we saw none during the summer. Sparrow Hawks have been very common. Broad-winged Hawks moved belatedly into the area on May 12.

Upland and Shore-birds: Ruffed Grouse are much less common than in 1959 and we have seen but one Spruce Grouse (east of Nipigon). No local Sharp-tailed Grouse has been reported but T. Perrons observed them along the railroad 100 miles to the west.

Shore-bird migration was very

poor except for Greater Yellowlegs which were unusually common. We did not see a Ruddy Turnstone or either Godwit, nor did I see a Solitary or a Least Sandpiper. Keith Denis saw a Stilt Sandpiper on May 2 and I saw one May 11. A Whimbrel was present on May 21 and one on May 30. Few Wilson's Snipe were reported. We heard our only American Woodcock on April 28 in O'Connor Township. Two Upland Plovers were seen on May 8, an early date equalled in 1953 and 1955. A small wave of shore-birds moved through on May 22. We identified American Golden and Semipalmated Plovers and Dunlins. A second wave on May 31, produced a Black-bellied Plover, Semipalmated and Baird's Sandpipers, Dunlins and three Sanderlings. The latter is one of our rarest shore-birds.

Gulls and Terns: No "white gulls" and no Bonaparte's were reported. Ring-billed Gulls, once rare visitors, appeared in flocks in mid-April and remained in decreasing numbers until the end of May. For a time they out-numbered the Herring Gulls. Mr. Garton reported a Caspian Tern on May 1. All three species of terns are uncommon visitors to this area.

Doves, Cuckoos and Owls: Mourning Doves continue to increase in Northeastern Minnesota and Thunder Bay District. Two doves were seen on April 13, one on May 22 and June 12 and three on June 6. Mrs. Knowles heard one regularly throughout the early summer. Black-billed Cuckoos were conspicuous by their absence. R. Robb caught an injured Yellow-billed Cuckoo in Fort William on July 1. This is the second record for Thunder Bay District. Great Horned Owls seem scarce. No Short-eared Owls were seen. F. Roy killed a Barred Owl with his car on July 10.

Whip-poor-wills to Creepers: The Whip-poor-wills were again heard in their usual location in Scoble Township and one was heard at Cloud Bay

by Dr. E. Davies. Common Night-hawks did not return until the end of May. Eastern Phoebe were again fairly common after a serious decline a few years ago. No Horned Larks were reported. Several colonies of Cliff Swallows were again present. A Rough-winged Swallow was seen and heard on July 10 (A.E.A.). This is one of our rarer summer residents. Bank Swallows were conspicuous by their absence. A family of seven Common Ravens was seen at Oliver Lake on July 12. House Wrens were fairly common but no Short-billed Marsh Wrens were seen and the Long-billed Marsh Wrens first seen in Sibley Park in 1959 failed to return.

Thrushes to Starlings: The Mockingbird seen in Port Arthur in late December was captured in early January after several toes had been frozen. Kept in captivity all winter, it was released in April. Subsequently it remained in the area and dominated the feeding station. Catbirds were scarce but six Brown Thrashers were seen on May 20 and one, possible two, in Fort William on May 29. Hermit Thrushes and Eastern Bluebirds were scarce but Veerys and Robins were very common.

The last Bohemian Waxwing was seen on April 26 and the first Cedar Waxwings on May 26. Starlings were very abundant. Flocking began about June 26; by mid-June great flocks were present in the country districts.

Vireos and Warblers: The flight these two families was very poor. Apparently they drifted into their territories since there did not seem to be a scarcity on the breeding grounds. We did not see a Myrtle Warbler until May 12 and few were seen during the rest of the month. The Cape May was probably the commonest migrating warbler. An Orange-crowned seen on May 19 and a Black-throated Blue in Sibley Park on July 7 were unexpected. A small wave of warblers occurred on May

28 and 29. We were able to list only 13 species of warblers and vireos during the two days!

Blackbirds and Tanagers: Bobolinks continue to increase in numbers and now occur in many areas although only a few years ago they were found in only one or two fields. We heard an Eastern Meadowlark in Fort William on May 26, the third record for the District. Two Baltimore Orioles were reported. A Scarlet Tanager was seen on May 19 and May 30 in Fort William and July 18 near Nipigon.

Grosbeaks, Finches, Sparrows and Buntings: Pine Siskins first seen on May 22 were scarce during the summer. Fifteen Evening Grosbeaks were reported in Fort William on May 22 and a few were present, throughout the summer, as in 1959, near Pigeon River. Fox Sparrows occurred in much smaller numbers than in 1959. The only Harris' Sparrow was seen on May 5 and a few White-crowned

SEEDS and FEEDS

for

Your Feathered Friends

Everything

To Make Them Happy — Even
Peanuts for the Squirrels.

A Variety of

MIXED GRAINS

SUNFLOWER SEEDS

or

We'll Mix Your Own Formula

ROBBINSDALE FARM & GARDEN SUPPLY

Robbinsdale 22, Minn.

Kellogg 7-4371 — We Deliver

Sparrows were noted on May 13. White-throated Sparrows were late in arriving and scarce during migration but were common on their breeding grounds. The Clay-colored Sparrow was very scarce. A pair of agitated Lincoln's Sparrows was seen on June 27 in Fort William but we failed to establish a definite breeding record. No Lapland Longspurs were seen during spring migration.

The annual dinner meeting of the Thunder Bay Field Naturalists' Club was held on April 19. Sigurd Olsen, well known Minnesotan from Ely, was guest speaker and gave the members and guests an inspiring conservation address. The annual Spring field trip on May 21 was held at Stanley but rain completely spoiled the outing. A field trip, to study spring flowers, to a cedar swamp near Whitefish Lake on June 11 was more successful. There we found Early and Striped Coral root, Calypso and Heart-leaved Towayblade in bloom and several other species of orchids which were in bud. Later he guided a few enthusiasts to a second swamp near Port Arthur where *Arethusa* bloomed in profusion.

Several members visited the latter swamp subsequently and studied Yellow Lady's Slippers, One-leaf Orchis, Shy-flower Rein-orchid, Tall White Bog Orchis, the Small Northern Bog Orchis and Rattlesnake Plantain. At Silver Islet and Ouimet Canyon, Moccasin Flowers were found in abundance. We rediscovered a station of the Purple Fringed Orchis near High Falls. Joan Hebden has

photographed each of these. Next winter we can re-live these trips with her kodachromes.

Earlier in this article we referred to the chorus of Swamp Tree Frogs on April 28. In previous numbers of *The Flicker*, the first date of their calling has been included among other phenological data. E. B. S. Logier, long-time specialist on the amphibians of Canada recently drew my attention to the fact that the Life Sciences Division of the Royal Ontario Museum, Toronto, had no records of the occurrence of the Northern Swamp Tree Frog from Thunder Bay District. Logier and Toner had records only from James Bay, York Factory, and Rainy River District and then westward to British Columbia and the Northwest Territories (E. B. S. Logier and G. C. Toner. Check-list of the Amphibians and Reptiles of Canada and Alaska. Cont. R.O.M.Z. and P 41. 1955). W. J. Breckenridge (Reptile and Amphibians of Minnesota 1944) had no records for the adjacent Minnesota Counties of Cook and Lake. It would appear that our records in *The Flicker*, therefore, were the first records for the Northern Swamp Tree Frog in this general region. The situation is similar to that for the *louisianensis* form of the Common or Red-spotted Newt which we first reported for Canada in *The Flicker*. It has been taken of course in Northeastern Minnesota including Cook County (Breckenridge). — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

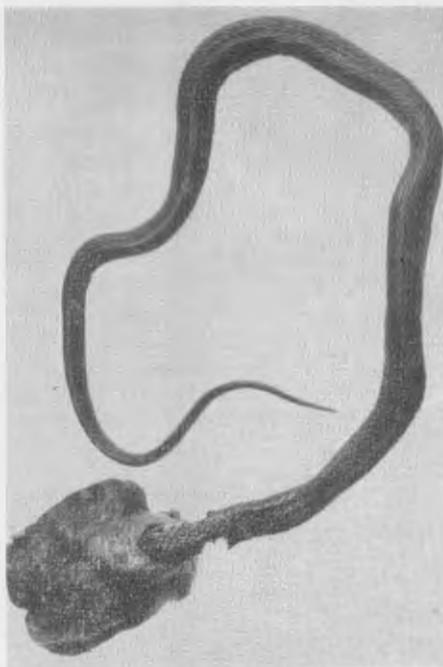
NOTES OF INTEREST

GARTER SNAKE EATING BY THE RUFFED GROUSE — Don Murray, State Game Warden at Long Prairie, Minnesota, recently submitted a Ruffed Grouse gizzard with a garter snake (*Thamnaphis sirtalis*) partially contained in the gizzard. The gizzard and snake were removed from the bird shot in October, 1959, near Browerville, Todd County by Roman Iten of Browerville.

Mr. Iten noticed nothing unusual about the bird when he first shot it. When he came to clean it, however, he found that it contained a garter snake. The snake's head was within the bird's gizzard and the rest of the snake's body lay in the upper part of the digestive tract. The accompanying photo shows snake and gizzard.

This is the fourth Minnesota record of Ruffed Grouse eating garter snakes. In *The Flicker*, Volume 25, page 2, 1953 there is a photo of a Ruffed Grouse with a snake protruding from its mouth. The accompanying article is by John L. Zorichak. In this article he cites a letter from Mr. Lester Magnus, a Game Biologist with the Minnesota Division of Game and Fish, reporting the discovery of a garter snake in the gizzard of Ruffed Grouse shot in November of 1951. In this same issue of *The Flicker* there is also a report by Ray Dolan of a Ruffed Grouse shot near Carlton on October 12, 1952 which contained a 12-inch garter snake in its crop.

The first Minnesota record of this peculiar snake-eating habit of the Ruffed Grouse is given in Roberts' "The Birds of Minnesota." — Arnold B. Erickson, *Minnesota Division of Game and Fish, St. Paul, Minnesota*



* * *

CHESTNUT-COLLARED LONGSPURS IN CLAY COUNTY, MINNESOTA — On May 28, 1960, Ray Glassel, Dick Oehlenschlager, and I were birdwatching in Mahnomen County. We decided to leave the Waubun area and go to Lake Traverse. We went west through Syre and then to Ulen and then started across to Felton. We soon began following back roads, hoping to see some birds and also hoping to get to highway 9 going south. We were soon following a pair of tire tracks across the open prairie grass. We stopped at a fenced-in pasture area just north of a gravel-pit.

A Loggerhead Shrike sat in a nearby bush and a Least Flycatcher checked from a nearby tree. These were all but ignored, however, as six Chestnut-collared Longspurs put on a courtship display in front of us. The males would "hover" (a not-quite-stationary fluttering in mid-air) briefly, singing, and then fly a little further away to "hover" for an encore. The first part of the song sounded like a Western Meadowlark and the ending sounded rather

like the chatter of a Horned Lark. There appeared to be at least four males and two females here.

On June 18, 1960, we again returned to the area, in hopes of finding some nests. We were accompanied by Bob Janssen, Brother Theodore, the Tryons and the Herzes. Only a few females were flushed on this visit, and no nests were found. At least 25 singing males were flying and "hovering" in the area, so apparently a loose colony had established itself. The apparent lack of females could indicate that they were sitting on well-concealed nests.

On July 17, 1960 we again visited the above area and found a single, well-grown young longspur being fed by an adult male. The young bird was just able to fly. Several other young longspurs, also just able to fly, were seen but were not observed being fed by adults. — *Ronald L. Huber, 1231 N.E. 5th Street, Minneapolis, Minnesota*

* * *

BIRD CASUALTIES — On June 4, 1960, Richard Oehlenschlager and I were birdwatching in the Duluth area. On Minnesota Point we observed about a dozen Ruddy Turnstones, and equal number of Sanderlings, one Piping Plover, and eighteen Red Crossbills. One Double-crested Cormorant was in the inner harbor and a half a dozen Common Loons were swimming near shore in the outer harbor.

Our birdwatching was minimal, however, because we were intrigued by the many fragments of bird skulls, wings, and tails that were strewn on the beach. Perhaps this was the result of a storm but no exact determination of the cause was ascertained. Following is a list of the species we were able to ascertain; in many cases the exact species was unidentifiable, as with the thrushes and Empidonax flycatchers:

- 1 Red-throated Loon
- 4 Herring Gulls
- 1 Black Tern
- 3 Empidonax flycatchers
- 3 Yellow-shafted Flickers
- 1 Downy Woodpecker
- 2 House Wrens
- 1 Red-headed Woodpecker
- 1 Wood Thrush
- 4 Unidentified thrushes
- 1 Yellow-throated Vireo
- 12 Ovenbirds
- 1 Canada Warbler
- 1 Nashville Warbler
- 1 Yellowthroat
- 5 Magnolia Warblers
- 1 Black and White Warbler
- 1 Chestnut-sided Warbler
- 2 Bay-breasted Warblers
- 1 Mourning Warbler
- 1 Blackburnian Warbler
- 2 American Redstarts
- 1 Rufous-sided Towhee
- 3 Rose-breasted Grosbeaks (1 male, 2 female)
- 1 Lincoln's Sparrow
- 2 Swamp Sparrows
- 1 White-throated Sparrow

Ronald L. Huber, 1231 N.E. 5th St., Minneapolis, Minnesota

Editor's Note: The following three records for the Barn Owl represent the first records for Minnesota in many years. It is believed by professional ornithologists that this owl is more common in Minnesota than it would appear. It should be watched for especially in the southern part of the state. Please send any observations to the editor.

BARN OWL AT HASTINGS — On July 10, 1960 an article appeared in the St. Paul Pioneer Press concerning a Barn Owl that had been captured in a barn on the Robert Foss farm, six and a half miles southeast of Hastings, Dakota County. A photograph which accompanied the article substantiated the identification of the owl. Several days later I contacted Mr. Foss only to find that the owl had left the area after its release. — *Robert Janssen, 1817 West 59th Street, Minneapolis 19, Minnesota.*

BARN OWL AT DULUTH — Never before recorded at Duluth, St. Louis County, a dead Barn Owl, found inside of the Peavey Grain Elevators created a good deal of excitement among birders in the area. The bird was found by Victor A. Carlson, an employee of the firm. The bird was definitely not brought into the elevator in a shipment of grain as it was found on top of a large shipment of grain that was placed in the elevator a day previous to its discovery. The assumption is that the bird suffocated because of the extreme dust conditions that are always prevalent inside of the elevator shaft when grain is being loaded into it. Also, in a personal conversation with Mr. Carlson, he stated that "I have seen a bird similar to this one fly in and out of a broken window at the top of the elevator for several days previous to my finding it dead." Every effort was made to secure this valuable bird for a scientific specimen, but as Mr. Carlson had already received a Seizure Permit from the area's Game Warden Supervisor, the bird could not be obtained. — *G. C. Kuyava, Duluth, Minnesota*

BARN OWL AT KASSON — On Monday, May 9 Mark Andrist, a farm youth north of Kasson, Dodge County, called me to say that he had a Barn Owl in their barn. I investigated on Tuesday and found this report to be correct.

The owl was found in the basement of the barn where the cows were stanchioned. The bird was sitting on the top of the stone wall between two large wooden log-beams about seven feet off the floor of the barn. When I climbed up to look at the owl I placed my fish landing net in front of my face and between the beams. The owl tried to turn around and get out a back way but couldn't as there was a wall behind him. Then with a rush he hit the landing net and was easily handled and removed.

The bird was very ferocious and clawed the air rapidly hoping to grab hold of something. The bird finally did and dug a piece of flesh out of my right thumb. After I put canvas gloves on I was able to handle the bird easily. While in the farmer's yard showing him to the son and his mother the bird let out a high-pitched scream.

I kept the bird over night and showed it to the kindergarten and first six grades of pupils at both the Kasson and Mantorville grade schools. At both places he screamed in nearly every room which delighted and also frightened the pupils. I turned the bird loose on Wednesday morning at the farm where he was located.

Color pictures were taken of the owl by Ted Johnson of Rochester and William H. Longley of Kasson on Tuesday. Robert Janssen and other tried to locate the bird on Saturday, May 14 at the Andrist farm and others in the neighborhood but were unsuccessful in relocating the bird. — *Kasson, Minnesota*

YELLOW RAILS AGAIN FOUND IN BECKER COUNTY, MINNESOTA —

On June 18, 1960, the Avifaunal Club, the Tryons, and the Herzes were bird-watching in northwestern Minnesota (see article on Chestnut-collared Longspurs elsewhere in this issue). We stopped first at the Yellow Rail area along the Becker-Mahnomen County line (see *The Flicker*, vol. 31, no. 3 1959). We did not hear the rails "ticking," so we walked back into the long-grass meadow. The area frequented by the rails was about ninety percent Sedge (*Humifusa?*) and ten per cent hardstemmed Bulrush (*Scirpus validus* or *S. aquaticus*). After a long walk, we finally encountered the small snails (*Succinea retusa*) that the rails eat and shortly thereafter we heard a rail "ticking" in the distance. We were unable to locate the bird, although we heard it several times and another nearby bird "ticked" occasionally.

LeConte's Sparrows were singing and fluttering throughout the area and Sharp-tailed Sparrows were doing likewise, but in fewer numbers. At least five of the latter were seen and many more were heard. Except for one distant pair, they were all scattered individuals. No nests were found, but both species of sparrows probably nest in the area.

We were making a large, swinging circle back toward the cars when a Yellow Rail flushed just a few feet ahead of us. We were surprised because it had made no noise whatever, and they are usually very hard to flush. We immediately began tramping down a large circle in the grass surrounding the spot where it landed. As we closed in, it soon flushed again and was easily captured. The specimen was taken to the Minnesota Museum of Natural History, as well as some of the snails.

On July 17, 1960, the area was revisited but no rails were to be seen or heard. The Short-billed Marsh Wrens, LeConte's and Sharp-tailed Sparrows still frequented the area and the snails were still present on the tall grasses. Although silent, the rails were probably still in the area. We might suspect this because the young rails leave the nest in Gaspé, Quebec about the third week in July. In Minnesota we could expect a week's difference, plus or minus.

Again on August 20, 1960, we visited the area. The area was now covered with Sunflowers (*Helianthus grosse-serratus*) which had not been there during the previous two visits. No rails were heard or seen. If they were entirely absent, it was not from lack of food, since the snails were still observed in the area. The Short-billed Marsh Wrens, Sharp-tailed and LeConte's Sparrows were still present. It is very interesting to note the close association between the rails, snails, sparrows and wrens in this habitat. To the field observer, the presence of the latter three might be a clue as to the presence of the rails, at least in northwestern Minnesota during the breeding season. — Ronald Huber, 1231 NE 5th Street, Minneapolis, Minn.

Editor's Note: On July 4, 1960, Yellow Rails were heard "ticking" about ten miles south of this area, in the approximate vicinity of Richwood, Becker County by another party. A resident there studying to be a Biology teacher reportedly captured one or two rails on a previous occasion, identified them, and released them. (Information received from David Pearson).

LESSER SCAUP WITH UNUSUAL NUMBER OF LEAD SHOTS IN GIZZARD — Biologist Leon Johnson of Blackduck, Minnesota examined a Lesser Scaup which he found dead on Blackduck Lake on May 12, 1960. The duck appeared to have been dead four or five days. The gizzard was found to contain 106 lead shots. The gizzard lining was of a blackish-green color and was in poor condition. The duck was in good flesh and appeared to be in good condition other than having the infected gizzard. The lead shots were of many sizes, some being badly worn and others appearing to have been recently acquired.

Each spring and fall many migrating Lesser Scaup stop at Blackduck Lake. This spring they were there in good numbers from May 1 through May 11. About 3000 were present on May 5 and this was probably the peak population.

In only two instances are wild ducks known to have carried more than 106 lead shots in their gizzards. Bellrose (1959) tells of a Lesser Scaup which contained 172 pellets and Shillanger and Cottam (1937) report 179 pellets in the gizzard of a Pintail.

Biologist Robert Jessen (1960) conducted a study of the occurrence of lead shots in various lake bottoms in Minnesota and made the following conclusion:

“On the basis of information gathered during this study, it would appear that lead shot availability to waterfowl on an individual area will be closely related to hunting pressure and nature of the underlying soils. It is therefore believed that many areas will pose less of a problem in the future as siltation covers existing shot and allows others a soft bottom through which they may settle, while other areas with firm bottom soils will accumulate higher concentrations of shot and conceivably become untenable by waterfowl at some future date. The problem of lead shot poisoning will have to be evaluated on the basis of individual areas.”

Biologist Jessen intends to investigate the number of lead pellets on the lake bottom of Blackduck Lake when time permits. He speculates that since much of the lake bottom is sandy and of a rather firm nature, many of the lead shots might be available to ducks. — *Forrest B. Lee, Research Biologist, Minnesota Department of Conservation, St. Paul, Minnesota*

LIST OF MINNESOTA BANDERS

(*) Inactive at present

(#) New permittees in 1960

ADA:	*MARTIN K. NELSON
ALEXANDRIA:	*THEODORE LOHRMAN
BROOKINGS, S. D.:	MRS. DAVID HOLDEN
BUFFALO:	*MRS. LUELLA QUADY
CLOQUET:	GORDON GULLION, 605 Slate Street
COOK:	EDWIN M. WOOLVERTON
DETROIT LAKES:	*WILLIAM E. REID
DULUTH:	ROBERT R. COHEN, 719 E. 6th Street DR. P. B. HOFSLUND, University of Minn. Duluth Branch GARY C. KUYAVA, 1611 N. 7th Avenue E.
FARGO, N. D.:	*DR. FRANK CASSEL *RICHARD D. VOTH
GLENWOOD:	MRS. E. R. SELNES
GRAND FORKS, N. D.:	*DR. OLGA LAKELA
HACKENSACK:	*LYMAN W. NEWLIN, Broadwater Lodge
HOLT:	H. H. HILL, Mgr. Mud Lake Nat. Wildlife Refuge E. MARVIN MANSFIELD
HUGO:	*JAMES THOMPSON
JACKSON:	*ARTHUR HAWKINS, R.F.D. No. 1, Box 240
KASSON:	MRS. G. H. CULBERTSON
LeROY:	REV. FOREST V. STRNAD
LITTLE FALLS:	DONALD ORKE
MANKATO:	LOIEL S. RYAN, JR. RON ANDERSON, 837 Nicollet WILLIAM LUWE, 309 State Street STAN ELEMS, P.O. Box 262 C. R. ALEXANDER, Mgr. Rice Lake Nat. Wildlife Refuge
McGREGOR:	LOWRY ELLIOTT
MILBANK, S. D.:	*JOHN S FUTCHER, 2615 Fremont N. ROBERT B. JANSSEN, 1817 W. 59th Street WALTER A. JIRACEK, 4420 S. 29th Avenue BOYD M. LIEN, 5148 S. 29th Avenue
MINNEAPOLIS:	*DR. DWAIN W. WARNER, Mus. of Nat. History
MOORHEAD:	*DR. R. J. LOEFFLER, Concordia College
MORRIS:	*SHERIDAN S. FLAHERTY
NORTHFIELD:	*DR. ARNOLD J. PETERSON DR. GEORGE N. RYSGAARD, Medical Arts Building WILLIAM J. DOLPHIN, 12345 West River Road, R.F.D. No. 1
OSSEO:	*MISS MARGARET DRUM, 217 South Street
OWATONNA:	MISS MATHILDA HENKLE, R.F.D. No. 1, Box 94
RED WING:	*ROBLEY W. HUNT, Mgr. Tamarac Nat. Wildlife Refuge
ROCHERT:	KENDALL W. CORBIN, 919 S.W. 8th Street
ROCHESTER:	*MRS. MELVIN JACOBSON, 310 S.E. 4th Street CARL M. JOHNSON, 1500 N.E. 7th Street DR. HARRY H. GOEHRING, 602 South 3rd Avenue DAVID GREYER, 1406 North 8th Avenue
ST. CLOUD:	*AL GREWE
ST. PAUL:	*DR. JAMES BEER, Div. of Econ. Zoology and Entomology, University Farms WILLIAM J. ELLERBROCK, JR., 529 Federal Courts Bldg. *MISS CONSTANCE EVERETT, 1899 Portland *DAVID GERWITZ, 826 Sherburne Avenue *R. A. KORTMANN, 2567 Delaware Avenue FORREST B. LEE, Dept. of Conservation DR. WILLIAM H. MARSHALL, Division of Econ. Zoology & Entomology, Univ. Farms MRS. MURRAY OLYPHANT, 4000 Hidden Bay Road #JOSEPH H. REISINGER, 849 Tatum Street ORWIN A. RUSTAD, 2344 Doswell Avenue
ST. PETER:	*DR. WARD D. TANNER, Gustavus College
SIoux FALLS, S. D.:	J. SCOTT FINDLEY, 1201 South Center
SOUTH ST. PAUL:	#MRS. ROBERT LEACH, R.F.D. No. 10
WALKER:	HAROLD R. HANSON
WAYZATA:	WALTER PRATT, 1607 Holdridge Terrace S.
WHITE BEAR LAKE:	*MRS. T. R. CAMPBELL MRS. T. HAWKINSON, 191 Wildwood Ave. J. MORTON SMITH, 1108 6th Avenue
WINDOM:	DONALD GRAY, Mgr. Upper Mississippi Wildlife and Fish Refuge
WINONA:	

FORREST B. LEE heads the banding program for the Minnesota Department of Conservation, Waterfowl Division. DR. STANLEY H. HARRIS, until he resigned in 1959 was the head of the Upland Game Division.

WM. J. ELLERBROCK, JR. is with the Fish and Wildlife Service and heads up the Mourning Dove banding project. He has many persons working under him on a sub-permit.

DRS. BEERS, MARSHALL AND WARNER hold a Master Permit for the University of Minnesota. Students do most of the banding under their supervision.

DR. FRANK CASSEL is with the Agricultural College at Fargo and holds a Master Permit for students to work under his supervision.

R. D. VOTH is a high school biology teacher at Fargo and has a Master Permit, including Minnesota, for use by himself and students.

Affiliated Clubs and Officers of the Minnesota Ornithologists' Union

Albert Lea Audubon Society

President: Loes P. Scott
514 Fountain Street
Albert Lea, Minnesota

Vice President: Helen Johnsrud
307 W. Hawthorne Street
Albert Lea, Minnesota

Secretary: Paul N. Nelson
1505 Sunset
Albert Lea, Minnesota

Treasurer: Joseph A. Janson
322 Vine
Albert Lea, Minnesota

M.O.U. Representative: Loes P. Scott

Avifaunal Club

Coordinator: William R. Pieper
2702 Kentucky Avenue N.
Minneapolis, Minnesota

M.O.U. Representative: Robert B. Janssen

Duluth Bird Club

President: P. B. Hofslund
Biology Department
University of Minnesota, Duluth
Duluth, Minnesota

Vice President: Gary C. Kuyava
1611 N. 7th Avenue E.
Duluth, Minnesota

Secretary: Mrs. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

Treasurer: Mr. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

M.O.U. Representatives: Mrs. Harvey Putnam
J. K. Bronoel

Mankato Audubon Society

President: Helen Alder
304 N. 4th Street
Mankato, Minnesota

Vice President: Mrs. Grace Carter
422 W. 6th Street
Mankato, Minnesota

Secretary: Violet Panzram
302½ S. Front Street
Mankato, Minnesota

Treasurer: Mrs. Harvey Polchow
938 Charles Avenue
Mankato, Minnesota

M.O.U. Representative: William R. Luwe

Minneapolis Audubon Society

President: Mrs. R. E. Whitesel
5707 Bryant Avenue
Minneapolis, Minnesota

Vice President: Mrs. Myrtle M. Mahoney
5609 Pleasant Avenue
Minneapolis, Minnesota

Corresponding

Secretary: Mrs. W. H. Lonney
3116 Irving Avenue S.
Minneapolis, Minnesota

Treasurer: Mrs. W. H. Sowden
2853 Hayes Street N.E.
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Mary Lupient

Minneapolis Bird Club

President: Arthur Anderson
1975 James Avenue
St. Paul, Minnesota

Vice President: Mox Lindquist
3423 Pleasant Avenue
Minneapolis, Minnesota

Secretary: Clara Belle Thoresen
4112 28th Avenue S.
Minneapolis, Minnesota

Treasurer: Melvin Stenrud
2930 Yosemite Avenue
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Boyd M. Lien

Minnesota Bird Club

President: Robert B. Janssen
1817 W. 59th Street
Minneapolis, Minnesota

Vice President: Robert Nordgren
79 Seymour Avenue S.E.
Minneapolis, Minnesota

Secretary: Mrs. Jane Olyphant
4000 Hidden Bay Road
St. Paul, Minnesota

Treasurer: Beth Doeringsfeld
943 17th Avenue S.E.
Minneapolis, Minnesota

M.O.U. Representative: Dr. Walter J. Breckenridge

St. Paul Audubon Society

President: Berghild M. Berntsen
312 Summit Avenue
St. Paul, Minnesota

Vice President: Ella M. Hodnett
108 Pierce Street,
St. Paul, Minnesota

Corresponding

Secretary: Harriet Sewall
1295 N. Cleveland Avenue
St. Paul, Minnesota

Treasurer: Ellen L. Manke
168 Summit Avenue
St. Paul, Minnesota

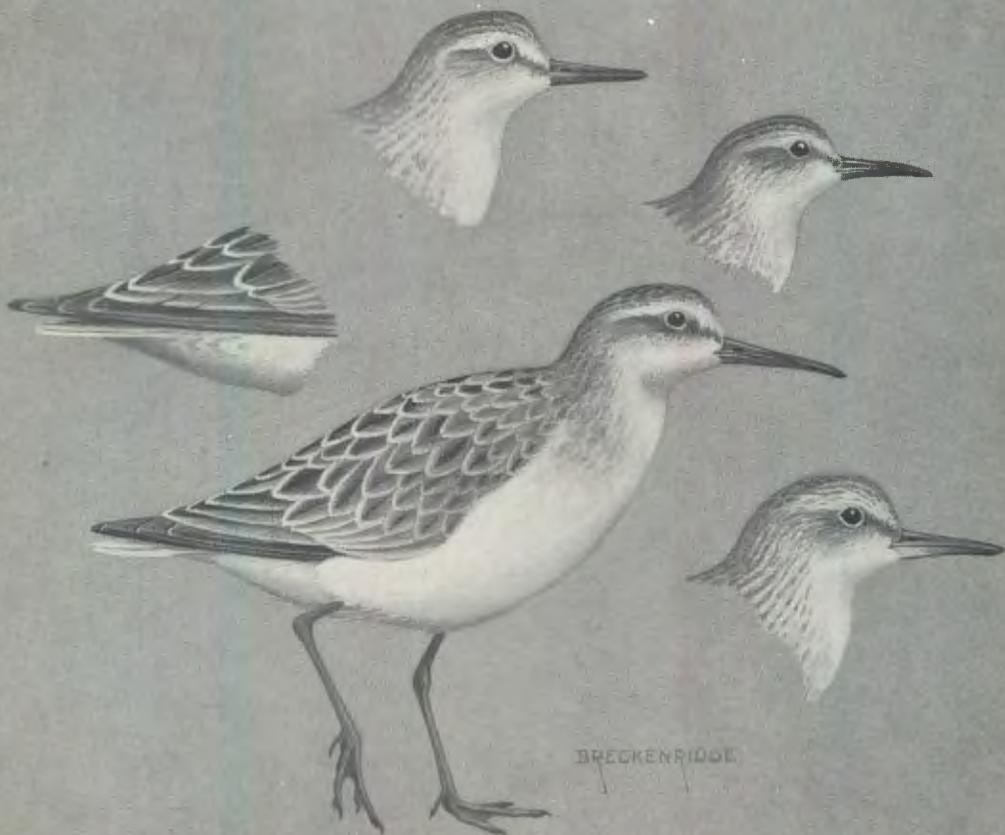
M.O.U. Representative: Joseph H. Reisinger

The Flicker

VOLUME 32

DECEMBER 1960

NUMBER 4



PUBLISHED QUARTERLY BY
THE MINNESOTA ORNITHOLOGISTS' UNION

PERMANENT ADDRESS
MUSEUM OF NATURAL HISTORY
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

TABLE OF CONTENTS

Cover Illustration by W. J. Breckenridge	105
The President's Page	106
In Memoriam — Mrs. C. E. Peterson by Goodman Larson	107
The Savannah Sparrows of Minnesota by Robert W. Dickerman and Kenneth C. Parkes	110
The Canadian Lakehead by A. E. Allin	114
Picture Section — Tern Banding by Joyce and Eugene LeFebvre	118
Seasonal Report by Mary Lupient	120
Notes of Interest	124

THE FLICKER

Organ of the *Minnesota Ornithologists' Union*. Published quarterly in March, June, September, and December. *The Flicker* is sent to all members not in arrears for dues. Dues for members: Active, \$3.00, Sustaining, \$5.00; Life, \$50; Patron, \$100 or more. All articles and communications for publications should be sent to the editor. Subscriptions, memberships, and requests for back issues should be sent to the treasurer.

President — Douglas Campbell, 4917 Russell Avenue S., Minneapolis, Minnesota

Vice President — Rev. Forest V. Strnad, Kasson, Minnesota

Secretary — Loes P. Scott, 514 Fountain Street, Albert Lea, Minnesota

Treasurer — Mrs. Mary I. Lupient, 212 Bedford Street, SE, Minneapolis,

Editor — Robert B. Janssen, 1817 W. 59th Street, Minneapolis, Minnesota
Minnesota

Associate Editors — Dwain W. Warner, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota, William H. Marshall, Division of Entomology and Economic Zoology, University of Minnesota, St. Paul, Minnesota, and Rev. Forest V. Strnad, Kasson, Minnesota

COVER ILLUSTRATION

by

W. J. Breckenridge

This issue's cover illustration calls attention to some characters that may help in the distinguishing of several of the very similar small sandpipers or "Peeps". The full figure drawing is of the first specimen of the Western Sandpiper taken in Minnesota. The size of this species is slightly larger than the Semipalmated Sandpiper and its bill is usually longer and slightly down-curved (see article "Western Sandpiper taken in Minnesota" in this issue). It has black, partially webbed feet as does the Semipalmated. The partial figure (upper left) shows the wing of the Baird's Sandpiper which extends definitely beyond the tail tip. This character is in addition to the scaly back and the buffy head and upper breast which are the usual field marks used in distinguishing this species. The upper center figure shows the relatively heavy, straight black bill of the Semipalmated Sandpiper. The upper right figure represents the Least Sandpiper showing the tapering bill with its slightly down-curved form. Lower right is the head of the White-rumped Sandpiper calling attention to the light (yellow in life) basal portion of the lower mandible. These figures are of birds in fall plumage except the White Rump which is of a spring specimen. Whether or not the light yellow base of the mandible persists in the fall plumage of the White Rump I do not know and I can find no information on this point. Further field observations of this character are needed.

THE PRESIDENT'S PAGE

Our practical experience of watching birds tells us that any given individual bird has mannerisms very much like any other individual of his own species, and very much unlike an individual of another species.

Scientists, hunters, and bird lovers all recognize that behavior states a species character. In Dr. N. Tinbergen's "The Evolution of Behavior in Gulls" in the December 1960 *Scientific American*, he states that "signalling displays are just as stable and reliable taxonomic characters as structures." Duck hunters know the Redhead by its habit of looking down every five seconds or so as it flies singly over the marsh. You and I may observe the Cardinals at our feeders, and note that as they zoom up from ground to tree they flip their tails, now up, now down. This gives their flight a unique character that is useful for recognition at various distances by various observers . . . any observers not indifferent to the presence of cardinals.

The student of behavior asks what motivates the bird to a particular mannerism and what function does it perform for the bird in its environment. From his answers to his own questions, he guesses at the origin of a behavior pattern, and postulates that the selection pressure of a successful particular function has styled, confirmed, and perpetuated the pattern.

The fact that a pattern is species extensive rather than individual suggests the question, "Why is there nothing like a continuous spectrum of behavior evident either within a species or between closely related species?" It seems that in the bird's world of bird watching recognition of another's species at a distance has the function of mediating all of the observing bird's responses to the observed bird.

The existing system of species behavior characters is equal to the needs of this task.

So we can learn to recognize many birds as the birds do, by their species characteristic mannerisms. If anyone finds this to be of help with the confusing fall warblers, his findings should be shared.

Douglas Campbell

IN MEMORIAM — MRS. C. E. PETERSON

by

Goodman Larson



Mrs. C. E. Peterson

A deep sense of loss was experienced by M.O.U. members upon hearing of the death of Mrs. C. E. Peterson of Madison, Minnesota, on June 14, 1960 at the age of 84. She was born Mae Nisbit in Rochester, Minnesota, on March 15, 1876, her parents being of Scottish ancestry. After graduation from Rochester High School in 1893, she continued her education in nurse's training, and through her work in this field, earned money to study pharmacy at the University of Minnesota. Having secured her degree as a registered pharmacist, she accepted a job in Ortonville where she and "Charlie" Peterson worked in a drug store. That they worked well as a team became evident, as they were married on Sep-

tember 16, 1905, and subsequently purchased a drug store in Madison, which they operated until Mr. Peterson's death in 1938.

One son, Charles E., is an architect with the U. S. Park Service in Philadelphia. The other, Henry B., a chemical engineer, is with the U. S. Naval Bureau of Chemical Research in Washington, D. C.

Mrs. Peterson's interest in birds was sparked by Dr. Thomas S. Roberts but her new found interest literally "took wings" when she was acknowledged as an ornithologist and had added through her keen observations and banding, records to the general knowledge concerning bird study in Minnesota.

The outgoing warmth of her personality and interest in people was a two-way charm — opening the eyes of the uninitiated to the wonders of nature as revealed through an interest in birding, and bringing her the friendship, often through correspondence, of ornithologists both professional and amateur, from far afield.

Mrs. Peterson was a frequent contributor to *The Flicker*. The December, 1956 cover of *The Flicker*, taken from the painting by Dr. W. J. Breckenridge of the Black-throated Gray Warbler, was concerned with her trapping and banding of this bird.

Mrs. Peterson was listed in the 1960 edition of *Who's Who in Minnesota*.

The personal inscription written in her first-edition copy of "Birds of Minnesota" on June 1, 1932, might well be a memorial by the bird lovers of our state, now in 1960; "Appreci-

ating your kind and continued interest and thanking you for much assistance rendered. Thomas S. Roberts."

On a table of "Minnesota Bird Banders and Species of Birds Banded in 1959", published in the June, 1960, *Flicker*, was a column itemizing 21 species to the credit of Mrs. C. E. Peterson. Her records, which she kept since 1933 with meticulous care, had come to an end, just as *The Flicker* was finding its way through the mails to M.O.U. members. That these figures were read after her death is only an indication of the inspiration that her love of birds had on all who knew her. How many people have taken to the field with binoculars and a copy of Roger Tory Peterson to seek out the Snowy Egret or the American Avocet because of her? Or how many times has the door of her friendly white house opened to the timid knock of a freckle-nosed child carrying an injured Robin or the report of a strange warbler that evaded identification?

Mrs. Peterson's first interest in birds came when Dr. Thomas Roberts stopped at Peterson's Drug Store, inquiring if anyone in the area knew anything about the nesting sites of the prairie birds of Western Minnesota. "Charlie" Peterson, as everyone knew him in Madison, said that his wife had just inherited some bird books and that maybe she could help him. Thus began her interest in birds as well as a life-long correspondence with Dr. Roberts. In one of her early letters to him, Mrs. Peterson reported seeing a bird which she identified as an Arctic Towhee. Dr. Roberts' reply was skeptical, so to prove her point, she purchased a sparrow trap, and sent a specimen to the Natural History Museum at the University. This resulted in a "first" for Mrs. Peterson and the beginning of her banding activities which lasted for 27 years.

The statistics of her records include at least 15,033 birds banded, including 120 species, and 286 species observed on her life list. Statistics, however,

could never show the warmth of her personality nor the joy one could find watching birds from her back porch.

The decorated Swedish chest against one of the brown stained walls of rough wood, and the carved peasant figures on a high ledge gave the room the feeling of a Scandinavian *Stuga*, but her deepest interest was everywhere reflected — in the birds' nests mounted on the walls, a pair of well used binoculars hanging from a peg, souvenir bird images sent from faraway places by bird loving friends. More often than not, a cigar box full of bands in orderly arrangement lay open on the table. Next to it lay the small pliers which had, no doubt, just been used to snap the bright aluminum bracelet on to the leg of perhaps a Chipping Sparrow.

Her notebook for preliminary entries frequently lay open. What a treasure of information and how interesting to be able to check back through the years of notes on unusual species banded! How excited she must have been to enter the Black-throated Gray Warbler which was a first record in Minnesota! Another choice entry would have been the MacGillivray's Warbler and her early records of the Arctic Towhee (a full species when she trapped it) — both of these also Minnesota "firsts."

Through the window of her porch you could see what was a veritable bird sanctuary — the lilac hedges hiding the town from view while giving nesting sites and privacy to the Brown Thrashers as they dipped into her bird bath and sometimes found their way into the series of water traps surrounding it. A martin house perched on top of the garage gave apartment hunting Purple Martins roosting space. Close to the house stood an ancient box elder, with one branch hanging over the porch window, dangling a wren house where generations of wrens nested, tried their wings and disappeared, only to return another spring to nest again. It was no longer a beautiful tree, with

one branch dead and bare for many years, but who would dream of cutting it off when family after family of Yellow-shafted Flickers and Hairy Woodpeckers had sanctioned it as an ideal site for a home.

Now the traps are gone, the cigar box of bands has been put away. Eighty-four years of life enriched by the love of birding have come to an

end, but surely her requiem will not be one of sober phrases. Instead, let it be the thrill experienced by any one of her many friends as he focuses his binoculars to identify an American Bittern standing head uplifted in imitation of the rushes along the slough bottoms, or a flock of Snow Geese rising in rhythmic flight from a barren field in early spring.

COOPERATIVE BALD EAGLE INVESTIGATION

Arrangements are being made for a large scale winter survey of the Bald Eagle. Will you help to gather needed information? All data after it has been collected and compiled will be sent to the National Audubon Society so it can be compared with data from other states.

It is surprising how little data we have on our National Bird that winters in fair numbers in the Mississippi River Valley. This is our chance to add to our knowledge.

The Illinois Audubon Society and The Iowa Ornithologists Union are conducting this survey and they have requested the help of the Minnesota Ornithologists Union in surveying the Bald Eagle in Minnesota this winter. Please send the following information to the Editor: Date seen, location, number seen, whether adult or immature bird. This data will be forwarded to Mr. Elton Fawks, Route 1, Box 112, East Moline, Illinois. If anyone would like additional information on this survey please write to Mr. Fawks.

ANNUAL NORTH SHORE FIELD TRIP

The annual winter meeting of the Minnesota Ornithologists' Union and the Thunder Bay Field Naturalists' Club will be held February 11-12. This year's meeting will again be held in the Grand Marais High School.

The field trip will start at 8:00 a.m. from the J. K. Bronoel home, 2010 E. First Street, Duluth. The last stop before leaving Duluth will be at Lester River Bridge on London Road.

Reservations for the banquet should be made with Mrs. A. M. Fenstad, Grand Marais. Banquet tickets are \$2.00. Hotel reservations at Grand Marais may be made at either the Shoreline or East Bay hotels. Remember that this is at the height of the skiing season, so hotel reservations should be made early. If you belong to a M.O.U. affiliate club, consult your local chairman for further details, or write to Mrs. Harvey Putnam, 1407 Woodland Avenue, Duluth, Minnesota. This year's program will be furnished by the Thunder Bay Field Naturalists' Club.

THE SAVANNAH SPARROWS OF MINNESOTA

by

Robert W. Dickerman and Kenneth C. Parkes

Field observers have long noticed variations in coloration in the Savannah Sparrow (*Passerculus sandwichensis*). With the current interest expressed by bird banders of the upper midwest in the dramatically different individuals of the species they have been banding, we have been encouraged to attempt to make a systematic study of the Savannah Sparrows of this region. The Savannah Sparrow is among the most wide-spread and geographically variable song birds in North America. The 1957 Checklist of the American Ornithologist's Union recognized seventeen subspecies. In addition, several other populations have been described but as yet are not recognized by the Checklist committee.

Before discussing the Savannah Sparrows of Minnesota a summary of the species as a whole is needed. The

species is a bird of meadows, low lying fields, prairies and tundra from the Aleutians to Newfoundland, south to Maryland in the east and to Guatemala in the west. The geographic variation is so great that until 1944 the populations now considered to belong to a single species were separated into three species, and today even the Ipswich Sparrow, a well-marked island population, is still, although probably unrealistically, retained as a distinct species, (*Passerculus princeps*). In color, Savannah Sparrows vary from the pale sandy buff of the Ipswich Sparrow and of the Southern California coastal birds, which lack black streakings in the back, to rich dark birds with extensive black areas in Labrador, pale greyish birds of the great plains, and rich brownish birds of other parts of the range. They also vary greatly in

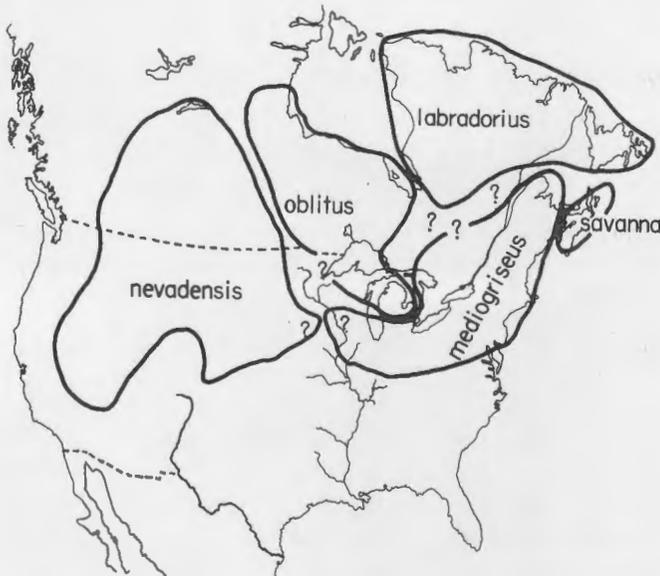


Fig. 1. Geographic ranges of the eastern and central North American subspecies of Savannah Sparrows (*Passerculus sandwichensis*).

bill size and shape from region to region. Savannah Sparrows, in common with most song birds, have a complete prebasic ("postnuptial") molt following the breeding season but unlike many other sparrows they have a nearly complete prealternate ("prenuptial") body molt in the early spring in March and April. Being birds that skulk through low vegetation, they quickly lose the edges of the feathers by abrasion, and populations immediately recognizable in fresh plumage are virtually indistinguishable when wear has destroyed these edges in the worn plumage of the breeding season.

Furthermore the differences between the coloration of the fresh plumage and that acquired by a prebasic ("post-nuptial") molt have been determined for but few populations. Hence, one can easily understand that not only must birds be collected for systematic studies when they are in their fresh plumages immediately after a molt, but that spring birds are probably not comparable to fall birds.

To these complications we must add the fascinating study of migration in attempting to resolve the status of the various "color types" of Savannah Sparrows we find in Minnesota and surrounding states. In northeastern and central North America there are four populations which we must understand in working on the species in Minnesota. (Fig. 1).

Passerculus sandwichensis mediogriseus Aldrich. This name has not yet been recognized by the A.O.U., but appears to be a valid concept. Dr. Aldrich (1940 Ohio Jour. Sci. 445-481) named it as distinct from true *savanna* which he characterized as a lightly colored brownish bird with rather pale ventral streakings, with a breeding range restricted to Nova Scotia. The excellent Nova Scotia series in Carnegie Museum supports Aldrich's findings. Specimens of true *savanna* have never been taken in Minnesota. The population Aldrich called *mediogriseus* is grayer and darker and more

heavily streaked below.

Passerculus sandwichensis labradorius Howe. A dark, richly colored population with extensive black areas with brown feather edges. The northeastern Savannah Sparrows intergrade with *mediogriseus* and *oblitus* in the areas cross-hatched on the map, yielding a profusion of intermediate birds.

Passerculus sandwichensis oblitus Griscom and Peters. The populations of the west side of the Hudson Bay south to northeastern Minnesota (?) and north and central Michigan are dark birds with heavy black markings but greyer, with the brown reduced. *Oblitus* intergrades all along its boundaries with other populations, *labradorius* on the east, *mediogriseus* on the south, and *nevadensis* on the west as indicated on the map.

Passerculus sandwichensis nevadensis Grinnell. This is the pale, variably grayish or clay-colored bird of the western prairies; its eastern range is approximately that of the ecotone belt of the forest edge.

With this understanding of the populations that surround the Upper Midwest, we turn to the specific information available in the form of specimens collected in our region. We would like to thank Charles H. Kemper of Chippewa Falls, Wisconsin, whose great interest in bird banding and curiosity as to the source of the birds he was trapping stimulated in a large part this study. Parkes compared most of the specimens under discussion with series of birds of known identity. Mr. L. L. Snyder of the Royal Ontario Museum kindly advised us on the distribution of the subspecies in eastern Canada.

As one can anticipate from the preceding discussion of the surrounding populations, Minnesota forms the meeting ground for three subspecies. This is well illustrated by the fact that our specimens can be divided into nine different categories which show almost every conceivable combination of characters of these populations.

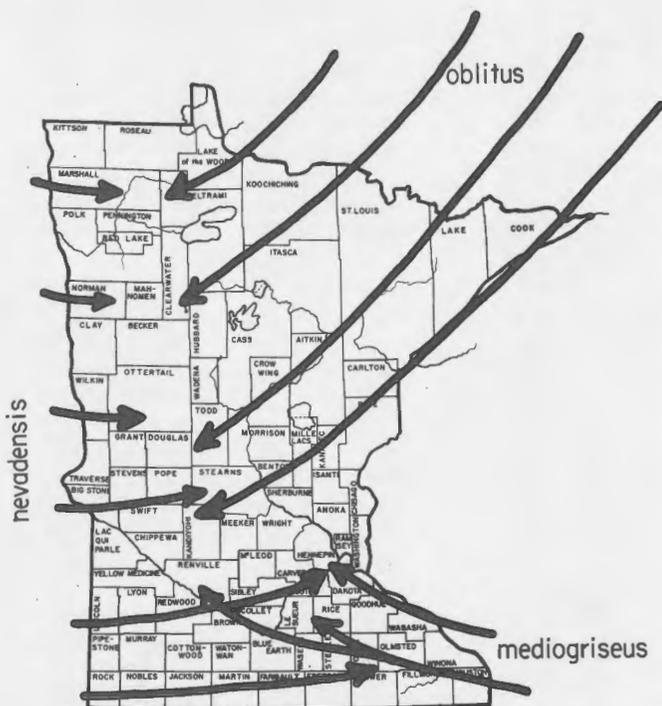


Fig. 2. Probable direction of the character gradients between the Savannah Sparrow populations breeding in Minnesota and those of the surrounding regions.

Figure 2 illustrates the probable directions, although not extent, of gene flow, that is, the progression of characters from one population to another in Minnesota. Most of the specimens available were taken in the fall, and thus in part do not always represent the breeding populations at the localities from which they were taken.

Passerculus sandwichensis labradorius. This northeastern subspecies is an apparently somewhat uncommon migrant in the Upper Midwest. It is represented by four specimens: one from Lanesboro, Minnesota, 2 October 1888, two from Chippewa Falls, Wisconsin, 17 September 1956 and 20 October 1957, and one from Palmer, Michigan, 6 May 1894.

Passerculus sandwichensis oblitus. Separating birds of this and the following two subspecies has been done with utmost hesitation — and with nearly three-fourths of the birds being labeled as intergrades between these populations. *Oblitus* is probably the breeding bird of extreme northern

and northeastern Minnesota; however, the only fresh-plumaged specimen taken 24 August prior to the migration period is considered “nearest *mediogriseus*”. A series taken at the same location (Pike Lake) 20 September is much closer to *oblitus*, one individual being a typical representative of that race. The *oblitus* influence extends westward to at least the prairie - forest border (to Felton in Clay Co.) and southwards into central Minnesota at least as far as Lexington in Anoka County.

Migrant *oblitus* have been taken on migration from Polk, Pennington, Wilkin, Sibley, Jackson and Hennepin Counties. Griscom and Peters, when they described the race *oblitus* (1938 Bull. Mus. Comp. Zoo LXXX 445-478), listed two migrant specimens from Aitkin and Minneapolis taken in May, and two breeding birds from Duluth which they assigned to this subspecies. The Aitkin specimen appears to be intermediate towards *labradorius*. The Duluth specimens

have not been re-examined. A specimen from Ripon, Wisconsin taken 9 May 1893 and one from near Vermillion, South Dakota, 27 March 1960 are also representatives of *oblitus*.

Passerculus sandwichensis nevadensis. The pale prairie-inhabiting subspecies is the breeding bird along the western and southern borders of the state. A very worn breeding bird from northeastern Iowa appears to be this form. However, throughout the vast areas of Minnesota the breeding populations must be labeled as variously intermediate between *oblitus* and *nevadensis*, or *nevadensis* x *mediogriseus* and in the south central portion, at least to Anoka County, some populations show a three way intergradation among *oblitus*, *nevadensis* and *mediogriseus*, with some individuals approaching each of these races. In migration *nevadensis* has been taken east to Minneapolis. Two specimens from Chippewa Falls, Wisconsin, taken 5 and 13 September 1957, are typical *nevadensis*, and specimens from near Vermillion, South Dakota, 27 March 1960 are *nevadensis*.

Passerculus sandwichensis mediogriseus. Unfortunately there are no specimens of Savannah Sparrows available from the southeastern corner of the state. However, a series of fresh plumaged birds from Chippewa Falls, Wisconsin is nearly characteristic of this race. A Minnesota specimen labeled "nearest *mediogriseus*" was taken at Pike Lake, St. Louis Co., 24 August. A bird taken near Ivanhoe, Lincoln County is intermediate between *mediogriseus* and *nevadensis*.

SUMMARY

The breeding Savannah Sparrows of Minnesota are largely intermediate populations between the subspecies *Passerculus sandwichensis oblitus*, *nevadensis* and *mediogriseus*. Con-

trary to the American Ornithologists' Union Checklist, *oblitus* does not breed south to Minneapolis, but is probably found only in northern and northeastern Minnesota; *nevadensis* is the breeding bird of extreme western and southern Minnesota; *mediogriseus* may be the breeding population of southeastern Minnesota and individuals approaching it may be found throughout eastern and central Minnesota; and *labradorius* is probably a regular, although uncommon migrant throughout the state.

The first South Dakota specimen of *oblitus* and the first Wisconsin specimens of *nevadensis* and *labradorius* are recorded. — University of Minnesota Museum of Natural History, Minneapolis, and Carnegie Museum, Pittsburgh, Pennsylvania.

Addenda

Since the above manuscript was completed two additional specimens of *Passerculus sandwichensis labradorius* have been received at the Museum. A male taken at Madison, Lac Qui Parle County 13 September 1932 by J. C. Jones was among material received from the estate of Mrs. C. E. Peterson. The second specimen, another male, was found by Richard Oehlenschlager 22 April 1957, 4½ miles east of Nimrod, Wadena County. Oehlenschlager noted the bird was very fat. Both specimens are in the collection of the Museum. — R. W. Dickerman.

EDITORS FOOTNOTE: The molt terminology here introduced to the readers of *The Flicker*, is that now accepted by the American Ornithologist Union to be used in the *Handbook of North American Birds* now in preparation. A full discussion of the new terminology is available in the paper *An Approach to the Study of Molts and Plumages*, P. S. Humphrey and K. C. Parkes, *Auk*. 76: 1-31 (1959).

THE CANADIAN LAKEHEAD

by

A. E. Allin

The weather during 1960 has been the finest we can recall. For the first eight months, only March and September had below-average temperatures. The last spring frost was on May 14 and the first fall frost on September 15. This frost-free period of 123 days is the longest yet recorded at the Canadian Lakehead. The year has been very dry. Only during April, May and July did the precipitation exceed the average and then by a total of only 1.7". The temperature for the first half of October was 4° above normal. The middle of the month saw a marked change; snow fell on October 18 and the temperature dropped to 18° on October 21.

As a consequence of the long open fall, the forests have been unusually beautiful with Mountain Maples and Pin Cherries providing the most brilliant foliage. Against the yellows of White Birch, Aspen, and Balsam Poplars the small groves of Sugar Maple have stood out in masses of red and gold. By early October only the Black Ash had lost their leaves and their grey bark and brown samaras were the only somber elements in the otherwise colorful autumn scene. By the middle of the month leaves were gone from all the hardwoods except willows and cherries. In the swamps the yellowing Tamaracks contrasted sharply with the dark greens of the Balsam Fir, White Cedar, and the Spruces. And everywhere, in swamps, along roadsides, and in the cities, the fruit of the Mountain Ash was a blaze of scarlet on the heavily laden trees.

Many wild flowers still bloomed in mid-October. In the gardens, except in low-lying areas, few plants had been killed by frost and our Michelmaas Daisies, Snapdragon, Nicotines and even Nasturtiums were still in

flower. Only the Dahlias had been blackened by the light frosts. Leopard Frogs were still active at Cloud Lake on October 8 and Dorothy Allin watched a Little Brown Bat as it fluttered over Fort William at dusk. Black Flies were still a nuisance and bees covered the flowers. Sulphur, Milbert Tortoise-shell and Mourning Cloak Butterflies were active as were Underwing Moths. The severe weather of October 18 to 21 changed all this and it was evident our prolonged summer was at an end.

On the whole the late summer and early autumn of 1960 was an average one with few major migration waves or observations of unusual interest. More ducks remained at the Lakehead and bred than is usual. For the first time the Fort William waterfront was closed to shooting coincident with harbour developments for the Canadian terminal of the St. Lawrence Seaway. Previously the ducks had dispersed or migrated when the season opened in mid-September but this year they remained in great numbers feeding on the waste grain from the elevators. The migration of warblers and vireos was poor and that of most sparrows only fair. As usual we failed to note any major migration of hawks. Shore-bird migration was relatively good. By mid-August, White-winged Crossbills were common northeast of the Lakehead. They were also reported south to Algonquin Park in southern Ontario as well as in north-eastern Minnesota. Mrs. Hogarth saw a flock locally on October 3.

Loons to Bitterns: Common Loons had a good season. At least three breeding records came to our attention. Grebes were uncommon. Whereas we usually see many Horned Grebes at Whitefish Lake, this year we saw none. An immature Horned

Grebe was brought to us on September 16. A few Pied-billed Grebes were present on Cranberry Bay on September 29. Each year we look for southern herons but the Great Blue Heron and American Bittern continue to be the only members of the family on our local list.

Swans, Geese and Ducks: For unknown reasons Whistling Swans are seen almost every summer. In 1960, they were reported on August 13, and 29 and on September 5 when one was seen on Lake Superior and another near Whitefish Lake. The first migrating geese were heard on September 29 and were unusually common for the next three weeks. There was a particularly heavy migration on October 9, when Canadas, Blues and Snows were all seen. On several occasions Canada Geese rested on local fields and lakes. Three killed in Pai-ponge Township on October 3 weighed only five or six pounds each. As usual Ring-necked Ducks were migrating into the area in late September. A Wood Duck was shot from a flock of four on September 16. They occur very rarely locally. October 9 was a late date for an American Widgeon to be seen at Cloud Bay. A few White-winged Scoters were seen at Whitefish Lake on October 20 and by that date Buffleheads were present on Whitefish and on Cranberry Bay.

Ducks were present in unusual numbers on the local bays throughout the summer. Several late broods were seen. These included young Common Goldeneyes scarcely able to fly on July 30, five very young Red-breasted Mergansers on July 30 and nine very small Blue-winged Teal on August 7. In the last *Flicker* we reported the brood of young Hooded Mergansers seen in Neebing Township on June 28. A Hooded Merganser was seen on Thunder Bay, and a flock of 12 on a beaver pond on September 4. Green-winged Teal were present on the same pond.

Vultures, Eagles and Hawks: Following the excellent spring migration

of this group, they were not particularly common throughout the breeding season. I suspect there was a decrease in the number of breeding Sparrow Hawks. Two Marsh Hawks and a Pigeon Hawk were seen on October 10. T. Perrons reported a Red-tailed Hawk on October 9. We saw 7 rough-legged Hawks on October 16 and 2 on October 20; 59 were seen on October 23. Mrs. Peruniak saw 3 at Atikokan on October 18. Only one Bald Eagle was seen during the season.

Upland, Marsh, and Shorebirds: Ruffed Grouse were rarely seen on our field trips last spring; and few broods of young were found later in the season. Most hunters report them scarce this fall, yet others, travelling deep into the forests, consider them common. Perhaps we will have a better assessment now that the trees have lost their leaves. We saw a young Ruffed Grouse on October 5 which was scarcely two-thirds grown and we have heard of others. In the outlying areas, Spruce Grouse are not uncommon and there are a few flocks of Sharp-tailed Grouse outside the Lakehead proper. The introduced Gray Partridge seems scarcer than usual.

American Coots have been very common. Hundreds were present on Whitefish Lake on October 1 and many were still present on October 15. Sora's seem scarce and no Virginia Rail has been reported.

Shorebird migration has been relatively good. Our first migrant was a Pectoral Sandpiper on August 1. On September 4, among more common species we observed 2 Knots and 6 Sanderlings, both species being rare migrants. Baird's Sandpipers and 6 Common Snipe were also seen. Once again, American Golden Plovers visited us in numbers. 200 were seen on September 16 and 10 were still present on October 23. A few Black-bellied Plover were generally mixed with the Golden. K. Denis observed 7 Black-bellied Plover, and a number of Pec-

toral Sandpipers with about 200 American Golden Plover on September 18. In the same Neebing Township field he saw 7 Buff-breasted Sandpipers. They were frequenting a field being stripped of sod where we had seen them the previous September.

Gulls and Terns: Bonaparte's Gulls were seen on three occasions, although many falls pass without their appearance. One was seen in the local Harbour on September 4 and several were present the next day. We saw two at Whitefish Lake on October 1.

Doves, Cuckoos and Owls: The Mourning Dove must now be considered a regular summer resident whereas a few years ago it was rarely seen. In addition to the 7 reported in our last columns, 20 were subsequently seen including 12 by Dr. Hogarth at his tree farm on October 3. Cuckoos have been very scarce this season. On September 27, five Short-eared Owls were seen near the Airport.

Whip-poor-wills to Wrens: Mrs. Peruniak reports both Black-backed and Northern Three-toed Woodpeckers at Atikokan. Yellow-shafted Flickers were migrating on September 15. Pileated Woodpeckers are on the increase; we saw 4 during October. Horned Larks were first noted on September 29 and a few were still present on October 15. Based on field observations the races "*alpestris*" and "*hoyti*" were represented. Gray Jays have been seen in greater numbers than for the past several years but Blue Jays were not too common. A count of 30 Common Ravens was made between Fort William and Cochrane, a distance of 464 miles, on August 13. On October 16, K. Denis counted 150 Red-breasted Nuthatches at Shebandowan.

Thrushes to Starlings: The Eastern Bluebird has been very scarce. Dr. Hogarth reported a nest on his tree farm. Generally we see a small migration in early October but none was noted in 1960. Robins were seen in flocks on October 9, 16 and 20. One sang almost its full song from a TV aerial on October 18. Both Kinglets have been uncommon; there was a small migration of Ruby-crowned Kinglets at Whitefish Lake on October 8.

The first Water Pipit was noted on September 29; a few were seen subsequently. The only Northern Shrike was seen on October 10. Starlings flocked in great numbers in late summer and continue abundant. They consume immense quantities of Mountain Ash berries leaving few for transient Pine Grosbeaks and Bohemian Waxwings or wintering Cedar Waxwings and Robins.

Vireos and Warblers: There was a poor migration of both these groups. The only warbler relatively common has been the Myrtle. A few remained after the severe weather of mid-October.

Bobolinks to Tanagers: Common Grackles were very common this fall.

FINCHES

The latest of the famous
"SOUNDS OF NATURE"
series

Songs of Fringillids of Eastern
and Central North America

Recorded and produced by
Dr. Donald J. Borror and
Dr. William W. H. Gunn for
the Federation of Ontario
Naturalists

★ Order now from:
Federation of Ontario Naturalists
Edwards Gardens
Don Mills, Ontario.

Please send me.....copies of Vol. VI.
FINCHES at \$5.95 per disc.

Name:

Address

Cash enclosed Bill me

Send me your brochure

★ Shipped duty free from Conn.

Heavy movements commenced about September 5 and continued throughout the month. We saw our first Rusty Blackbirds on October 15 when a flock of 10 was seen at Whitefish Lake.

Grosbeaks to Snow Buntings: Rose-breasted Grosbeaks appeared less common than usual during 1960 and not a single Indigo Bunting was reported. Evening Grosbeaks were seen in small numbers during the summer but no fall migration occurred at the Lakehead. A flock was present at Atikokan in October. Common Redpolls appeared in very small numbers as early as October 10; Pine Siskins were seen at Atikokan about the same time. There is a terrific crop of cones on the spruces this year. This may explain the southward movement of White-winged Crossbills. We saw 20 Red Crossbills on October 10 — the third time we have seen them at the Canadian Lakehead in 23 years of observation.

We saw more Savannah Sparrows than usual this fall; they were still migrating on October 15. Slate-colored Juncos have been relatively uncommon but flocks were present on October 23. A migration of Harris's and White-throated Sparrows was noted on October 8 but we failed to see a single White-crowned Sparrow. At Atikokan, Mrs. Peruniak saw them on only one occasion, September 23.

Tree Sparrows were first seen on September 29 and were common on October 20 and 23. Lapland Longspurs were also first noted on September 29, a week later than usual. Subsequently they were very common in pure flocks, with Horned Larks, and later with Snow Buntings. T. Perrens reported the latter, at English River, 120 miles west of the Lakehead on October 9 but we did not see them locally until October 20.

For centuries, Wild Rice has been a valuable source of food for the aborigines living about Lake Superior. In the past it was equally important to the fur-traders who purchased

vast quantities for winter food. Wild Rice is also associated closely with wild fowl in the minds of those who enjoy their game. The Canadian production varies from 100,000 to 1,000,000 pounds annually, dependent on weather conditions, water levels, and destructive weevils. Locally it grows in a few favoured places, particularly Cranberry Bay off Lake Superior and Whitefish Lake. Both are favourite feeding grounds for migrating ducks which consume great quantities of this aquatic grain. During the past autumn Indian crews gathered at Whitefish Lake from widely scattered areas and harvested an average crop of 10 tons.

The Indians still collect the rice in the manner of their fore-fathers. Primitive camps, made incongruous by the presence of assorted bottles, cans and other garbage of civilization, are set up on the shores of the lake in late August. Slender canoes are pushed through the rice beds by pairs of workers. One paddle from the stern while one in the bow bends the slender blades over the canoe with one slender, tapered, 30-inch cedar stick, and with steady, rhythmic blows, knocks the rice grains into the bottom of the canoe. Lost grains settle to the lake bottom for next year's seed or food for migrating waterfowl. Later, much of the rice will be sold to commercial interests. Some will be saved for local use. This will require drying in the sun with later heating over slow fires. The parched seed is then trampled to separate grain from chaff and finally winnowed in locally made, birch-bark baskets. The estimated value of this year's crop of Wild Rice from Whitefish Lake was \$7,000. In recent years, mechanized equipment has been devised to harvest the rice commercially, but the Ontario Department of Lands and Forests banned its use. So each fall the rice is still collected by the Ojibways of the region in the manner of their ancestors. — *Regional Laboratory, Fort William, Ontario.*



TERN BANDING

Common Tern nesting colonies are rare in Minnesota. One colony located on Tern Island, a small sand spit in Leech Lake, was visited in July, 1960 by students from the University of Minnesota biological station at Itasca State Park. Approximately 650 young terns were banded by members of the group. According to records at the Minnesota Museum of Natural History this colony was last banded and photographed in 1933 by Drs. Breckenridge and H. A. Burns.





G by Joyce and Eugene LeFebvre



SEASONAL REPORT

by

Mary Lupient

Minnesota experienced a pleasant summer except for a period of humid weather during the first two weeks of September. Rainfall was light in August. October was an exceptional month, the fall foliage was gloriously beautiful and temperatures mild. Frost occurred in northern Minnesota September 29 and killing frost throughout the state October 19. This cold spell was of short duration. Many species of migrants took advantage of the mild weather and lingered a few days longer than they usually do.

One Horned Grebe and one Eared Grebe were found on Minneapolis lakes September 29. Several Common Loons were also present.

Between 250 and 300 White Pelicans were seen near Norwood, Carver County, September 15-17 by Lester Badger. In late September about 100 White Pelicans were reported at Heron Lake, Jackson County by Howard Cleaves.

September 3 there was a large concentration of Great Blue Herons near Shakopee, Scott County. Among them there were about 50 Common Egrets. John Hall reported that there were several Yellow-crowned Night Herons in a slough adjacent to St. Paul, Ramsey August 12.

The first report of migrating Canada Geese came from Mrs. Murray Olyphant September 29, Washington County. There were many reports of Canada Geese during October. Of unusual interest was the report of about 250 White-fronted Geese flying low over Mother Lake, Minneapolis October 12. They were seen by Mrs. E. W. Joul, Mrs. R. E. Whitesel and others. When they appeared they were coming from the west. Flocks of Blue

and Snow Geese were reported the third and fourth weeks in October. Near St. Paul there was a flock of about 40 Snow Geese October 13 and another flock of Blue and Snow Geese October 20, reported by A. C. Rosenwinkel. About 75 Snow Geese were observed October 22 by Mrs. Harry Jaunty near Cottonwood, Lyon County. Several hunters reported large flights of geese.

Dean Honetschlager sent the only report of Whistling Swans. He saw a flock October 9 in Washington County.

Up to November 1, date of this writing, many duck hunters reported poor luck and some felt that the duck population this season was down somewhat. Redheads and Canvasbacks were not on the hunting list this season and some of these species were reportedly mistakenly shot and left where they fell. No large flights of northern ducks were reported so far. Lesser Scaup and other divers in medium-sized numbers appeared in October. Ring-necked Ducks, Ruddy Ducks, Mallards, Blue-winged Teal besides American Coots, Common Gallinules, Black Terns and other species of birds nested in the rushes in Grass Lake, a small lake located in a residential district in Minneapolis.

Hawks drifted singly or in small groups, through the Minnesota River valley beginning the first part of September and continuing. Most observations were made in Scott and Washington Counties. Turkey Vultures, Pigeon Hawks, Red-tailed Hawks, Rough-legged Hawks, Sparrow Hawks and Pigeon Hawks were noted. The Duluth Hawk count under the direction of Dr. P. B. Hofslund was begun the second week in September. The

following report was received from Dr. Hofslund: "Up to date, October 17 we have seen:

Broad-winged Hawk	6864
Sharp-shinned Hawk	2056
Red-tailed Hawk	631
Marsh Hawk	104
Sparrow Hawk	95
Turkey Vulture	92
Osprey	37
Cooper's Hawk	34
Rough-legged Hawk	15
Pigeon Hawk	14
Goshawk	9
Peregrine Falcon	6
Bald Eagle	3
Golden Eagle	1
Unidentified	384
Best day count Sept. 11, 4,898	
Best Broad-winged Sept. 11, 4,702	
Best Sharp-shinned October 5, 342	
in 2½ hours	
Best Red-tailed October 17, 410	
in 2½ hours"	

Dr. Hofslund goes on to report: "There was a terrific flight of small birds going on today, October 17, along with the Red-tailed Hawks. We saw flocks that must have numbered in the thousands and included Lapland Longspurs, Evening Grosbeaks, Purple Finches, Common Redpolls, Blackbirds, Robins, Pine Siskins, etc. We saw Common Ravens, Common Crows, Blue Jays and Kinglets in lesser numbers. I shouldn't have mentioned the Robin in the above group as I saw only one flock. In fact the Robins and the Blue Jays have been conspicuous in their absence. The same is true of the Eastern Bluebirds and there have been no large flocks of migrating Black-capped Chickadees. We counted around 800 Snow and Blue Geese from the hawk lookout October 12." The MOU Field Trip to the Hawk Count was held September 17-18.

There were scattered reports of Bald Eagles from various parts of the state. Robert Widmeier, who was banding hawks on the north shore of Lake Superior, caught one that could

not fly although there was no apparent injury to its wings. It leaped along the ground and he was able to capture it. Mr. Widmeier was of the opinion that it had been a captive bird because its tail was frayed and its claws blunt. He brought it to the Museum of Natural History and placed it in the care of Dr. W. J. Breckenridge.

Very few large concentrations of shore birds were reported. Lesser Yellowlegs and small peeps were returning the first week in August. A few were seen along Whitefish Lake, Crow Wing County, August 3 by A. C. Rosenwinkel. Robert Janssen reported shore birds in Minneapolis including Dowitchers and Stilt Sandpipers. Brother Theodore saw countless shore birds in Sibley County, September 17. He observed 5 Buff-breasted Sandpipers and a Knot in fall plumage on Minnesota Point, Duluth September 10. On September 12 Carl Johnson banded a Knot on Minnesota Point and sent it to the Museum of Natural History for positive

SEEDS and FEEDS for Your Feathered Friends

Everything
To Make Them Happy — Even
Peanuts for the Squirrels.

A Variety of
MIXED GRAINS
SUNFLOWER SEEDS

or

We'll Mix Your Own Formula

ROBBINSDALE FARM & GARDEN SUPPLY

Robbinsdale 22, Minn.
Kellogg 7-4371 — We Deliver

identification. Dr. Breckenridge afterwards released the bird. A small flock of Whimbrels was seen on Park Point by Mrs. E. W. Joul and others September 25. The first positive record of a Western Sandpiper was obtained by Dr. Breckenridge when he collected one September 4 at Salt Lake, Lac Qui Parle County. Many observers saw the mixed flock of American Golden and Black-bellied Plovers that were on Minnesota Point for several weeks during September and October.

About 55 Common Terns, many of them immature, were seen in Ramsey County August 19 by A. C. Rosenwinkel. He reported 20 Caspian Terns in the same area September 10 with 120 Ring-billed Gulls. About 100 Franklin's Gulls were present in Washington County August 26. By October 4 the number of these gulls had increased to approximately 300 in the Minnesota valley, Scott and Washington Counties. They appeared over the Twin Cities also, hawking insects. In some cases they were accompanied by a few Bonaparte's Gulls. Brother Theodore reported a Parasitic Jaeger harassing Common Terns September 10 on Minnesota Point, Duluth.

One record of the Snowy Owl was received. Emmett Hermanson saw one perched on a cross beam, oblivious to the confusion, under the roof of the train shed at the Milwaukee Depot, October 19.

At Star of the North, Lake County, Marie Aftreith reported 86 migrating Common Nighthawks August 28 and two days later 50 more. Dr. A. E. Allin reported a major flight of Common Nighthawks at Duluth. The following is his report: "We watched them until 8 o'clock at which time there was plenty of light in the sky but the migration had obviously stopped. They spread out over the lake for perhaps less than a hundred yards and inland for perhaps three or four hundred yards. A conservative esti-

mate would be that 3500 Common Nighthawks passed along the shore. I could count 30 in the air at one time and they were all passing rapidly to the southwest. Near Blue Earth, Blue Earth County, Howard Cleaves stated that there was a movement of Common Nighthawks from September 15 to 25. He reported Chimney Swifts at Mankato as late as September 19, 4 in number.

The migration of swallows proceeded normally. A flock of thousands of Tree Swallows perched on wires by the roadside, Scott County September 27. A hundred Cliff Swallows lined the wires August 14 in Washington County, reported by Dean Honetschlager. George Ludcke observed a concentration of Purple Martins in Minneapolis numbering approximately 1500, September 4.

Robins began to flock in early August and roamed about the countryside. In late October small flocks were still moving through. There was a goodly population of Robins in eastern Minnesota. Eastern Bluebirds also appeared to be normal in numbers in this area also. They were present until November 1. A flock of about 50 adults and immature Eastern Bluebirds bathed in a pool in Scott County August 26. Dean Honetschlager reported that due to increased interest in establishing bluebird houses near Marine on St. Croix, Washington County the Eastern Bluebird population had increased in that area. More houses will be put up next season. Dr. D. W. Warner reported large numbers of Hermit Thrushes in Kanabec County, October 30.

Cedar Waxwings apparently in migration were present in Hennepin County in late October. About 50 were imitating flycatchers October 27, snatching insects from the air.

As usual flycatchers migrated with the warblers in most instances. Marie Aftreith reported that her first observation of migrating warblers in Lake County was August 9. In eastern Minnesota warblers began drift-

ing through August 19 and continued until the last of September. On September 22 there occurred a heavy wave of kinglets, warblers, flycatchers and vireos which was reported by several observers. Brother Theodore stated that last year a Kentucky Warbler appeared near the grounds of Benilde School, Minneapolis. This year he found one in the same area at about the same time, August 29.

Many Red Crossbills were present at Encampment Forest, St. Louis County reported by Joel Bronoel.

Slate-colored Juncos were very abundant throughout the south half of the state during migration. First report came from Mrs. Florence Patchin, Scott County, August 26. The migration of White-throated, Harris, White-crowned and Fox Sparrows was normal. Dean Honetschlager sent the earliest record of returning Tree Sparrows, October 9, Washington County. They were present in eastern Minnesota in goodly numbers by October 20. — *212 Bedford Street, S.E., Minneapolis, Minnesota.*

NEW BOOK RELEASED

A new edition of Robert's Bird Portraits in Color was released November 5. The colored plates are the same as in the first edition. There are some revisions which bring the text up to date in matters of nomenclature or range of species. The price of the book is \$5.95. It will be for sale for the benefit of the Minnesota Ornithologists Union treasury by Mary Lupient. Address orders to her, Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.

NOTES OF INTEREST

SWAINSON'S HAWK NESTING IN DODGE COUNTY — On August 2nd William H. Longley and I went out to the Vorce tract, near Claremont, Dodge County, where he is working on a squirrel project for the Department of Conservation, to look for the nest of the Swainson's hawk since he has seen the adult birds there several times this summer. We located an adult bird sitting on a dead limb of a tree and on moving closer to the bird discovered its nest in a dead oak tree about thirty-five feet up. The tree was apparently killed by oak wilt. Underneath, the leaves of weeds were very spattered with "whitewash". On a limb supporting the nest we discovered a half-grown nestling and another nestling in the nest. We went into Claremont to call Carl and Ted Johnson in Rochester so they could come out and band one of the birds and Ted could take pictures of the birds. I would estimate that the bird was four or five weeks old. When they got there I climbed the tree with the aid of tree climbers and the older of the two nestlings, flew off the limb and was easily captured in a brush pile. The other bird was lowered in a canvas bag with the aid of a long rope. A number of pictures were taken by Ted. — *Forest V. Strnad, Kasson, Minnesota.*

* * *

KENTUCKY WARBLER RECORD FROM MOWER COUNTY — On the morning of September 5, 1960 I went to a small pond near our farm to try and mist net some Common Snipe and Killdeers for banding purposes. After I had set up my net I noticed some warbler activity in the trees that border the pond. Investigating, I found a Kentucky Warbler feeding among the willows and elderberry bushes. I set up two mist nets but I was unable to capture the bird. After the nets were up I only saw the bird once more and the other warblers had also moved to a new feeding location. — *Donald Orke, LeRoy, Minnesota.*

* * *

WINTER ROOSTING OF COMMON REDPOLLS — One evening in December, 1959, I came upon a Common Redpoll perched at eye-level against the stem of a small sapling. Quietly it flew a few feet to a branchlet, then disappeared in the gloomy woods. Within the next few days single Common Redpolls were encountered twice more in similar situations. On January 12, 1960, at one hour before sunset, I watched two Common Redpolls come down from the tree-tops into the leafy lower branches of the oak trees where they quietly flitted from perch to perch and vanished just as thirty more arrived in a noisy flock. Some of these dropped down to the lower branches immediately while others perched high up for a few moments before descending. Very soon no birds were to be seen or heard, except one which had taken a perch among a group of oak leaves about five feet up and the same distance from the tree trunk a few feet from where I stood. Its beady eyes stared at me for several minutes while I stared back. It did not move when I walked away. Thirty minutes later it was in the same position. Two other Redpolls were flushed in the thick oak growth: One was seven feet up amid leaves, and the other six feet up on a bare branch.

Varying numbers of Common Redpolls, up to about one hundred, frequented this woods, nearby pastures, and fields since October. They moved into the woods each day about one hour before sunset or even earlier on dull days and very soon were settled down for the night. — *Wm. H. Longley, Kasson, Minnesota.*

WESTERN SANDPIPER TAKEN IN MINNESOTA — The Western Sandpiper, *Ereunetes mauri*, has been on the hypothetical list for Minnesota for many years and occasional sight records have been reported throughout this period. However, the identification of the species in the State had never been verified by the taking of a specimen. This bird so very closely resembles several of the small so called "Peeps" that it is not surprising that few individuals have been distinguished. (See cover illustration.) Furthermore, such fine field distinctions makes it logical to be rather critical of sight records by any but experienced field observers.

I spent the afternoon of Saturday, September 3, and most of Sunday, September 4, 1960 studying and photographing the shorebirds on Salt Lake in western Lac Qui Parle County, Minnesota. The western tip of the lake crosses the State boundary into South Dakota. Wide, comparatively dry, open mud flats surrounded the shallow lake and perhaps one to two thousand shorebirds were scattered over the entire area together with at least 2000 Franklin's Gulls.

The Semipalmated and Least Sandpipers and possible allied species were scrutinized and a number of Baird's Sandpipers were found. Two smaller birds were examined that had slightly down-curved bills which were recognizably longer than those of the Semipalmateds and that had somewhat more rusty upper parts. The legs were black, not yellowish as in the Least. I was not able to collect the birds that afternoon, but the next morning I spent two hours searching the flats for these birds and after locating and losing them on several occasions I finally was successful in collecting one individual on the northeast Minnesota section of the lake which proved to be a female Western Sandpiper with the following measurements: total length 6.30" (160 mm); wing, 3.80" (97 mm); tarsus, .93" (23.5 mm); bill, 1.06" (27 mm). The bird is now preserved in the Minnesota Museum of Natural History collection as specimen No. 16266. My impression was that there may have been three or four individuals of this species among the hundreds of "Peeps" present.

Among the shorebirds the females are generally larger than the males. A careful check of the measurements of the Western and Semipalmated Sandpipers reveals that the bill length of some male Western Sandpipers is less than that of some female Semipalmated birds. Furthermore, fall plumaged immature birds may have shorter bills than adults. In other words, it appears probable that only adult females and the longer-billed adult males of the Western Sandpiper can be distinguished from the Semipalmated by the character of bill length. The bill shape is slightly different in that the Western's bill tapers more at the tip and has a very slight tendency to turn down. Without the character of bill length, however, it is doubtful that the two could be recognized in the field on bill shape alone. — *W. J. Breckenridge, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota.*

* * *

BARN OWL RECORD FROM STEELE COUNTY — A pheasant hunter shot and killed a Barn Owl on October 29, 1960 on a farmstead 3 miles southeast of Ellendale, Steele County. The hunter reported another Barn Owl present at the same site so undoubtedly a pair was involved. The hunter was arrested and brought to court for this offense. — *Robert A. Chesness, Game Research Center, Madelia, Minnesota.*

Editors Note: Again I urge all people seeing or hearing of Barn Owls in Minnesota to please send the records to me for publication in *The Flicker*.

HARVEST MOUSE RECORD FOR HENNEPIN COUNTY, MINNESOTA — The geographic range of the Western Harvest Mouse (*Reithrodontomys megalotis*) extends into southwestern and southern Minnesota.

Ronald L. Huber reported (*The Flicker* 32:1, p. 13) finding the skulls of this species in owl pellets taken in Eden Prairie Township, Hennepin County, Minnesota. These were found on the J. W. Wilkie property, a familiar place to many birders of this area.

Although the presence of skulls in owl pellets is a good geographic record for the species, it is not infallible. An owl may have eaten the skull at some distant point from where the pellet was disgorged, so the precise point of capture is rarely known. For this reason and also to secure more specimens of a species for which we have few records in Minnesota, I was anxious to get actual specimens.

After securing Mr. Wilkie's permission to trap on the property, Dr. Jack Gottschang, visiting from the University of Cincinnati, and I set out traps. At first we had 200, later only 100, but had a total of 1000 trap nights.

These were placed on a prairie-like south-facing slope of the Minnesota River Valley, within 100 yards of where the owl pellets were taken. The vegetation in the immediate vicinity of the traps was composed mainly of grasses and such typical prairie plants as Psoralea and Lead Plant. We caught six individuals during the period July 15 to July 21, 1960. They are now in the Museum collections.

These are the first specimens for Hennepin County and further secure the records from the owl pellets. — *Harvey L. Gunderson, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota.*

* * *

BARN SWALLOWS KILLED BY ELECTRIC FENCE — A recent observation makes me wonder how extensive the destruction of birdlife by electric fences might be. I would appreciate hearing about other cases of the type presented here.

On September 14, 1960 William Nelson, Noel Biebl and I were in the field about four miles east of Borup in Norman County, Minnesota. We noticed a dead Barn Swallow with its head wedged between an electric fence wire and the metal post to which a porcelain insulator was fastened. On examining the specimen we found the bill was badly burned and when we moved it sparks flashed burning another hole in the head feathers. Mr. Anton Dahl, owner of the fence, reported it was powered by a 110 volt current through a transformer that reduced the amperage sufficient to eliminate the possibility of serious damage to stock or man, but it obviously was still strong enough to be very damaging to bird life. It appeared that the bird had either accidentally touched the metal post or had been picking at insects on the post. Barn Swallows, being very gregarious, often perch closely together on wires and possibly simply the crowding had caused the contact.

This particular fence was about a quarter mile in length and had 46 posts. A careful check revealed seven dead Barn Swallows. Four had been killed within a day or so; three others were obviously older. The following day five fresh specimens were found and the next day a single additional bird had been electrocuted.

Several hundred of these birds were seen feeding among goldenrod heads in the adjacent pasture on the morning of September 14 while fewer were seen the following day. This probably was a local pre-migration concentration and this casualty rate was probably much higher than earlier in the season. — *W. J. Breckenridge, Museum of Natural History, University of Minnesota, Minneapolis, Minnesota.*

VERTEBRATE CASUALTIES — On July 3, 1960, while en route from Minneapolis, Hennepin County, to Sugar Lake, Wright County, I noticed that there seemed to be a considerable roadside fatality toll of birds and mammals. I began tallying the specimens and then double-checked them on the return trip. Observations were made on Highway 55 between Minneapolis and the town of Maple Lake, a distance of about forty miles. The following vertebrates were recorded:

7 Painted Turtles	2 House Sparrows
5 Catbirds	2 Garter Snakes (species ?)
3 Ring-necked Pheasants (female)	1 Eastern Meadowlark
3 Common Crows	1 Western Meadowlark
3 Fox Squirrels	1 Robin
3 Thirteen-lined Ground Squirrels	1 Tree Swallow (immature)
3 Brown Thrashers	1 Yellow-shafted Flicker
2 Common Grackles (female)	1 Red-headed Woodpecker
2 Snapping Turtles	1 Blue-winged Teal (female)

Totals: 42 individuals of 18 species (13 bird, 2 mammal, 3 reptile).

This would average out to approximately one casualty per mile. Both Meadowlarks were preserved for the Minnesota Museum of Natural History. Also of interest on the trip was a Whip-poor-will, fluttering like a great moth over the road, exactly four miles east of Rockford. It flew out from a small, wooded hillside, where it was probably nesting. Dickcissels and a Common Loon were seen at Sugar Lake. — *Ronald Huber, 1231 NE 5th Street, Minneapolis, Minnesota.*

BIRDWATCHING IN NORTHWESTERN MINNESOTA, 28 MAY 1960 — On May 28, 1960, Ray Glassel, Harding Huber, Richard Oehlenschläger and I were birdwatching in northwestern Minnesota. Our first stop was near Waubun, Mahnomen county. Here we found Greater Prairie Chickens booming, saw Clay-colored Sparrows, and heard the LeConte's and Sharp-tailed Sparrows singing. It would seem that the latter two species nest in the area, since we also saw them there last year on June 20th.

We proceeded westward toward Ulen and we saw Marbled Godwits literally everywhere, and also a few Wilson's Phalaropes. Between Ulen and Felton, near the Clay County Gravel Company, we found at least six Chestnut-colored Longspurs. Mourning, Yellow, and Magnolia Warblers were in Ulen Park, as well as two Meadow Jumping Mice which we collected for the Minnesota Museum of Natural History.

Further south, just below Barnesville, but in Wilkin County, we stopped to look for butterflies and tiger beetles at the intersection of highways 9 and Wilkin County number 30. Several moments later, three birds flew above us that appeared to be the very abundant Marbled Godwits we had been seeing all morning. Dick had been meticulously checking every individual bird on this trip and fortunately he did so just then. We quickly looked up at the bird and saw that it had a bill about six or seven inches long and was down-curved. The bird was noticeably larger than either of the Marbled Godwits chasing it. It flew about overhead for about five minutes, trying to elude the Godwits, and finally flew southeastward. We were sure that the bird was a Long-billed Curlew. — *Ronald Huber, 1231 N.E. 5th Street, Minneapolis, Minnesota.*

* * *

BURROWING OWLS IN MARTIN COUNTY — On April 22, 1960, John Zorichak, a former biologist with the Minnesota Game and Fish Division, reported two Burrowing Owls using an old badger or fox den on a pasture knoll in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 23, Fraser Township (T. 103, R.31) in

Martin County. I saw them on April 26. One flew off while the other ran under ground. One or both were subsequently seen at this den site. On May 2, one owl was caught accidentally in a steel trap set in a culvert 1½ miles northeast. With one leg badly hurt, it was released, but thereafter only one owl was to be seen at the den site. It was there when the area was last visited on May 19. — *Wm. H. Longley, Minnesota Department of Conservation, Kasson, Minnesota.*

* * *

LATE RECORD FOR THE ROSE-BREASTED GROSBEAK — While deer hunting in northern Itasca county on November 20, 1960 (T 59N, R 25W, Sec. 27), I observed a male Rose-breasted Grosbeak sitting in a sapling aspen (*Populus tremuloides*) only thirty-five feet from where I was standing. The bird was in fresh fall plumage in which the rose color of the breast is obscured by brown feather edgings; it was an adult, its wings and tail were black.

Normally this species breeds throughout the state, but by mid-October most individuals have migrated to their winter range. The latest record for the state is the young male reported on November 1, 1889 in Fillmore County (from Minnesota Museum of Natural History files). The present sight-record is unusual both for the lateness of season combined with the northern location. — *Joyce LeFebvre, Dept. of Physiology, University of Minnesota, Minneapolis 14, Minnesota.*

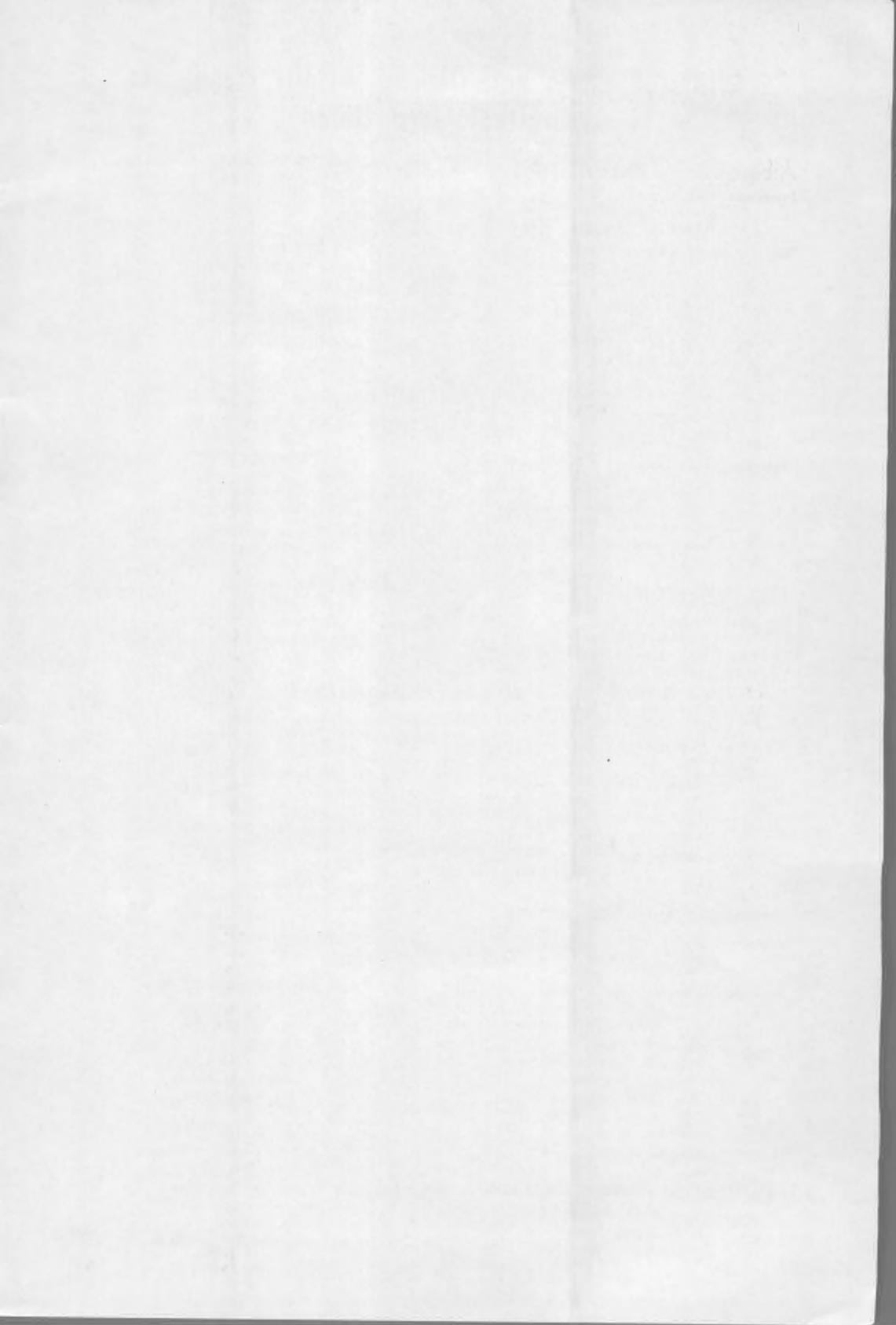
INDEX TO VOLUME 32

- Albino,
 Slate-colored Junco, 42
- Allin, A. E., the Canadian lakehead, 24-28; 56-58; 95-98; 114-117
- Auk, 3
- Avocet, American, 87, 108
- Badger, 6
- Banders, list of and location of Minnesota banders, 104, map opposite 104
- Bat, Little Brown, 114
- Bear, Black, 18
- Beaver, 18
- Beer, James R., the Plains Pocket Mouse in Minnesota, 89-94
- Bittern,
 American, 50, 87, 109, 115
- Least, 50, 87
- Blackbird, 117
 Brewer's, 28, 42, 52, 74, 75, 78, 86
 Redwinged, 6, 11, 52, 73, 74, 75, 84, 85
 Rusty, 11, 52, 84, 85, 117
 Yellowheaded, 6, 42, 52, 87
- Bluebird, Eastern, 29, 30, 42, 54, 77, 79, 84, 86, 95, 97, 116, 121, 122
- Bobolink, 6, 52, 87, 97
- Bobwhite, 12, 77, 88
- Breckenridge, W. J., a bird bath count as an indicator of bird population, 2-4; a Bald Eagle exploit, 63; cover illustration, 105; Western Sandpiper taken in Minnesota, 125; Barn Swallows killed by electric fence, 126
- Bufflehead, 10, 21, 24, 75, 83, 86, 95, 96, 115
- Bunting,
 Indigo, 3, 28, 52, 87, 123
 Lark, 78
 Snow, 12, 26, 42, 43, 56, 62, 84, 86, 117
- Canvasback, 6, 20, 21, 22, 23, 24, 42, 50, 86, 96, 119
- Campbell, Douglas Jr., president's page, 33, 69, 106
- Cardinal, 11, 43, 52, 63, 65, 79, 84, 85, 106
- Caribou, Woodland, 57
- Catbird, 2, 3, 12, 28, 30, 39, 54, 73, 74, 75, 84, 87, 97, 127
- Chat, Yellow-breasted, 49, 54, 87
- Chesness, Robert A., Barn Owl record from Steele County, 125
- Chickadee,
 Black-capped, 26, 32, 39, 54, 65, 84, 85, 121
 Boreal, 12, 26, 54, 84, 88
- Chukar, 12, 64, 88
- Cohen, Robert R., a study of Harbor Island, Duluth, 73-75
- Coot, American, 6, 19, 21, 25, 50, 86, 115, 120
- Cormorant, Double-crested, 87, 95, 100
- Cowbird, Brown-headed, 2, 11, 39, 52, 74, 75, 85
- Crane, Sandhill, 27, 41, 88
- Creepers, Brown, 11, 39, 54, 84, 85
- Crossbill,
 Red, 56, 81, 84, 88, 100, 117, 123
 White-winged, 84, 114, 117
- Crow, Common, 6, 25, 39, 52, 57, 74, 75, 84, 85, 121, 127
- Cuckoo, 116
 Black-billed, 50, 73, 88, 96
 Yellow-billed, 88, 96
- Curlew, Long-billed, 127
- Deer, White-tailed, 13, 18
- Dickerman, Robert W., records of white eggs laid by Eastern Bluebirds in Minnesota, 29-30; Northern Three-toed Woodpecker specimen, 64; the Savannah Sparrows of Minnesota, 110-113
- Dickcissel, 78, 87, 127
- Dill, Herbert H., Mud Lake National Wildlife Refuge, 18-19, Bald Eagle nest at Mud Lake National Wildlife Refuge, 32
- Dove,
 Mourning, 2, 10, 28, 50, 57, 77, 80, 85, 96, 116
 Rock, 26, 85
- Dowitcher, 87, 121
 Long-billed, 48, 50
- Duck, 10, 18, 21, 41, 43, 114
 Black, 10, 21, 22, 24, 25, 50, 57, 83, 85
 Harlequin, 34, 35, 72
 Ring-necked, 6, 19, 21, 22, 24, 42, 50, 66, 86, 115, 120
 Ruddy, 6, 19, 21, 21, 22, 24, 50, 86, 120
 Wood, 6, 50, 61, 83, 86, 115
- Dunlin, 48, 50, 87, 96
- Eagle,
 Bald, 11, 27, 32, 42, 57, 63, 83, 86, 96, 109, 115, 121
 Golden, 42, 88, 121
- Egret,
 American, 86
 Common, 41, 76, 120
 Snowy, 108
- Eider, Common, 10, 34, 35
- Empidonax, 52, 100
- Erickson, Arnold B., garter snake eating by the Ruffed Grouse, 99
- Erickson, Arnold B. and Robert E. Farnes, Prairie Grouse distribution in Minnesota, 60-61
- Erickson, Arnold, Milton Stenlund and Robert E. Farnes, nesting distribution of the Greater Prairie Chicken and Sharp-tailed Grouse, map, opposite 68
- Falcon, Peregrine, 42, 86, 96, 121
- Farnes, Robert E., Thief Lake waterfowl hunter bag check, 20-24
- Farnes, Robert E., and Arnold B. Erickson, Prairie Grouse distribution in Minnesota, 60-61
- Farnes, Robert E., Milton Stenlund and Arnold B. Erickson, nesting distribution of the Greater Prairie Chicken and Sharp-tailed Grouse, map, opposite 98
- Finch, Purple, 39, 48, 52, 84, 121
- Flicker, Yellow-shafted, 31, 52, 74, 75, 83, 86, 100, 109, 116, 127
- Flycatcher, 122, 123
 Great Crested, 39, 52, 76, 87
 Least, 39, 40, 46, 52, 76, 87, 99
 Olive-sided, 52, 76, 87
 Traill's, 52, 74, 76, 87
 Yellow-bellied, 52, 76, 87
- Fox, 6
 Red, 13
- Futcher, J. S., winter bird count observations, 30
- Gadwall, 19, 21, 22, 24, 42, 86
- Gallinule, Common, 76, 88, 120
- Glassel, Raymond A., Carolina Wren at Hopkins, Hennepin County, 30
- Gnatcatcher, Blue-gray, 49, 54, 77, 87
- Godwit, 96, 127
 Hudsonian, 87
 Marbled, 5, 6, 8, 9, 41, 42, 87, 127
- Goldeneye, Common, 10, 21, 22, 24, 25, 26, 50, 57, 76, 81, 82, 83, 85, 95, 115

- Goldfinch, American, 2, 26, 52, 75, 84, 85
- Goose, 21, 25, 41, 115
 Blue, 19, 41, 87, 95, 115, 120, 121
 Canada, 10, 18, 19, 22, 41, 42, 50, 57, 79, 85, 95, 115, 120
 Snow, 19, 87, 95, 96, 109, 115, 120, 121
 White-fronted, 87, 120
- Gopher, Pocket, 6
- Goshawk, 28, 48, 50, 83, 86, 96, 121
- Grackle, Common, 2, 52, 57, 75, 78, 84, 85, 116, 127
- Grebe, 114
 Eared, 50, 76, 87, 120
 Horned, 41, 76, 87, 95, 114, 115, 120
 Pied-billed, 6, 50, 86, 96, 115
 Red-necked, 28, 41, 50, 76, 87, 95
 Western, 31, 87
- Grosbeak,
 Evening, 1, 11, 12, 26, 32, 43, 52, 56, 84, 85, 97, 117, 121
 Pine, 11, 12, 26, 43, 48, 52, 56, 62, 82, 84, 86, 112
 Rose-breasted, 3, 39, 52, 87, 100, 117, 128
- Ground Squirrel,
 Franklin, 6
 Thirteen-lined, 57
- Grouse,
 Ruffed, 39, 42, 62, 83, 86, 96, 99, 115
 Sharp-tailed, 16-17, 21, 28, 42, 60, 61, 62, map opposite 68, 86, 96, 115
 Spruce, 28, 96, 115
- Gryfalcon, 12, 31
- Gull,
 Bonaparte's, 41, 75, 87, 96, 116, 122
 Franklin's, 41, 50, 87, 122, 125
 Glaucous, 10, 43, 83, 86
 Herring, 26, 41, 43, 50, 57, 79, 83, 86, 96, 100
 Ring-billed, 10, 26, 41, 43, 76, 83, 86, 96, 122
- Gundersen, Harvey L., Harvest Mouse record for Hennepin County, Minnesota, 126
- Hall, Douglas, Aitkin County observations, 63
- Hawks, 41, 57, 114
 Broad-winged, 76, 87, 96, 121
 Cooper's, 48, 50, 83, 86, 121
 Duck, 31
 Harlan's, 48, 85
 Marsh, 6, 25, 41, 50, 57, 79, 83, 88, 115, 120, 121
 Pigeon, 25, 26, 48, 50, 56, 57, 79, 83, 88, 115, 120, 121
 Red-shouldered, 10, 41, 65, 76
 Red-tailed, 10, 25, 32, 48, 50, 56, 57, 83, 85, 115, 120, 121
 Rough-legged, 10, 25, 48, 50, 57, 62, 85, 96, 115, 120, 121
 Sharp-shinned, 48, 50, 86, 121
 Sparrow, 41, 50, 57, 76, 83, 85, 96, 115, 120, 121
 Swainson's, 88, 124
- Heron,
 Black-crowned Night, 86
 Great Blue, 39, 41, 42, 57, 76, 83, 86, 115, 120
 Green, 50, 87
 Yellow-crowned Night, 76, 87, 120
- Hibbard, Edmund A., the Plains Pocket Mouse in Minnesota, 89-94
- Huber, Ronald L., Owl pellet studies from three areas in Hennepin and Scott counties, 13-14; Greater Scaup and Western Grebe in Fillmore County, 31; Saw-Whet Owl pellets, 59; winter birds in Beltrami and Lake of the Woods Counties, 62; the Chukar in Minnesota, 64; Minnesota birdwatching opportunities, 85-88; Chestnut-collared Longspurs in Clay County, Minnesota, 99-100; bird casualties, 100; Yellow Rails again found in Becker County, Minnesota, 102; vertebrate casualties, 127; birdwatching in northwestern Minnesota, 28 May 1960, 127
- Hummingbird, Ruby-throated, 39, 52, 87
- Jaeger, 88
 Parasitic, 122
- Janssen, Robert B., M.O.U. growth or stagnation, 1-2; Barn Owl at Hastings, 101
- Jarosz, John A., food habits of the Wood Duck, 61
- Jay,
 Blue, 2, 26, 39, 52, 65, 75, 84, 85, 116, 121
 Canada, 86
 Gray, 25, 26, 28, 62, 84, 116
- Junco,
 Oregon, 52, 84, 86
 Slate-colored, 26, 39, 52, 56, 57, 65, 84, 85, 117, 123
 White-Winged, 49, 52
- Killdeer, 6, 25, 50, 73, 74, 75, 86, 124
- Kingbird,
 Eastern, 52, 87
 Western, 76, 87
- Kingfisher, Belted, 50, 75, 83, 86
- Kinglet, 116, 121, 123
 Golden-crowned, 11, 54, 57, 85
 Ruby-crowned, 42, 54, 65, 79, 84, 87, 116
- Knot, 115, 121,
- Kuyava, Gary C., Gyrfalcon in Duluth area, 31; Duluth White-throated Sparrow re-trapped in Saskatchewan, 32; Black-capped Chickadee migration, fall 1959, 32; an Owl trap, 65; Barn Owl at Duluth, 101
- Lark, Horned, 42, 84, 86, 97, 100, 117
- Larson, Goodman, in memoriam — Mrs. C. E. Peterson, 107-109
- Lee, Forest B., unusual waterfowl records for Minnesota, 34-37; correction for Harlequin Duck record, 72; Lesser Scaup with unusual number of lead shots in gizzard, 103;
- LeFebvre, Joyce, late records for the Rose-breasted Grosbeak, 128
- LeFebvre, Joyce and Eugene, Tern banding (picture section), 118-119
- Lindmeier, John P., plover, rail and godwit nesting on a study area in Mahanomen County, Minnesota, 5-9; experimental marking and dyeing of Ring-necked Pheasants, 43-45
- Longley, William, winter roosting of Common Redpolls, 124; Burrowing Owls in Martin County, 127-128
- Longspur,
 Chestnut-collared, 19, 99, 100, 102, 127
 Lapland, 12, 85, 98, 117, 121
 Smith's, 12, 31, 85
- Loon,
 Common, 75, 86, 95, 100, 114, 120, 127
 Red-throated, 28, 100
- Lucient, Mary, seasonal report, 10-12; 41-43; 76-78; 120-123
- Maanus, Lester T., recent nesting of the White Pelican in the Lake of the Woods area, 62
- Maggie, Black-billed, 42, 62, 78, 86
- Mallard, 6, 10, 18, 21, 22, 23, 24, 42, 50, 57, 74, 79, 81, 83, 85, 120
- Martin, Purple, opposite 32, 33, 41, 49, 52, 75, 76, 87, 108, 122
- Meadowlark,
 Eastern, 52, 86, 97, 127
 Western, 6, 28, 42, 52, 84, 86, 99, 127
- Merquanser, 21, 22
 Common, 10, 57, 83, 85
 Hooded, 10, 24, 28, 50, 57, 75, 85, 86, 96, 115
 Red-breasted, 82, 83, 86, 115
- Mink, 6, 13, 18
- Misho, Monica, the Harris' Sparrow and Ruby-crowned Kinglet winter at Sauk Rapids, 65
- Mitchell, M. J., Cora Alta Corniea — in memoriam, 70-72
- Mockingbird, 12, 26, 42, 54, 56, 78, 85, 97
- Moose, 18, 57, 58
- Mouse,
 Common Meadow, 13, 62
 Deer, 6, 13
 Field, 6
 Harvest, 13, 14, 126
 House, 14

- Jumping, 6, 127
 Kangaroo, 89
 Northern Deer, 13, 14, 59
 Plains Pocket, 89-94
 Prairie Deer, 14
 Red-backed, 13, 14
 Spiny Pocket, 89
- Muskrat, 6, 13, 18
- Nighthawk, Common, 52, 76, 87, 122
- Nuthatch,
 Red-breasted, 11, 25, 39, 54, 56, 84, 85
 White-breasted, 11, 25, 26, 54, 56, 84, 85
- Oech, Virginia and Louise, the use of recorded bird songs as a bird censusing technique, 46-47
- Oldsquaw, 10, 26, 34, 36, 43, 66, 83, 86
- Olson, Sigurd F., the nature conservancy, 67
- Oriole,
 Balfimore, 3, 52, 74, 75, 87, 97
 Orchard, 52, 78, 87
- Orke, Donald, Kentucky Warbler record from Mower County, 124
- Osprey, 88, 121
- Ovenbird, 39, 40, 46, 54, 87, 100
- Owl, 13, 65, 126
 Barn, 101, 125
 Barred, 28, 39, 83, 86, 96
 Boreal, 48, 50, 65, 66
 Burrowing, 6, 87, 127, 128
 Great Gray, 43, 62, 83, 88
 Great Horned, 6, 48, 50, 62, 65, 86, 86
 Hawk, 25, 43, 56, 83, 86
 Long-eared, 13, 14, 48, 50, 65, 85
 Saw-whet, 14, 25, 48, 50, 59, 65, 83, 86
 Screech, 14, 50, 83, 86
 Short-eared, 6, 85, 96, 116
 Snowy, 11, 25, 26, 41, 50, 56, 65, 83, 88, 122
- Parkes, Kenneth C., the Savannah Sparrows of Minnesota 110-113
- Partridge, 6
 Gray, 86, 121
- Pearson, David, Red-shouldered Hawk comes to feeding station, 65, Oldsquaw seen in Minneapolis area, 66
- Pelican, White, 41, 42, 62, 76, 87, 95, 120
- Pewee, Eastern Wood, 39, 40, 46, 52, 87
- Phalarope,
 Northern, 87
 Wilson's, 6, 42, 76, 87, 127
- Pheasant, Ring-necked, 6, 42, 43-45, 50, 74, 75, 79, 83, 85, 127
- Phoebe, Eastern, 42, 52, 86, 95, 97
- Pintail, 6, 20, 21, 22, 24, 42, 50, 57, 86, 103
- Pipit,
 Sprague's, 88
 Water, 54, 87, 116
- Plover,
 American Golden, 25, 42, 87, 96, 115, 116, 122
 Black-bellied, 25, 42, 50, 87, 96, 115, 122
 Piping, 41, 73, 74, 75, 87, 100
 Semipalmated, 50, 87, 96
 Upland, 5, 6, 7, 9, 28, 42, 87, 96
- Prairie Chicken, Greater, 1, 6, 60, 61, map, opposite 68, 88, 127
- Rabbit,
 Cottontail, 13
 Jack, 6
- Raccoon, 6, 13
- Rail,
 King, 76, 87
 Virginia, 5, 6, 8, 9, 50, 86, 115
 Yellow, 88, 102
- Rat, 65
 Kangaroo, 89
- Raven, Common, 12, 25, 26, 28, 42, 56, 62, 66, 84, 86, 97, 116, 121
- Redhead, 6, 20, 21, 22, 23, 24, 42, 50, 63, 86, 96, 106, 120
- Redpoll,
 Common, 26, 43, 52, 56, 62, 79, 84, 85, 117, 121, 124
 Hoary, 1, 26, 56, 62, 84, 88
- Redstart, American, 39, 40, 54, 74, 87, 100
- Ring, The, Book review, 68
- Robin, 1, 2, 12, 26, 30, 31, 39, 42, 54, 56, 57, 75, 77, 84, 85, 97, 108, 116, 121, 122, 127
- Sanderling, 50, 87, 96, 100, 115
- Sandpiper,
 Baird's, 50, 87, 96, 105, 115, 125
 Buff-breasted, 88, 116, 117
 Least, 50, 87, 96, 105, 125
 Pectoral, 50, 87, 115, 116
 Semipalmated, 50, 87, 96, 105, 125
 Solitary, 50, 87, 96
 Spotted, 50, 73, 74, 75, 87
 Stilt, 50, 87, 96, 121
 Western, 105, 122, 125
 White-rumped, 25, 87, 105
- Sapsucker, Yellow-bellied, 39, 52, 87
- Scaup,
 Greater, 10, 31, 83, 88
 Lesser, 6, 10, 21, 22, 24, 42, 50, 66, 75, 86, 103, 120
- Scoter,
 Common, 34, 35
 Surf, 34, 35
 White-winged, 21, 22, 24, 25, 34, 36, 83, 115
- Scott, Loes P., 1959 Minnesota Christmas bird count, 79-84
- Seabloom, Robert W., LaSalle Trail bird census, 38-40
- Shoveler, 6, 19, 21, 22, 24, 42, 50, 86
- Shrew,
 Masked, 14, 59
 Short-tailed, 14
- Shrike,
 Loggerhead, 54, 86, 99
 Northern, 26, 54, 56, 62, 84, 86, 116
- Siskin, Pine, 26, 52, 87, 97, 117, 121
- Skunk, 6, 18
- Snipe, Common, 25, 50, 85, 96, 115, 124
- Sora, 5, 6, 8, 9, 50, 87, 115
- Sparrow,
 Chipping, 3, 39, 40, 52, 79, 84, 86, 108
 Clay-colored, 28, 52, 73, 74, 75, 87, 98, 127
 Field, 52, 79, 84, 87
 Fox, 52, 86, 97, 123
 Grasshopper, 48, 52, 87
 Harris', 32, 52, 65, 78, 79, 87, 97, 117, 123
 Henslow's, 88
 House, 2, 3, 26, 54, 65, 79, 84, 85, 127
 Ipswich, 110
 Lark, 52, 78, 87
 LeConte's, 87, 102, 127
 Lincoln's, 52, 87, 98, 100
 Savannah, 52, 87, 110-113, 117
 Sharp-tailed, 88, 102, 127
 Song, 52, 73, 74, 75, 84, 86
 Swamp, 52, 75, 86, 100
 Tree, 52, 57, 84, 85, 117, 123
 Vesper, 52, 87
 White-crowned, 42, 52, 78, 117, 123
 White-crowned (Gambelii), 52, 97
 White-throated, 12, 30, 32, 39, 40, 42, 48, 52, 78, 84, 87, 98, 100, 117, 123
- Squirrel,
 Flying, 57
 Fox, 13, 127
 Gray, 13, 57
 Red, 13
 Thirteen-lined Ground, 127
- Starling, 2, 26, 52, 65, 79, 84, 85, 97, 116
- Stenlund, Milt, Common Raven nesting in Minnesota, 66; nesting distribution of Greater Prairie Chicken and

- Sharp-tailed Grouse, map, opposite 68
- Strnad, Forest V., the Minnesota bird banders, 14-15; 48-49; Barn Owl at Kasson, 101; Swainson's Hawk nesting in Dodge County, 124
- Swallow, 76
Bank, 54, 75, 76, 87, 95, 97
Barn, 42, 52, 87, 126
Cliff, 52, 87, 97, 122
Rough-winged, 28, 42, 54, 87, 97
Tree, 41, 54, 75, 87, 122, 127
- Swan, Whistling, 76, 86, 95, 115, 120
- Swift, Chimney, 48, 49, 52, 75, 87, 122
- Tanager, Scarlet, 39, 78, 87, 97
- Teal
Blue-winged, 6, 7, 19, 21, 22, 24, 42, 50, 73, 86, 115, 120, 127
Cinnamon, 36
Green-winged, 21, 22, 24, 42, 50, 86, 96, 115
- Tern,
Black, 50, 75, 87, 100, 120
Caspian, 87, 96, 122
Common, 50, 73, 74, 75, 87, 118, 119, 122
Forster's, 76, 87
- Tester, John R., Sharptails (picture section), 16-17
- Theodore, Brother, Smith's Longspur at Bush Lake, Hennepin County, 31; Bell's Vireo extends range, 31
- Thrasher, Brown, 28, 42, 54, 73, 74, 75, 87, 97, 108, 127
- Thrush 42, 100
Gray-cheeked, 54, 77, 87
Hermit, 26, 42, 54, 87, 95, 97, 122
Swainson's, 54, 77, 87
Wood, 87, 100
- Titmouise, Tufted, 54, 81, 84, 85
- Towhee,
Rufous-sided, 52, 87, 100
Rufous-sided (arcticus), 52, 108
- Turnstone, Ruddy, 25, 87, 96, 100
- Veery, 39, 40, 46, 47, 54, 73, 87, 97
- Vireo, 78, 114, 123
Bell's, 31, 87
Blue-headed, 87
Philadelphia, 54, 88
Red-eyed, 39, 40, 46, 47, 54, 87
Solitary, 54
Warbling, 54, 74, 75, 87
Yellow-throated, 39, 54, 87, 100
- Vole,
Common Meadow, 13, 14
Prairie, 14
- Vulture, Turkey, 39, 87, 96, 120, 121
- Warbler, 49, 106, 114, 122, 123
Bay-breasted, 54, 87, 100
Black and White, 39, 54, 87, 100
Blackburnian, 39, 54, 87, 100
- Blackpoll, 54, 87
Black-throated Blue, 54, 85, 97
Black-throated Gray, 107, 108
Black-throated Green, 39, 54, 88
Blue-winged, 54, 78, 87
Canada, 54, 87, 100
Cape May, 54, 85, 97
Cerulean, 78, 87
Chestnut-sided, 39, 54, 87, 100
Connecticut, 54, 85
Golden-winged, 87
Kentucky, 88, 123, 124
MacGillivray, 49, 54, 108
Magnolia, 54, 87, 100, 127
Mourning, 39, 54, 87, 100, 127
Myrtle, 42, 54, 78, 87, 97, 116
Nashville, 39, 54, 87, 100
Orange-crowned, 54, 87, 97
Palm, 28, 42, 54, 78, 87
Parula, 39, 88
Pine, 39, 54, 87
Prothonotary, 87
Tennessee, 32, 54, 87
Wilson's, 28, 54, 87
Worm-eating, 78, 87
Yellow, 54, 73, 74, 75, 87, 127
- Warner, Dwain W., Minnesota 1960 Purple Martin colony census
- Waterthrush,
Louisiana, 87
Northern, 54, 87
- Waxwing,
Bohemian, 26, 49, 54, 56, 79, 84, 86, 97, 116
Cedar, 26, 54, 75, 84, 86, 97, 116, 122
- Whimbrel, 48, 50, 88, 96, 122
- Whip-Poor-Will, 87, 96, 127
- Widgeon,
American, 10, 21, 22, 24, 50, 63, 86, 115
European, 36, 63
- Willet, 87
- Woodcock, American, 50, 86, 96
- Woodpecker,
Black-backed Three-toed, 86, 96
Downy, 25, 26, 52, 83, 85, 100
Hairy, 25, 26, 50, 83, 85, 109
Northern Three-toed, 25, 26, 28, 64, 116
Pileated, 48, 52, 80, 83, 86, 116
Red-bellied, 11, 52, 83, 86
Red-headed, 11, 52, 83, 87, 100, 127
- Wren, 108
Bewick's, 88
Carolina, 12, 30, 48
House, 2, 3, 4, 39, 54, 74, 75, 87, 95, 97, 100
Long-billed Marsh, 6, 27, 49, 54, 87, 97
Short-billed Marsh, 6, 54, 87, 97, 102
Winter, 12, 77, 87
- Yellowlegs,
Greater, 87, 95, 96
Lesser, 41, 42, 50, 76, 86, 121
- Yellowthroat, 39, 40, 54, 73, 74, 75, 87, 100



Affiliated Clubs and Officers of the Minnesota Ornithologists' Union

Albert Lea Audubon Society

President: Loes P. Scott
514 Fountain Street
Albert Lea, Minnesota

Vice President: Helen Johnsrud
307 W. Hawthorne Street
Albert Lea, Minnesota

Secretary: Paul N. Nelson
1505 Sunset
Albert Lea, Minnesota

Treasurer: Joseph A. Janson
322 Vine
Albert Lea, Minnesota

M.O.U. Representative: Loes P. Scott

Vice President: Mrs. Myrtle M. Mahoney
5609 Pleasant Avenue
Minneapolis, Minnesota

Corresponding

Secretary: Mrs. W. H. Lonney
3116 Irving Avenue S.
Minneapolis, Minnesota

Treasurer: Mrs. W. H. Sowden
2853 Hayes Street N.E.
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Mary Lupient

Avifaunal Club

Coordinator: William R. Pieper
2702 Kentucky Avenue N.
Minneapolis, Minnesota

M.O.U. Representative: Robert B. Janssen

Minneapolis Bird Club

President: Mrs. Boyd Lien
5148 29th Avenue S.
Minneapolis, Minnesota

Vice President: Dr. Paul Eggna
Rural Route
Monticello, Minnesota

Secretary: Clara Belle Thoresen
4112 28th Avenue S.
Minneapolis, Minnesota

Treasurer: Melvin Stenrud
2930 Yosemite Avenue
Minneapolis, Minnesota

M.O.U. Representative: Mrs. Boyd M. Lien

Duluth Bird Club

President: P. B. Hofslund
Biology Department
University of Minnesota, Duluth
Duluth, Minnesota

Vice President: Gary C. Kuyava
1611 N. 7th Avenue E.
Duluth, Minnesota

Secretary: Mrs. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

Treasurer: Mr. Harvey Putnam
1407 Woodland Avenue
Duluth, Minnesota

M.O.U. Representatives: Mrs. Harvey Putnam
J. K. Bronoel

Minnesota Bird Club

President: Robert Nordgren
79 Seymour Avenue S.E.
Minneapolis, Minnesota

Vice President: Walter A. Jiracek
4420 29th Avenue S.
Minneapolis, Minnesota

Secretary: Mrs. Jane Olyphant
4000 Hidden Bay Road
St. Paul, Minnesota

Treasurer: Beth Doeringsfeld
943 17th Avenue S.E.
Minneapolis, Minnesota

M.O.U. Representative: Dr. Walter J. Breckenridge

Mankato Audubon Society

President: Helen Alder
304 N. 4th Street
Mankato, Minnesota

Vice President: Mrs. Grace Carter
422 W. 6th Street
Mankato, Minnesota

Secretary: Violet Panzram
302½ S. Front Street
Mankato, Minnesota

Treasurer: Mrs. Harvey Polchow
938 Charles Avenue
Mankato, Minnesota

M.O.U. Representative: William R. Luwe

St. Paul Audubon Society

President: Berghild M. Berntsen
312 Summit Avenue
St. Paul, Minnesota

Vice President: Ella M. Hodnett
108 Pierce Street,
St. Paul, Minnesota

Corresponding

Secretary: Harriet Sewall
1295 N. Cleveland Avenue
St. Paul, Minnesota

Treasurer: Ellen L. Manke
168 Summit Avenue
St. Paul, Minnesota

M.O.U. Representative: Joseph H. Reisinger

Minneapolis Audubon Society

President: Mrs. R. E. Whitesel
5707 Bryant Avenue
Minneapolis, Minnesota